

**GREENING EU CITIES**  
**THE EMERGING EU STRATEGY**  
**TO ADDRESS CLIMATE CHANGE**



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## **THE EMERGING EU STRATEGY TO ADDRESS CLIMATE CHANGE**

### **CEPS TASK FORCE REPORT**

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This report benefited from many other contributions from the Task Force members and invited guests and speakers.

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This report is based on discussions in the CEPS Task Force on EU and Global Climate Change Policy and the Increasing Role of Cities. The Task Force met several times between May 2009 and April 2010. Participants included senior executives from a broad range of stakeholders, such as energy production and supply companies, energy-intensive industries and representatives from business associations, cities and their associations and EU institutions. A list of members and invited guests and speakers appears in Annex 3.

As well as engaging in extensive debates, the members of the Task Force submitted comments on earlier drafts of this report. Its contents reflect the general tone and direction of the discussions, but its recommendations do not necessarily represent the full joint position agreed by all members of the Task Force, nor do they necessarily represent the views of the institutions to which the members belong.

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# CONTENTS

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<b>Preface</b> .....	<b>i</b>
<b>Executive Summary</b> .....	<b>1</b>
<b>Introduction</b> .....	<b>7</b>
<b>1. Status and Prospects of Urban Areas for Climate Change Mitigation</b> .....	<b>11</b>
1.1 The EU's Covenant of Mayors.....	12
1.2 Potential sources of funding for climate and energy policies in cities.....	15
<i>Financial and budgetary policy of local governments</i> .....	15
<i>Use of carbon finance by cities</i> .....	16
<i>EU and other government funding</i> .....	18
1.3 Cities and international climate change negotiations .....	21
<i>At the EU level</i> .....	23
<b>2. Creating Enabling Conditions and Removing Bottlenecks</b> .....	<b>25</b>
2.1 Capacity to act .....	25
2.2 Coherence and consistency of policies .....	29
2.3 Measurement, reporting and verification .....	30
<b>3. The Way Forward</b> .....	<b>31</b>
3.1 Finance.....	32
3.2 Measurement, reporting and verification tools.....	33
3.3 Best practice forum and 'best in class' .....	35
3.4 Economic analysis .....	36
3.5 Experimental work, such as pilot projects .....	38
3.6 Local regulatory tools and competencies.....	38
<b>4. Bringing it all together: A Strategy to Kick-Start the Process</b> .....	<b>41</b>
<b>References</b> .....	<b>43</b>
<b>Annex 1. Glossary of Abbreviations</b> .....	<b>46</b>
<b>Annex 2. MRV Problems with Local GHG Inventory Tools for Cities</b> .....	<b>48</b>
<b>Annex 3. List of Task Force Members and Invited Guests &amp; Speakers</b> .....	<b>53</b>



## PREFACE

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**A**ctivism on the part of local governments and cities is one of the latest and most high-profile developments in the analytical and policy sphere of climate change. Local governments are now realising the merits of local sustainability strategies – both to reap the health benefits and to reduce energy consumption while preparing for a low-carbon future. National or sub-national governments generally recognise these advantages too. Yet the necessary policy frameworks are still missing. The EU has taken an important step towards recognising and supporting local government action at European level with, among other measures, the Covenant of Mayors initiative – an institutional innovation with appeal beyond the EU. The success of the Covenant has clearly focused the attention of both member states and the EU on the construction of political and institutional frameworks that will sustain and scale-up support while gradually designing a governance structure that addresses some of the major long-term challenges, such as governance, finance and accountability.

The CEPS Task Force on EU and Global Climate Change Policy and the Increasing Role of Cities brought together representatives of a broad range of industries, business associations and non-governmental environmental organisations to engage in extensive discussions, often at senior executive level, on possible ways forward. During the meetings, the Task Force also had ample opportunity to discuss these issues with officials from the EU institutions, member states and international organisations.

We would like to thank the members of the Task Force for their active and positive contributions throughout the meetings. Although each member endorses the general content of the report, one should not conclude that all members subscribe to every sentence of the text.

In addition to the extensive contributions of the Task Force participants, we would like in particular to thank Kristina Dely, Head of Covenant of Mayors Office, and Emmanuel Guérin, Benoit Lefèvre and Matthieu Wemaere, Senior Research Fellows at IDDRI, for their written contributions. Finally, our thanks go to Laurence Tubiana for her essential leadership role in the Task Force and her skilful chairing of the meetings.

Christian Egenhofer, Monica Alessi & Jorge Núñez Ferrer  
Rapporteurs, CEPS Task Force



## EXECUTIVE SUMMARY

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**T**here is an increasing recognition that urban areas – home to around three-quarters of the EU’s citizens – hold one of the main keys to addressing climate change. Many in fact accept the view that the fight against climate change will be won or lost in urban areas. The concentration of emissions caused by city activity (either directly within the metropolitan area or by goods and services, such as electricity generation, that are produced beyond its boundaries) allow us to address a significant amount of emissions at one stroke. Local governments can have considerable regulatory and financial power to encourage low-carbon and sustainable investment while at the same time being suppliers of services, consumers of energy and other natural resources, purchasers of products and services, planners and instigators of change.

The European Commission launched the Covenant of Mayors initiative in 2009, to give recognition to, accelerate and support the actions of urban and local governments. This CEPS Task Force has taken stock of ongoing policy design and implementation with a view to both analysing existing policy and identifying the next steps to further both the conceptual and practical implementation of the EU’s emerging mitigation strategy for urban areas.

1. There is significant potential in empowering local governments. This is manifest in the interest of many local governments to undertake immediate action and to develop low-carbon plans, constituting an unprecedented opportunity for experimentation with concepts, tools and data. The EU’s Covenant of Mayors has been a particularly important catalyst – mainly but not only – in recognising and then supporting local government actions. In order to continue and accelerate progress, however, these bottom-up initiatives will need to be embedded in and supported by some kind of EU framework that

ensures legitimacy and efficiency, builds institutional capacity, develops the necessary tools and meets the financing requirements.

2. In the wake of these initiatives, many permanent and *ad hoc* networks have emerged. Better coordination of ongoing activities between networks as well as linking with research could accelerate and focus the direction of initiatives, facilitating attempts to ensure coherence both with EU policies and finance instruments.
3. For the EU, the main challenge is to maintain the momentum and translate the initiatives as quickly as possible into 'real and measurable' emissions reductions. This will depend to a large extent on i) local governments' *capacity to act*, ii) *coherence* of EU and member state policies and iii) on the ability of *tools* that ensure that emissions reductions are measured, reported and verified in a consistent and transparent way.

### *Capacity to act*

4. Key determinants for the *capacity to act* are: i) legal competencies, ii) access to finance and to a lesser extent iii) the need to ensure a long-term credible political commitment.

### *Competencies*

While local governments can impact emissions in many ways (e.g. through planning, information and awareness or local government services and operations), cities typically control only a small part of the emissions, with most of the GHG (greenhouse gas) regulation being regulated at EU or member state level. Local-level sustainability plans, however, are an indispensable building-block for low-carbon development and are therefore critical to the success of EU climate change policy. Local low-carbon plans can guide investment, identify win-win solutions and make local benefits more visible. Nevertheless, the relationship of these plans to existing planning tools and documents must be clearly established to reinforce and ensure their operational role.

### *Access to finance*

The availability and proper use of finance is indispensable not only for the direct funding of projects and programmes but also for the hiring of the technical staff necessary to conduct robust GHG

inventories and calculate marginal abatement cost curves, etc. The analysis in this Task Force suggests that there are various problems linked to financing: i) the local budget priorities are often not in line with emissions reduction objectives, ii) the ability of cities to raise finance is often limited by legal restrictions on their areas of competence with regard to regulating, taxing or subsidising activities, and iii) a lack of local capacity to understand and use the large number of available financial instruments efficiently, either from the EU budget, the European Investment Bank or from instruments such as the CDM (clean development mechanism) and JI (joint implementation) mechanisms.

For the EU it is necessary to re-allocate some European Structural Funds towards ‘greening’ the economy, starting from the 2010 mid-term review of the funds, and following with a deeper concerted focus on driving low-carbon development in view of re-designing the regulations for the next financial perspectives post-2013. This has to be achieved taking into account the importance of cities and all the resulting economic activity.

#### *A long-term commitment*

The time limitations of the political mandate related to the election cycle can make long-term commitments difficult. This challenge can be turned into an advantage by motivating local governments to engage in discussions, strategies and ultimately action plans on a sustainable future, as happened at the EU level through the Covenant. Such plans might be indispensable to the capacity to make investments that are consistent with both short-term efficiency improvements and long-term systems transformation.

#### *Coherence*

5. A major challenge is to ensure coherence in different forms, such as consistent, non-overlapping regulatory boundaries to avoid double-regulation or double-counting, including consistency between EU and member state policies or within EU policies, and between policies and finance mechanisms. Such coherence is a precondition for local governments’ ability to act, as well as a permanent task for EU and member state policy-makers. Double-counting and regulation are to some extent addressed by a clearer definition and description

of regulatory powers and competencies, for example expressed in the Sustainable Energy Action Plans from the Covenant. At EU level policy coherence will mean integrating climate change objectives into laws, regulations and finance instruments such as the Structural Funds.

