



# Adaptation Strategies for European Cities

## *Summary Report*

This is part of the Final Report of the project "Adaptation Strategies for European Cities" which has been compiled by Ricardo-AEA for the European Commission Directorate General Climate Action



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## Adaptation Strategies for European Cities

### Summary Report



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# 1 Introduction

The EU Strategy on Adaptation to climate change <sup>1</sup> reinforced the need for stakeholders from the local, regional and national level to participate in the development and implementation of adaptation strategies. It identified that the European Commission (EC) could support the exchange of knowledge and good practice between Member States, regions, cities and other stakeholders.

Cities in Europe are major centres of economic activity, innovation and employment; over 70% of Europeans live in cities and this is likely to increase in the future. Cities are never standing still, and their future development includes demographic changes such as ageing populations and migration, technological advances, such as increasing dependence on ICT, and economic transitions. These changes may lead to increased vulnerabilities and challenges, as well as opportunities for improving quality of life, economic competitiveness, health and urban biodiversity. Climate change is an additional pressure, which may exacerbate current and future risks faced by European cities, but proactive adaptation can enhance resilience and provide additional opportunities for sustainability. The major climate challenges are impacts resulting from flooding, heatwaves, water scarcity (drought), coupled with coastal impacts for those cities in vulnerable locations. The EU Adaptation Strategy has highlighted the importance of implementing adaptation measures at city level.

Cities in Europe are starting to develop adaptation strategies or action plans, to a greater or lesser extent, often triggered by experiences of extreme weather disruption. Idealised adaptation planning processes (frameworks and guidance) are relatively widely available to support the development of such strategies. There are numerous examples of urban adaptation planning and actions, but still a lack of communication of these examples.

Against this backdrop, DG Climate Action (DG CLIMA) commissioned the pilot project “Adaptation Strategies for European Cities” (EU Cities Adapt) which has been carried out by a consortium led by Ricardo-AEA and ICLEI, including Arcadis, adelphi, University of Manchester and Alexander Ballard Ltd, over the period December 2011 – June 2013. The aims of this project were to:

- Raise awareness of the importance of preparing for climate change in cities, exchange knowledge, good practices, and develop tools and guidance for cities on adaptation;
- Provide pilot programme of capacity building and assistance, selected across Europe, in developing and implementing an adaptation strategies.

This was carried out by:

- Gaining a detailed understanding of the State of Play of the impacts, vulnerabilities and adaptation capacity in cities through a review of the literature and good practices as well as a survey of cities across Europe;
- Raising awareness of the need for cities to adapt to climate change at workshops and conferences and events organised by the project including the final project conference held as part of the Open European Day at Bonn in June 2013; and
- A pilot training and capacity building programme involving twenty one cities selected across Europe, including six “peer” cities well advanced in developing and implementing adaptation strategies and fifteen cities with a wide range of capacities for adapting to Climate change.

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<sup>1</sup> [http://ec.europa.eu/clima/policies/adaptation/what/index\\_en.htm](http://ec.europa.eu/clima/policies/adaptation/what/index_en.htm)

The aspirations for the impact of the project were viewed as three connected pillars. At its heart, the project would contribute to building **capacity**, primarily among the participating cities. This would be underpinned by (and in turn contribute to) development of relevant **knowledge** on urban vulnerabilities and adaptation. Ultimately, the project would create a **legacy** to ensure outcomes beyond the project's lifetime, both in the provision of toolkit resources and in contribution to European policy.

The main final project report and appendices can be found on the Climate-ADAPT platform<sup>2</sup>. This report summarises the main findings and recommendations identified during the study.

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<sup>2</sup> <http://climate-adapt.eea.europa.eu/en/>

## 2 Building capacity – working with the cities

### 2.1 Awareness raising

Awareness of the importance of urban adaptation was raised across Europe through engagement with many cities and city networks. Table 1 summarises the main forms of communication carried out during the project.

**Table 1: Summary of awareness raising activities**

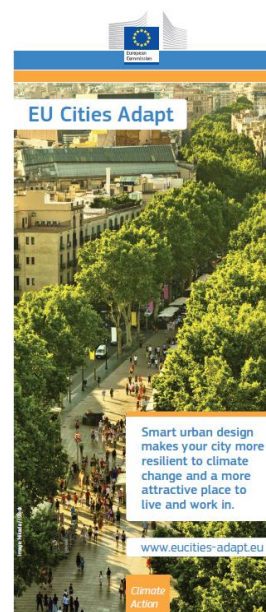
Awareness raising activity	Reach
Launch event of Climate-ADAPT platform, Copenhagen	~100 participants in Copenhagen A wider audience through the web broadcast of the event
Direct emails	Over 4,500 recipients (for initial announcement of the project) Targeted emails during project
Survey responses	196 responses from 20 Member States
Website	<ul style="list-style-type: none"> <li>• 4806 visits</li> <li>• Over 2,500 unique visitors</li> <li>• 19,499 page visits</li> </ul>
Stakeholder dialogues	<ul style="list-style-type: none"> <li>• 2 workshops</li> <li>• 70 participants</li> </ul>
Awareness raising at events and conferences	<ul style="list-style-type: none"> <li>• 17 events</li> <li>• Over 1,000 attendees</li> </ul>
Final Events <ul style="list-style-type: none"> <li>• Launch of the EU Adaptation Strategy, Brussels (Panel II: The contribution of cities to a climate resilient Europe)</li> <li>• Final conference on EU Cities Adapt, part of the Open European Day, Bonn</li> </ul>	~200 Participants  217 registered participants

We found that a combination of awareness raising activities was most successful with each channel having different benefits. In particular:

- General awareness raising could be carried using direct emails and presentations at prearranged conferences.
- Some specific feedback can be gained by using the survey. The information gained could be supplemented and built upon by asking a similar set of questions (including some of which are exactly the same to calibrate the responses periodically in the future. This could be used to track the future development of adaptation strategies by cities across Europe.
- The face to face meetings at the stakeholder dialogues clearly reached a smaller audience, were more challenging and costly to arrange but enabled a deeper understanding of the cities needs and preferences for capacity building and training from the project.



For the capacity building programme cities' preferred to be clustered in groups with similarities in regional characteristics, similarities in experienced and future climate hazards, and similarities in size of populations. They felt that this grouping would maximise their learning and exchange of good practices concerning the development of adaptation strategies. The cities also expressed their capacity development needs and emphasised their preference for city-to-city exchange on adaptation case studies and expertise on the integrated management of a holistic adaptation process. Cities stressed the need for peer-to-peer exchange where they could share not only best practices, but also identify barriers that are common within the adaptation process. Relevant themes on the development of a successful adaptation strategy were identified, including an emphasis on a step-by-step approach. This feedback informed the selection of cities their grouping and the training themes provided in the capacity building programme.



**Figure 1: Banner stands used for awareness raising activities**

## 2.2 Working with the participating cities

The participating cities were selected and clustered together in three groups each with similar climate change impacts (Figure 2)<sup>3</sup>. This provided common ground for the participating cities to share their knowledge and experiences.



**Figure 2: Cities which participated in the project**

<sup>3</sup> Rotterdam was included as the peer city for the Mediterranean Group since it is a coastal city with similar climate vulnerabilities and impacts.

