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**RESEARCH JOINT PROGRAMMING INITIATIVE ON URBAN DEVELOPMENT:
RATIONALE AND STATE OF PLAY OF RESEARCH AT EUROPEAN LEVEL**

Accompanying the document

**COMMISSION RECOMMENDATION ON THE RESEARCH JOINT
PROGRAMMING INITIATIVE "URBAN EUROPE - GLOBAL URBAN
CHALLENGES, JOINT EUROPEAN SOLUTIONS"**

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1. EXECUTIVE SUMMARY

The Commission proposes more strategic cooperation between EU Member States on research and development to address major societal challenges. One way to do this is a new joint programming approach. Joint programming (JP) involves Member States engaging on a variable-geometry basis in defining, developing and implementing strategic research agendas. "Urban Europe – Global Urban Challenges, Joint European Solutions" (hereinafter "Urban Europe") has been proposed as one of such joint programming initiatives (JPIs) with a focus on sustainable development of European urban areas.

The global trends such as rapidly increasing urbanisation put pressures on the urban system. Urbanisation is expected to rise to some 83 percent in Europe by 2050. Urbanisation involves a wide range of inter-linked challenges, including social deprivation and segregation, urban sprawl and congestion, safety and security issues, environmental degradation, pollution and effects of climate change. It is a necessity for scientists and policy makers to find effective ways to deal with a fast-changing societal, economic and environmental reality of European urban areas.

At the same time, Europe should make the most of the advantages of urbanised space. Urban agglomerations and networked cities have turned into spearheads of development – innovation hubs – where knowledge, policy and practice come together to create innovative ideas. Cities are thus more and more seen to be the critical context for growth and innovation. There is also increasing evidence that networks of major urban centres, often referred to as "global cities", exert a growing influence at the international scale, while at the same time the importance of small and medium sized cities has to be acknowledged because of their impact, notably in terms of regional development. Europe is characterised by a high urban density and by a large number of small and medium-sized cities the assets of which must be taken into account from an economic, social and cultural perspective.

Although much research is already conducted at EU, national and regional levels, so far no overall concerted approach has been designed to address urban areas as a complex network system with high interdependencies of the related economic, technological, social and ecological subsystems and with a long-term outlook towards 2050. In order to develop an integrated understanding of future urban areas, their patterns, roles and functions, this will require substantial research efforts. The JPI Urban Europe aims to respond to this need and will address the above-mentioned challenges and opportunities. It is a coordinated research and innovation initiative with a long-term forward-looking orientation to shape urban development in times of a global shift. It has an integrative, interdisciplinary and horizontal approach across its research interfaces of economy, mobility, society and ecology. Through the planned objectives and research areas of the JPI, a fully operational European Research Area on sustainable urban development will be strengthened and enlarged. It is also evident that the initiative will contribute significantly to achieving the aims of smart, sustainable and inclusive growth of the Europe 2020 strategy.

In May 2010, the Council advocated a common European initiative in this field and invited the Commission to contribute to preparation of the JPI, together with the state of play of research in this field, and with a view to it being launched in 2011. The Commission has therefore prepared this Staff Working Paper as a complement to the Commission Recommendation on the research joint programming initiative on "Urban Europe – Global Urban Challenges, Joint European Solutions".

2. TOWARDS JOINT PROGRAMMING

In its Communication of 15 July 2008, entitled "Towards joint programming in research: Working together to tackle common challenges more effectively"¹, the Commission called for the implementation of a process led by the Member States to step up their cooperation in the R&D area in order to better confront major societal challenges of European or worldwide scale, where public research plays a key role. This was one of the five policy initiatives following up the Green Paper on "The European Research Area: New Perspectives"² and an important process to realise the "2020 Vision for the European Research Area" adopted by the Council in December 2008³. Joint programming is a process by which Member States engage on a variable-geometry basis in defining, developing and implementing common strategic research agenda (SRA) based on a common vision of how to address major societal challenges that no Member State is capable of resolving alone⁴.

Thereafter, with the Council conclusions of 2 December 2008⁵, the dedicated configurations of CREST⁶ and the High Level Group for Joint Programming (GPC) were established with a view to identify and substantiate the first list of a limited number of joint programming themes. The pilot JPI on combating neurodegenerative diseases, in particular Alzheimer's, was launched with the Council conclusions in December 2009⁷. This pilot welcomed the identification and substantiation of the themes for the "first wave" JPIs in the areas of "Agriculture, Food Security and Climate Change", "Cultural Heritage and Global Change: a New Challenge for Europe", and "A Healthy Diet for a Healthy Life". The six "second wave" JPI themes⁸, which include Urban Europe⁹, were identified and substantiated in the Council conclusions of 26 May 2010¹⁰.

The JPI Urban Europe is currently composed of 11 participating Member States or Associated States and of two observers¹¹. The inaugural meeting of its Governing Board was held in September 2010 in Paris. Experts from all across Europe were invited to a Policy Vision Workshop organised in end of November 2010 in Vienna to brainstorm and formulate the vision on the future European city. This workshop helped setting out the broad areas that the JPI Urban Europe should address with a long-term perspective up to 2050. The second meeting of the Governing Board was held in Stockholm in December 2010. The Scientific

¹ 11935/08

² COM(2007)723 of 22.11.2007

³ Council conclusions of 2.12.2008, Definition of a "2020 Vision for the European Research Area", 16767/08

⁴ The Joint programming approach is detailed in the Commission Staff Working Paper "Putting Joint Programming in Research into Practice: Structuring Europe's Response to the Grand Challenges", SEC (2010)

⁵ Official Journal C 24, 30.1.2009, p. 3 – 6

⁶ At present entitled "European Research Area Committee (ERAC)"

⁷ 17226/09

⁸ "Connecting Climate Knowledge for Europe", "Healthy and Productive Seas and Oceans", "More Years, Better Lives – The Potential and Challenges of Demographic Change", "The Antimicrobial Resistance", "Urban Europe – Global Urban Challenges, Joint European Solutions" and "Water Challenges for a Changing World"

⁹ In the original proposal submitted to the GPC in May 2010 the JPI Urban Europe was entitled "Urban Europe – Urban Challenges, Local Solutions". Since then, the initiative has elaborated its title.

¹⁰ 10246/10

¹¹ The participating countries are Austria, Denmark, Finland, France, Ireland, Italy, the Netherlands, Norway, Sweden, Switzerland and Turkey. Germany and Spain participate in the initiative in the role of observers.

Research Agenda Workshop was organised in February 2011 in Amsterdam where urban experts brainstormed the challenges of and opportunities for urban regions. The third meeting of the Governing Board was convened in February 2011 in Rome to discuss the further stages of the initiative, in particular the draft outline of the Strategic Research Agenda and the draft Status Report synthesising the progress made towards the "maturity" of the initiative. The Status Report was submitted to the Commission in April 2011, and at the same time, the fourth meeting of the Governing Board took place in Istanbul. In end of April 2011 a workshop dedicated to launch the foresight activities of the JPI was organised in Brussels by the European Foresight Platform¹² and the JPI actors, with support from the Commission. The "Urban Europe Forum" was launched in an event organised jointly by the JPI Urban Europe and the COST Office in June 2011 in Brussels. Through the Forum the JPI seeks to involve a wide range of European stakeholders in the implementation of the initiative. The 5th meeting of the Governing Board was held in June 2011 in Helsinki. This meeting paved the way towards designing the pilot phase of the initiative that is foreseen to start in end of 2011.

3. NEED FOR RESEARCH

3.1. Why is research needed on sustainable urban development?

It is evident that sustainable development of European urban areas is a major societal issue while experiencing intensifying global trends such as urbanisation. Urbanisation involves a wide range of inter-linked challenges, including social deprivation and segregation, urban sprawl and congestion, security issues, environmental degradation, pollution and effects of climate change. The year 2007 was a pivotal moment in the long history of urbanisation. As of 2007 more than 50 percent of the world population is living in urban areas. The structural urban change is continuing with urbanisation rates exceeding 70 percent in various European countries. Urbanisation is expected to rise to some 83 percent (557 million) in Europe by the year 2050¹³. This long-term megatrend in population movement towards the city is the result of two underlying forces: the exponential growth in world population and the rural-urban drift due to the relatively more favourable socio-economic opportunities in urban areas. Urbanisation and its negative externalities put pressure on society and environment and pose an unprecedented challenge to resilience, management and governance of the urban system in Europe and in the world. The economic (globalisation), demographic and climate change further impact the system, making it a necessity for scientists and policy makers to search for effective ways in dealing with the fast-changing societal, economic and environmental reality of European urban areas.

At the same time, Europe should make the most of the advantages of urbanised space. Urban agglomerations and networked cities have turned into spearheads of development, not only from a socio-economic perspective (business, innovativeness, jobs, wealth, migration, entrepreneurial dynamics and competitiveness), but also from technological (mobility, transport and energy systems, ICT) and geo-political perspectives ("cities as locations of global command and control centres"). Cities have developed into "innovation hubs" themselves, where knowledge, policy and practice come together to create innovative ideas, employ new technology and benefit from fresh insights into challenges and drivers of urban

¹² The European Foresight Platform is a FP7 project financed by Socio-economic Sciences and Humanities theme

¹³ <http://www.un.org/esa/population/unpop.htm>

development as well as into solutions. In effect, cities are cauldrons of creativity, and creativity has become one of the main driving forces in the growth and development of urban areas, as cities bring together and augment human capital¹⁴. In this view, urban areas offer an integrative geographic platform for creative solutions and new opportunities. Cities are thus more and more seen to be the critical context for growth and innovation¹⁵. There is also increasing evidence that networks of major urban centres, often referred to as "global cities", exert a growing influence at the international scale, while at the same time the importance of small and medium sized cities has to be acknowledged because of their impact, notably in terms of regional development. Europe is characterised by a high urban density and by a large number of small and medium-sized cities the assets of which must be taken into account from an economic, social and cultural perspective.

These developments call for new socio-economic, environmental and technology research initiatives as well as political actions to find joint European solutions to global urban challenges from strategic and sustainability perspectives. An urbanised future requires a rethinking of existing research and policy measures. New models of strategic planning, urban governance and management as well as civic participation are not only necessary, but they have the potential to improve urban policies so as to contribute to the competitiveness and sustainability of European urban areas.

3.2. A substantial research effort is needed

Although much research is already conducted at EU, national and regional levels, so far no overall concerted or coherent approach has been designed to address urban development as a complex network system with high interdependencies of the related economic, technological, social and ecological subsystems. Substantial research efforts will be required in order to develop a joint view and common understanding of the future urban areas, their patterns, roles and functions. In doing so, new instruments, tools and methods for assessing and realising new urban design, governance and management approaches are needed. Also much of the existing research on urban issues is oriented to current actions or has a medium term outlook. There is a need for conducting R&D activities with an integrated orientation on urban systems having a long-term outlook towards 2050 and with a complementing approach to the existing EU initiatives in these areas.

A major knowledge objective thus concerns adopting a broad forward-looking and long-term perspective covering the entire spectrum, that is, from the development of technology and infrastructure-oriented research to the design of appropriate societal and organisational measures such as business, governance and policy models taking into account a human-centered perspective. There is also a need to combine the generation of knowledge with a strong emphasis on joint implementation by and diffusion to policy and industry actors as well as to civil society.