### *Measurement, reporting and verification protocols*

6. Living up to the goal of developing low-carbon development plans and achieving GHG emissions reductions will ultimately require appropriate measuring and accounting tools. Measuring and accounting is also essential for financial support, whether it comes from public budgets or carbon markets (in the long run). Agreed, consistent (at least) across the EU and transparent measuring, reporting and verification protocols are a precondition to empowering local governments. To date, emissions are reported according to different methodologies, making comparison impossible. This deficiency will not only act as a brake on increased credibility and acceptability of measures but also as an impediment to access to finance from public budgets, capital markets or the EU Emissions Trading System (ETS), should local government actions be allowed to generate eligible credits. A major challenge for such an EU-wide (or worldwide if possible) measuring, reporting and verification protocol will be its ability to allow quantifying (i.e. translation into tonnes of reductions) policy-based targets, as such targets will most likely remain the principal type of local government commitment.
7. Against this background, this Task Force has identified the following concrete, yet broad steps for the EU to move forward:
  - Develop an EU-wide measurement, reporting and verification protocol, robust enough to allow eventual linking to the EU ETS, for example through domestic offset project frameworks, the Kyoto mechanisms and fostering the development of measurement technologies.
  - Ensure access to finance through the alignment of existing financing instruments (e.g. EU funds, new instruments of the European Investment Bank, such as project-based mechanisms) to the needs of local governments – in terms of level of finance

and procedures. In addition, there is a need for capacity (-building) for local governments to be better able to draw from existing finance sources.

- Continue to formalise Benchmarks of Excellence as a European Best Practice Forum to encourage successful local governments to introduce new and innovative ideas and practices to assist others in adapting this best-practice. This could be combined with an EU-wide evaluation (i.e. 'best-in-class competition') of local actions (initially on a voluntary basis) either at EU or member state level or both.
  - Strengthen where it exists and construct where it is missing the EU-level capacity for economic analysis, such as marginal abatement cost curves to assess the potential or identify more promising actions through, for example, the EU's R&D Framework programmes.
  - Increase financial support for experimental work and pilot projects that have the potential to break new ground, for example through a well-funded and carefully designed strategic energy technology (SET) plan.
  - Launch an open debate on the need to transfer regulatory or tax competencies to the local level of governance.
  - Initiate a debate on the need for introducing 'eco-conditionality' (or 'green-proofing' and possibly 'green procurement') into the new EU Budget Regulations for the Financial Perspective post-2013.
8. A kick-start is required. This could be achieved by launching in 2011, as well as consolidating and building upon existing initiatives:
- a. Some **five to ten highly visible urban pilot projects** to develop transferable methodologies for key functions, such as planning and governance, local taxation, economic analysis tools, measurement technologies, GHG emissions accounting and compliance tools, a finance framework, as well as a template for local government communication with the objective to develop EU-wide (or worldwide if possible) harmonised methodologies or, if not suitable, best practices in order to allow scaling up of actions within the Covenant or beyond.

- b. **Public-private partnerships (PPPs)** on key integration areas in the field of research and development as well as demonstration in all future technologies relevant to urban areas such as smart grids, energy efficiency, sustainable trams and metros, electric vehicles and associated infrastructural issues, demand-side measures, decentralised power generation, buildings and transport. Based on the integration of different actors, disciplines and technologies, the PPPs could become a major tool to develop financial packages to drive technological innovation at and for the local level.
- c. **A European forum for sustainable urban areas** based on the public-private partnerships and existing fora, notably the Covenant, to complement the pilot projects and the PPPs to essentially communicate and refine available information on urban performance indicators, finance models, governance, GHG emissions accounting, or (green) public procurement as the means for local governments to act. This Forum should be set up with the objective to discuss and develop workable, practical and efficient solutions to political, technical and finance issues via the creation of templates ('blueprinting') based on existing information. The platform would bring together policy-makers at EU, member state, local and urban levels, a broad range of industries as solution-providers, the research community as a source for tools, and civil society – in short, all those primarily concerned by this issue.

## INTRODUCTION

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According to Eurostat estimations,<sup>1</sup> cities are home to 74% of Europe's citizens and are responsible for 75% of its energy consumption and 75% of CO<sub>2</sub> emissions. In many developing countries we find mega cities<sup>2</sup> – with over 10 million inhabitants or more – which have grown very rapidly in the last few decades, while infrastructure investment is not keeping pace with this growth. Cities worldwide are thus facing a huge challenge to develop or shift towards sustainability. At the same time, there is vast potential to develop low-carbon and long-term sustainable cities, thereby possibly leapfrogging onto a sustainable development path. This makes cities a 'natural' focus for action on climate change, which is a priority of the EU and elsewhere in the world. Ultimately, this focus will need to be acknowledged in the context of international negotiations.

Beyond mitigation, there is also the adaptation challenge. Inhabitants of cities are particularly exposed worldwide to climate change, due to two factors: on the one hand a large number of cities lie in coastal areas or next to river banks, and on the other hand increases in temperature can induce important health concerns and huge changes in energy demand, resulting

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<sup>1</sup> Eurostat, "The Urban Audit — measuring the quality of life in European cities", *Statistics in focus*, 82/2008.

<sup>2</sup> The United Nations coined the term 'mega cities' in the 1970s to designate all urban agglomerations with a population of eight million or more. In the 1990s, the United Nations raised the population threshold to 10 million, following the practice of institutions such as the Asian Development Bank. From this definition, the United Nations estimates that there were 19 mega cities in the world at the beginning of the 21<sup>st</sup> century (M.P. Brockerhoff (2000), "An Urbanizing World", *Population Bulletin*, Vol. 55, No. 3, Population Reference Bureau, September.

in major challenges to city authorities in adapting to the impacts of climate change.

This double challenge – mitigation and adaptation – has brought the role of cities in climate change to the top of the political agenda. In order to develop tailor-made strategies, innumerable initiatives have been launched by cities, their associations and groupings themselves, as well as by international organisations, such as the World Bank and the OECD, the EU and its member states, businesses and research organisations. Some bodies have also been exploring the possibility of engaging more directly in international climate change negotiations.

But what are cities? Cities can be defined as urban areas, governed in some ways by local authorities. At the same time, these urban areas are an integral part of an – historically developed – set of competencies and tasks, which moreover will differ across and at times even within, member states. They are not stand-alone legal or political entities that define their own policies. Rather they are part of a complex web of global, EU, member state, regional or local activities and competencies. It is important to avoid too strong an emphasis on legal definitions and competencies. Leverage goes far beyond the legal competencies of ‘city administrations’ and includes long-term strategic planning, especially if accompanied by an investment strategy, but also information and education or involvement of citizens in sustainability strategies that will ultimately increase the local and urban quality of life. Thus, regulatory powers and emissions control stemming from the operation of cities’ services (‘corporate emissions’) are but one of the levers upon which urban areas can rely. As a result, this report will focus on GHG emissions by urban areas governed by local authorities in the EU, with the objective to identify and weigh all available levers to reduce GHG emissions in urban areas.

This new focus on climate change, sustainability and clean energy is a relatively new priority for cities, which will require – for many urban areas – a re-thinking of past approaches. Most importantly, it will require the development of ‘sustainability’ strategies, a shift in policy objectives and priorities and ultimately, the need to build a bridge between the high-level EU and member state political commitment to address climate change and the need to build and finance long-term sustainable infrastructures for transport, energy, housing but also manufacturing and services. Any successful strategy for urban areas must address the challenge that most of



the current infrastructures are unsustainable, yet that long-term sustainable new infrastructures will require significant investment.

As a result of the significant challenge facing the EU and beyond, the agenda of urban areas and climate change has grown considerably, given that urban life includes almost all aspects of social and economic activity. This CEPS Task Force report concentrates on mitigation and takes an EU-focused angle. Based on the broader question of how urban action can influence the speed, depth and direction of mitigation efforts, it explores *how urban areas and their actions could facilitate and possibly accelerate the implementation of current and future EU and national climate change commitments*.

This is by and large also the perspective taken by the EU's flagship initiative, the Covenant of Mayors,<sup>3</sup> when it says: "local governments must become leading actors for *implementing* sustainable energy policies, and must be recognised and supported in their effort".<sup>4</sup> This statement is not addressed to EU actions only. As we will see within this perspective of implementation and acceleration of mitigation, it is also pertinent to international actions.

This Task Force Report will *not* examine the political question of whether cities should play a bigger role in international negotiations and what such a role could be. To date, there is little space – and much less appetite – to add this difficult item to the negotiations' agenda. In any case, in the absence of a political agreement in Copenhagen, much remains to be done on the institutional anchoring internationally of city actions on climate change.

This Report will first take stock of ongoing initiatives and discussions on the role of cities and climate change policy. It then identifies and thinks through some of the issues that emerge, tests them among EU and international stakeholders and formulates a limited set of concrete recommendations to be presented to local, national, EU and international policy-makers and negotiators.

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<sup>3</sup> Covenant of Mayors, "Key role for local authorities" ([www.eumayors.eu/about\\_the\\_covenant/key\\_role\\_for\\_local\\_authorities\\_en.htm](http://www.eumayors.eu/about_the_covenant/key_role_for_local_authorities_en.htm)).

<sup>4</sup> Italics added by the authors for emphasis.

It is organised as follows: Chapter 1 sets the scene by describing the status of EU and international approaches to GHG reduction action in urban areas. Chapter 2 identifies the crucial enabling conditions to move forward and discusses strategies to overcome bottlenecks. Chapter 3 discusses priority areas and possible strategies to accelerate action, before the final Chapter 4 outlines a concrete kick-start strategy. The report is completed by three Annexes: 1) a Glossary, 2) a technical treatment of the measurement, reporting and verification (MRV) tools for GHG emissions and 3) a list of Task Force members and invited guests and speakers.

# 1. STATUS AND PROSPECTS OF URBAN AREAS FOR CLIMATE CHANGE MITIGATION

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**T**here is increasing acceptance of the potentially prominent role of cities in the fight against climate change. Many now accept that the fight against climate change will be lost or won in cities. Nevertheless, policies and instruments are only being developed gradually, with the EU being a leader with the Covenant of Mayors initiative, as pioneered by the European Commission.

Not only does concentration at the city level provide the opportunity to assess and understand the patterns of GHG emissions and thus to prioritise actions and investments to reduce emissions, it also harnesses the considerable regulatory and financial power of cities and local governments to engage in low-carbon investment. Low-carbon strategies at local level may even be more acceptable to citizens, as the results of such strategies could address local challenges such as quality of life (health, security), as well as social cohesion, environmental benefits and fuel poverty – and is therefore more tangible than strategies at national or international level. Finally, density and spatial organisation are key factors explaining energy consumption in transport and in buildings. It has been argued that successful climate policies will require ‘intermediate organisations’ recruited from civil society and going beyond states, enterprises and individuals.