Capacity building and training was carried out using a range of techniques. At the start of this phase a self-assessment tool (PACT<sup>4</sup>) was used to enable the participating cities better understand how it could help them identify their strengths and potential for improvement.

**Face to face training workshops and peer review visits** provided the city representatives with a variety of training techniques including presentations / role plays / imaginary case city /site visits to adaptation projects). The interactive approach facilitated peer to peer exchanges between participants. In particular in the first training workshop, the use of a case study for an imaginary city with similar climate change characteristics to the cities within the group provided an excellent, non-threatening, framework for the participants to engage with one another and start the communication process. It also enabled the cities to think how the concepts applied to the imaginary city could be transferred into the contexts of their own cities. This was reinforced with the site visits to adaptation practices which took place during the peer review visits.

An **Integrated Management System**<sup>5</sup> was introduced to enable the development of adaptation strategies to be mainstreamed in to City policies. This system includes places importance on: the application of knowledge gained; continuous learning; the involvement of stakeholders and agents of change in the process; a monitoring and evaluation framework.

**Coaching and mentoring** by adaptation experts who were able to visit the cities they were coaching and also provide remote coaching by telephone and email. This was particularly valued by the cities in order to provide credibility to their own activities among key stakeholders and in catalysing change to kick start the development of adaptation strategies in those cities at the beginning of the journey.

**Webinars** were useful for communicating the overall objectives of the training and capacity building phase of the project and providing training on specific themes requested by the participating cities (e.g., vulnerability assessments, green and blue infrastructure, financing adaptation). While being less interactive compared to face to face meetings, engaging participants with Q&A sessions and other types of interactive elements such as polling encouraged high attention levels throughout the webinar.

Key learning lessons from the project are that

- There is a very strong preference by cities for face to face meetings and workshops. The access to adaptation experts via the coaching and mentoring activities was a particularly useful for cities at the start of the development who were able to use this opportunity not only for learning, but also to provide additional credibility in gaining political buy-in and stakeholder engagement
- Cities have insufficient resources to fund the travel and accommodation costs and are looking to external funding (e.g., EC projects) to enable them to participate in workshops and training events.



**Figure 3 Top: One of the training workshops, below a site visit (Birmingham)**

<sup>4</sup> Pact is a self-assessment tool provided by Alexander Ballard Ltd which provides sure foundations for building adaptive climate change capacity. [PACT](#) determines and defines the actions that will help organisations plan for, resource and benchmark its capacity to respond to climate impacts and energy supply concerns.

<sup>5</sup> [www.localmanagement.eu/.../1.%20Overview%20of%20IMS.pdf](http://www.localmanagement.eu/.../1.%20Overview%20of%20IMS.pdf)

- The cities quickly built up trust and friendships with the representatives of the other cities in their groups (and outside of these during the final events), but there was insufficient time to deepen these networks to ensure that they are all long lasting.
- Some of the forms of communication were less successful and in particular there was little engagement with the forum on the website.

## 2.3 Achievements of the participating cities

The project has highlighted that there is an appetite and enthusiasm for adaptation at city level, and that cities view adaptation strongly as an opportunity to enhance sustainability and quality of life. City planners and key target groups were able to see how climate change challenges and risks can be transformed into significant opportunities. Through presenting potential no- or low-regret measures, win-win solutions and good practice examples from other European cities, political resistance to implementing adaptation measures has been reduced (e.g. in Vilnius)

The project enabled political leaders (such as Mayors or Deputy Mayors) to see the importance of climate change adaptation to the city's socio-economic development agenda. It helped to link adaptation and mitigation agendas (e.g. in Lahti) and provided vital encouragement to political leaders who are prioritising adaptation within long-term city policies and plans and who are showing commitment to implementation of adaptation (e.g. Gibraltar, Burgas, Vilnius).



**Figure 4: Provost (Mayor) of Stirling opening the Peer Review visit at Stirling**

With the knowledge and awareness gained by representatives of the local administrations during the project, and by leveraging the political support of local decision takers and leaders, an important foundation has been laid for developing adaptation strategies in cities. The adaptation strategies, planned or developed in the participating cities, are paving the way forward for sustainable businesses and society, as recognized by cities like Sfantu Gheorghe.

Key drivers at city level for action on adaptation are the links to broader policy issues including sustainable urban development and improvements to quality of life – this may be an important lever given the current economic challenges faced by many European cities. However, national and regional requirements and recommendations are essential to provide a 'policy push' to encourage the development of city level adaptation strategies so that cities are able to gain local political commitment and establish a mandate to develop an adaptation strategy, as well as justifying and building the required resources to follow this through.

At an individual city level, participation in the project provided a good starting point to initiate the thinking and discussion amongst key stakeholders on adaptation and positioned adaptation on the local government agenda for the first time in many cities (e.g. Vilnius, Zadar, Albertslund, Burgas). This was initiated by the project requirement for the city leaders to sign a declaration of commitment to the capacity building programme provided by the project. This was followed through by the formal commitment provided by European Commission backing of the project, and embodied by a comprehensive approach to capacity building. In particular, the provision of expert coaches provided many cities with the catalyst to make significant progress. Participation in the project made it possible for climate adaptation to emerge as a clear and visible theme in the policies of the city decision makers (e.g. Ghent, Lahti), to bring together both actions which are already under development and newly proposed actions by the municipalities. An initial impetus was provided to create a collective vision for climate readiness (e.g. Zadar), develop clear and consistent adaptation strategies and mainstream adaptation into high level policies, instruments and projects such



as spatial plans, green space strategies, emergency response plans, and economic development strategies (e.g. Sfantu Gheorghe).

The main final report describes the achievements made by each of the participating training cities (in Table 18 and Appendix 10d). Box 1, below shows examples of the achievements made in three of the participating cities. Recommendations for further capacity developing are provided in section 4.2.2.