Through the planned objectives and research areas of the JPI, a fully operational European Research Area on sustainable urban development will be strengthened and enlarged, based on an integrative, multidisciplinary and horizontal scientific approach of the JPI across its

¹⁴ Florida, Richard (2005). *Cities and the Creative Class*

¹⁵ McCann, Philip (2008). *Globalization and economic geography: the world is curved, not flat*

research interfaces of economy, society, mobility and ecology. The Europe 2020 strategy¹⁶ puts forward three mutually reinforcing priorities of the smart, sustainable and inclusive growth. Sustainable urban development could significantly contribute to achieving these aims. In its flagship initiatives, notably in the "Innovation Union"¹⁷ and in the "European Platform against Poverty and Social Exclusion"¹⁸, cities will have to play a key role as to smart, liveable and inclusive locations. One of the potential European Innovation Partnerships (EIPs) is "smart, liveable cities combining energy efficiency, clean transport and fast internet". If this EIP is launched, the JPI Urban Europe could play a supportive and complementing role to this Innovation Partnership as well as to other existing EU initiatives in these areas.

4. REVIEW OF STATE OF PLAY

4.1. Actions at Member State level

The JPI Urban Europe has performed a first inventory of public research programmes addressing urban issues and operated by the participating 11 Member States and Associated States. In its assessment, it has identified around 55 research programmes addressing urban development challenges in the participating countries. The results show that all the participating countries have programmes in place that are linked with the research strategy of the JPI Urban Europe, and they thus provide a sound basis for establishing joint activities. These programmes vary in scope from fundamental to applied research, development, innovation and to research in support of decision-making. A broad spectrum of programmes is covering issues related environment, energy, transport, mobility, infrastructure and the built environment. However, many of these programmes have a sector-specific or disciplinary approach. Despite this, these sector-specific programmes are relevant for the JPI as their substantial technological and methodological research results can be linked with and applied to the human-centred and integrative approach of the JPI Urban Europe.

In nearly all participating countries that are supporting thematic programmes there is at least one national programme which already follows a multi-sectoral approach and which thus is highly compatible with the strategic approach of the JPI Urban Europe. These 30 multi-sectoral programmes put an emphasis on the linkage of technological developments with economic or social issues or they foster demonstration and innovation or in some cases they involve civil society actors. They offer profound starting points for further development and alignment of the respective research themes in the context of this JPI.

The preparatory process of the JPI Urban Europe has already initiated some new or strategically aligned national programmes. Some countries, like Turkey and France, have programmes in place that support or demand for international cooperation. The Netherlands has currently launched two calls requiring cooperation of Dutch organisations with partners from at least one participating country of the JPI Urban Europe. In addition, Norway will also start a new programme in 2012 which is in general well in line with the research issues of this JPI. The short-term alignment of national programmes with the Strategic Research

¹⁶ Communication from the Commission, Europe 2020 – A strategy for smart, sustainable and inclusive growth, Brussels, COM(2010) 2020

¹⁷ COM (2010) 546

¹⁸ COM(2010) 758 final

Framework of the JPI Urban Europe has thus already initiated first joint research activities that are of high importance for the pilot phase of the initiative in 2012 – 2013.

A short overview of relevant programmes and research actors in the Member States and Associated States concerned is provided below. It is based on the mapping compiled by the JPI Urban Europe in April 2011 followed by an update document in July 2011. Revisions of the mapping are foreseen as the initiative will develop. The existing programmes have been mapped according to the four city images that are at the core of the Strategic Research Framework of the JPI¹⁹. The mapping has thus allowed aligning national programmes to the objectives and orientations as depicted by these city images. Annex 2 provides an illustration of the outcome of the mapping by the city images.

Besides several national research programmes on technology development in the areas of mobility, transport, energy and buildings, there are up to now two programmes with a strong focus on urban-related topics in **Austria**. Energy for smart cities is seen as an important topic which requires research strategies and activities on national and European level. In this programme "Smart Energy Demo – fit4set" a special emphasis is given to the development of roadmaps for Austrian cities and to demonstration initiatives for short-term implementation of innovative technological solutions. The results of this programme will be integrated as a major input to JPI Urban Europe activities. Related to new mobility concepts the programme "ways2go" has been established with the ambition to develop new concepts by linking social sciences and mobility research. This programme does not only result in new technologies and methods but also in new mobility concepts according to specific user demands and behaviour. The Austrian Federal Ministry of Innovation and Technology BMVIT and the Austrian Science Fund FWF are amongst the core group of actors financing research in these fields.

Denmark has three programmes upon which the JPI Urban Europe can build. The "Strategic Research programme on Transport and Infrastructure" targets especially the academic community. Besides this, the other two programmes "Housing and Welfare" and "Strategic Urban Research" cover urban issues with a strong emphasis on social and socio-spatial aspects. The multi-disciplinary approach of these programmes contributes particularly to the research issues of this JPI, and it furthermore supports multi-stakeholder engagement by linking academic research as well as applied research institutions and practitioners. The main Danish funding organisations in the urban domain are Danish Council for Strategic Research, Realdania Research and Danish Building Research Institute.

In **Finland** research and innovation programmes are very application oriented and they demand for cooperation of research organisations with companies and in many cases also with municipalities. The funding organisation TEKES runs six programmes with various thematic foci ranging from energy issues, ICT,

¹⁹ The city images are: Entrepreneurial City 2050 (economic vitality and innovation); Connected City 2050 (smart logistics and sustainable mobility); Pioneer City 2050 (social participation and social capital); Liveable City 2050 (ecological sustainability)

infrastructure and transport issues up to resource efficiency and research on the built environment and urban spaces. In particular, the programme "Places and Spaces" follows an interesting approach by investigating the impact of combined virtual, physical and social spaces or new environments on working and learning. The programme puts urban development in the context of human demands and social issues and encourages the participants to cooperate across sector boundaries. As the programme has been running since 2008, first results and experiences are already available and will be of high relevance for this JPI.

France has thirteen programmes running which are relevant for this JPI. Several funding agencies and ministries are engaged in these programmes, in many cases the programmes are based on joint activities of ministries and funding agencies such as ANR, ADEME, MEDDTL, MinEFI, MESR, OSEO, FSN/CDC and CNRS. Several programmes have a strong focus on sustainability, new transportation, mobility as well as vehicle concepts, pollution, energy for cities and sustainable buildings. In addition, specific programmes are in place addressing societal issues in a changing world, interdisciplinary research on urban and environmental issues as well as involving civil society in research programmes and activities. These programmes do not only contribute substantially to the JPI Urban Europe issues but also they involve the entire spectrum of stakeholders – research organisations, companies, civil society, NGOs, political stakeholders, platform organisations and cities.

In **Ireland** the Science Foundation runs programmes that are relevant for this JPI. The programmes "Strategic Research Cluster" as well as "Centres for Science, Engineering and Technology" are thematically quite broad. However, they provide a solid frame for research on ICT, smart buildings and construction, smart grids and renewable energy issues. The programmes thus support research issues of this JPI in the area of connectivity of people and cities, urban safety and security as well as sustainable urban development. Since these programmes have a long term perspective and they have already been running for several years, comprehensive knowledge and experience is available.

Italy has a substantial number of programmes involving several ministries which show a high awareness of technological and innovation demands for future cities²⁰. Research on energy and mobility is at the core of most of these programmes, providing a sound basis for integrating new (technological) solutions in urban concepts. The programme "Programmi Esecutivi di Collaborazione Scientifica e Tecnologica" focuses on cooperation on European and international level with a special emphasis on energy and environment. Another programme covers industrial research, in general, which offers manifold opportunities for companies and research centres to address urban innovation and implementation measures. Finally, there is a programme "Protocollo d'Intesa tra ISPRA e le ARPA" that especially focuses on urban issues with the aim to improve environmental quality in urban areas and disseminate results not only within the research and innovation community but also to the civil society. This programme is of major interest for this JPI.

²⁰

The Ministries for Education, Universities and Research; Economic Development; Environment, Land and Sea and Convergence Regions; Foreign Affairs and Infrastructures and Transport

In the **Netherlands** six programmes involving two funding organisations NWO and TNO and one research and technology organisation Dinalog are in place with a strong focus on transport and logistics and with a special emphasis on the increased sustainability. According to the funding agencies of these programmes, the target groups are universities, research organisations as well as companies. One of these programmes "Urban Regions in the Delta" follows a highly integrative and interdisciplinary approach linking spatial planning, economic development and environmental issues and, moreover, its three recently published calls are specifically aligned with the research issues of the JPI Urban Europe. The national innovation programme "Supply Chains and Logistics" target efficient logistic concepts in and between cities. Both programmes demand for cooperation of Dutch organizations with one of the participating countries of the JPI Urban Europe. Also the "Knowledge for Sustainable Cities" aiming at creating knowledge on the economic and social strength of cities is open for non-Dutch universities.

Norway has one research programme contributing directly to the JPI Urban Europe. The programme "Democracy and Governance in Regional Context" approaches regional development from the perspectives of governance, public issues, economic development and sustainability. This programme highly supports the approach of this JPI especially across its research areas of new urban governance concepts and innovative policy measures for sustainable, economically viable and liveable urban areas and provision of radical innovations for urban development. The programme runs from 2011 to 2014. Although it has a rather small budget, it will offer strong contributions to this JPI during its pilot phase.

While many other countries have put in place programmes on sustainability or environmental issues, in general, **Sweden** has a strong portfolio of research and innovation programmes covering especially urban issues. The themes of sustainable and liveable cities, urban areas and municipalities are addressed by these programmes. The Swedish models for the development of policy measures, rethinking urban development in the context of climate change and globalisation, and the utilisation of new technologies for urban innovation build a strong basis for activities of this JPI. Sweden also invests high efforts in innovation and implementation, and this becomes evident in the strong multi-stakeholder approach and support of pilot projects. R&D organisations, regional and local public authorities, cities, municipalities, companies and NGOs can participate in these projects. The main funding organisations in Sweden in this field are VINNOVA, Formas, Mistra, Swedish Energy Agency, Delegation for Sustainable Cities and Swedish Transport Administration.

The National Science Foundation in **Switzerland** runs three programmes on applied sciences in the field of urban research. Two established long term programmes focus on urban issues with special emphasis on the built environment, architecture and spatial planning. A third programme on energy research is currently under development and will start in 2012. The country's integrated approach to transportation or mobility issues, spatial planning, buildings and energy infrastructure (smart grids) can highly support the approach of the JPI Urban Europe and thus plays a major role for the pilot phase.

Turkey has four large R&D programmes in place with a broad range of topics. Each programme funds one of the target groups like industry, SMEs and academics. In

addition, the "International R&D Grant Programme" supports international cooperation of industry and SMEs resulting in innovation projects as well as demonstration and implementation activities in an international context. The main funding organisation is TÜBİTAK.

4.2. European level initiatives

4.2.1. Policy dimension

Cities and urban areas are confronted with a three-fold challenge currently facing the European Union: how to improve competitiveness, ensure social cohesion and meet environmental demands. Against this background, the Europe 2020 strategy sets out a broader approach aimed at the EU to become a smart, sustainable and inclusive economy. This means ensuring economic, social and territorial cohesion, decoupling economic growth from the use of resources, supporting the shift towards a low carbon economy, modernising our transport sector and promoting energy efficiency – actions that will affect Europe's cities.

The EU principles of sustainable urban development have been elaborated over the last 20 years in close collaboration with the Ministers responsible for urban development in the Member States. These principles constitute the "Acquis Urbain", and they are specified in the "Leipzig Charter on Sustainable European Cities" (May 2007)²¹, and in the "Toledo Informal Ministerial Meeting on Urban Development Declaration" (June 2010)²². By the Leipzig Charter, the Member States commit themselves to initiate a political debate on how to integrate the strategies on sustainable European cities in national, regional and local policies; to use the tool of integrated urban development and the related governance for its implementation, and to this end establish necessary frameworks at national level; and to promote the establishment of balanced territorial organisation based on a European polycentric urban structure. The Toledo Declaration puts an emphasis, inter alia, on the importance of integrated urban regeneration to achieve a smarter, more sustainable and inclusive urban development as well as on supporting a greater coherence between territorial and urban issues and agendas. The Declaration also recognises the importance of research, studies and statistics, best practices and knowledge dissemination on urban topics including the better coordination of them all.