The role of cities in climate change is also subject to various research projects and publications. Among other organisations, the OECD has carried out a number of studies on cities. This research highlights the role of the cities as well as the regulatory barriers and financial hurdles which undermine the potential of city authorities to reduce GHG emissions (and prepare to cope with climate change impacts). This research will be crucial for scaling up ongoing action but also for connecting different regions, and

even continents, and ultimately for improving the coherence between different activities.

## 1.1 The EU's Covenant of Mayors

Actions at the level of urban areas support bottom-up approaches as a complement to traditional top-down approaches of setting targets or implementing EU-wide policies. Urban areas and cities have a central role to play, first of all in changing the behaviour of a large share of the population; and they can also play a motivational role in helping to reduce GHG emissions. The EU has a key role to play in local development and assisting local actors to instrumentalise EU objectives. The role of the EU is laid out in Art. 158 of the Lisbon Treaty, which has expanded the competencies of EU regional development and territorial cohesion.

The socio-economic role of cities and the need for sustainable economic practices in cities has long been recognised, and the EU has been financing specific urban initiatives since 1994, which are now mainstreamed within cohesion and competitiveness policies. To further focus on the understanding of the urban dimension, the European Commission has launched specific publications explaining EU policies and financial instruments focusing on cities (European Commission, 2010a and 2010b).<sup>5</sup>

Although the roles and especially the competencies of local authorities of urban areas are diverse across the EU, generally speaking their role goes beyond a more motivational one. They can at one and the same time be:

- Supplier of services (e.g. district heating, public transport, etc.);
- Consumers of energy and therefore emitters, such as in the areas of lighting, car fleets, offices or local housing, i.e. corporate emissions;
- Regulators and planners; and
- Instigators of change through awareness-raising and information.

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<sup>5</sup> These two documents present a detailed description of the instruments that cities can use to finance urban projects. The first document focuses on funding from the EU's Cohesion Funds, i.e. European Regional Development Fund and European Social Fund. The second document presents a comprehensive view of the urban dimensions of EU policies, such as provisions from competition policy, social policy, culture, employment, procurement rules, etc.

The European Commission, under the auspices of the former DG Transport and Energy (now DG Energy), launched the ‘Covenant of Mayors’ to serve as a catalyst for action and change, in recognition of the need to empower actions by local authorities – while fully respecting the subsidiarity principle. It brings together the mayors of more than 1,900<sup>6</sup> local authorities representing some 126 million citizens committed to contributing to the EU’s CO<sub>2</sub> reduction objectives by 2020. The Covenant states that “signatories to the Covenant commit to submitting their local Sustainable Energy Action Plans (SEAPs) within the year following accession. These cities are then expected to provide periodic public reports outlining the progress of their Action Plans. Signatories accept termination of their involvement in the Covenant in the case of non-compliance.”<sup>7</sup>

The Covenant of Mayors has received the endorsement of the Committee of the Regions and the European Parliament, where the first Covenant was signed in February 2009. The CoR gave its opinion on the Covenant in November 2008 (CoR, 2008), in support of the initiative.

Most signatories draft and implement their SEAPs on their own, but they are supported by the technical guidance provided by the Covenant of Mayors’ Office and the European Commission’s Joint Research Centre in close cooperation with experienced municipalities and their networks. However, the municipalities that do not have sufficient resources can be supported by ‘supporting structures’. Such supporting structures are typically public administrations that are in a position to provide strategic guidance, financial and technical support to municipalities with the political will to sign up to the Covenant of Mayors, but lacking the skills and/or resources to fulfil its requirements, namely the preparation and implementation of the Sustainable Energy Action Plan. Supporting structures can be national and regional public bodies, counties, provinces, agglomerations, mentor cities, etc. To date, some 80 such supporting structures exist and are growing.<sup>8</sup> See Box 1 on next page.

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<sup>6</sup> 1,903 in August 2010.

<sup>7</sup> See p.4 of the Covenant of Mayors brochure 2010 ([www.eumayors.eu/mm/staging/library/com\\_br\\_lang/docs/com\\_brochure\\_en.pdf](http://www.eumayors.eu/mm/staging/library/com_br_lang/docs/com_brochure_en.pdf)).

<sup>8</sup> Covenant of Mayors, “List of Supporting Structures” ([www.eumayors.eu/support\\_structures/list\\_programmes\\_en.htm](http://www.eumayors.eu/support_structures/list_programmes_en.htm)).

### *Box 1. The Covenant of Mayors*

Mayors commit to going beyond the EU Climate and Energy Package objectives in terms of CO<sub>2</sub> reduction – i.e. reducing CO<sub>2</sub> emissions by more than 20% on their territories by 2020 although on varying baseline years – by implementing a Sustainable Energy Action Plan (SEAP), which the local authorities themselves prepare.

The Covenant of Mayors addresses the action at local level within the competence of the local government. It is impossible to quantify the exact amount of emissions for which local government in urban areas is responsible, but estimates assume that they will be up to around 20% of total emissions on the territory with the remainder covered by EU or member state regulation, notably the EU Emissions Trading System. Of the 20% of emissions, only a small fraction is directly under the control of city authorities; most depend on private operators.

The Covenant provides Guidelines for the implementation of SEAPs, prepared on the basis of the Joint Research Centre (JRC) evaluation of existing methodologies and tools. These guidelines are aimed at providing detailed recommendations for SEAP elaboration and CO<sub>2</sub> baseline inventory, thereby providing guidance rather than imposing a mandatory methodology, in order to “help local authorities to reach the commitments they have taken by signing the Covenant.” (JRC, 2009)

Baseline Emissions Inventories will allow for more accurate estimates. More importantly, they will provide a better grasp for local authorities of emissions sources and possible strategies to reduce them. It thereby becomes an indispensable element for empowering local authorities.

Most SEAPs will include actions in the following sectors:

- Built environment, including new buildings and major refurbishment;\*
- Municipal infrastructure (district heating, public lighting, smart grids, etc);
- Land use and urban planning;
- Decentralised renewable energy sources;
- Public and private transport policies and urban mobility;
- Citizen and, in general, civil society participation; and
- Intelligent energy behaviour by citizens, consumers and businesses.

\* *Reductions of greenhouse gas emissions due to industry delocalisation are explicitly excluded.*

The Covenant of Mayors Office has been up and running since January 2009. It operates a general helpdesk assisting signatories and supporting structures on adhesion and commitments and a technical helpdesk involving the European Commission's Joint Research Centre in Ispra, Italy.

Increasingly, non-EU countries are showing an interest in this approach and/or are exploring possibilities for cooperation. The Covenant of Mayors is operational in cities in 41 countries, 14 of them outside the EU. Several initiatives are under development to reflect the internationalisation of this Covenant. The Commission is preparing a decision to allocate funds for an extension of the Covenant in the ENP (European Neighbourhood Policy: ex-Soviet Union) countries. With a view to 2011, it is likely that the South Mediterranean area will be included. A Memorandum of Understanding between Covenant cities and the US Conference of Mayors was signed on 15 June 2010. The so-called 'Latin American' chapter of the Covenant has been proposed by the State of Buenos Aires and is supported by several cities. The Chinese government expressed interest in the Covenant and accepted the organisation of a Covenant event during the Shanghai WorldExpo in July 2010. An addendum to the Covenant, including solidarity clauses with territories in African, Caribbean and Pacific (ACP) countries, is also under consideration.

## **1.2 Potential sources of funding for climate and energy policies in cities**

Action by local governments will require finance, much of it in addition to existing sources. The EU and member states already offer a number of sources, which are, however, inadequate in size and are often not (yet) geared towards this 'new' objective of greening urban areas. However, financing also includes local governments' own budgeting policies.

### ***Financial and budgetary policy of local governments***

Funding climate objectives in cities depends on a number of factors, including the size of their budget and their power to raise the necessary funding – either through the city's lobbying capacity to influence the national allocation of the budget or through local taxation and borrowing. Apart from the fundraising role, the *budgeting policy* role of the cities is crucial, as decisions on funding priorities and the rules governing this allocation will influence the level of emissions by the city. Green

procurement rules, for example, or the prioritisation of public transport and waste management over other expenditures will have an impact on the final result. However, it should not be forgotten that discretion for setting new priorities with budgetary implications is limited because legal obligations will have to be met first.

There is a role for national governments to examine and possibly revise, in conjunction with local governments, the competencies of local authorities in the areas of local taxation, such as local services, waste and waste water management or road taxes. One example is the inability of French cities to introduce congestion charges, as exist in London, Stockholm and Milan, due to the lack of tax competencies of the cities. This will trigger a debate on the right balance of competencies between the central state and the local authorities to raise funds and finance local actions.

At the same time, it is necessary that local governments understand their role and commit themselves to integrating climate objectives efficiently in their planning and budgeting. This is mentioned repeatedly in a number of OECD reports, such as in Kamal-Chaoui & Roberts (2009), and the OECD background paper by Corfee-Morlot et al. (2009), which shows the need for greening local finances on both the revenue and the expenditure sides. The latter reveals how existing taxation mechanisms often run counter to environmental sustainability and emissions reductions. These studies point to the need to restructure the sub-national taxation systems which affect the environment of cities, by promoting urban sprawl for example.

### *Use of carbon finance by cities*

In view of the scarcity of public finances, the development of carbon markets appears to be an interesting tool to investigate. Two main areas can be envisaged: project-based mechanisms – e.g. the existing Kyoto Protocol mechanisms CDM and JI, and their future development, domestic offset projects, etc.), and cap and trade mechanisms.

Despite the limited utilisation of CDM and JI, these are interesting tools, and could be improved to better suit cities. They finance actual emissions reduction projects, while being budget neutral for countries.