**Box 1: Examples of the achievements of the cities participating in the project**

<b>Ghent (Belgium) – Northern, Northern- Central and Northern Western</b>
<p><b>Before the project:</b> Adaptation issues were on the agenda but lacked visibility and commitment among key stakeholders, particularly the politicians. Ghent wanted to accelerate the process of developing and implementing their adaptation strategy, understand the available tools to do this and learn from other cities.</p> <p><b>Project achievements:</b></p> <ul style="list-style-type: none"> <li>• The cross-departmental working group became a real ambassador for climate adaptation within the city organization of Ghent: they see their role and look for ways to integrate climate adaptation in their policies, instruments and projects</li> <li>• Climate adaptation was introduced as a new topic on the agenda, just in time to have it picked up in the “strategic and financial planning for the current legislation period (BBC 2013-2018)” currently taking place</li> <li>• Climate adaptation measures (with a focus on integrated water management) were implemented in the local building legislation by January 2013.</li> <li>• An extensive study on the urban heat island effect and heat stress for Ghent was carried out, in cooperation with the Flemish Institute for Technological Research and the University of Ghent</li> </ul> <p><b>Documents produced:</b></p> <ul style="list-style-type: none"> <li>• Vision for a climate proof Ghent by 2030, but targets by 2018 was produced.</li> <li>• Draft Adaptation Strategy outline alongside short term (2013) and Mid-term (2014-2018) milestones prepared and signed off by all Adaptation Working Group members.</li> </ul>
<b>Sfantu Gheorghe (Romania) – Southern Central Europe (Landlocked)</b>
<p><b>Before the project:</b> There was political understanding of the possible impacts of climate change, but there was a need to move adaptation up the agenda compared to shorter term priority issues including the migration of the working population to Sfantu Gheorghe and an increasingly ageing population.</p> <p><b>Project Achievements:</b></p> <ul style="list-style-type: none"> <li>• Established working group to establish adaptation strategy, wherein most relevant departments within city authority participate.</li> <li>• Identified climate risks in city and possible adaptation measures.</li> <li>• Vice Mayor attended all meetings with working group</li> <li>• Engaged External Stakeholders including NGOs, drinking water company and urban planning bureau.</li> </ul> <p><b>Documents produced:</b></p> <ul style="list-style-type: none"> <li>• Draft Adaptation Strategy</li> </ul>
<b>Gibraltar (UK) – Mediterranean Europe</b>
<p><b>Before the project:</b> There was a high level of commitment to environmental issues amongst the current (recently elected) administration but climate change adaptation has not been widely considered and they wanted this project to kick start this thinking.</p> <p><b>Project Achievements:</b></p> <ul style="list-style-type: none"> <li>• Gained on-going political commitment to establish working group and develop adaptation strategy from Minister.</li> <li>• Minister involved in each coaching visit and the peer review workshop that Gibraltar hosted for the Mediterranean cities group.</li> <li>• Identified vulnerable urban systems and critical infrastructure.</li> <li>• Adaptation Working Group together identified Gibraltar’s strengths, weaknesses, opportunities and threats.</li> <li>• Electronic central library for the collation of relevant resources was set up across the different organisations.</li> </ul> <p><b>Documents produced:</b></p> <ul style="list-style-type: none"> <li>• Mission statement, setting out the purpose of the groups, agreed and signed by all members of the Adaptation Working Group.</li> <li>• Department of the Environment sent out a data request template for each Adaptation Working Group member to complete.</li> <li>• GIS map of the identified vulnerable areas and critical infrastructure was developed.</li> <li>• Vision document for a Climate Resilient Gibraltar prepared and signed off by all Adaptation Working Group members and Minister for the Environment and Health.</li> <li>• Case study for communicating climate risk drafted.</li> </ul>

## 3 Developing Knowledge – emerging themes

The engagement and training phases of the project were underpinned by work to develop the relevant knowledge base, through an assessment of climate change vulnerabilities, risks and adaptation in European cities and urban areas. A number of reviews of both academic and 'grey' literature delivered an improved understanding of the state of play of urban adaptation in Europe, from the risks and vulnerabilities through to strategies and options in practice<sup>6</sup>. This was enhanced by a survey of European cities (to which 196 responses were received). The work was undertaken in parallel to the development of the EU Adaptation Strategy and was therefore tailored to support the policy assessment needs of DG CLIMA, as well as providing foundational material for interaction with the participating cities. Feedback from the engagement and interactions with participating cities has shaped and prioritised themes emerging from the knowledge reviews.

The main hazards posed by climate change (heatwaves, flooding, water scarcity and coastal impacts) are known, and some have been experienced by cities across Europe already. Climate change hazards, vulnerabilities and impacts show strong spatial variation across Europe. While detailed information on projected climate hazards is available at the pan-European scale, city-scale climate hazard data is sporadic, and where it does exist for European cities it tends to be the product of either a research enquiry or a municipal planning process. Multiple pressures are already faced by cities, and this exacerbates their vulnerability to climate hazards. Effective adaptation should therefore fit in with solutions that address other urban challenges, and adaptation may in some cases present additional opportunities or benefits for broader advances in sustainability and quality of life. The experience of climate risks and therefore the context for urban adaptation can be considered as a three-dimensional framework, which identifies physical climate risks and impacts, the vulnerability characteristics of the city and the city's adaptive capacity.

Responses to the project survey confirmed that the most commonly experienced extreme events in European cities are periods of very hot weather or heat waves (81% of cities surveyed), flooding from heavy rainfall (78% of cities surveyed), and storms (69% of cities surveyed). As cities look ahead to the way in which climate change may affect their experience of extreme events in the future, responses to the survey showed that they are expecting an increase in periods of very hot weather or heat waves, an increase in flooding from heavy rainfall over the next 30 years, and periods of reduced water availability, scarcity or drought.

### 3.1 Current adaptive capacity in cities

Adaptive capacity is not precisely defined, and cannot be easily measured. A working understanding of adaptive capacity recognises a number of critical components (the dimensions of awareness, ability and action) and contexts (organisational, structural and framework capacities). The datasets which are collected at the city level across Europe are limited both in coverage (i.e. relatively few of Europe's cities and towns are included) and in

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<sup>6</sup> Technical reports on the literature review, good practice reviews and survey, as well as the overarching State of Play report were provided as Appendices to the main project Final Report. They are available as documents to download from the project website (<http://eucities-adapt.eu>) and in due course may be transferred to Climate-ADAPT.

relevance to different aspects of adaptation. It is therefore currently very difficult to be sure about the big picture of adaptive capacity in European cities. Based on the results from this project, it seems that more than three-quarters of European cities have, as yet, done little or nothing to prepare for climate change.

We found that the capacity for cities to develop and implement adaptation strategies ranged from those considered to be very advanced in climate change adaptation (for example Copenhagen or Rotterdam) to those that described themselves as beginners (e.g. Zadar or Vilnius). Specifically:

- The great majority of European cities (significantly in excess of 90%) have insufficient capacity to take long-lasting and potentially climate-impacted decisions with confidence that important economic, social and ecological objectives will be achieved. Most cities take many such decisions, which therefore present a significant risk until the capacity gap is closed.
- In around 77% of cities, the capacity gap is sufficiently wide that autonomous improvements are extremely unlikely to close it sufficiently quickly: considerable support is likely to be needed.
- A few rare cities, however, have very high capacity and there is a small but important nucleus of others that could approach these levels quite quickly (i.e. within two years) if given appropriate focused support. This could provide a potentially vital resource to support capacity building both within and between cities.
- Capacity-raising is therefore an appropriate and important goal for policymakers at all administrative levels involved in responses to climate change. The nature of the support that is required will vary by country (depending for instance on the status of national adaptation programmes), as well as by the internal capacity of the cities themselves.

The North West – South East divide in Europe in the level of climate change adaptation remains, with the North West leading the way.

The triggers for starting the adaptation process varied. A significant number of cities started their adaptation planning as a result of experiencing a major climate- or weather-related event, such as for example the 2011 cloud burst in Copenhagen.

However cities should not wait for extreme weather events to happen to kick-start adaptation planning, since these events often result in significant economic and social losses, which could be minimised through proactive adaptation action. Many cities cited EU-funded projects as important triggers for action including this EU Cities Adapt project, LIFE+ and INTERREG projects, such as Green and Blue Space Adaptation for Urban Areas and Eco Towns. EU funding was seen a catalyst for starting work on adaptation, without needing or receiving input from the national level.