Building on these principles, sustainable urban development constitutes an important element of cohesion policy. During the current programming period 2007 – 2013, urban issues have been integrated to a large extent in all regional and national programmes supported by Structural and Cohesion Funds²³. Since the mid-1990s, the "URBAN Community Initiatives" have encouraged the design and implementation of innovative, integrated development models based on local partnership to promote economic and social regeneration in depressed urban areas.

Besides cohesion policy, the EU is explicitly addressing specific urban actions in various other EU policies to tackle problems and to build up opportunities in urban areas. With

²¹ http://www.eu2007.de/en/News/download_docs/Mai/0524-N/075DokumentLeipzigCharta.pdf

²² http://www.eu2010.es/export/sites/presidencia/comun/descargas/agenda/agenda_junio/jun22_toledo.pdf

²³ Some €21.1 billion have been earmarked for urban development between 2007 and 2013, representing 6.1% of the total EU cohesion policy budget. Of this, €3.4 billion is targeted at rehabilitation of industrial sites and contaminated land areas, €9.8 billion for urban and rural regeneration projects, €7 billion for clean urban transport, and €917 million for housing. Other investments in infrastructure in R&D, transport, environment, education, health and culture also have an impact in cities.

respect to the policy on research and innovation, it is obvious that high quality research must underpin issues to achieve sustainable urban development. A significant body of pan-European collaborative research on urban-related issues has thus been carried out under the "EU Framework Programmes for Research and Technological Development", within a wide range of thematic areas. The urban dimension is strongly addressed by the policies on energy and transport promoting respectively energy efficiency in cities and sustainable urban transport. The policy on environment targets the need for an integrated environmental management at local level, whereas climate change policy calls for reduction of urban greenhouse gas emissions. Similarly, employment, social and health policies as well as education, training, youth and cultural policies include a variety of actions having an impact on cities and urban areas. Regarding the cross-cutting and renewed "Sustainable Development Strategy for the EU", it calls for the creation of sustainable local communities with a high quality of life, attention to urban transport and greater cooperation between urban and rural areas²⁴.

In December 2005 the Commission established an "Inter-service Group on Urban Development" It is chaired by the Directorate-General for Regional Policy and it pursues the objective to identify initiatives conducted under the various EU policies aiming to support sustainable development of urban areas and to ensure the necessary cooperation between Commission services in this respect²⁵.

4.2.2. *Research programmes and projects*²⁶

Research addressing urban development has received considerable attention in the EU Framework Programmes for RTD (FPs) since the 1980s, with EU-funded research covering a wide range of issues. The focus on urban-related research has been particularly strong under the research areas of transport, energy, information technologies and environment. More recently, the security and space research have started to contribute to advancing safety of citizens in urban environments and developing spatial planning and monitoring tools through GMES based solutions. In addition, research supported in the past years under the socio-economic sciences and humanities area has substantially improved our understanding of various socio-economic processes in urban areas. Health issues in urban environments have also been in the focus of research. Research supported by the European Research Council as well as Marie Curie mobility schemes tackle topics relevant for urban development. Finally, capacity building actions have contributed to urban-related aspects.

Within FP7 (2007 – 2013) under the Theme **Transport** (including Aeronautics), around 38 projects have been funded that contribute to mobility issues in urban areas to the tune of a total EU contribution of € 112 million and a total cost of € 168 million²⁷. For the first time a dedicated sub-theme "Sustainable Urban Mobility" is part of the Transport Theme. The Work Programme 2012 includes 5 topics related to urban mobility: take-up of transport innovation in urban and regional transport, automated urban vehicles, accessibility of transport systems,

²⁴ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52009DC0400:EN:NOT>

²⁵ Guide to the urban dimension in EU policies is available at:

²⁶ http://ec.europa.eu/regional_policy/sources/docgener/guides/urban/index_en.htm

²⁷ The figures concerning both the total EU contribution and the total cost are estimates throughout this section. The same applies to the number of projects financed.

²⁷ These figures exclude CIVITAS projects which are presented separately. In addition, eight urban-related projects are currently in negotiation under this Theme, and if the negotiations are successfully completed, the total EU contribution will increase to € 138 million with the total cost of € 206 million.

innovative design and operation of new or upgraded efficient urban transport interchanges and coordinating innovation for efficient bus systems in the urban environment. As to **FP6** (2002 – 2006), 25 projects addressing urban issues were funded with a total EU contribution of € 79 million and a total cost of € 150 million. The urban-focused research and demonstration activities of the Transport Theme can be grouped to the following areas: rethinking urban transport infrastructure; new ways to organise mobility (including high quality public transport); ICT-powered mobility services; research integration for greener, more accessible cities (including development of clean and smart urban vehicles improved accessibility of vulnerable users); city logistics; promoting and disseminating innovation; and international cooperation²⁸.

Under the Transport Theme, there is also a strong focus on innovative strategies for clean urban transport. Five CIVITAS Plus demonstration projects with participation of 25 cities have been financed **under FP7** with a total EU contribution of € 75 million and a total cost of € 122 million²⁹. **As to FP6**, four CIVITAS II demonstration projects with 17 cities were supported that tested implementation and transition strategies for clean urban transport combining alternative fuels. Within FP5, 19 cities clustered in four CIVITAS I demonstration projects. The Transport Theme is also leading the developments in the research part of the "European Green Cars Initiative Public-Private Partnership (EGCI PPP)" where € 500 million from the FP7 budget will be allocated in the years 2010 – 2013 to research activities in the areas of electrification of road and urban transport, energy efficiency for heavy duty vehicles and logistics and co-modality³⁰. In addition to the research part, the EGCI PPP includes demand side measures (such as reduction of car registration taxes on low CO₂ cars to stimulate car purchases by citizens) and loans offered by the European Investment Bank by the means of the European Clean Transport Facility, which targets research, development and innovation in the areas of emissions reduction and energy efficiency in the European transport industry.

The CONCERTO initiative – financed under the **Energy** Theme – is a European wide programme proactively addressing the challenges of creating a more sustainable future for Europe's energy needs. Today, there are a total of 58 communities in 22 CONCERTO projects, each working to deliver the highest possible level of self-supply of energy³¹. The focus is primarily on demonstrating the environmental, economic and social benefits of integrating renewable energy sources together with energy efficiency techniques through a sustainable energy management system operated on a community level³². The initiative

²⁸ The FP7 project MODURBAN paves the way for new generations of urban rail transport (with an EU contribution of € 10 million and a total cost of € 20 million; <http://www.modurban.org>).

²⁹ CIVITAS helps cities to achieve a more sustainable, clean and energy efficient urban transport system by implementing and evaluating an ambitious, integrated set of technology and policy based measures (<http://www.civitas-initiative.org/main.phtml?lan=en>). It has financed, for example, the ARCHIMEDES project which aims to increase sustainable modes and provide safer and more convenient travel services in medium-sized urban areas (with an EU contribution of € 16 million and a total cost of € 26 million; <http://www.civitas.eu/archimedes>).

³⁰ In the Public-Private Partnerships industry has an important role in defining the research priorities. Several other Themes such as Nanotechnologies, Energy, ICT and Environment contribute financially to the research part of the EGCI PPP.

³¹ http://concertoplus.eu/cms/index.php?option=com_content&view=frontpage&Itemid=113&lang=en

³² The FP7 CONCERTO ECO-Life project aims to establish a replicable planning and implementation approach including demonstration of innovative and integrated energy concepts in supply and demand side in municipalities of Latvia, Belgium and Denmark in order to reach the zero CO₂ goals (with a total EU contribution of € 12 million and a total cost of € 22 million). Several CONCERTO projects were also supported under FP6.

provides a platform for the exchange of ideas and experiences between the demonstration communities, and other cities that are committed to introducing similar strategies. The communities participating benefit from the shared expertise of Europe's most advanced communities, active in the field of energy sustainability. The achievements of this initiative have only been possible because of the integrated approach and because of the strong commitment from local authorities, technical experts, academics as well as private companies from across Europe.

In the frame of the Energy Theme, the "Smart Cities and Communities Initiative" launched in June 2011, is a new European initiative which objective is to make Europe's cities more efficient and more sustainable in the area of energy, transport and information and communication technologies³³. To this end, through an integrated approach, the initiative aims to accelerate the large scale deployment of innovative low carbon technologies as identified by the Commission Communication "Energy 2020 – a strategy for competitive, sustainable and secure energy"³⁴. The initiative is part of the Strategic Energy Technology (SET) -Plan, and it will support ambitious demonstration projects in cities which, for instance, undertake to transform their transport systems, building stock and energy networks. Through a Call for Proposals, the Smart Cities and Communities Initiative will support cities to be at the forefront of the transition to a low carbon future with a new generation of buildings, energy systems and low carbon transport solutions.

Under the Theme **Environment**, 31 projects targeting urban topics have been funded **within FP7** with a total EU contribution of € 112 million and a total cost of € 150 million³⁵. Among the projects financed, there is a noticeable focus on the issues of air pollution and climate change, in general, and their linkages to health and cultural heritage, in particular. Megacities are an obvious target of research in the air pollution and climate change area, and integrated tools for assessment and mitigation are being developed³⁶. Similarly, research on urban disasters is supported by this Theme, and here several issues are being addressed such as development of methods for vulnerability assessment (including vulnerability of buildings during earthquakes) and strategies for improved flood management as well as technologies for flood protection. Evidently, spatial planning and related tools and indicators for sustainable urban development are a central area of research for this theme. In addition, topics related to urban water and waste management as well as soil remediation are being addressed. Altogether 22 projects with a focus on urban issues have been funded **under FP6** in the Thematic Area "Sustainable development, global change and ecosystems", in the sub-priority "Global change and ecosystems"; and complementarily through specific activities designed to provide "Scientific Support to Policies". These projects received a total EU contribution of € 55 million and had a total cost of € 78 million. About 109 projects targeting urban topics have been funded under the sub-programme "Environment and Sustainable Development" of the FP5 Thematic Programme "Energy, environment and sustainable development". Most of the projects (92) have been funded under the Key Action "City of Tomorrow & Cultural Heritage", but some also under the other three Key Actions (Sustainable management and quality of water; Global change, climate and biodiversity; and Sustainable marine

³³ http://ec.europa.eu/energy/technology/initiatives/20110621_smart_cities_conference_en.htm

³⁴ http://ec.europa.eu/energy/strategies/2010/2020_en.htm

³⁵ Until year 2010 inclusive

³⁶ The FP7 project MEGAPOLI studies megacities, their emissions, urban, regional and global atmospheric pollution and climate effects, and integrated tools for assessment and mitigation (<http://www.dmi.dk>)

ecosystems) as well as under the generic research activities. The FP5 projects received a total EU contribution of € 136 million and had total a total cost of € 202 million.