Less than 1% of projects registered with the CDM are credited to urban areas (World Bank, 2010). Of those projects attributed to cities, the number of registered CDM projects in urban areas “is approximately 150,



of which more than 90% are in the solid waste sector”, despite the fact that “there are more than 40 approved methodologies that are relevant to urban areas” (Ibid., p. 11). Among them, Bogota (transportation), Sao Paulo (landfill gas), Mexico City (energy efficiency) and Ho Chi Min City (renewable energy), illustrate the diversity of the projects and the cities involved.

As concerns Joint Implementation – a mechanism accessible to EU member states –  $\pm 30$  projects involving cities are already registered,<sup>9</sup> including Timisoara (energy efficiency), Christchurch City (landfill gas), and Düsseldorf (energy efficiency). Furthermore, an ongoing OECD/CDC Climat Research study analyses the key conditions for cities to access climate finance, including the involvement of national and sub-national governments, project finance and risk management. One of their preliminary results identifies the high potential of programmatic approaches, like the North Rhine Westphalia JI Programme.<sup>10</sup> Thanks to simplified procedures and payments in cash (instead of carbon credits), eight cities are already involved. Programmatic programmes seem suitable for cities and these latter should carefully follow the evolution of the mechanisms at the UNFCCC level, both for the JI and the CDM.

The use of cap-and-trade mechanisms for emissions in cities is sometimes envisaged (see the examples of Chicago, Los Angeles or Tokyo), but these experiences have to be analysed to enhance the main conditions of success. Tokyo’s cap-and-trade system started with a voluntary emissions reductions mechanism in 2002, but this year it enters into a compulsory programme, with a focus on energy usage. Some 1,400 universities, hospitals, businesses and factories are covered by the scheme, which requires them to reduce emissions by 25% compared to the year 2000. Important to the success of any cap-and-trade scheme is the introduction of energy-usage reporting systems, which in Europe are largely non-existent. A proper sustainability strategy also requires sound long-term investment planning.

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<sup>9</sup> See OECD/CDC (2010), *Cities and carbon market finance: Taking stock of cities’ experience with CDM and JI*, Climat research report, forthcoming.

<sup>10</sup> Ibid.

### ***EU and other government funding***

The European Commission has set up a number of funds dedicated to energy programmes and projects through the Intelligent Energy Europe (IEE) initiative, which has a total budget of €730 million over the 2007-13 budgetary period. This fund, controlled by the Intelligent Energy Executive Agency, also includes a specific fund targeted at offering technical assistance to urban areas, the ELENA (European Local Energy Assistance). Created at the initiative of the European Commission and the EIB, ELENA assists the regions in the preparation of projects aimed at applying for other funding and attracting private investment in energy projects.

ELENA focuses on a variety of areas, such as the retrofitting of public and private buildings, sustainable building, energy-efficient district heating and cooling networks, or environmentally-friendly transport. These funds are particularly important for the Covenant of Mayors to help replicate the positive examples of other urban areas in the EU. In order to help inform regions about progress and new possibilities, a special ManagEnergy Network<sup>11</sup> has been created, which provides information and organises information exchange events.

Apart from the IEE funds, other sources that are not exclusively dedicated to urban areas can be accessed by city and other local authorities. Those funds are either financed by the EU budget or the EIB, or jointly. Information on how these can be accessed and used by cities has been compiled in two recent European Commission publications (2010a and b). Many EU policies and instruments can contribute to emissions reductions when correctly integrated in emissions reduction strategies.

The EIB provides a number of funds that local authorities can draw from for their energy projects. Overall, the EIB lending capacity is quite substantial. In the framework of the European Economic Recovery Action Plan, the EIB increased its lending target in the energy field to €9.5 billion in 2009 and €10.25 billion in 2010.<sup>12</sup>

The EIB funds also provide specific loans and guarantees for Public Private Partnerships (PPPs) with the Risk-Sharing Finance Facility (RSFF) or the Marguerite Fund.

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<sup>11</sup> For more information, see the network's website ([www.managenergy.net](http://www.managenergy.net)).

<sup>12</sup> Commission Staff Working document, SEC (2009) 1297 of 7 October 2009.

The RSFF has a total budget of €2 billion, financed by the EU budget and the EIB jointly. This fund can leverage up to €10 billion for higher risk financing. It is dedicated to public and private legal entities, financial intermediaries and for European research initiatives. It covers a large array of possible investments, and cities with local actors, utilities and banks can develop projects aimed at modernising the energy grid, finance research, development and demonstration of new technologies in research institutes, and so on. It is up to the local authorities to explore the possibilities offered by such loan facilities. The RSFF has reached its financial ceiling, which is an indication that the scheme works and possibly will be expanded.

The 2020 Marguerite Fund offers support for greenfield projects in the areas of energy, climate change and infrastructure in the form of equity or quasi-equity in the form of long-term loans (up to 20 years) to companies that own or operate infrastructure in transport and energy sectors. It is financed jointly by the EIB and the Caisse des Dépôts (France), the Cassa Depositi e Prestiti (Italy), the KfW (Germany), the Instituto de Crédito Oficial (Spain) and the PKO Bank Polski (Poland), each committing €100 million to the fund. It also seeks to introduce other players with a combined financial size of €1.5 billion by 2011. Aimed mainly at the Trans-European Networks and renewable energy production, urban areas are not a primary target. However, urban areas, being major consumers of energy, can be part of large projects financed by the fund.

For investments by urban SMEs (small- and medium-sized enterprises) in innovation in the energy and climate sectors, the European Investment Fund (EIF) provides venture capital funding and guarantees. The EIF is managing, on behalf of the European Commission, the financial instruments of the Competitiveness and Innovation Framework Programme (CIP) for SMEs. The CIP financial instruments support investments in technological development, innovation (including eco-innovation), technology transfer, and the cross-border expansion of business activities. While not focused either on urban areas or necessarily energy and emissions, it is open to SMEs in urban areas and can finance investments related to mitigation.

In addition to the specific ELENA funds and the EIB support, funding can be accessed by urban areas, which can be used in investments related to energy efficiency and renewable energy. JESSICA, a revolving fund, for example, focuses on supporting sustainable investments in cities. Other similar investment and capacity-building funding can be used by a

variety of beneficiaries which can integrate mitigation strategies. These include JASPERS, which offers support to projects in European regions; JEREMIE, which supports investments in micro- and medium-sized enterprises, and JASMINE, which supports micro-finance institutions in Europe.

The ERDF (European Regional Development Fund) of the EU structural funds can finance a palette of investments, and it is largely up to the eligible regions to decide on the focus of the programmes.

The ERDF was also amended in 2009 to integrate expenditure on energy efficiency and the integration of renewable energy in existing housing. Housing was never part of the structural funds in the past and only a small concession was given to the new member states due to the social housing needs for up to 2% of the structural funds allocation. The new rule applies to all member states and allows for up to 4% of ERDF funds allocated to the beneficiary region to be used. One of the main challenges for this measure is that it was introduced within a programming period. The uptake of the facility for energy efficiency and renewable energy measures is particularly slow in the new member states. Given the importance of the housing sector for mitigation and also its positive effects on adaptation (insulation can be useful for heat retention as much as for protection from heat), it is important to find ways of making progress in this area. A question to be resolved is the appropriateness of placing a limit on the funds that can be used, rather than concentrating on the efficiency of the actual investments.

As part of the industrial initiatives of the SET plan, the European Commission has also planned to finance projects on smart cities, which promote smart utilities, intelligent infrastructure and information and communication technology, to create gains in efficiency while improving the quality of life of its citizens. Member state policies can help make funding available; e.g. for the 2007-13 programming period, a carbon neutrality objective has been set up for the Operational Programmes funded by the ERDF in France. The aim is to allow a re-orientation of funding projects with lower emissions, or to propose alternative solutions to local authorities in order to reduce their CO<sub>2</sub> impact.<sup>13</sup>

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<sup>13</sup> This has been based on the NECATER modelling tool (<http://www.energies-demain.com/EN/spip.php?article16>).

In addition, the structural funds offer financial engineering instruments (urban funds, incentive schemes providing loans, etc.) and cover 100% of the costs for measures aimed at training in green jobs, such as energy managers, technicians, architects, builders and advisory services, among others.

Cities and the wider regional authorities thereby have the possibility to start exploring opportunities to combine the EU funding from different sources, i.e. funds for research, development and demonstration, funds for energy efficiency projects, funds for energy infrastructures, etc. to develop integrated large and efficient strategies to move towards a low-carbon economy. At present, projects tend to be site-specific and occasional, but there is a need for large integrated projects for future efficient energy systems.

One of the problems facing cities is not the lack of available financing, but the capacity to draw from the funding and to use it in accordance with the objectives of reducing emissions. For example, it is easier for a municipality to draw EU funds for roads and other traditional infrastructure projects than to fund complex, low-carbon energy and transport investments. The funding by ELENA can help in this respect, (and also other funding directed at increasing administrative capacity). More generally, a first priority seems to be to develop capacity for local governments to access funding and only later to increase the volume.

### **1.3 Cities and international climate change negotiations**

Cities and urban areas are lobbying for recognition as more active participants in the international climate change negotiations and its decision-making process. Before the Copenhagen negotiations, new impetus was provided as Senegal and Uruguay submitted requests to recognise local, sub-national and regional levels of governance as the appropriate level of action.<sup>14</sup> There is, however, no mention of city or local government involvement, in the other three parts of the negotiating text – Shared Visions, Mitigation and Financing, Technology and Capacity

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<sup>14</sup> See para. 45d of Ad Hoc Working Group on Long-term Cooperative Action under the Convention – *Negotiating Text* (FCCC/AWGLCA/2010/14) –12<sup>th</sup> session – Tianjin, 4–9 October 2010 ([unfccc.int/resource/docs/2010/awglca12/eng/14.pdf](http://unfccc.int/resource/docs/2010/awglca12/eng/14.pdf)).

