

Urban adaptation to climate change in Europe

Challenges and opportunities for cities
together with supportive national and European policies



Contents

Acknowledgements	5
Key messages	6
1 What is this report about and who should read it?	10
2 Climate change challenges and response options	13
2.1 Heat	18
2.1.1 Why are heatwaves an important urban challenge?	18
2.1.2 What are the potential impacts of heat on Europe's cities?	24
2.1.3 How can cities adapt to heat stress?	31
2.2 Flooding	35
2.2.1 What are the challenges for cities regarding flooding?	35
2.2.2 What are the potential flooding impacts on Europe's cities?	37
2.2.3 How can cities adapt to flooding?	48
2.3 Water scarcity and droughts	53
2.3.1 Why are water scarcity and drought challenges for cities?	53
2.3.2 What are the potential impacts of water scarcity and droughts on Europe's cities?	55
2.3.3 How can cities adapt to water scarcity and droughts?	59
3 Planning urban adaptation	62
3.1 Capacity to adapt in Europe's cities	62
3.1.1 Awareness: knowledge and equity	63
3.1.2 Ability: access to technology and infrastructure	66
3.1.3 Action: economy, resources and institutions	69
3.1.4 Summarising the adaptive capacity of cities	72
3.2 Planning steps to urban adaptation	74
3.2.1 Get started: initiate adaptation, ensure commitment and management.....	74
3.2.2 Assess potential climate change risks and vulnerabilities	75
3.2.3 Identify a wide range of adaptation options	75
3.2.4 Assess and prioritise adaptation options	77
3.2.5 Implement adaptation actions	77
3.2.6 Monitor and evaluate adaptation action	78
3.3 Success factors	79
3.3.1 Raising awareness of climate change and the need to adapt	79
3.3.2 Cutting across different sectors and levels	80
3.3.3 Utilising the co-benefits of adaptive actions	84
3.3.4 Dealing with uncertainty and long time frames	86
3.3.5 Working with nature — not against	91
3.3.6 Securing resources for adaptation	93

4 Multi-level governance – enabling urban adaptation	95
4.1 Governing adaptation at different spatial levels	95
4.1.1 The local level	96
4.1.2 The regional level	98
4.1.3 The national level	98
4.1.4 The European level	101
4.2 Bridging the levels – multi-level governance	106
4.2.1 The needs and benefits of multi-level governance	106
4.2.2 Challenges	108
4.2.3 Success factors	111
4.3 Pillars for multi-level governance	112
4.3.1 Policy coherence through multi-level climate proofing	112
4.3.2 Territorial governance	115
4.3.3 Developing institutional capacities across levels	117
4.3.4 Securing access to funding for adaptation measures	119
4.3.5 Multi-level knowledge base	122
Glossary	125
References	128
Annex I Key information.....	141
a) Selection of key literature and studies	141
b) Selection of tools and guidance for adaptation.....	142
Annex II City data	143