The research under the Theme **ICT within FP7** provides applications and solutions for a range of urban-related issues with around 18 projects funded – of which eight projects have a direct urban focus – with a total EU contribution of € 61 million and a total cost of € 94 million. There is a visible concentration on development of applications for mobility systems and services with a future oriented outlook. Urban-related research is also supported that contributes to developing environmental services for the climate change adaptation for cities. For example, the project NICE³⁷ (Networking Intelligent Cities for Energy efficiency) is supporting the Green Digital Charter³⁸ that encourages cities since November 2009 to reduce the carbon footprint of their ICT, and roll-out ICT solutions which lead to more energy efficiency in areas such buildings, transport and energy. In addition, the ongoing research addresses the behavioural change of citizens living in an urban context³⁹ as well as the establishment of urban digital libraries and experiments with future internet developments. Under this Theme research is also contributing to the development of a low carbon economy through devising integrated solutions for road transport energy efficiency, interaction between urban housing and the Smart Grid as well as various tools for urban planning. As ICT networked infrastructures also are significantly increasing their energy consumption, several projects are targeting the energy reduction of telecommunication networks by a factor of at least 50%, whilst greening energy greedy data centres is also subject of several projects.

The ICT Theme has a long history in supporting research activities that target urban issues. For instance, 35 projects addressing telematic services for urban and rural areas were already running under FP4 from 1995 to 1998 for a total EU contribution of € 78 million. In addition, 22 projects providing "Integrated Applications for Digital Sites" were completed between 1997 and 1998 for a total EU contribution of € 55 million. The urban-linked themes continued to receive support under FP5 and FP6. The ICT Call for Proposals in 2012 contains a topic addressing ICT for energy-positive neighbourhoods. Under the call € 30 million will be dedicated to developing management and control systems as well as decision-support systems that address the dynamics of energy supply and demand in neighbourhoods and in extended urban and rural communities. In addition, € 90 million is already available, with additional € 210 million in 2012-2013, for the development of the "Future Internet Public-Private Partnership FI PPP". The funding will be allocated to the combined efforts of the Commission, Member States and industry to support a few "Innovation flagship" projects in this area. These projects aim to make Europe a leader in the research and roll-out of future innovative internet technologies that are needed to "smarten up" infrastructures in the areas affecting daily life of citizens such as health, transport and energy.

The Theme **Nanosciences, nanotechnologies, materials & new production technologies** integrates urban issues into its focus in the field of construction. This Theme leads the developments in the field of the "Energy-Efficient Buildings Public-Private Partnership EeB PPP" where € 1 billion is being allocated in years 2010 – 2013 to investigating new concepts

³⁷ The FP7 NICE project aims to define a set of monitoring and reporting tools, deliver practical support to the signatory cities, exchange with similar initiatives, in particular with the Covenant of Mayors and the SET -Plan, and double the number of signatory cities

³⁸ http://ec.europa.eu/information_society/activities/sustainable_growth/green_digital_charter/index_en.htm

³⁹ The FP7 project DEHEMS investigates how technology can improve domestic energy efficiency by developing a home energy management system using Living Labs in 5 cities across Europe (<http://status.dehems.org>)

for energy-efficient construction and refurbishment of existing buildings as well as to designing neutral/energy-positive new buildings and energy-efficient communities⁴⁰. **Within FP7**, several such projects are running or are currently being negotiated⁴¹. In addition, the research area on construction is treated cross-thematically in FP7. There are a high number of construction-related projects – which may also focus on urban issues to some extent – that have been or are being supported under different FP7 Themes. Furthermore, several construction-related projects have been financed under the "Competitiveness and Innovation Programme CIP" as well as under the inter-governmental COST scheme.

Security research is contributing to the security of citizens in urban environments with around 10 projects funded **within FP7**, also in collaboration with the Space Theme, with a total EU contribution of € 66 million and a total cost of € 96 million. Research is supported in order to make cities less vulnerable and more resilient to security threats including the built infrastructure protection⁴². In addition, security of mass transportation is a central issue for the Theme. It has also contributed to creation of the Urban Atlas⁴³.

The **Space** Theme is supporting actions that are either related to spatial planning for urban policy purposes or to developing air quality services for public, regional and local air quality sectors⁴⁴ through the Global Monitoring for Environment and Security (GMES) Programme. By monitoring changes in urban areas and providing environmental information, GMES could play a key role in responding to the challenge of sustainable urban development. GMES has also contributed to the creation of the Urban Atlas. In addition, in the framework of GMES land monitoring service there is a wide range of thematic fields of application which include land cover forest monitoring, spatial planning, agri-environmental monitoring, carbon cycle monitoring and natural resource monitoring. The implementation of these first services is partly funded under FP7.

The **Health** Theme has allocated **within FP7** a total EU contribution of € 8 million to finance three projects with a total cost of € 9 million that contribute to health issues in urban environments⁴⁵. The projects develop health indicators and related analysis for policy-making, advance our understanding of health trends in societies in transition and improve knowledge of how to tackle health inequalities. **Within FP6**, this Theme supported eight projects for around the same total EU contribution value as in FP7. The majority of these FP6 projects looked into accessibility issues of public transport and of public built environment for people with disabilities.

⁴⁰ In Public-Private Partnerships industry has a leading role in defining the research priorities. Several other Themes such as Transport, Energy, ICT and Environment contribute financially to this EeB Public-Private Partnership.

⁴¹ In year 2010, 16 construction-focused FP7 projects were financed with a total EU contribution of € 60 million. One of the projects is E2ReBuild which aims to develop industrialised energy efficient retrofitting of resident buildings in cold climates (with an EU contribution of € 5 million and a total budget of € 8 million).

⁴² The FP7 SECUR-ED project enhances the security of urban public transportation in medium and large cities, through live demonstrations with an EU contribution of € 26 million and a total cost of € 40 million

⁴³ The Urban Atlas is presented in section 4.2.3 Related EU level initiatives (regional policy)

⁴⁴ The FP7 project PASODOBLE develops and demonstrates user-driven downstream information services for the public, regional and local air quality sectors by combining space-based and in-situ data

⁴⁵ The FP7 project EURO-URHIS 2 aims to collect, analyse and report on the prevalence of health problems in urban areas (<http://www.urhis.eu>)

Under the Theme **Socio-economic Sciences and Humanities**, around 13 projects have been funded **within FP7** with a total EU contribution of € 27 million and a total cost of € 37 million that enhance our understanding of major societal issues in European urban areas, for example: sustainability and globalisation challenges for cities⁴⁶; cultural interactions and multiculturalism, including the issue of migration; social innovation; local welfare systems; spatial planning challenges caused by shrinking cities; urbanisation trends and processes in China. The Social Platforms are mechanisms that have been funded by the Socio-economic Sciences and Humanities Theme since start of FP7 with the aim to foster a European wide dialogue between the scientific community, policy-makers and civil society organisations in various fields in order to develop common research agendas. The Social Platform on Cities and Social Cohesion "Social Polis" is a forum for debates on economy, polity, society, culture and ethics across the city as a whole and in a variety of urban life spheres⁴⁷. The Social Platform SPREAD focuses on identifying research and policy needs in the area of sustainable lifestyles up to 2050⁴⁸. In the near future a new platform will be launched in the field of innovative social services, looking especially into the areas of welfare, health and education. Furthermore, the European Foresight Platform aims at building a global network bringing together different communities to share their knowledge about foresight, forecasting and other future studies methods⁴⁹. **Within FP6**, socio-economic research was financed under the Priority "Citizens and Governance in a Knowledge-based Society". Some urban related projects were supported, especially in the theme of social cohesion and its determinants, for instance, on consequences of growing inequality, housing conditions, social innovation, creative industries, multicultural democracy, youth and migration. **Within FP5**, a few urban related socio-economic research projects focused, inter alia, on socially innovative local development and territorial intelligence of cities in the knowledge society, urban housing issues, security, immigration and ethnic minority aspects as well as cultural diversity and cultural developments.

The **Science in Society programme** under the Capacities part of FP7 aims to stimulate the harmonious integration of scientific and technological endeavour and associated research policies into European society. **Within FP7**, the programme has funded a major initiative "Platform of Local Authorities and Cities Engaged in Science – PLACES". Around 70 science communication institutions (science centres, museum and festivals) from 28 European countries are supported to work with their local administrators and policy makers to plan and implement their long-term co-operation for the "City of Scientific Culture"⁵⁰. The programme has also funded a few other smaller projects encouraging exchange and co-operation of local actors in the area of scientific culture both within FP7 and FP6.

The **Regions of Knowledge programme** under the Capacities part of FP7 supports the development of regional research-driven clusters based on the triple helix structure consisting of research entities, businesses and public authorities working together for their common benefit. Although the programme is regionally-oriented, some of the supported projects address cities and urban development. For instance, **within FP7**, the REDICT project brought

⁴⁶ The FP7 project CHANCE2SUSTAIN studies city growth and the sustainability challenge by comparing fast growing cities in the growing economies (<http://www.chance2sustain.eu>). The FP7 project URBACHINA analyses the trends and implications of Chinese urbanisation up to 2040.

⁴⁷ <http://www.socialpolis.eu>

⁴⁸ <http://www.sustainable-lifestyles.eu>

⁴⁹ <http://www.foresight-platform.eu>

⁵⁰ The FP7 project PLACES has an EU contribution of € 5 million and a total cost of € 6 million for a four-year period (<http://www.openplaces.eu>)

together cities from six regions that have a strong R&D presence in the field of digital media and that exploited as well as shared this innovation potential through the project. The WASTEKIT project develops ambitions of regions and cities to base their development on research, innovation and business creation in the area of waste management⁵¹.

In the frame of the **International Cooperation activities** of the FP7 Capacities Programme⁵², the MIRA project (Mediterranean Innovation and Research Coordination Action) has been financed. The project aims at supporting a dialogue platform between policy makers and relevant stakeholders from both sides of the Mediterranean to improve the S&T cooperation with an EU contribution of € 4 million and a total cost of € 5 million. Urban-related issues are among the topics promoted in the dialogue by this project. **Within FP6**, the programme supported 14 projects with a total EU contribution of € 15 million and a total cost of € 17 million. These projects enhanced international cooperation in the areas of water or waste water management, renewable energies, cultural heritage and health issues.

The **Research infrastructures** programme under the Capacities part of FP7 aims to optimise the use and development of the best research infrastructures existing in Europe, and to help to create new research infrastructures of pan-European interest in all fields of science and technology⁵³. For instance, the programme has supported **within FP7 and FP6** the European Social Survey Infrastructure that has improved social measurement of the European science in society⁵⁴. Furthermore, it has invested in building socio-economic infrastructures in the area of cultural heritage, particularly in the theme conservation and restoration⁵⁵. In the field of environment and life sciences, the programme has, inter alia, supported the creation of research infrastructures for the measurement of the European carbon cycle and for earth system modelling⁵⁶.

Under **the Ideas part of FP7** – which supports investigator-driven "frontier research" managed by the European Research Council – about ten grants have been awarded either to starting or advanced researchers who study urban areas. The total EU contribution of these grants amounts to € 19 million. The supported research addresses, for instance, migration and ethnic cultures in urban Europe, issues of economic geography, spatial systems and climate change⁵⁷.

The **Marie Curie actions** under the **People part of FP7** have been particularly successful in responding to the needs of Europe's scientific community in terms of training, mobility and career development. Around 30 fellowships or grants have been awarded **within FP7** to urban-related research in a great variety of topics. **Within FP6**, almost the same number of grants was awarded to researchers studying urban issues. Under the both programmes, a few urban-focused research training networks also obtained financial support.

⁵¹ <http://www.wastekit.eu/>

⁵² The international cooperation activities have been mainstreamed through the Cooperation Specific Programme of FP7. Such urban related issues which have an international dimension may thus be included in Cooperation projects supported by the Themes.