Building – or in the Copenhagen Accord. At this stage it is uncertain how the future negotiations will deal with urban areas, partly because many other open topics seem to be more urgent and partly because it is unclear how the process will evolve.

The role of local authorities is thus only mentioned in the preamble of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (LCA) negotiating text (FCCC/AWGLCA/2010/14) as follows:

(...) *Recognizing* the need to engage a broad range of stakeholders at global, regional, national and local levels, be they governmental, including subnational and local government, private business or civil society, including young people and people with a disability, and that gender equality and the effective participation of women and indigenous peoples are important for effective action on all aspects of climate change...

Even without being contracting parties to the agreement, cities and local governments can be part of emissions reduction projects, such as in the Clean Development Mechanism (CDM) and Joint Implementation (JI), and Programme of Activities (PoA). Cities can form voluntary groupings endorsing commitments (e.g. the Covenant of Mayors or other EU-based protocols) allowing a quantification of their commitments. Theoretically, there could be a role for cities in the institutionalisation of emissions reduction agreements. Mandatory official targets for cities could be introduced, for example, as absolute caps or relative targets.<sup>15</sup> This would require that urban territories be clearly defined and cities and urban areas should somehow be covered by the new post-2012 climate change agreement, for example in a preamble linked to the so-called Nationally Appropriate Mitigation Actions (NAMAs). In that way, cities would have easier and direct access to financial support without needing to go through national channels.

There are many other ways to engage in international climate change activities:<sup>16</sup> i) joining national negotiation delegations, ii) involvement in

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<sup>15</sup> In California law SB 375, urban transportation reduction targets are expressed in terms of a percentage reduction per capita in GHG emissions from 2005 onwards.

<sup>16</sup> Without being formally represented in the negotiations, ICLEI has created a specific campaign for cities – the “Cities for Climate Protection” (CCP) – to

national strategies, iii) creation of NAMAs<sup>17</sup> by developing countries for cities or for urban sectors, iv) via other incentives that can be provided through low-carbon zones,<sup>18</sup> participation in the carbon market or a green stimulus package, and v) solidarity actions (e.g. finance or technical assistance) between industrialised and industrialising countries.

Incorporating local authorities in an institutionalised way into the negotiations, especially to ensure their coordination, poses important institutional as well as methodological challenges: identifying which local governments are relevant, how to coordinate them, at what level – urban regions or cities – how to involve them and how to measure, monitor and verify emissions.

### *At the EU level*

At the EU level, various formations of the Council of EU Ministers have emphasised the important role that local authorities should play in combating climate change and adapting to its adverse impacts. For example, the External Relations Council Conclusions of 17 November 2009 on climate change and development points out that addressing climate change is a multi-level governance issue that requires involvement and responsibility at all levels: individual, local, national, regional and global, with a special focus on support to the local level. The Council recalled that the principle of subsidiarity should apply, leading to the decentralisation of knowledge, accountability and resources, and that collaboration between

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coordinate their actions and indirectly influence negotiations. The C40 Large Cities Climate Leadership Group also coordinates its lobbying vis-à-vis national governments to have their needs heard.

<sup>17</sup> The Bali Action Plan envisaged the creation of NAMAs (Nationally Appropriate Mitigation Actions). These are voluntary actions undertaken by developing countries on the condition of being supported and enabled by financial, technological and capacity-building assistance by developed countries.

<sup>18</sup> Low-carbon zones are a new Chinese initiative, which emulates the very successful special economic zones created in the 1980s to spur the Chinese economy. These could become central experimental zones for the large-scale transformations required for a low-carbon future, and a showcase for cities around the world. Europe is also poised to become a key partner in these zones (see leading document on the issue by E3G and Chatham House – Lee, et al., 2007). [

different levels was needed. The Council also recognised the need to support institutional capacity-building of local authorities and organisations and democratic governance processes within the framework of national policies and planning to tackle climate change.



## 2. CREATING ENABLING CONDITIONS AND REMOVING BOTTLENECKS

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**T**he Covenant of Mayors initiative enhances awareness, increases accountability and transparency as well as recognition, ownership and ultimately a political mandate for action. It also offers the possibility to develop a long-term vision, which could translate quickly into short-term action. The success of such actions depends on the amount of political, legal and financial support provided. In some cases, action will only happen if additional policies are implemented.

As we have shown, the focus on greenhouse gas reduction actions in urban areas is relatively new. As a result, in some instances there is a need for improving the – already emerging – enabling conditions for action in urban areas and/or for overcoming barriers that inhibit such actions in full or in part. This CEPS Task Force Report has identified the following key areas that are crucial to move the agenda for climate change action in urban areas forward:

- capacity to act,
- coherent and consistent policies, and
- accurate measurement, reporting and verification (MRV).

### 2.1 Capacity to act

The legal and financial capacity to act and ownership are closely related. In the absence of a capacity to act, there will be little appetite to assume responsibility for greenhouse gas emissions reduction. On the other hand, if there is no ownership, in terms of political will and awareness, there is no

prospect that local governments can perform a catalysing role. The Covenant has been a major success<sup>19</sup> in generating awareness in urban areas of the potential benefits that local climate change action can bring, within local authorities, as well as among citizens and businesses. A key element has been the ‘official’ recognition and commitment that came with the signature of the Covenant. This in return has unleashed a host of new and innovative approaches to reduce GHG emissions, but also to engage in long-term sustainability strategies.

The challenge, however, is to keep the momentum going and to translate the plans into ‘real and measurable’ reductions. This stage of that process is also addressed – at least partly – by the Covenant. In a first step, the Covenant has set up Guidelines for Baseline Emissions Inventory to provide for a harmonised approach, taking into account existing methodologies used by cities in Europe. The Covenant also provides for Guidelines to set up SEAPs (see Box 1),<sup>20</sup> thereby facilitating the engagement of local governments and urban areas in general in planning activity. At this stage it is not clear whether there is sufficient capacity at local government level to communicate the obligations and possible benefits of signing the Covenant. This will be further analysed in section 3.6.

So far, the Covenant seems to have been successful in terms of generating interest, awareness and ownership. The real test will come, however, when plans will need to be implemented.

Legally speaking, the capacity to act is linked to a legal mandate or the competence to take decisions or – expressed in another way – the lack of a legal competence or authority to reduce emissions. This refers essentially to the local authorities as regulator and to a lesser extent as planner. Generally speaking, cities ‘control’ only a small part of ‘their’ emissions, very seldom more than 20% of total emissions on their territory.<sup>21</sup> This is so because major emitting activities are typically

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<sup>19</sup> Initially few would have thought that by March 2010, the Covenant would include more than 1,200 local authorities, representing some 150 million EU citizens.

<sup>20</sup> Guidebook: “How to Develop a Sustainable Energy Action Plan (SEAP)” (2010), by the JRC (<http://re.jrc.ec.europa.eu/energyefficiency/html/com.htm>).

<sup>21</sup> For example, a study of London estimated that only around 20% of emissions are under the city authorities’ area of competence, and of these only less than a quarter

regulated at member state or EU level, such as in the case of energy-intensive industries and the power sector, which fall under the EU ETS. Thus, it is important to keep in mind that efforts by local governments have limited impact, compared to the overall economy-wide or sectoral effort. Nevertheless, such efforts make an important contribution to the EU's climate change policy.

The capacity to act is also affected by the time constraints imposed as a result of the nature of political mandates, which are often linked to the election cycle. A member of a city council, for example, is elected for a four-to-six year term, depending on the country. Measurable emissions reductions in most cases require a longer horizon and often depend on long-term investments. The Covenant of Mayors – by committing cities to a long-term objective – intends to provide such a long-term consensus and continuity in city councils. This in return is likely to attract the private sector. Nevertheless, cities often have a limited perception and vision of their energy and climate future and lack the analytical capacity for example to engage in ‘back-casting’,<sup>22</sup> which could help define the necessary measures and actions today to achieve the desired outcome. The Covenant could address these deficiencies by establishing processes at EU, member state or local level for urban areas and local governments to engage in discussions about how to ensure a sustainable future.<sup>23</sup> Another suggestion to overcome the time-consistency challenge<sup>24</sup> has been to distinguish between short-term benchmarks (e.g. efficiency improvements) and long-term systems transformation (e.g. technology change).

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are under the direct influence of city authorities. The rest are created by private activities (McKinsey, 2008).

<sup>22</sup> A special methodology used often in building climate change scenarios, starting with where you want to be in say, 2050, in terms of emissions, and then identifying portfolios of technologies and the necessary policies required over time to realise the scenarios.

<sup>23</sup> For more, see [www.imagineyourenergyfuture.eu](http://www.imagineyourenergyfuture.eu)

<sup>24</sup> Successful (EU) climate change policy will need to achieve the majority of reductions in the medium and long term, due to the need for long-term infrastructure investment or network effects. This raises the protracted issue of time consistency, i.e. short-term objectives and long-term consistency.

Finally, finance is another pre-condition for action. This is a particular challenge in times of tight public budgets. While many potential options for local government to obtain finance are available – at least theoretically – finance options have in the past been constrained by a mismatch between existing local budget priorities and GHG reduction objectives, the inability to raise revenues, for example by local taxation and a lack of capacity to access existing financial resources. Some of these problems are being addressed, as shown above.

A more promising tool, however, is the re-allocation of some Structural Fund money towards the ‘greening’ of the economy. This could already start in 2010 with the mid-term evaluation of the funds, and could then be deepened by re-designing the regulations for the next budget period post-2013. Such a redesign of the regulations would not only cause available finance resources to be dedicated to low-carbon investment, but would also mandate low-carbon investment, such as for example ‘green procurement’, and reinforce the financial engineering tools available, such as the use of EU funds as loan guarantees.