Irrespective of the starting point, cities agreed that maintaining momentum is more difficult. In particular, progressing from the initial adaptation action plans to selecting and implementing adaptation actions is challenging due to the limited worked examples of implementation; uncertainty of what a 'successful' adaptation looks like and the absence of assessment procedures allowing the financial evaluation of the feasibility of the adaptation options. Furthermore, since adaptation measures are cross cutting it is vital to build adaptation policies and strategies into the overall and departmental policies and strategies of the municipal authorities: mainstreaming.

## 3.2 Barriers and opportunities for adaptation in European cities

A range of drivers appear to motivate cities to act on adaptation. These can include a 'policy push' from national and regional requirements or recommendations to encourage the



development of city level adaptation strategies. However, overwhelmingly, cities link adaptation to other urban policies and pressures, particularly economic development and regeneration, and improvements to quality of life. Further support for cities in developing adaptation strategies should recognise these links between adaptation and other social, economic and environmental objectives. Geographical differences in adaptive capacity (with cities in the north and west of Europe generally having higher levels of adaptive capacity than those in the south and east) imply that regionally-tailored programmes to enhance adaptive capacity may be most effective to address specific needs and contexts.

A strong evidence base was seen as very important to convince the city authorities to identify the local challenges posed by the changing climate, as they vary from city to city. However, it was observed that for many cities there is still limited availability of evidence for climate change at the local level. Data on issues relating to social vulnerability is more readily available at this level than data relating to climate change and its impacts. Furthermore, data is not equal to information: interpretation of data is needed to provide information on the climate change impacts, the city's vulnerabilities and the required adaptation actions, which may be challenging.

Whilst the uncertainty of climate projections is often discussed in scientific circles, the cities did not see scientific uncertainty as an important factor stopping them from implementing climate adaptation; the understanding of trends is more important than the actual numbers. They were of the opinion that cities should “work with what you have”, rather than wait for the data that would be optimal to be collected or processed. Nonetheless, due to the uncertainty some flexibility in plans is required to take account of the uncertainty of the future climate.

Cities need to prepare, proportionately, for all climate impacts that may occur in a given place, not just those that have been experienced so far, even though they may be easier to understand and communicate and get political buy-in for.

The use of Geographical Information Systems (GIS) allows for a comprehensive analysis of environmental, social and economic factors. Effective modelling and visualisation of data is a powerful tool for communicating risks and engaging stakeholders and local communities. It also can help to secure political buy-in by presenting the extent of area or communities potentially at risk.

### 3.3 Guidance

A rich array of tools, support and guidance to enhance adaptive capacity and support adaptation planning is now available across Europe, much of this relevant to cities at various stages on their adaptation journey. It is difficult to identify from the outside which of these tools will be most relevant to individual cities as this will also depend on the local context, but Climate-ADAPT provides an appropriate platform to support dissemination and use of these tools. However, cities perceive a lack of targeted guidance on adaptation planning and implementation, and communicate an urgent need for guidelines on adaptation at local level. The support, resources and tools provided by European projects such as EU Cities Adapt are helpful.

With regards to international exchanges of knowledge, language is problematic: most of the existing guidance, including that on the Climate-ADAPT website, is in English. More information is needed in other national languages.

The range of different standards available to cities on sustainable development issues can be confusing. Standards are often generic as well as adaptable, and can help to orientate cities even if they are not applied fully. However, the currently existing standards relate to broad sustainability issues rather than to adaptation specifically.

### 3.4 Funding adaptive actions

Adaptation should not be seen as a cost, but as an investment in the future of cities. However, this view is not necessarily shared by local political decision makers, who tend to be more interested in the immediate monetary costs and benefits.

There is a considerable time lag on the return on the investment into adaptive actions, estimated by some as 20-30 years. The on-going difficult economic situation in Europe means that budget cuts at the local level limit the possibilities of front-loading investment. In addition, short-term spending for long-term liveability of cities is a tricky political subject due to political cadences not exceeding 5 years in most cases.

What makes it more difficult is the absence of worked, credible financial assessment frameworks which would allow cost and benefit analysis of adaptation measures; there is no framework for calculation of avoided cost. Some cities use monetary arguments to convince their politicians.

So far, the city level adaptation strategies have arisen through different opportunities, but a large proportion has been developed in the context of EU-funded projects and/or city networks. Strategies have taken a variety of different approaches. There is no common structure or set of components, although we identify that policy statements and/or aims and objectives at the beginning of the document set a clear focus for the strategy and demonstrate a high level of political buy-in, thus enhancing awareness and acceptance within the city administration and the public. In addition, stakeholder involvement and participation early on in the process assists in shaping the evidence base and defining adaptation actions. Cost-benefit analyses of adaptation actions have rarely been included in city level adaptation strategies to date, perhaps because of the complexity of such an analysis and/or the lack of reliable data. The aspect of monitoring and review has also received very little attention to date.

The European funding provides an extremely valuable contribution to cities' adaptation budgets. However, the funding is predominantly project based and runs out after the project completion date. The lack of continuous funding is an obstacle to implementation of strategies which are being developed during projects. It was agreed that it is important to go beyond the projects' scope but this is when the money usually runs out.

### 3.5 Political commitment

Political buy-in was seen as even more important to successful planning and implementation of adaptive actions than funding. The main difficulty in persuading the local politicians to get on board was to convince them of the existing risks and the financial feasibility of the adaptation measures. It was noted that the nature of short term political cycles means that local politicians are less motivated to act and they are gambling on disasters not occurring. Ultimately, over the medium to long term, the cost of inaction will be greater than the cost of action, and the politicians should be persuaded of this.

The use of experts from outside the city council can help to communicate the importance of climate change risks and the necessity to adapt. Peer pressure from other cities, for example through involvement in EU-funded projects focused on climate change adaptation, can appeal to the competitive nature of those in charge and promote adaptive action.

Some cities observed that adaptation may actually be easier to 'sell' to local politicians – whilst climate change mitigation is a global issue, climate change impacts occur locally and adaptation can bring immediate local benefits. Presenting adaptation as a means to protect important heritage or landmarks could be persuasive. However, it may be equally effective to present adaptation as an opportunity for the city to provide a liveable, attractive environment.

One way to strengthen this way of communication with politicians is to remove adaptation from the narrow confines of an environmental issue led by environment departments and to

reframe it as a contribution to hot political issues such as addressing strategic risks, improving public health or raising the economic competitiveness of the city.

### 3.6 Mainstreaming and reframing adaptation

One approach to the implementation of the adaptive actions was through mainstreaming adaptation into daily activities. Small actions can contribute to achieving the ultimate aim of a well-adapted city. There was a wide agreement that, following the mainstreaming approach, adaptive actions should be integrated into the development and improvement of urban infrastructure.

In order to be better understood or taken up by the local decision-makers, adaptation can be reframed, under many different themes. Adaptation may be seen as more important if climate change is treated as a strategic risk that must be addressed.