⁵³ http://cordis.europa.eu/fp7/capacities/research-infrastructures_en.html

⁵⁴ <http://www.europeansocialsurvey.org>

⁵⁵ <http://www.charismaproject.eu/>

⁵⁶ <http://imecc.ipsl.jussieu.fr>; <https://is.enes.org/>

⁵⁷ The FP7 project SPIKES promotes the collaboration between economics and geography to unearth the factors determining why economic activity agglomerates in certain territories and not in others

A few **ERA-NETs** which aim to develop and strengthen the coordination of national and regional research programmes have been or are currently active in one or more areas of this JPI⁵⁸. For instance, **within FP6**, URBAN-NET was supported by the Environment Theme. It addressed urban sustainability in Europe with a wide geographical and cultural representation. URBAN-NET produced a Strategic Research Framework in its thematic area. This Framework contains four priority research areas: integrated urban management and city leadership; sustainable land-use in city regions; climate change in the urban context, and health, quality of life and public spaces. Another similar initiative ERACOBUILD focused on construction and operation of buildings. ERANETs were also funded under FP6 in the areas of transport and road research. Some of the urban-related FP6 ERA-NETs have received additional funding under FP7. For instance, the ERA-NET RURAGRI has been financed under FP7, and it has a focus, inter alia, on rural-urban relations.

There are altogether 36 industry-led **European Technology Platforms ETPs** in Europe established across the thematic fields of energy, transport, ICT, bio-based economy as well as production and processes⁵⁹. They work on developing and updating agendas of research priorities for their particular sector. Since they are set up through a dialogue among industrial and public researchers and national government representatives, ETPs also improve alignment of investment efforts and provide valuable input for defining European research funding schemes. **Joint Technology Initiatives JTIs** are a means to implement the Strategic Research Agendas of a limited number of European Technology Platforms (ETPs). Under FP7 five JTIs have been created. One of them is the JTI "Fuel Cells and Hydrogen" that has launched a few demonstration projects in the area of hydrogen fuelled road vehicles for city areas⁶⁰. The JTI ARTEMIS aims to tackle the research and structural challenges faced by European industry by defining and implementing a coherent Research Agenda for Embedded Computing Systems, also addressing urban environments⁶¹.

The Joint Research Centre (JRC) provides scientific-technical support to EU policies, inter alia, in the fields of energy, transport, (nuclear and non-nuclear) safety and security, environment and agriculture. In the field of energy, the JRC's research includes modelling of CO₂ emission scenarios for policy analysis and it provides technical references for low-carbon energy technologies and energy conservation in buildings. For example, the JRC has carried out safety studies of hydrogen storage and fuel cells for road transport. The JRC has also delivered scientific and technical support to the "Covenant of Mayors" (CoM)⁶². Regarding urban pollution, the JRC is acknowledged as a scientific reference centre for the development and harmonisation of monitoring and modelling techniques to assess air pollution. It also contributes to developing norms and standards for emissions from vehicle engines, including the validation of new methods to measure particles in the car emissions. This work has contributed to establishing the various EU norms for vehicle fuels. The JRC has provided information about the level and origin of selected indoor air pollutants in public buildings of several major European cities. The JRC has also prepared, jointly with the World Health

⁵⁸ The database of all funded ERA-NETs is available at http://ec.europa.eu/research/fp7/index_en.cfm?pg=eranet-projects-home

⁵⁹ http://cordis.europa.eu/technology-platforms/home_en.html

⁶⁰ The JTI project "Clean Hydrogen in European Cities CHIC" aims at full commercialisation of hydrogen powered fuel cell buses and links experienced and new cities in partnerships, facilitating introduction of the new systems (with an EU contribution of € 26 million and a total cost of € 89 million)

⁶¹ The ARTEMIS Call for Proposals in 2011 contained a topic "Embedded technology for sustainable urban life" (<http://www.artemis-ju.eu>)

⁶² The "Covenant of Mayors" initiative is presented in section "Energy policy"

Organisation (WHO), state of the art reports on risk assessment of environmental noise and it has developed a concise methodological framework for common noise assessment methods in Europe. The activities of the JRC in the area of transport research have addressed measurements of road congestion and the analysis of inter-urban accessibility issues, for instance, including modelling and foresight studies that address the main drivers and challenges for transport, as well as their socio-economic effects. With regard to the research on e-governance, JRC is currently conducting studies on ICT-driven transformations of the city governance models. As to the security and anti-fraud research, with particular reference to port security, the JRC has been developing tools for tracking suspicious movement of shipping containers. It has supported customs authorities by providing them with such tools and assisted them with the installation of radiation detectors. The JRC has also developed a training programme for front line officers in the area of detection of and response to illicit trafficking of radioactive and nuclear materials. Furthermore, it has determined the origin of radioactively contaminated scrap which arrived through ports.

4.2.3. *Related EU level initiatives*

In the frame of **regional policy**, starting with Urban Pilot Projects between 1989 and 1993, and followed by two generations of the "URBAN Community Initiative" programmes between 1994 and 2006⁶³, urban actions have become essential elements in many of the mainstream Operational Programmes in the 2007 – 2013 period⁶⁴. The main legacies of those programmes and projects are: to put in place both soft and hard policy measures focusing on one target area from economic, social and environmental perspectives at the same time (the integrated approach); to promote strong local partnerships; and to activate a continuous learning process (by networking and exchange of experiences)⁶⁵. In addition, mechanisms have been put in place through the URBACT programmes for networking and promoting exchanges of the urban-related experience at the EU level⁶⁶.

Specific tools such as the "Urban Audit" and the "Urban Atlas" have also been developed within regional policy in order to provide relevant comparative statistical information on towns and cities, and to analyse the land use. The Urban Audit provides comparable data for 321 cities in 27 EU Member States, 10 cities in Norway and Switzerland, and it also contains a data set of 25 cities in Turkey⁶⁷. It is a unique source of data for city comparisons and contains a large set of indicators collected every three years and a smaller set of key policy indicators collected annually. The Urban Audit builds on ten years of close cooperation between the national statistical offices, the cities concerned and the Commission⁶⁸. It will be further developed and adapted to European policy objectives such as to the Europe 2020 strategy. Based on the analysis of the Urban Audit data, the "State of European Cities" reports provide information on demographic change, urban competitiveness, living conditions and the

⁶³ Communication from Commission to the Council and Parliament, Cohesion Policy and cities: the urban contribution to growth and jobs in the regions, COM(2006) 385 final

⁶⁴ Regulation (EC) No 1080/2006 of the European Parliament and of the Council of 5 July 2006 on the European Regional Development Fund and repealing Regulation (EC) No 1783/1999 [Official Journal L 210 of 31.7.2006]

⁶⁵ Brochure – Promoting Sustainable Urban Development in Europe – Achievements and Opportunities http://ec.europa.eu/regional_policy/sources/docgener/presenta/urban2009/urban2009_en.pdf

⁶⁶ <http://www.urbact.eu>

⁶⁷ http://ec.europa.eu/regional_policy/themes/urban/audit/index_en.htm
http://epp.eurostat.ec.europa.eu/portal/page/portal/region_cities/introduction

⁶⁸ Directorate-General Eurostat and Directorate-General for Regional Policy

administrative power of 321 EU cities⁶⁹. The Urban Atlas provides detailed, digital and geo-referenced data on land cover and urban land use, compiled from satellite imagery and auxiliary data sources⁷⁰. The Urban Atlas was launched by the Commission⁷¹ and supported by the European Space Agency. All the major EU cities and their surroundings will be covered by this tool by 2011. It adds harmonised land-use indicators to those already collected by the Urban Audit. The Urban Atlas is updated every five years.

Another example of activities developed within regional policy is the "Perception Survey on quality of life in European cities" that is conducted in every three years⁷². These surveys allow comparisons between perceptions and hard data from various statistical sources on issues such as urban safety, unemployment and air quality available through the Urban Audit. The most recent survey was conducted in 2009 in 75 cities across the European Union, as well as in Croatia and Turkey. All capital cities were included, and 500 randomly selected citizens were interviewed in each city. The previous surveys were conducted by the Commission in 2004 and 2006. In addition, applied research on different themes – including urban-related issues – is conducted in the context of the "European Observation Network for Territorial Development and Cohesion", the ESPON 2013 Programme⁷³. For instance, the FOCI project analysed the current state, trends and development perspectives for the largest European cities and urban agglomerations⁷⁴. It identified the driving forces for understanding urban evolutions and offered scenarios for the development of Europe's cities leading to alternative policy options. A reflexion process has also been launched by the Commission on "Cities of Tomorrow"⁷⁵. This reflection forms part of the wider discussions on the future of regional policy. It addresses issues such as how regional policy can support towns and cities to tackle the challenges of today and in the future including identification of good practices and policies.

With regard to **energy policy**, in its Communication on "Energy 2020 – A strategy for competitive, sustainable and secure energy"⁷⁶, the Commission identified the "SMART CITIES and COMMUNITIES Initiative" as a project of European dimension for energy efficiency and for accelerating the large-scale deployment of innovative low carbon technologies. On 4 February 2011, the European Council invited the Commission to launch an Industrial Initiative, inter alia, on "energy saving solutions in cities". Previously in its Communication on "Investing in the Development of Low Carbon Technologies",⁷⁷ the Commission proposed that the SMART CITIES and COMMUNITIES Initiative would become the most appropriate means to make the production and use of energy in cities more sustainable and efficient. Furthermore, in 2008 the Commission launched the "Covenant of Mayors" to endorse and support the efforts deployed by local authorities in the implementation of sustainable energy policies⁷⁸. The Covenant of Mayors is an initiative by

⁶⁹ The second "State of European Cities Report" is available at http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/urban/stateofcities_2010.pdf

⁷⁰ <http://www.eea.europa.eu/data-and-maps/data/urban-atlas>

⁷¹ The GMES Bureau of Directorate-General for Enterprise and Industrial Policy and Directorate-General for Regional Policy

⁷² http://ec.europa.eu/regional_policy/themes/urban/audit/index_en.htm

⁷³ <http://www.espon.eu>

⁷⁴ The reports of the FOCI project which received an EU contribution of about € 1 million are available at http://www.espon.eu/main/Menu_Projects/Menu_AppliedResearch/foci.html

⁷⁵ http://ec.europa.eu/regional_policy/conferences/citiesoftomorrow/index_en.cfm

⁷⁶ http://ec.europa.eu/energy/strategies/2010/2020_en.htm

⁷⁷ COM(2009)519 final of 7 October 2009

⁷⁸ http://www.eumayors.eu/about/covenant-of-mayors_en.html

which towns and cities voluntarily commit themselves to reduce their CO₂ emissions through the implementation of "Sustainable Energy Action Plans".

New political challenges have emerged in the area of **transport** in recent years – of which climate change, energy policy, air quality legislation and congestion are a few examples. The objective now is to enhance mobility while at the same time reducing congestion, accidents and pollution in European cities. In 2009 the Commission adopted the "Action Plan on Urban Mobility" that proposes twenty measures to encourage and help local, regional and national authorities in achieving their goals for sustainable urban mobility⁷⁹. The actions address aspects such as improved information, passenger rights, better planning and greener transport. In 2011 the Commission adopted a White Paper entitled "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system"⁸⁰. It contains 40 concrete initiatives for the next decade to build a competitive transport system. The measures aim to dramatically reduce Europe's dependence on imported oil and cut carbon emissions in transport by 60% by 2050. One of the key goals is to have no more conventionally-fuelled cars in cities by 2050.