Beyond this, there will be a need to leverage already EU and member state funds because of the enormous investment requirements in infrastructure at a time of shrinking public funds. These investments, running in the hundreds of billions of euro over the next 20 years, mainly relate to the public domain, such as transport, water and waste, where budgets are tight, yet are crucial for the EU’s ability to boost innovation and move towards a low-carbon economy. If public budgetary constraints are not to take their toll on the implementation and pace of these investments, public finance will need to be supplemented with private finance. The most obvious way to do this would be via public private partnerships (PPPs) in a three-way relationship: i) the public authority that seeks the construction of infrastructure and specifies the end-service that it wants to derive from it; ii) expert companies or groupings that will compete to provide design, construction and operation of infrastructure in a whole-life approach, adapted to service and environmental targets; and iii) private finance entities that will provide equity to set up project structures that will take on qualifying risks, which would keep the financing off the public balance sheets.

From this process follows the need to involve the private sector in the debate around project investment and to utilise its expertise wherever it can bring value. Also, in this time of budgetary caution, when public

capital investment is not so freely available, the creation of a regulatory environment to stimulate private investment will be critical.

## **2.2 Coherence and consistency of policies**

Typically, greenhouse gas emissions reduction objectives are expressed in terms of economy-wide targets, committed under UN or unilateral auspices. Such targets are underpinned by a wide portfolio of policies, i.e. actions focusing on sectoral policies (e.g. the energy, transport, households, agriculture, etc.) within a jurisdiction, such as the geographical boundaries of a country or the EU internal market. Theoretically such sectoral policies could also be implemented across geographical boundaries. International aviation and maritime shipping come to mind first and foremost, for which there may be a special sectoral cross-border policy. One could also think – at least theoretically – of Global Sectoral Agreements or Sectoral Approaches, where entire (industry) sectors take a sector-wide global commitment or a cap, replacing actions under a domestic policy.

Emissions from urban areas pose a similar challenge to sectoral approaches, since emissions are accounted for and regulated in the final instance by sectoral policies adopted either at EU or member state level. A first issue is the risk of double regulation. While emissions or resource use fall under national or EU regulations, city initiatives may subject the same emitters to additional regulations, which in some cases will lead to double-regulation. Double regulation is inefficient as it increases the cost of regulation without creating an additional benefit. This is why the Covenant states that those major industry installations falling under the ETS should not be taken into account in the city's emissions – expressly to avoid double regulation and counting.<sup>25</sup> As a result, however, the emissions that local governments 'control' become smaller and smaller.

Related to the previous point is the risk of double-counting (e.g. targeting achievement within city boundaries may be due to EU or national regulation rather than a particular city action). Thus, reductions may be counted and possibly financially rewarded twice. Another issue is the definition of sector boundaries, i.e. the responsibility, liability and mandate to address them. A definition of the boundaries, i.e. which emissions count and which do not, is a necessary condition for any strategy to deal with

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<sup>25</sup> See guidelines ([www.eumayors.eu/library/documents\\_en.htm](http://www.eumayors.eu/library/documents_en.htm)).

geographically-related emissions. This has been addressed by the Covenant of Mayors by providing the SEAP guidelines drafted by the JRC. However, these guidelines allow for much discretion and are voluntary.

### **2.3 Measurement, reporting and verification**

A precondition to make the Covenant of Mayors operational is that emissions are properly measured, reported and verified. To date there are various tools and protocols but no official EU one. Moreover, they are not co-ordinated. This means that emissions are reported according to different methodologies, and the existing protocols make comparisons impossible.

As described in Box 1, the JRC has surveyed and developed methodologies to calculate the baseline emissions inventories for cities. From a methodological point of view, these methodologies can be used to measure, report and verify the performances of the cities. It is already being used by cities to report their progress every two years, and to check their own performance in achieving their own objectives. However, the amount of discretion allowed for cities to set their baseline year and to decide which sectors to include or to exclude undermines the comparability of the data. As a result, the present mechanism would not allow the integration of these inventories in mechanisms like the EU ETS. Moreover, another limitation is that there is no common definition of what constitutes the boundaries of urban zones, and what activities should be included. Issues relating to measurement, reporting and verification will be further discussed in chapter 3. It should however be mentioned that a number of tools such as smart meters, smart grids and innovative energy management systems exist that might be deployed for reasons other than the measurement of city emissions. These tools can measure and report very precisely the energy produced and/or consumed according to the sources, and associated emissions.

### 3. THE WAY FORWARD

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The analysis of the previous chapters showed that cities – in order to undertake sustainable development policies and actions in general and facilitate and possibly accelerate the implementation of EU commitment in particular – will need to be empowered, i.e. given appropriate responsibilities and access to finance and measurement tools. As this report has argued, a precondition for success is also that local actions are acknowledged and attain public visibility in the eyes of citizens but also funders, investors and business in particular. This has been achieved by the Covenant of Mayors, which ensures public acknowledgement of local government action and thereby constitutes a nucleus for a public EU platform. Such a platform is not only important for presenting, discussing and acknowledging local government actions but also for continuously building a political, legal and financial framework from which to develop a more comprehensive and ideally integrated member state and EU policy. In addition, the Covenant of Mayors provides for a platform where cities and local authorities can develop and submit legally binding commitments, voluntarily. This commitment is crucial to ensure that sustainability objectives are integrated into day-to-day actions and thereby become quasi-mandatory tasks. This is crucial to ensure that the tasks stemming from the Covenant are not crowded out by existing tasks and priorities.

For local authorities to confirm, deepen and widen their actions, a wide range of ‘enabling tools’ will require further development at member state and EU level, such as clear finance, MRV, economic analysis tools or best practice fora, experimental work and new competencies, i.e. legal authority.

### 3.1 Finance

The Covenant of Mayors in the long run will only work if local authorities have access to finance. Numerous mechanisms at member state and EU level exist and new tools are being tried and implemented. These developments were examined in chapter 2 in more detail. However, a new focus on sustainable development will require that cities restructure their budgeting operations with the objective of having a working sustainable development strategy. This should also allow the improvement of financial management. Ultimately, it will be up to each city to identify the best format based on local and national needs and structures.

One interesting mechanism is access to carbon finance for cities. Several means of improvement are being studied, among them the programmatic approach (see section 3).

Regional authorities are already starting to explore possibilities to combine EU funding from different sources, e.g. funds for research, development and demonstration, funds for energy efficiency projects, funds for energy infrastructures, etc., to develop integrated large and efficient strategies to move towards a low-carbon economy. At present, projects tend to be site-specific, while in order to build an efficient energy system in the longer term, there will increasingly be a need for large integrated projects. The leverage effect of EU and national public funds should be maximised by expanding the role of PPPs and increasing the use of innovative financial mechanisms, such as loan guarantees by the EU budget and the EIB. As industry will have an important role to play, notably for co-financing projects, the involvement of the private sector will be essential. Industry participation is assisted by an efficient regulatory environment. In fact, the OECD has stressed the important role of private enterprises and has presented possible guidelines for multinationals (see e.g. Kauffmann & Less, 2010).

A major problem that local authorities face today is not so much the lack of available financing, but the capacity to draw from the funding and to use it in accordance with the objective of reducing emissions. For instance it is easier for a municipality to draw EU funds for roads and other traditional infrastructure projects than funding complex low-carbon energy and transport investments. The funding by ELENA can help in this respect, (and also other funding directed at increasing administrative capacity). Therefore, the most important step at EU level involves capacity-building.



### 3.2 Measurement, reporting and verification tools

Numerous GHG accounting systems exist, but they are based on generic indicators (such as the Bilan Carbone in France). These are adequate for strategic analyses and decisions, but not for measuring whether legal commitments have been fulfilled, for obtaining finance, let alone for participation in the carbon market.

The analysis of city emissions by the Véolia Environment Institute (see Annex 2 for more details) shows that measurement and accounting of city emissions requires a different approach from sectoral emissions accounting, the latter of which is based on direct emissions. In attempting to set up suitable methodologies for local authorities, to date different and not fully compatible methodologies have emerged because of methodological problems related to GHG accounting, specific issues related to local authorities or cities and different inventorying tools.

Crucial to GHG accounting is the determination of the origin of emissions – and thus the decision of which sectors to cover – as well as information on the development of emissions over time. The next step is to ensure consistency in measurement and definitions. To date, there are still divergent approaches on how emissions and their global warming potential (GWP) are calculated. Moreover, the different accounting tools do not cover the same number of greenhouse gases.

A first step therefore is to clarify the responsibility for the data collection of emissions, based on transparent and simple systems. At present, calculations are often inaccurate and it is not clear how the data are collected.

Contrary to industrial GHG accounting – which is essentially a point source issue – addressing city emissions requires accounting for both direct emissions and indirect emissions. Territorial and activity boundaries need to be set *ex-ante*, including whether the emissions accounting should address the public sector only or the city activity as a whole. The second decision concerns the delimitation of the city territory for emissions accounting. Setting the boundaries is not enough. The source of emissions needs to be clearly determined and in particular who holds the responsibility for the emissions, i.e. the city authorities, other public bodies,

private businesses or residents?<sup>26</sup> Once the territorial issue has been addressed, it is important to decide which indirect emissions to account. Many emissions are indirect, in particular when related to energy use, with energy generation often lying beyond the city boundaries. This means deciding whether these are based on a territorial principle (point of use) or on an activity principle (point of generation). For the activity principle, the accounting of indirect emissions created from energy consumption should also include the kind of energy source (for example a renewable energy source).

The problem of the different approaches of coverage and type of emissions is aggravated by the different reporting standards, some of which are not even compatible with IPCC (Intergovernmental Panel on Climate Change) standards. Without clear Measuring, Reporting and Verification (MRV) guidelines adopted by all, it is not possible to have common carbon objectives at local level. This would call for the creation of a united standard method in line with the IPCC guidelines based on a number of core principles.<sup>27</sup> However, guidelines will need to be good enough to accurately measure carbon flows across territories. Even when using the same protocols, comparability may still not be possible. One solution to avoid complex barriers for comparability is to start using only key sources of emissions, rather than expecting all regions to have the same reporting capacity on complex carbon flows.