Community resilience was identified as an associated umbrella concept that could promote adaptation to climate change and keep it high on the political agenda. It was observed that risks such as terrorism, then pandemics rank higher than climate change risk, and that promoting resilience of communities to different shocks may allow for a more holistic approach rather than focusing on the largely environmental theme of adaptation. The resilience concept can be applied to infrastructure or communities. Boosting social capital can be a factor preventing major life, health and social losses during extreme weather events, but more work is needed on the measurements of social capital. Resilience can also be understood in the context of security of food supply and transport routes. Thus the goal of increasing resilience encourages looking outside a city's boundaries for potential sources of risks and adaptive solutions and promotes working with other local authorities or stakeholders beyond the administrative boundaries.

Improved health and well-being of local residents was seen as a very important, if not the main, co-benefit of adaptation. Thus, public health is another umbrella term that could be used to gain support for short-term investment for long-term goals. The fact that climate change is framed as a health issue by an international organisation such as WHO is important in persuading politicians of the importance of taking action.

Adaptation could also be reframed as an opportunity to improve the economic competitiveness of the city by making it more attractive to investment: more resilient in the long term, more liveable and greener in the short term. Attractive cities have a higher potential to bring in highly qualified workers; and it was observed that for economic activity "non-action will cost more the longer it goes on". For example, in Copenhagen, the use of green and blue spaces for adaptation is justified with the improvements of attractiveness of the city, and making it more liveable for the residents, under a headline of "adaptation as a possibility not as a cost". The understanding of the participants was that for the politicians, the question "why would we not make ourselves more competitive?" is a rhetorical one. It was highlighted in the closing session that the association between adaptation and economic competitiveness of cities could be one of the themes discussed at an Open Day in 2014.

In line with the need for the comprehensive approach to adaptation, cross-sectoral approaches were emphasised, which called for engaging all relevant departments within the city council on adaptation. One particularly important department, frequently not sufficiently engaged in adaptation was spatial planning. It was emphasised that cities need to be planned and designed in a way that is conducive to sustainable and resilient lifestyle, which falls into the remit of planning. In addition many of the adaptation responses are based around green and blue infrastructure and the ecosystem services that they deliver. Consistent green and blue frameworks can only be delivered through spatial planning.

### 3.7 Multi-level governance

Cities are affected by a large number of policies both directly and indirectly. The principle of mainstreaming adaptation across a wide range of policy areas is key to ensure that adaptation strategies can be implemented at city level. At Member State level, not all countries have national climate change adaptation strategies, which may hinder the development of adaptation plans at lower spatial and/or administrative levels. In other countries, while there may be regulations at the national level for larger municipalities to develop adaptation plans, such regulations may not be strongly enforced. Adaptation remains a new policy area for many city administrations in Europe.

National level was recognised as very important in multi-level governance of adaptation. However, it was observed that detailed regulatory frameworks at the national level tend to impose additional requirements on urban authorities that are not followed by funding.

The National Adaptation Strategies (NAS) are envisaged as the main regulating mechanisms at the national level. However some tend to have certain deficiencies which limit their value as the main regulatory framework for cities. They tend to focus on broad issues on the national level, rather than delve into local issues and they may omit urban issues and focus overtly on sectoral challenges. Also, it is not clear how NAS relate to regional and local level adaptation strategies; frequently there is a lack of consistency between the levels. Bringing the representatives of the regional and national institutions into the adaptation working group at the city level in order to improve communication and resolve the issue of unclear responsibilities attached to each level might be recommended.

On the other hand, where national adaptation strategies or other relevant frameworks are not in place, cities are working in a regulatory void. This may mean absence of coordination of the activities of different cities, even resulting in maladaptation. In some situations the national level is bypassed by local authorities who take the guidance directly from the EU level.

### 3.8 Engaging with stakeholders

There are issues relating to the unclear division of responsibility for adaptation actions or financing adaptation, prevalent in multi-stakeholder contexts. Further, private sector may be able to provide the funding missing from the public sector. It was recognised that private sector companies are important landowners in cities, and this land may need to be used for adaptation, e.g. sustainable urban drainage systems. Water management and drainage companies were particularly important stakeholders in the context of flood risk, especially as the water management plans were recognised as one potential trigger for starting the adaptation process. The early and frequent engagement with the private sector was seen as one of the means to ensure successful collaborations. Also academia and research institutes are perceived as important stakeholders.

City residents and local communities need to be engaged on adaptation, but the nature of their involvement was debated. For example, consultation on issues that the communities may not have answers for was considered counterproductive. The urban residents' awareness of climate change impacts and the need to act was seen as crucial. However, the risks need to be communicated in a sensitive manner; the use of GIS was considered effective in communication, as was social networking and the use of external experts or organisations to deliver the message in an effective manner. Using terms like 'adaptation' may be a barrier; in contrast, using local terms, or particular local projects as examples was considered good practice.

Based on the opinions of the participants, the report lists possible actions for local authorities, national governments, European Commission and the European Environment Agency, research institutions and other organisations that would progress the urban adaptation agenda in European cities.

## 3.9 Knowledge gaps

### 3.9.1.1 *Spatial data at the city scale*

Available data and reports provide a basis to make broad statements about the future climate of Europe and the spatial variability of climate hazards at this scale. For example, it appears that a city in the Mediterranean is more likely to be exposed to extreme temperatures in the summer months than a city in north-western Europe. Similarly, a city in north-western Europe appears more likely to suffer from winter flooding or localised surface water flooding from high intensity rainfall events than a city in the Mediterranean.

Beyond this, drawing on publically available data sets, it is difficult for cities to make more locally-specific statements about the climate change hazards that they face. This issue is made more complex by the fact that exposure and sensitivity to climate change hazards differ at a fine scale within a city. There is a role for European agencies and organisations to support the development of more comprehensive city-scale spatial data sets on issues linked to climate change hazards and the exposure and sensitivity of European cities to these hazards. This would provide a stronger basis for the development of targeted adaptation responses at the city-scale.

### 3.9.1.2 *From cities' perspectives*

The top knowledge or capacity need in the cities surveyed in this project was help with developing adaptation options (63%). The other types of knowledge / capacity requiring training and development include:

- Implementing adaptation measures (58%)
- Involving the community (56%)
- Assessing impacts (55%)
- Prioritising risks (52%)
- Creating organisational support (44%)
- Knowledge on climate impacts (49%)
- Communicating climate change (37%)
- Understanding of climate change (31%).

The review of 'early mover' adaptation strategies identified the following areas as gaps or areas where there was a lack of knowledge and data:

- A clear allocation of responsibilities (relevant city departments; stakeholders at the city, district and neighbourhood level) and timelines facilitates the implementation as well as the process of monitoring adaptation actions, however, the latter two aspects were not well adopted among the selected early mover cities. Adaptation actions were usually presented in a list or table at the end of the document. Sometimes the actions were assigned different levels of priority or labelled important for short and long-term respectively but this was not done consistently.
- Cost-benefit analyses of adaptation actions were rarely conducted and thus not included in the strategies. Reasons could be the complexity of such an analysis and/or the lack of reliable data.
- Adaptation actions are diverse and vary among the eight early mover cities. However, three general clusters regarding adaptation actions could be identified: research and increase of knowledge; public communication and awareness raising; and urban planning (including construction measures, change of standards/procedures or the preparation of other strategies and plans, e.g. a heat wave plan). Regarding urban planning, there seems to be a consensus that the protection, modification and increase of green and blue infrastructures have great potential to reduce multiple risks.