The "Sixth Environmental Action Programme" lays down **environmental objectives** and **priorities** for the period 2002 – 2012 with its "Thematic Strategies for policy frameworks up to 2020"⁸¹. The "Thematic Strategy on Urban Environment" calls for an integrated approach to managing the urban environment, developing sustainable urban transport plans and supporting exchange of good practices. From 1992 to 2010, under the "LIFE programme", the EU's financial instrument for the environment, 210 projects were funded that dealt with urban issues with a total EU contribution of € 135 million and a total budget of € 350 million⁸². Its successor "LIFE+ programme" will run until 2013 with a total budget of € 3 billion. It supports pilot projects in cities that develop new technologies, policy approaches, methods and instruments for urban environmental management. In 2001 the Commission established a "Co-operation Framework to promote Sustainable Urban Development"⁸³. This framework financed primarily networks of cities through annual calls for proposals with a total budget of € 14 million.

In the frame of **climate change policy**, one of the main targets is to reduce greenhouse gas emissions by at least 20% until 2020 compared to levels in 1990. About two thirds of the current greenhouse gas emissions are linked to urban areas. To kick-start the necessary transition process to a low-carbon economy, a series of demanding climate and energy targets – known as the "20-20-20" targets to be met by 2020 – have been put in place. These are: a reduction in EU greenhouse gas emissions of at least 20% below 1990 levels; 20% of EU energy consumption are to come from renewable resources; and a 20% reduction in primary energy use, compared with the projected levels, to be achieved by improving energy efficiency. In spring 2011 the Commission presented "A roadmap for moving to a competitive low carbon economy in 2050" outlining how the reduction targets can be reached⁸⁴. The stimulation of private investment – in order to incentivise the market uptake of innovative technologies – is regarded as a prerequisite for easing the EU's transition to a climate-resilient and commercially viable low-carbon economy. A new major funding instrument "New

⁷⁹ http://ec.europa.eu/transport/urban/urban_mobility/action_plan_en.htm

⁸⁰ http://ec.europa.eu/transport/strategies/2011_white_paper_en.htm

⁸¹ The Sixth Environmental Action Programme was adopted by the Council and the European Parliament in 2002

⁸² Since 1992 some 2 600 projects have received financing from the LIFE programme

⁸³ Decision 1411/2001/EC - OJ L 191, 13.7.2001, p. 1–5.

⁸⁴ http://ec.europa.eu/clima/documentation/roadmap/docs/com_2011_112_en.pdf

Entrants Reserve (NER-300)" has also been introduced drawing on capital from the EU's "Emissions Trading Scheme" and aiming to encourage private sector investors and Member States to invest in commercial low-carbon demonstration projects⁸⁵.

At the heart of **innovation policy** is the conviction that innovation is one of the main solutions to give Europe much-needed smart, sustainable and inclusive growth and to tackle societal challenges Europe is facing. With a view to achieve the objectives of the Europe 2020 strategy, and in addition to the existing EU initiatives, the Commission has announced in its Innovation Union flagship that it intends to launch "European Innovation Partnerships" in key areas addressing major societal challenges. These Partnerships are a new way of bringing together actors at EU, national and regional levels and of combining supply and demand-side tools for innovation. The pilot European Innovation Partnership "Active and Healthy Aging" has already been launched and preparatory work is being undertaken to potentially introduce several other Partnerships among which one is "smart, liveable cities combining energy efficiency, clean transport and fast internet". The pilot Partnership "Active and Healthy Aging" mentions mobility as one of the sectors in the area of "Innovation in products and services for active and independent ageing" that is expected to have significant relevance for its objectives. Furthermore, one of the key focus areas of the potential Innovation Partnership "Water Efficiency" under preparation is water efficiency in urban areas.

The European Institute of Innovation and Technology EIT is an independent decentralised EU body set up in 2008 with the ambition of boosting Europe's innovation capacity⁸⁶. Its specific aim is to integrate the three strands of the knowledge triangle – higher education, research and business – together with a strong focus on human capital. EIT has launched the "**Knowledge and Innovation Communities**" (KICs) which are excellence-driven autonomous partnerships of actors from the knowledge triangle working together on long-term strategic challenges⁸⁷:

The **Climate-KIC** aims to create a self-sustaining community with the world-renowned innovation capability and climate change knowledge. It should swiftly emerge as the natural place for companies to locate climate research and development centres, for researchers to look for inspiration and for top students to look for climate education. It focuses on assessing climate change and managing its drivers, transitioning of low-carbon resilient cities as well as establishing adaptive water management and zero carbon production. The **KIC InnoEnergy** strives to achieve an independent and sustainable energy system enabling a climate-neutral Europe by 2050. It aims at creating economic and societal value by developing ideas from mind to market, entailing the training of technology leaders with an entrepreneurial mindset as well as connecting key players across the innovation chain through projects, platforms and events. One of its co-location centres is in the Benelux countries that coordinate the expertise in the area of "Intelligent Energy-efficient Buildings and Cities". The **EIT ICT Labs** aims at a radical transformation of Europe into a knowledge society via the proliferation of internet-based services. The thematic action lines of this KIC address key societal issues in a number of selected areas where ICT can bring forward significant improvements. One of the focus areas is "Smart Spaces" with the aim to produce intelligent built environments.

⁸⁵ http://ec.europa.eu/clima/policies/lowcarbon/ner300_en.htm

⁸⁶ <http://eit.europa.eu>

⁸⁷ The EIT provides 25% of the overall budgets of the KICs. The total EU contribution for funding all the KICs activities is expected to be around € 270 million for the period 2010 – 2013

Another area is "Digital Cities of the Future" aiming to solve problems in large cities such as waste⁸⁸.

With small and medium-sized enterprises as its main target, the **Competitiveness and Innovation Programme (CIP)** supports innovation activities, provides better access to finance and delivers business support services in European regions⁸⁹. It encourages a better take-up and use of information and communication technologies, helps to develop the information society and promotes the increased use of renewable energies and energy efficiency. The "Intelligent Energy Europe" part of CIP supports, inter alia, Europe's cities to develop more energy-efficient and cleaner transport. In addition, under the "Information Communication Technologies Policy Support" part of CIP seven pilots on "Open innovation for Internet-enabled services in smart cities" have received a total EU contribution of € 15 million to promote advanced internet technologies/platforms.

Education and training are at the core of the Europe 2020 strategy for smart, sustainable and inclusive growth. It is an EU priority to ensure that the people acquire the skills and competences which the European economy and society need in order to remain competitive and innovative, but also to promote social cohesion and inclusion. Given the high number of people living in cities and urban areas and their respective importance for the development of the regions where they are situated in, these challenges are particularly relevant to them. The key issues targeted on EU level concern, inter alia, early childhood education, early school leaving, quality of vocational education and training, adult education, transition from education to work as well as modernisation of higher education and training systems. Projects addressing these issues are funded via the EU education and training programmes such as the "Lifelong Learning" and "Erasmus Mundus" programmes that support cooperation between education and training institutions on European and global level, and learning and mobility of individuals.

In the field of **youth policy**, the objectives of the EU Youth Strategy (2010 – 2018) are to create more and better opportunities for all young people in education and in the labour market, and to promote the active citizenship, social inclusion and solidarity for all young people. The strategy includes eight fields of action which are areas that are considered essential for a cross-sectoral and holistic youth policy: education and training, employment and entrepreneurship, social inclusion, health and well-being, participation, culture and creativity, voluntary activities, and youth and the world. The "EU Youth Report" released in every three years contributes to building the evidence-base for this strategy, as it analyses the living conditions and trends for young people in all the EU Member States, including trends in urban development⁹⁰.

The "European Capitals of Culture Initiative" receives support under the **"EU Culture programme"** and aims at enhancing the richness and diversity of European cultures and their common characteristics⁹¹. Since 1985, more than thirty cities have been designated European Capitals of Culture, and several cities with the awarded title have developed a true urban regeneration strategy based on culture.

⁸⁸ The action line "Intelligent Transportation System" is expected to start in 2012 with the aim to develop forms for safer and sustainable traffic and transportation systems

⁸⁹ The CIP runs from 2007 to 2013 with an overall budget of € 3621 million (<http://ec.europa.eu/cip>)

⁹⁰ http://ec.europa.eu/youth/pub/publications_en.htm

⁹¹ http://ec.europa.eu/culture/our-programmes-and-actions/doc413_en.htm

In the frame of **employment and social policy**, the Commission has recently commissioned a report "Cities and Active Inclusion: quality of social services and the social economy – key lessons from cities" under the "Programme for Employment and Social Solidarity PROGRESS"⁹². Seven projects have also been funded in the area of social cohesion and urban governance at a city or neighbourhood level with a total EU contribution of € 3.5 million under the "Community Actions of the European Fund for the Integration of Third-country Nationals"⁹³. The projects address integration of migrants, diversity management and shaping migration strategies at local level⁹⁴. In addition, the Commission has published a "Handbook for Integration"⁹⁵ containing good practices for integration at local level and is also continuing the work in the area by developing European modules for integration.

Despite increased prosperity and overall improvement in **health** in the EU, health differences between and within countries persist and in some cases are increasing. The reasons behind these differences are complex and involve a wide range of factors from income, education, living and working conditions as well as from health behaviours to access to health care. The Commission has set a series of actions to create a Europe where everyone has the opportunity to enjoy a high level of health, regardless of where citizens live or of their social or ethnic background. Health inequalities need to be tackled through a cross-sectoral policy approach at all levels be it national, regional or local⁹⁶. The "Declaration for Healthy Cities" made in Zagreb in 2008 expresses a clear and strong commitment of political leaders from European cities. It endorses the principles and values of the "Healthy Cities" programme of the World Health Organisation that places a special emphasis on the need to tackle health inequalities and urban poverty, the needs of vulnerable groups, participatory governance, and the social, economic and environmental determinants of health together with sustainable development⁹⁷.

With regard to the EU's agencies, the **European Environment Agency (EEA)** which provides independent information on the environment, to feed into EU and national policymaking, supports EU urban-related policies by developing databases and assessments on the land-use dynamics of urban areas (e.g. urban sprawl), sustainable urban management issues and specific pollution matters such as noise and air quality⁹⁸. This is done through close cooperation with the major city networks and other stakeholders, which includes joint actions and information exchange. The **European Foundation for the Improvement of Living and Working Conditions (EUROFOUND)** has established a network of European cities (CLIP) advancing the social and economic integration of migrants that is supported by a group of specialist European research centres⁹⁹.

⁹² http://ec.europa.eu/ewsi/en/resources/detail.cfm?ID_ITEMS=20787

⁹³ Information on the projects is available at http://ec.europa.eu/home-affairs/funding/integration/funding_integration_en.htm

⁹⁴ The AMICALL project established a transnational learning network to share and develop good practices among local and regional authorities in building public understanding of immigration and integration

⁹⁵ http://ec.europa.eu/ewsi/UDRW/images/items/doc1_12892_168517401.pdf

⁹⁶ EU Commission (2009) – Commission takes steps to tackle health inequalities in the EU, Press release IP/09/1550, 20 October 2009 <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/1550>

⁹⁷ The Zagreb Declaration for Healthy Cities (2008) – Health and health equity in all local policies, International Healthy Cities Conference in 2008 in Zagreb (http://www.euro.who.int/data/assets/pdf_file/0015/101076/E92343.pdf)

⁹⁸ <http://www.eea.europa.eu>

⁹⁹ <http://www.eurofound.europa.eu>

The **URBAN Intergroup of the European Parliament** was re-established in a new format in 2010¹⁰⁰. Its main aims are to monitor the legislative and non-legislative work of the Parliament's Committees on urban-related issues; to put urban needs on the agenda of EU policies; to be actively involved in the preparation of EU legislation; to liaise with partners and practitioners and to stay informed of the realisation of EU policies in the Member States. The work of the URBAN Intergroup focuses on a number of subjects linked to sustainable urban development such as environment and energy efficiency; urban transport; housing; social aspects (social exclusion, migration, ageing of the population); services of general interest; local public finances and the impact of the financial and economic crisis on cities.