As a result, it is important that the interoperability of the different methodologies is increased to allow cities to compare their performance and understand their needs and facilitate the policy decision-making process. Theoretically, there are three options that would allow a properly functioning coordinated approach by cities: i) increase the interoperability between the methods, ii) develop an international standard and iii) adopt a unique tool.

A number of enabling technologies that could facilitate the measurement of city emissions are already available: smart grids and

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<sup>26</sup> With NECATER, a carbon modelling tool exists that assesses emissions in order to propose to local authorities action plans adapted to their capacity to reduce emissions.

<sup>27</sup> Transparency, completeness, consistency, comparability and accuracy.

meters, and the related energy management that allow for the collection of all necessary data.

### **3.3 Best practice forum and ‘best in class’**

Measurement, reporting and verification tools are the most important tools to develop at this stage as they constitute the backbone of any strategy at local government. This should not however obscure the need for additional effective and efficient methodological tools, which will be required to maintain the momentum, and to scale up current activities.

A comparison of actions with other urban areas and the identification of best-practice are already important elements of the Covenant of Mayors as well as of many other EU and non-EU initiatives. Benchmarks in the Covenant are drawing attention to those cities’ actions of which they are most proud, without however evaluating or filtering them. Comparisons are made via the broad visibility given to these actions.<sup>28</sup>

Presenting success stories or showcases is valuable in itself. However, it might be possible to go one step further and formalise a ‘best-practice forum’ to encourage local government to introduce new ideas and innovation by adopting or adapting best practice thereby raising their efficiency and productivity. Such fora exist in various forms with different objectives and focus on a number of industrial sectors, energy efficiency, working environments but also on local government, for diverse areas such as housing policy, reducing the drop-out rate of schools and many more. The OECD has also been organising a Best Practice Forum.

A step further would be a more competitive approach whereby regular evaluations according to pre-set criteria will be undertaken to either identify the ‘best in class’ or develop a scoreboard of all those participating. Those high on the list would not only benefit from increased visibility but would possibly have easier access to finance and other assistance, while at the same time serve as an example for those lower on the scoreboard.

The additional advantage that such competition has is that it requires one single set of evaluation criteria, including for example a GHG emissions inventory. Very often the creation of a standardised evaluation

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<sup>28</sup> See “Benchmarks of Excellence” on the Covenant of Mayors website ([http://www.eumayors.eu/benchmarks\\_of\\_excellence/index\\_en.htm](http://www.eumayors.eu/benchmarks_of_excellence/index_en.htm)).

methodology in one – even if small – area has the potential to be adapted in other areas, not least because it is readily available. Should a scoreboard not be possible, for example due to lack of interest, one could think that awards, such as the European Energy Award, could be equally instrumental in developing a common set of measurement, reporting and verification tools.

### **3.4 Economic analysis**

Efficient and effective sustainable development strategies and actions will require economic analysis tools geared towards the needs of local governments. Because of scale economies and cross-border benefits, such tools are best developed and disseminated at EU level, possibly implemented by the European Commission. A number of initiatives already exist. To become effective, they will need to be specifically directed towards cities and scaled up.

Local governments will be able to benefit from numerous ongoing policies and actions linked to the current EU energy and climate policy. Most important is the Strategic Energy Technology (SET) Plan. Among others, it directs efforts to address the lack of private and public sector R&D funding in Europe, while developing strong public and private partnerships, involving governments, the academic sector and the business sector through the European Industrial Initiatives (EIIs). Various EIIs are directly relevant for local governments, among them the European Electricity Grid Initiative, Energy Efficiency – the Smart Cities Initiative, the Solar Europe Initiative and the European Wind Initiative.

Methodological support can also be expected from the re-vamped Directive of Energy Performance of Buildings (EPDB), focusing on the residential sector and the tertiary sector (offices, public buildings, etc.) and covering all aspects of energy efficiency in buildings in an attempt to establish a truly integrated approach. Areas of particular interest are the new cost-optimal requirements imposed on member states and the obligation of public authorities to occupy and own ‘nearly zero-energy’ buildings.

The European Commission’s Concerto Initiative under the EU’s Research Framework Programme supports local communities in developing and demonstrating concrete strategies and actions that are both sustainable and highly energy efficient. Today, a total of 58 communities are participating in 22 projects to boost the level of energy self-supply. At

the same time, it provides a platform for the exchange of ideas and experiences between the 58 demonstration communities, and other cities that are committed to introducing similar strategies.

Methodological issues are also addressed in a number of studies undertaken by companies such as the studies on London by McKinsey (2008 a&b), and on Munich by the Wuppertal Institut für Klima, Umwelt, Energie (2009)<sup>29</sup> or by the European Green City Index prepared by the Economist Intelligence Unit (2009).<sup>30</sup>

Generally speaking, it would be helpful to have a better understanding of the marginal abatement costs of different options. Such cost curves would allow local governments to start abatement in the areas where the economic and environmental potential is highest and more immediate, e.g. the building sector (primarily increasing energy efficiency and secondly the use of renewable energy), urban transport and waste management. Various distinctions will need to be made in these analyses, such as for example distinguishing according to the types of financial burden (investment cost & maintenance, and operation costs), the size of cities (middle-sized vs. mega cities) or whether cities are in capped countries or not.

An interesting study in development by the Economist Intelligence Unit and Siemens is presently compiling for the first time an Asian Green City Index. The study will cover 11 cities in China, India, Indonesia, Japan, Malaysia, Pakistan, the Philippines, Singapore, South Korea, Thailand and Vietnam. The document should assess the cities based on eight areas, including energy supply, carbon dioxide emissions, transport, water, sanitation and green governance. Cities such as Mumbai, Delhi, Kolkata

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<sup>29</sup> This study evaluates the possible strategies for a zero emissions target in Munich, based on existing long-term strategies for the city and the national policy context. It presents quantitative zero-emissions scenarios for Munich and proposes to start with the development of a model zero-emissions city district.

<sup>30</sup> This is a scored ranking of 30 major European cities assessing their ecological impact. With an average score of 87/100, Copenhagen tops the list while Kiev, at 33/100, lies at the bottom. The ranking is based on CO<sub>2</sub> emissions, building efficiency, transport, energy, water, waste, air quality, land use and environmental governance.

and Bangalore will be covered. The publication date has been announced for December 2010.<sup>31</sup>

### **3.5 Experimental work, such as pilot projects**

Additional tools might be required to motivate experimental work and pilot projects. Pilot projects are single projects that break new ground and provide innovative ideas and ways of developing local areas, carried out on a trial basis. Typically pilot projects are designed and implemented in such a way that lessons can be drawn from them. To date pilot projects are not a core part of the Covenant, but they have been undertaken in a number of networks such as Energy-Cities.<sup>32</sup> In addition, there are experiences with such pilot projects as the Greenkeys project funded by the European Commission under the INTERREG III B CADSES programme that ran from 2005-08 and focused on increasing the sustainability of cities by initialising the endowment of green spaces. Another example is the "Future cities - urban networks to face climate change" project, an initiative funded under INTERREG IVB and that will run until 2012. Pilot projects for urban areas have also been undertaken in other parts of the world including in emerging economies.

### **3.6 Local regulatory tools and competencies**

The level of empowerment of local authorities depends partly on their control over regulatory tools and competencies. As we have shown, outside the areas of information/awareness and 'corporate emissions', 'control' over emissions is often absent.

An OECD (2008) report (conference<sup>33</sup> proceedings) on cities and climate change focuses on governance needs. The results of the conference

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<sup>31</sup> Indian Express website, "Mumbai in green city study by Economist Intelligence unit" (<http://www.indianexpress.com/news/mumbai-in-green-city-study-by-economist-intelligence-unit/655171>).

<sup>32</sup> Energy Cities is the European Association of local authorities' multi-disciplinary think tanks (see [www.imagineyouenergyfuture.eu](http://www.imagineyouenergyfuture.eu)).

<sup>33</sup> See in particular chapter 2, J. Corfee-Morlot et al., "Cities and Climate Change: Harnessing the Potential for Local Action" and chapter 8, C. Kern and G. Alber, "Governing Climate Change in Cities, Modes of Urban Climate Governance in Multi-Level Systems").

have been reviewed and merged into a book (Kamal-Chaoui & Roberts, 2009). It focuses on the role of national authorities as central enablers for local action, whether in cities or other territories, and the resulting need to rethink the local authority powers.

Nevertheless, the OECD evidence suggests that cities themselves are often not fully exploiting their *existing* authoritative powers through regulatory powers and strategic planning. Another finding is that climate policy at city level remains fragmented. Basic tools to facilitate good decision-making are gradually being developed but remain fragmented and lack widespread application. Furthermore, a lack of collaboration between different regional authorities hampers climate action. The report explores the necessary linkages between the different regional and national governance levels as well as the policy framework for financing. The participation in carbon markets for cities is also explored, as well as the use of joint implementation mechanisms of the UNFCCC.

The research shows that horizontal (i.e. between departments or between regions) and vertical (local/national) governance coordination is critical for success in different areas of climate action (energy, transport, waste, urban planning and land use) and for the success of a climate strategy at urban and national level. In most countries, national governments limit cities' capacity to act, while leaving implementation to voluntary action. In some countries, however, coordination, collaboration and a strategic approach across different levels of governance does exist, as in pioneering initiatives such as the Dutch *Bestuursakkoord Nieuwe Stijl* (New Style Management Agreement) (BANS) and Sweden's Climate Investment Programme (KLIMP).

District heating has been mentioned as an example of local authorities playing a strong role in the energy systems of the city. District heating, as a highly energy- and carbon-efficient technology, might be chosen by many cities as the default technology if they had the legal authority to do so (e.g. communal 'district heat mandate'). An analogy to sewage is drawn, which is based on such a communal mandate. Having full autonomy and legal rights to regulate sewage has been critical for cities in building their sewage systems. Another area that has been discussed but not further analysed has been insulation. Strengthening the local government's role in insulation policies might be a way to overcome transaction costs that have typically hindered ambitious insulation policies.

Strictly speaking, this is not so much a topic for the EU as for the member states.