## 4 Creating the Legacy – embedding adaptation in European Cities

This section draws together the legacies of the project and the recommended actions identified throughout the project to ensure that adaptation strategies are developed further and embedded into municipal policies so as to increase Europe's resilience to climate change.

### 4.1 Project Legacy

As well as the progress that the participating training cities made in initiating and developing their adaptation strategies and the networks formed during the project the legacies of the project are contained in the tool kit and final deliverables which are described in this section.

#### 4.1.1 Toolkit

A toolkit to help city authorities develop adaptation strategies was a key legacy of the project. Throughout the project a variety of tools were identified and used for capacity building within the participating cities. We found that there are already a wide variety of existing tools and resources that can be applied in the city context. So, rather than developing new tools, we developed a toolkit which will provide a framework to enhance the Adaptation Support Tool as well as tools already available through Climate-ADAPT. This provides a more detailed structure for practitioners at city level to follow and additional resources for them to use. In particular, since cities are all at different stages of development and need to address differing adaptation issues the tool provides direction to guidance, resources and cases studies for the stage they are at or moving towards.

#### 4.1.2 Ongoing networking

Two different events, with different target groups, were organised to disseminate results from this project, and to open up discussion and sharing of experience among wider audiences, including a number of cities which had not been direct participants in the project:

1. A panel session at the Launch Event of the EU Adaptation Strategy, carried out on 29 April 2013 at the Commission's Charlemagne Building in Brussels addressing political aspects of adaptation in cities.
2. The final conference formed an Open European Day, adjacent to the Bonn Resilient Cities Conference, on 3 June 2013 addressing the technical and practical aspects of adaptation in cities.

Section 5.1 of the main report provides full descriptions of these events, but we observed that:

- Cities need to be engaged as they are the driving force for adaptation to climate change, via the Covenant of Mayors. They need support in the closure of knowledge gaps, encouraging leadership and strengthening coordination and collaboration.
- Cities need to be assisted in the field of knowledge and good practice exchange, provided with financial support to take sound measures on the regional and local level and involve citizens to ensure acceptance.
- Urban adaptation strategies need to be developed in a comprehensive way, taking a holistic, integrative and ecosystem approach to ensure a strategic response.



Some of the most notable outcomes of the project observed at these events were:

- The results are already very useful for issues like knowledge sharing and exchange of good practices between cities.
- Cities are keen to make use of relevant and appropriate tools which can assist in the development of their adaptation strategies.
- Even though the knowledge basis is often sufficient, political leadership to take decisions is lacking.
- Adaptation needs to be anchored in city authority processes and planning.

Significantly, the peer review visits also provided a good basis from which to build longer-lasting inter-city cooperation. For example, Lahti has committed to follow up and engage with Finnish cities Helsinki and Turku until the end of 2014, and the cities of Alba and Padova have joined a partnership that wishes to replicate the EU Cities Adapt approach for Italian cities. This demonstrates that cities see projects and initiatives from the EC as important catalysts for long lasting change. Furthermore we understand that several cities introduced to each other during this project have continued in bilateral engagement (e.g. Gibraltar and Barcelona)

#### 4.1.3 Final Deliverables

The final reports of the project are accessible from the Climate-ADAPT website. This includes the [main report](#) which contains more details on the methodology and outcomes of the project as well as a full list of the conclusions and recommendations. This is accompanied by a set of appendices which provide additional detail on specific activities of the project. The appendices include:

- The results from the knowledge review on impacts, risks and vulnerabilities of cities to climate change ([Appendix 1](#))
- The results of the survey and the survey questions ([Appendix 2](#))
- The development of a typology to characterising cities according to the vulnerabilities risks and potential impacts from climate change ([Appendix 3](#))
- A review of the adaptation strategies - providing a detailed assessment of information on adaptation at the city level in Europe by analysing adaptation strategies from early mover cities ([Appendix 4](#))
- A review of adaptation options and measures – which contributes to the assessment of the state of play of adaptation at city level within Europe, and provided useful information for the development of training material ([Appendix 5](#))
- Review of tools and guidance which provided a stock-take of the range and nature of existing tools and guidance for adaptation and provided a short list of tools appropriate for developing adaptation strategies at city level. ([Appendix 6](#))
- State of play report which provides a synthesis of our findings of the climate changes on the impacts, vulnerabilities and adaptation needs of cities in Europe ([Appendix 7](#))
- Stakeholder dialogues – provides a concise analysis of the observations and discussion outcomes of the stakeholder dialogues held Aalborg and Ancona during the awareness raising phase of the project. ([Appendix 8](#))
- PACT and survey analysis report – which provides a review of cities capacity to develop and implement long lasting adaptation strategies drawing on the self-assessments carried out by the twenty one cities participating in this project and the wider survey results ([Appendix 9](#))
- Training and capacity building ([Appendix 10](#)) comprising reports on the initial workshops ([Appendix 10a](#)) , coaching and mentoring of the cities ([Appendix 10b](#)), peer review visits ([Appendix 10c](#)) and reports from the training cities and their coaches ([Appendix 10d](#))
- Conference report - which draws together the conclusions and recommendations from the final project conference ([Appendix 11](#))

- Toolkit Report – which provides an overview of the framework, the individual steps for cities to follow to build their resilience to climate change, guidance to further reading and case studies, as well as recommendations for how this material should be incorporated into Climate-ADAPT. ([Appendix 12](#))

## 4.2 Recommendations

The following sections draw together the main recommendations identified during the study.

### 4.2.1 Multi-level governance for urban adaptation

Discussions among cities at this project's events reinforced the necessity for urban adaptation to be progressed at all levels of government. Cities perceive value in the EU establishing a multi-level governance framework and leading the agenda on adaptation. The interplay between the EU level and the role of Member States still needs further consideration to result in a clear delineation of tasks and responsibilities within this framework.

**The critical role for the European Commission remains that of setting coherent frameworks, with appropriate supporting activities such as knowledge development, while Member States provide the legal basis and standards for urban adaptation and organise knowledge transfer to cities in-country.** Much of this is provided for in the EU Adaptation Strategy, and may begin to take effect during the implementation phase. There is increasing recognition that policies and regulations set at EU or national levels in multiple sectors can either promote or conflict with the adaptation agenda at city level. Equally, this policy framework has the potential to create the enabling conditions for both national and local level adaptation.

Some specific recommendations for governance at the EU level include:

- Progress the adaptation mainstreaming agenda across all EU policy areas to ensure consistent adaptation messages and drivers in multiple policies and sectors affecting the city level.
- Guidelines for Member State National Adaptation Strategies should reference and highlight the need to provide support for and encourage adaptation at city level.
- Continue to engage cities, or city networks, in the development and implementation of related EU policy.
- Provide for facilitation of knowledge and experience exchange at EU level
- Use EU reputation and reach out to support political commitment at local level
- Provide guidance on coherent adaptation management
- Provide technical assistance to access funding
- Ensure a pan-European knowledge base accessible to all EU cities

There was significant recognition of the role that the EU can play in adaptation at city level. In particular, a number of participating cities told us that this project had been a catalyst in initiating the recognition and development of an adaptation strategy. It provided a breakthrough in engaging with stakeholders and gaining political commitment.