The **Committee of the Regions (CoR)** provides the regional and local levels with a voice in EU policy development and EU legislation. The CoR issues several opinions per year, within the frame of its consultative work and based on proposals by the Commission. One of the main competence areas of its "Commission for territorial cohesion policy" (COTER) is urban policy. This Committee facilitates the discussion of representatives from local and regional authorities regarding the planning and implementation of urban policy and it ensures that their concerns are taken up by the other European institutions. The **European Economic and Social Committee (EESC)** is another consultative body of the European Union, and it bridges the EU and the organized civil society. The EESC takes actively part in the debate on urban development, and it has, inter alia, adopted an opinion in 2010 on the need to apply an integrated approach to urban regeneration¹⁰¹.

4.3. Other multilateral initiatives

Actions at intergovernmental level

COST is an intergovernmental programme that actively contributes to coordination of nationally-funded research at European level in a variety of thematic areas¹⁰². One of its domains is transport and urban development that fosters research coordination of these two themes in a cross-sectoral and multidisciplinary manner. The funded urban-related themes include infrastructure and land use in urban systems, vulnerable urban ecologies having a specific focus on noise issues, and challenges related to suburban buildings, shrinking cities and public transport services¹⁰³. The R&D promoted by **EUREKA**, another intergovernmental programme, is industry-led, applied and close-to-market¹⁰⁴. The programme fosters clusters that develop generic technologies of key importance to European competitiveness in the fields of information technology, communication, energy, water and manufacturing.

The **European Science Foundation (ESF)**, which is an independent, *non-governmental* organisation dedicated to pan-European scientific networking and collaboration, contributes to better understanding of urban development. In past years the organisation has, inter alia,

¹⁰⁰ The URBAN Intergroup (previously "URBAN-Housing") was originally set up and active during the 2004 – 2009 parliamentary term

¹⁰¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2011:021:0001:0008:EN:PDF>

¹⁰² <http://www.cost.esf.org>

¹⁰³ In average, each COST action receives an annual EU contribution of € 0.1 million during a four-year period while the total economic dimension of each action ranges from € 25 to € 50 million

¹⁰⁴ <http://www.eurekanetwork.org>

coordinated a "Forward Look on Urban Science" through a series of workshops¹⁰⁵. The organisation has also coordinated the "ESF-COST Synergy Initiative" that focused on landscapes in the changing world¹⁰⁶. The ESF has also supported research activities in the area of humanities, especially in history, that studied cities and urban issues.

The "Congress of Local and Regional Authorities" of the **Council of Europe** is a pan-European political assembly and the voice of European cities and regions¹⁰⁷. Its role is to promote local and regional democracy, improve local and regional governance and strengthen authorities' self-government. It encourages the devolution and regionalisation processes as well as transfrontier co-operation between cities and regions.

Actions at international level

One of the most relevant international organisations active in the field of urban development is the **United Nations** and its two programmes "Human Settlements UN-HABITAT" and "Environment UNEP". For both programmes, urban environmental issues are increasingly important. **UN-HABITAT** recognises the importance of the state of the local environment for the social and economic development of cities, especially where it concerns the urban poor¹⁰⁸. The issues such as human settlements, water, sanitation, waste and transport are of key interest for this programme. **UNEP** has a focus on environmental issues that both have a local and an international dimension¹⁰⁹. These include air pollution, coastal areas, waste, biodiversity and climate change. Furthermore, the **Population Division of the United Nations** provides valuable estimates of the world's urbanisation prospects¹¹⁰.

As a specialized agency of the United Nations, the **World Health Organisation (WHO)** promotes technical cooperation for health among nations. The organisation also addresses environmental issues in order to improve people's health and their quality of life, for instance, in the fields of climate change, traffic emissions and occupational health, water and sanitation. Under its "Age-Friendly Environments" programme, the organisation has, inter alia, initiated a project and network that address the environmental and social factors contributing to active and healthy ageing in cities¹¹¹.

The **World Bank** is a vital source of financial and technical assistance to developing countries around the world¹¹². The organisation also conducts research that contributes to better understanding of urban development, for instance, in the areas of environment and energy, poverty and inequality as well as trade and international integration.

The **OECD's** "Working Party on Territorial Policy in Urban Areas" works with the "Territorial Development Policy Committee" to assess trends and challenges of urban regions; to promote regional competitiveness and achieve a more sustainable urban

¹⁰⁵ The final report (2008) is available at <http://www.esf.org/activities/forward-looks/social-sciences-scscs/completed-forward-looks-in-social-sciences/urban-science.html>

¹⁰⁶ The Science Policy Briefing of the Initiative (2010) "Landscape in the Changing World – Bridging Divides, Integrating Disciplines, Serving Society" is available at <http://www.esf.org/?id=8738>

¹⁰⁷ http://www.coe.int/t/congress/default_en.asp

¹⁰⁸ <http://www.unhabitat.org>

¹⁰⁹ <http://www.unep.org>

¹¹⁰ <http://www.un.org/esa/population/unpop.htm>

¹¹¹ http://www.who.int/ageing/age_friendly_cities/en/index.html

¹¹² <http://www.worldbank.org>

development; and to address institutional changes needed to enhance the capacity of urban governments, in partnership with the civil society and the private sector¹¹³.

International dimension of the EU – Member States cooperation: the Strategic Forum for International S&T Cooperation (SFIC)

In its conclusions of December 2008, the Council called upon the Member States and the Commission to form a new partnership for international science and technology cooperation. In this context, the Member States and the Commission have been sharing information and discussing ways to coordinate their international research activities with and vis-à-vis key strategic partner countries outside Europe. Cooperation with scientifically advanced groupings at international level would be a significant opportunity for the JPI Urban Europe in order to respond to global challenges of sustainable urban development, and thus the JPI could support the cooperation of the EU and Member States at international level. In this respect, it is recommended that synergies are ensured between the initiatives of this JPI with and towards third countries and the SFIC activities. The JPI has already established relations with China, especially for scientific cooperation in the theme of foresight. Furthermore, the JPI has started to negotiate on scientific cooperation with African geographers. Interested non-EU countries could join the initiative at a later stage, once the strategic research agenda has been formulated between the participating countries, and in accordance with the rules on participation based on specific international arrangements.

5. SPECIFIC OBJECTIVES AND POTENTIAL OUTCOMES

The JPI Urban Europe seeks to rethink and manage the increasing urban orientation and concentration in Europe in order to create and exploit synergies in the area of publicly financed research¹¹⁴. It is a coordinated research and innovation initiative with a long-term and forward-looking orientation to shape urban development in times of a global shift. It has four strategic objectives: (1) to establish a world class research environment in Europe for all "City of Tomorrow" developments; (2) to create input for radical innovation, technology development and implementation strategies based on relevant scenarios and patterns; (3) to design tools, models and concepts for technology assessment and dissemination as well as for urban governance and urban management; and (4) to develop policy recommendations for the European Union, the Member States and cities.

The JPI Urban Europe has identified four long-term and inter-linked city images: "Entrepreneurial City 2050" (economic vitality and innovation), "Connected City 2050" (smart logistics and sustainable mobility), "Pioneer City 2050" (social participation and social capital), and "Liveable City 2050" (ecological sustainability). These city images highlight the strategic dimensions of urban futures in Europe and they will be used as vehicles to identify important research challenges and foundations for the Strategic Research Agenda. The main contours of the initiative's Strategic Research Framework are already in place¹¹⁵. The four inter-connected pillars will form focal points of the long-term strategic research on urban areas: economy (creative economic capital); mobility (infrastructural, logistic, connectivity

¹¹³ http://www.oecd.org/document/51/0,3746,en_2649_34413_36886003_1_1_1_1,00.html

¹¹⁴ <http://www.jpi-urbaneurope.eu/>

¹¹⁵ The Strategic Research Agenda of the JPI Urban Europe will be completed within the boundaries of the Strategic Research Framework (Annex 3)

and communication capital); society (social and cultural capital); and ecology (environmental capital). A specific value-added of the JPI will be the implementation of strategic research at the interfaces of these four pillars. The initiative has thus adopted an integrative, interdisciplinary and horizontal approach.

As to expected outcomes, the JPI Urban Europe will allow the Member States to maximise and take full advantage of their combined critical mass through coordination of efforts in the urban-related research, enabling the identification of joint European solutions to global challenges in the theme and thus making better use of Europe's public funds. The European Research Area on sustainable urban development will be strengthened and enlarged. The JPI aims to become recognisable as the official EU entry point open to all relevant stakeholders with an interest in research on urban development, in order to access, generate and share innovative knowledge, to provide pilot initiatives for innovations and link resources to regional and structural funds. It thus promotes intensive interaction between researchers, policy makers, business and civil society. In doing so, the JPI will foster mutually reinforcing alignments between research and other policies and existing initiatives at European level. For instance, it can provide scientific evidence for a better alignment of the urban dimension of cohesion policy to the needs of urban areas in the EU. The holistic research efforts of the JPI can also provide insights into how to achieve an integrated approach to urban policy.

6. ROLE OF THE EUROPEAN COMMISSION IN THE JPI

The Commission has been encouraging Member States to pursue common visions and strategic research agendas in the domains identified by the High Level Group for Joint Programming (GPC) including in the urban development domain.

The Commission may provide complementary measures for this JPI, which could include support for the management structure and further development of the Strategic Research Agenda of the JPI, the provision of data, information and analysis on the state of play in this field in Member States and at EU level.

The Commission will explore the scope for cooperation on development of concepts and solutions, both at national and at EU level, with a view to promote a holistic research approach in Europe for addressing challenges of urban development and achieving sustainable urban systems. The Commission will also facilitate the uptake of knowledge generated within this JPI into the EU policy making processes addressing urban development.

Finally, once the JPI Urban Europe is operational, the Commission will coordinate with the JPI in order to define which research work ought to be carried out at EU level. The Commission will also facilitate coordination among various JPIs in areas where research might be complementary.

ANNEX 1: GOVERNING STRUCTURE AND STAKEHOLDER INVOLVEMENT

The governing structure of the JPI Urban Europe has been set up in the past twelve months. As Figure 1 illustrates, the Terms of References for the different bodies have been drafted and subsequently adopted by the Governing Board. The Governing Board shall act in the interest of the JPI Urban Europe, safeguarding its goals and mission, identity and coherence, in an independent way. It may propose to the Management Board to set up working groups on specific issues (i.e. peer review procedures, foresight activities, evaluation of joint programmes or implementation groups) in order to facilitate the implementation of the JPI. The Governing Board has set up a search committee for identifying the members of the Scientific Advisory Board. The Commission has been invited to participate as an observer member in the Governing Board.

The Management Board is the executive body of the JPI Urban Europe, and as such, it is mandated by the Governing Board¹¹⁶. The Management Board shall be responsible for the operational management and coordination of this JPI. It shall also be responsible for the implementation of the actions requested by the Governing Board, to which it reports back on a regular basis. The Management Board is accountable to the Governing Board for the finances and deliverables of the JPI Urban Europe.