### 4.2.2 Capacity development in cities

**The European Commission with the European Environment Agency, and Member States, should continue to support capacity development at city level within Member States.** This could be offered through a coherent, comprehensive programme of training, coaching and peer-to-peer learning to be applied within and across countries.

Cities are not a homogeneous group: different cities face contrasting and in some cases complementary adaptation challenges depending on factors including their geographic location and socio-economic characteristics. A flexible, multi-dimensional approach to

adaptation is required which engages all appropriate stakeholders so that training and capacity development processes can be tailored to the specific contexts of the cities.

A combination of different methods within a professional capacity development programme was successful in progressing the development of all cities participating in the project. We found that:

- The development of personal and trusting relationships is key to developing a successful capacity building programme and even in the digital age this is still most effectively done by face to face meetings and workshops
- The acceptance and use of remote forms of training are best employed following the establishment of these relationships.
- Remote forms of coaching were successful where they focussed either personally (e.g. coaches working with the cities) or on technical subjects of interest to the cities (e.g. the webinars on specific technical issues)
- Even the most developed cities benefitted from the peer exchanges.

**In future programmes of support for city adaptation, the European Commission should promote peer approaches to knowledge exchange and capacity building** enabling cities to learn from one another. This might include the encouragement of regional clusters of cities facing similar hazards from future climate change beyond Member States. The project demonstrated that training groups arranged by clustering cities with similar climate hazards, local characteristics and populations are effective for exchange and knowledge sharing. Pragmatic approaches to grouping participant cities according to climate hazards, rather than complex selection criteria and typologies, are recommended for future programmes.

To gain (and give) maximum benefit, cities need to show a high level of engagement, be willing to work together to share knowledge and participate in peer exchanges, to maintain momentum and learn from good practices. It is our experience that while cities are keen to engage with one another they need funding to assist with the travel costs associated with attending conferences and meetings.

**Different approaches to capacity developing and training will be required, depending on the level of capacity of cities to develop and implement adaptation strategies.**

Moving cities from inaction to initial action requires different types of intervention (e.g. incentives or penalties) than sustaining actions (e.g. through guidance and regulation). The use of standards can also play a valuable role in bringing slightly more advanced programmes to the cusp of breakthrough innovation. For example:

- Cities with a low capacity need to be directed to raise awareness of the requirements to adapt to climate change and provided with the basic tools to carry out risk, vulnerability and impact assessments in order to understand the issues that they may face.
- Cities with medium capacity, who understand the need to develop and implement adaptation strategies may well benefit from peer exchanges with cities facing similar hazards and impacts in order to share best practices.
- Cities with the highest capacity are still able to identify areas where they can improve and may be able to assist in the development of regional and national frameworks for adaptation.
- Cities with the highest capacity levels should be encouraged to share their practices with other cities and assist in the development of national and regional frameworks for adaptation to climate change.

**Future capacity development programmes should allow sufficient timescales for strong peer-to-peer and city-to-coach relationships to form, consistent with the timescales of local administrations.** This may be 1-3 years. Even after this, experiences suggest that it is necessary to continue to maintain appropriate programmes in order to

maintain the momentum through to the implementation, monitoring and evaluation stages in order to ensure complete follow through of adaptation measures.

**The European Commission (in particular DG CLIMA) and Member States should focus on building capacity in second tier and smaller cities, where capacity is currently very low. It should also selectively support adaptation measures where the potential risks from climate change may be larger (in absolute terms).**

We have confirmed that there is a wide variation in the capacity of European cities to adapt to climate change. The great majority have insufficient capacity to make long lasting change. In general it seems that the largest cities have made most progress in adaptation. This may be due to economies of scale (large dense population), greater resources (financial, administrative and educational), greater vulnerability / impact (e.g. megacities are often situated on the coast or river basins, have much larger assets at risk, and there may be a larger impact on the surrounding region).

**There may be some geographic distinctions in the nature and emphasis of capacity development programmes for urban adaptation in different parts of Europe.** Awareness-raising activities are particularly needed in Southern and Eastern regions, where approaches that incentivise local government to tackle climate change should also be targeted. It may also be appropriate to make more direct investment of funds for adaptation in these regions. Initiatives which promote bottom-up action by cities on adaptation are more appropriate in the North-western regions, where commitment, knowledge and wealth are already higher. However, specific local interventions should always be based on analysis of needs at the city level.

#### 4.2.3 Knowledge development

**The European Commission, Member States, Cities and European Environment Agency should provide resources and coordinated action for research to fill existing knowledge gaps in urban impacts and adaptation.**

While there is a wide range of existing research, data, information and resources available to support the adaptation agenda in European cities, there are still a number of knowledge gaps which can present a barrier to cities keen to progress in adaptation. Some of these topics require knowledge generation and sharing across the social and political sciences, as well as environmental science and economics. These include:

- Regional projections on impacts and vulnerabilities, alongside global and European information.
- Climate change data at the city scale and locally-specific information on climate change impacts and vulnerabilities.
- Research linking climate change with societal and spatial patterns and future scenarios.
- Pan-European data on adaptive capacity at city level are completely lacking.
- Indicators of urban vulnerability to identify regions and cities facing similar climate impacts, as well as hotspots for adaptation.
- Performance indicators or other benchmarks for measuring progress in adaptation in urban areas, or by city authorities.
- Costs and benefits of urban adaptation options would be helpful for stakeholders building the case for action.
- International implications of climate change for European cities, for example disruption to food supplies, population movements.

**Cities should consider commissioning research from local universities and research institutes in order to meet needs for more locally-specific climate hazard and impact information to support development of adaptation strategies.**

The European Environment Agency, supported by the European Commission (DG CLIMA, DG REGIO, DG RESEARCH) and Member States should consider organising a workshop to establish and prioritise a coordinated research agenda to support urban adaptation and to identify the most appropriate future research funding options (e.g. Horizon2020). Research projects which involve city-level stakeholders in their design and implementation, and which involve multiple cities, can enhance peer learning, exchange of experience and good practice, while also addressing knowledge gaps in immediately applicable ways.

The project exposed a number of pressing needs for **improved data collection and analysis** relevant to both the development of adaptation strategies in cities, and the development of EU policy including allocation of EU funds to support adaptation. **The European Commission** should:

- Explore with **Member States, and with Eurostat**, the potential for better and wider reporting of relevant city level data (include a review of the Urban Audit and the plans for the DG REGIO EVDAB update) to support assessments of impacts, vulnerabilities, hazards, etc. .
- Explore with the **EEA and ESPON, alongside JRC**, the potential for improved data development for urban adaptation, and joint design of relevant projects which could be included on Climate-ADAPT.
- Consider the inclusion of some degree of urban adaptation data collection under the proposals for the Monitoring Mechanism Regulation.

**Of immediate priority for many cities is the need to carry out risk and vulnerability assessments to understand the impacts they may face due to climate change.** In some cases the main driver to initiate the development of adaptation strategies is the experience of an extreme weather event which may incur significant economic and social costs.