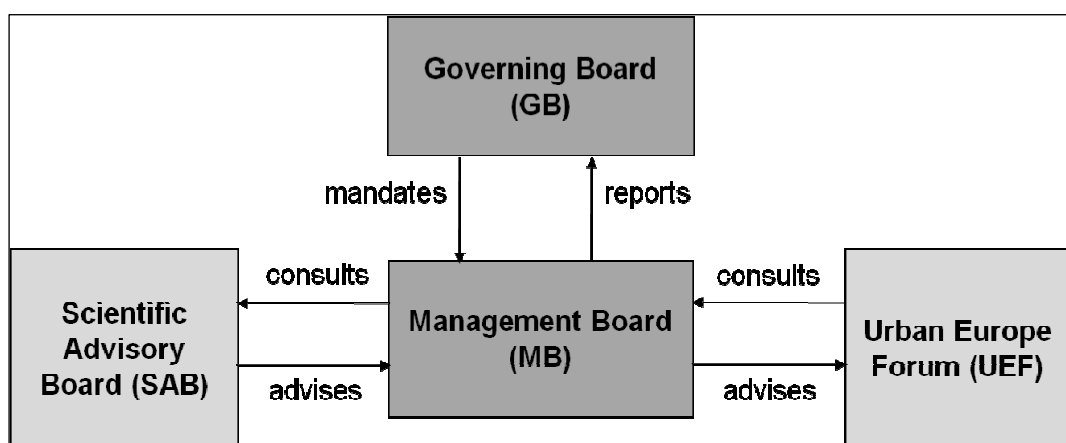


Figure. The governance structure of the JPI Urban Europe.

The JPI Urban Europe has also established the Urban Europe Forum (UEF) to intensify the cooperation and collaboration with the existing and new actors in the urban stakeholder community at national, European and international levels. The UEF will become a platform of a broad spectrum of organisations and initiatives dedicated to one or more research areas of this JPI. European organisations have been approached with the view to cover the entire spectrum of the innovation cycle, from European Technology Platforms or research associations in the various research fields (e.g. transport and energy-related partnerships) to organisations representing civil society, cities and industry. The first meeting of the UEF was organised jointly with the COST Office on 24 June 2011 in Brussels. The JPI Urban Europe is currently specifying further the role of this stakeholder platform within the JPI.

¹¹⁶ The Management Board is currently an interim structure which will be formalised in the coming months in order to support most effectively the JPI following its formal establishment

ANNEX 2: MAPPING OF NATIONAL RESEARCH PROGRAMMES

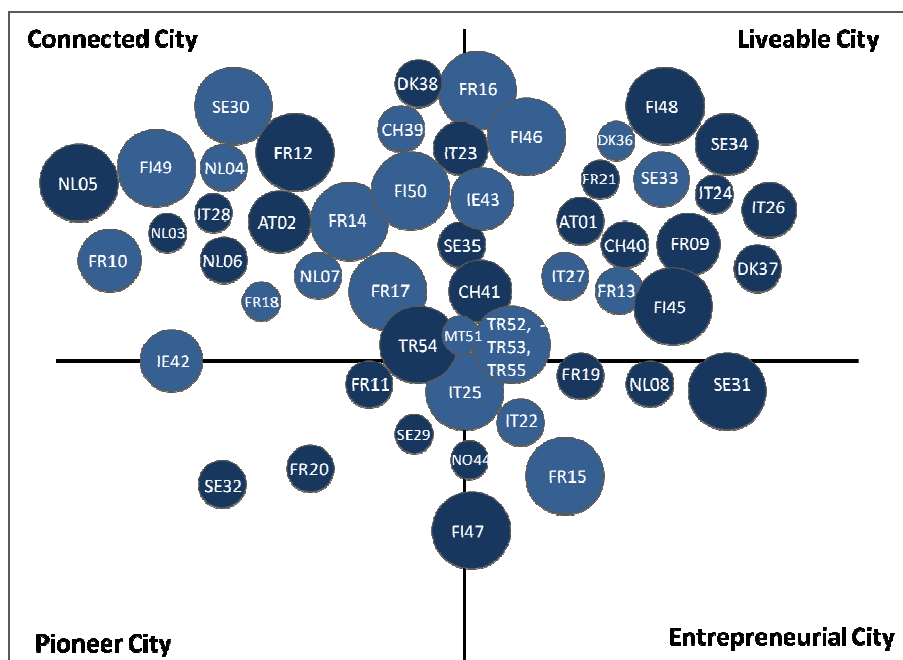


Figure: Mapping of the national research programmes according to the four city images of the JPI Urban Europe¹¹⁷.

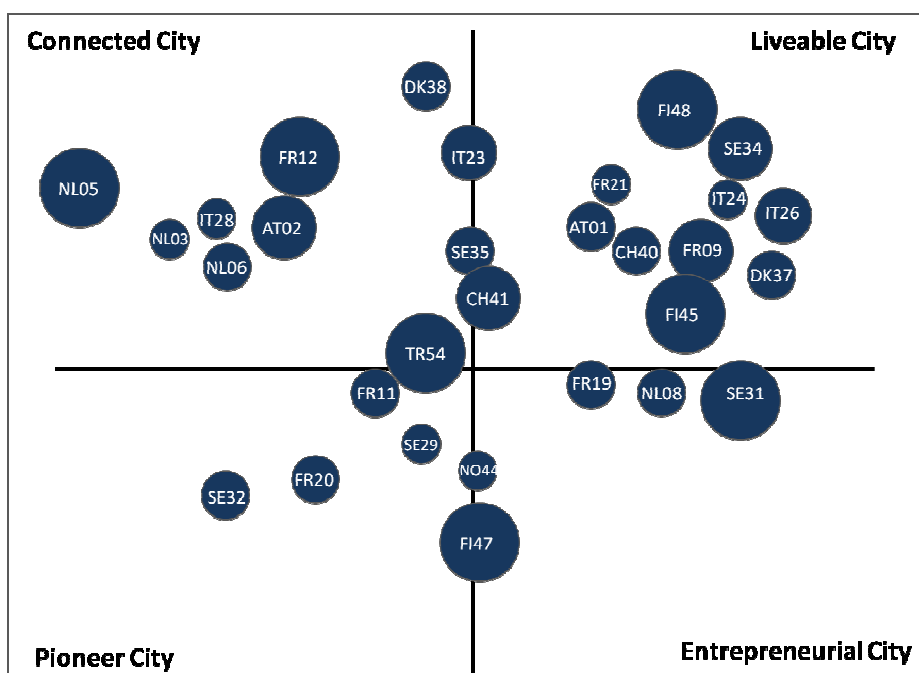


Figure: Mapping of the national research programmes that follow an integrated and multi-disciplinary approach according to the four city images of the JPI Urban Europe.

¹¹⁷

The capital letters in the circles refer to the participating countries and the size of the circles illustrates the financial magnitude of each programme. The numbers refer to the programme identification in a separate database.

ANNEX 3: OUTLINE OF THE JPI URBAN EUROPE STRATEGIC RESEARCH FRAMEWORK

The research agenda of the JPI Urban Europe is being built around four interconnected pillars that form the focal points of long-term strategic research on urban areas:

- Economy and innovation: creative economic capital;
- Mobility: infrastructural, logistic, connectivity and communication capital;
- Society: social and cultural capital;
- Ecology: environmental capital.

A specific value-added of the initiative rests on the strategic and evidence-based research on the interfaces of these pillars. Critical research questions are identified by a back-casting experiment based on a long-term horizon for urban future up to 2050. In view of the strategic orientation of the JPI Urban Europe research agenda, four long-term urban images have been created. These interlinked future appearances of urban environments (up to 2050) offer stylized pictures of urban development, with the aim to distillate relevant and operational research issues for the Strategic Research Framework of the initiative. The four urban images and their main orientation are:

- Entrepreneurial City 2050: economic vitality and innovation;
- Connected City 2050: smart logistics and sustainable mobility;
- Pioneer City 2050: social participation and social capital;
- Liveable City 2050: ecological sustainability.

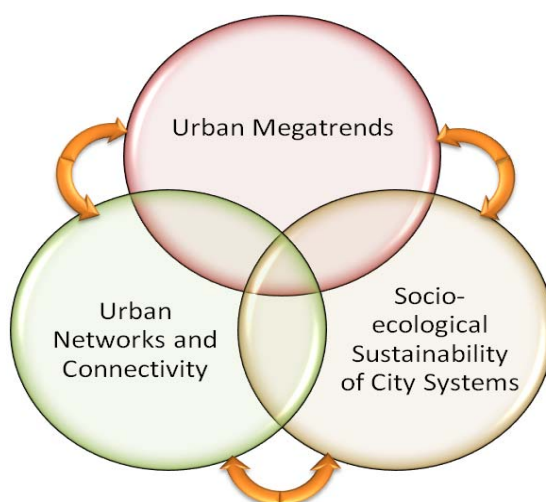


Figure. Architecture of the Strategic Research Framework of the JPI Urban Europe.

A wealth of innovative research ideas has been extracted from a creative envisioning process regarding these four interlinked urban images, on the basis of stakeholder consultation and interactive workshops with experts and policy-makers. To create a systematic and operational research agenda, a process of focusing and filtering has been carried out. This has led to identification of the three major research issues to be addressed within the JPI Urban Europe:

- Urban Megatrends: What are the prominent demographic, economic and technological megatrends that are decisive for a promising future of urban systems?

- Urban Networks and Connectivity: What are new mobility, logistic and land use developments and policies that are needed to create vital and attractive cities – and networks of cities – in the decades to come?
- Socio-Ecological Sustainability of City Systems: Which ecological and social constellations have to be met and implemented in order to shape sustainable and balanced long-run urban development patterns (including energy systems) in Europe?

Research issue: urban megatrends

Urban development patterns demonstrate a surprising diversity in many countries. In our urban century, urban networks, regions and cities (including urban agglomerations, supernova cities / megacities and systems of cities) offer strong centripetal and centrifugal forces that will most likely be decisive for the economic geography of our planet. Future urban developments, economic changes and growth challenges call for a long-range research horizon, in which (new) technology, innovation, demography (growth and ageing), climate, culture and socio-economic developments are taken into consideration. There is a need for a systematic analysis and monitoring of the drivers and impacts of both micro- and macro-structural trends regarding urban dynamics. This prompts the formulation of two prominent research themes:

- Patterns and drivers of long-term urban dynamics;
- Urban indicators, strategic information systems and models of urban development.

Research issue: urban networks and connectivity

The urban world is highly dynamic and displays a variety of new mobility, logistic and land use developments that are decisive for vital and attractive cities – and networks of cities – in the decades to come. Urban settlement patterns move increasingly towards connected multi-functional urban areas: cities are complex networks, connected cities become higher-order networks, and mega-cities are becoming nodes or hubs of global command and control. Land use and infrastructure offer the material/physical facilities that support the socio-economic performance of urban systems (e.g. ports, energy grids, rail and road connections, IT systems, aviation networks). Urban agglomeration advantages are critically dependent on land use planning, housing, transportation and logistics, industrial locations and economies of density. A thorough investigation into this complex force field calls for the design and implementation of the following two research themes:

- Infrastructure and advanced urban technology;
- New governance models, public-private interaction and future policy arenas.

Research issue: socio-ecological sustainability of city systems

Cities are seedbeds of innovation and socio-economic progress, but their dynamic evolution changes also the continuity and sustainability. Urban sustainability in terms of ecology, social dynamics and vulnerability calls for a careful management and strategy development, with a view to a balanced future. There are threats by population explosion, but also by large-scale industrialisation and urbanisation. The fast world-wide urbanisation leads to the need for a solid research agenda with three components:

- Sustainability of urban systems;
- Social dynamics, diversity and human health;
- Vulnerable and resilient cities.