#### 4.2.4 Sharing knowledge and experience

**The European Environment Agency should continue to encourage the use of Climate-ADAPT to enhance the visibility of, and access to, existing research, data and guidance relevant to urban adaptation.**

In addition to research gaps, participating cities also identified needs for further advice or improved access to information to support the development of their adaptation strategies, in a range of sub-themes including local frameworks and governance, achieving political buy-in, financing mechanisms, cost and benefit analyses, options appraisal and data management. Specific needs evolve over the course of the adaptation process, as the focus switches from vulnerability assessment and strategy development to implementation of the strategy and related measures. Relevant resources, case studies and tools exist and may be effectively shared via enhancement of urban pages on Climate-ADAPT.

**Cities are recommended to take advantage of the specific opportunities that exist at EU level to access support, engagement and potentially funding to enhance urban adaptation. The European Commission and Member States should continue to improve access to such opportunities for cities.** Examples include:

- Exploiting both the new climate-proofing element in urban emphasis and the new adaptation part of the EU Cohesion Policy to support urban adaptation,
- Increasing the take up of urban adaptation projects under, for example, the future LIFE+ programme, extending the urban section of Climate-ADAPT and linking with other urban (sustainability) platforms, such as the Reference Framework for Sustainable Cities or the platform of the European Sustainable Cities and Towns Campaign.



- The European Regional Development Fund (ERDF) Theme 6 which supports adaptation and has potential to offer specific finance to MS and regions for adaptation projects, including at city level.

**The European Commission should support an annual meeting or conference to provide a communication platform and exchange mechanism for cities developing adaptation strategies.**

The project reinforced the value of the EU role in facilitating knowledge exchange and sharing of good practices. The Climate-ADAPT platform is a powerful tool to help this process, but the value of personal interactions and relationship building was demonstrated in the project and should not be overlooked. The Open European Day adjacent to the Resilient Cities Conference 2013 was designed with interaction, sharing and learning among city level practitioners in mind and provided a template for future gatherings that can help keep momentum on the development of city adaptation strategies.

**The European Commission (e.g. via framework of Covenant of Mayors) could explore additional ways to encourage the creation or continuation of peer city groups to enable sharing of experience, practice and relevant knowledge and data.**

#### 4.2.5 Tools and guidance

**The European Environment Agency, supported by European Commission, should implement the additions and enhancements to Climate-ADAPT as set out in the final report for this project (Appendix 12, Toolkit report), and encourage use by Cities.**

A rich array of tools, support and guidance to enhance adaptive capacity and support adaptation planning is now available across Europe. Many of these are relevant to cities at various stages on their adaptation journey. It is difficult to identify from the outside which of these tools will be most relevant to individual cities as this will also depend on the local context, but Climate-ADAPT can be enhanced to support dissemination and use of available resources by cities.

**Member States and Cities should focus on making use of existing tools, guidance and resources to support the development and implementation of adaptation strategies. European Commission and Member States should avoid developing new tools and instead improve testing, qualification and dissemination of, and training on, existing resources.** There are only a few gaps where new specialised tools or guidance to support urban adaptation might need development in the future, such as around cost-benefit analysis, and monitoring. One of the most valuable elements of the project for the participating cities was the provision of tailored expert coaching to support in the identification and application of tools and guidance in the local context.

**The European Environment Agency should encourage the provision of additional content in Climate-ADAPT to help cities in the development of their adaptation strategies** for example by updating and extending the information on vulnerabilities and adaptation in those EU countries that do not have a dedicated national information platform, and enlarging the database of adaptation actions.

#### 4.2.6 Implementing the European Adaptation Strategy

Policies and regulations set at EU or national levels in multiple sectors create the conditions under which both national and city level adaptation can be advanced.

**The European Commission and Member States should work to ensure that policy frameworks are effective in promoting, rather than conflicting with, urban adaptation.**

Cities identified the need for regional and national frameworks on adaptation to ensure political commitment at the local level so that cities can effectively develop and implement adaptation strategies. The project analysis emphasised that interventions in adaptation frameworks, whether at national level or through EU policy, would also be effective in



supporting further developments in capacity at city level. This reinforces the priority set in the EU adaptation strategy for Member States to develop national adaptation strategies.

**The European Commission (led by DG CLIMA) should mainstream adaptation policies into key EU policy areas, as well as the removal of potential policy conflicts at national and European levels.** Areas identified as a high priority for mainstreaming include: climate proofing for the EU budget for 2014–2020; cross-compliance requirements; procedural integration and Environmental Impact Assessments; and spatial planning as the key tool for bridging existing governmental levels. Entry points for adaptation could be established or enlarged within the evolving cohesion policy (especially the Innovation & Environment Regions of Europe Sharing Solutions (INTERREG), URBACT and LEADER programmes). Or adaptation could be considered (e.g. as a form of earmarking) more intensely or explicitly within the Multiannual Financial Framework or in existing urban sectoral initiatives of the EC.

**The European Commission should help more cities in developing adaptation strategies by helping to fill this national policy gap,** by for example providing:

- Direct support to national governments– following on from the actions set out in the 2013 EU Adaptation Strategy, but reviewed in detail during the 2017 evaluation of the strategy as to whether a directive is needed (likely to have more influence on cities in those countries where no national framework exists) or through continued voluntary encouragement and provision of guidelines and other needs as identified.
- Co-funding specifically linked to the development of national programmes that encourage building links and provision of support and information suitable for the local level.

In addition at the local level, **Cities should mainstream their adaptation strategies into their local strategies and policies for example by including climate risk and the need for adaptation into the risk registers.**

**The European Commission (led by DG CLIMA) and the European Environment Agency should track the level of awareness and capacities of cities across Europe in the future.** This may be carried out programmes through regular needs mapping assessments, including surveys and other methods e.g. Stakeholder dialogues. This could also be used to monitor the practical success and progress of the EU adaptation strategy, and identify needs that EC can be addressed through training and technical assistance which may be effectively addressed through tailored and coherent training and coaching packages.

## 5 Concluding remarks – Progressing the EU Adaptation Strategy

The project has highlighted that there is an appetite and enthusiasm for adaptation at city level, and that cities view adaptation strongly as an opportunity to enhance sustainability and quality of life. City planners and key target groups were able to see how climate change challenges and risks can be transformed into significant opportunities. Through presenting potential no- or low-regret measures, win-win solutions and good practice examples from other European cities, political resistance to implementing adaptation measures has been reduced.

We have demonstrated that if the framework for capacity building and information exchange on adaptation can be provided by the EU or an overarching network, then cities will engage and can be supported and coached to make quite rapid progress in the development of strategies. There is an important role for the EU to provide coherent methodologies and create and support political commitment to participate in the process (e.g. by means of Mayoral declarations). This is a very important outcome for progressing implementation of the EU Adaptation Strategy.

Furthermore, cities recognise the significance of European policy in creating the enabling conditions for both national and local levels to take action on adaptation. Apart from direct financial support to develop adaptation activities, mainstreaming of adaptation into the wide range of EU policies which impact upon Member States and European cities will support the establishment of national frameworks on adaptation leading to local commitment and action.

The activities, experiences and networks developed in the EU Cities Adapt project provide a sound model on which to base future EU-led programmes to support and enhance adaptation in European cities, such as through the framework of the Covenant of Mayors.



**Figure 5: Representatives of the participating cities, project team and coaches at the final conference**



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