The potential capacity of cities to handle climate change impacts, for adaptation and mitigation purposes, is made clear by the large number of publications focusing on this issue (Hunt et al., 2008; Nicholls et al., 2007; Hallegatte et al. (2008a and b). The need to promote the capacity of cities to efficiently develop their response is a recurrent theme in many of the studies.

However, changes in the governance structure are subject to member state decisions – sometimes of a constitutional nature – and therefore go beyond the scope of this study. It is suggested, however, that member states should not shun such a debate. There may indeed be areas where new local government competencies might facilitate member states achieving their climate goals.



## 4. BRINGING IT ALL TOGETHER: A STRATEGY TO KICK-START THE PROCESS

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**W**hile most of the momentum of local government actions has originated in a bottom-up fashion, driven by the cities themselves, the European Commission has been able to increase the momentum by creating the Covenant of the Mayors. Momentum is likely to be maintained if such EU support continues and is strengthened and in addition, can provide clear timetables and roadmaps. It is also important to assist cities with the appropriate facilities for implementing their commitments.

To kick-start this process, we propose the following three parallel strategies:

### 1. **Launch of pilot projects to develop methodologies**

The first strategy involves the launch of some five to ten highly visible urban projects by 2011 to develop transferable methodologies for key areas such as planning and governance issues, economic analysis tools, compliance mechanisms, GHG accounting, finance (among which carbon finance). It would also entail effective communication to citizens and other stakeholders with a view to developing EU-wide harmonised methodologies or best-practices in these areas, and ultimately to scaling-up the Covenant of Mayors and 'export' such methodologies outside the EU. The approach is to an extent comparable to the European Initiative on Smart Cities, although it differs in that it focuses on **developing methodologies** rather than on demonstration and spreading best practices. The deliverables of the projects should be draft methodologies. In order to guarantee compatibility of approaches and joint learning, the EU will need to finance cooperation between the projects and technical support for developing the methodologies, and develop innovative

carbon financing mechanisms. Smart cities projects, supported by the European Commission, offer an additional way to launch pilot projects, as regards the accounting and measurement of emissions.

## 2. **Public-private partnership projects on key integration areas**

The second strategy entails the simultaneous launch of a number of public private partnerships by 2011 to work on research and development as well as demonstration in future technologies, services and systems, which are defined by technology integration and consumer responsiveness. These would, for example, include smart grids, sustainable rail transport systems, electric vehicles bringing together issues of smart grids, electric vehicles, and associated infrastructure issues, demand-side measures but also power generation technologies. Another area could be public transport or buildings. These PPPs would have as an objective the **development of new technologies and testing and demonstrating** them in existing cities. The difference from the European Initiative on Smart Cities is that focus would be on the development and demonstration of technologies rather than on reducing GHG emissions immediately. By creating an enabling environment, private capital is more likely to become engaged.

## 3. **European Platform for Sustainable Urban Areas**

Both the pilot projects and the public private partnerships would be complemented by a European Platform for Sustainable Urban Areas, working to develop, inter alia, urban performance indicators, finance models, economic analysis tools, governance, carbon accounting and (green) public procurement. The platform would bring together policy at EU, member state, regional and local level, a broad range of industries, relevant parts of the research community as well as civil society. The platform would not only function as an umbrella organisation for the technology part of the Covenant of the Mayors but also both as user and driver of the pilot projects and the public private partnerships.

These three initiatives are meant as kick-start tools to accelerate the development of both methodologies and technologies that will be relevant for long-term sustainability of urban areas but also as political drivers for action. They cannot however not substitute for action in the areas analysed in chapter 3.

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# ANNEX 1. GLOSSARY OF ABBREVIATIONS

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AWG	Ad hoc Working Group (on Further Commitments for Annex I Parties)
AWG-LCA	Ad-hoc Working Group on a Long-term Cooperative Action Plan
BANS	New Style Management Agreement
CARE	Climate action and renewable energy
CCP	Cities for Climate Protection
CCS	Carbon capture and storage
CDM	Clean Development Mechanism
CHP	Combined heat and power
CIP	Competitiveness and Innovation Framework Programme
EIB	European Investment Bank
EIF	European Investment Fund
EII	European Industrial Initiative
ELENA	European Local Energy Assistance
ENP	European Neighbourhood Policy
EPDB	Directive of Energy Performance of Buildings
ERDF	European Regional Development Fund
ETS	Emissions Trading Scheme
GHG	Greenhouse gas
GLOBE	Global Legislators Organisation for a Balanced Environment
GtC	Gigatonne of carbon
GtCO <sub>2</sub>	Gigatonne of carbon dioxide
GW	Gigawatt
GWP	Global Warming Potential
ICLEI	International Council for Local Environmental Initiatives
IEA	International Energy Agency
IEE	Intelligent Energy Europe
IPCC	Intergovernmental Panel on Climate Change
JI	Joint implementation
JRC	Joint Research Centre
KLIMP	Climate Investment Programme
MRV	Measurement, reporting and verification

MtCO <sub>2</sub> e	Million tonnes of carbon dioxide equivalent (quantities of GHGs)
NAMA	Nationally Appropriate Mitigation Action
NGCC	Natural gas combined cycle (plants)
NGO	Non-governmental organisation
ppm	Parts per million
PoA	Programme of Activities
RSFF	Risk-Sharing Finance Facility
SCM	Sectoral crediting mechanism
SEAP	Sustainable Energy Action Plan
SET	Strategic Energy Technology Plan
TOA	Technology-oriented agreement
UNFCCC	UN Framework Convention on Climate Change
WBCSD	World Business Council for Sustainable Development
WETO	World Energy, Technology and Climate Policy Outlook (produced by the European Commission)
WSSD	World Summit on Sustainable Development

## ANNEX 2. MRV PROBLEMS WITH LOCAL GHG INVENTORY TOOLS FOR CITIES

An analysis of city emissions requires a different approach to sectoral emissions accounting, which is based on direct emissions. In attempting to set up suitable methodologies, different and not fully compatible methodologies GHGs have so far emerged.

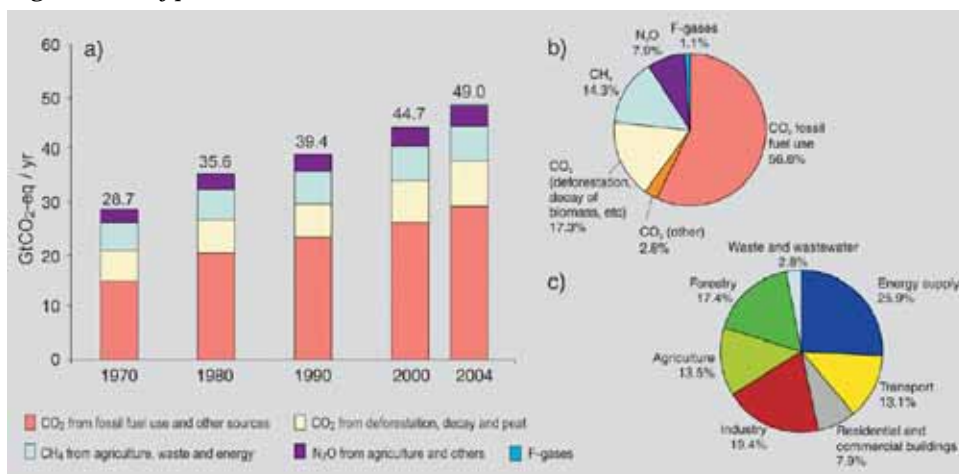
More concretely, the reasons for this incompatibility are:

1. methodological problems related to GHG accounting,
2. specific issues related to local authorities or cities and
3. different inventorying tools.

### 1. Methodological problems related to GHG accounting

Crucial to the GHG accounting is the determination of the origin of emissions – and thus the decision of which sectors to cover; see also Figure A1 – as well as information on the development of emissions over time.

Figure A1. Types of GHG and sectors



Source: Véolia Environment Institute, “Comparative Analysis of Local GHG Inventory Tools for Cities”, presentation made at CEPS Task Force meeting of 15 October 2009.



The next step is to ensure consistency in the measurements and definitions. To date, there are still divergent approaches on how emissions are calculated and their global warming potential (GWP). Moreover, the different accounting tools do not cover the same number of greenhouse gases.

Table A1 compares several of these tools and the variance of information they cover. In addition the GWP of the different gases is not calculated following the same rules; and some of them are not even fully consistent with the IPCC guidelines.

Table A1. *Coverage of GHG emissions by approach*

	Carbon dioxide	Methane	Nitrous oxide	Sulphur Hexafluoride	Hydrofluorocarbons	Perfluorocarbons	Other GHGs
CO2 Grobbilanz	X	X	X				
Eco2-Region	X	(X)	(X)	(X)	(X)	(X)	
GRIP	X	X	X	X	X	X	
Bilan Carbone	X	X	X	X	X	X	X
CO2 Calculator	X	X	X				
Project 2 Degrees	X	X	X	X	X	X	

A first conclusion is that there is an urgent need to clarify the responsibility for the data collection of emissions. A further requirement is the possibility to quickly identify information, in a transparent and simple manner – i.e. easy to understand emissions data systems, which then could become a tool for planning and, ultimately, action. At present, calculations are often inaccurate and it is not clear how data is collected. It is important to be able to understand the opportunities, rather than seeing ex-post what could have been done.

## 2. Specific issues when analysing city emissions

There is a difference in reporting emissions from cities compared to industries or sectors. For industries, it is direct emissions that can be calculated and measured or monitored. This is essentially a point source issue. Addressing city emissions requires accounting for both direct emissions and indirect emissions. This has a number of consequences.

- First of all, territorial and activity boundaries need to be set ex-ante, including whether the emission accounting should address the public sector only or the city activity as a whole.

- The second decision concerns the delimitation of the city territory for emissions accounting. Should the boundaries of the city be the administrative ones or those of the greater agglomeration?
- Still, setting the boundaries is not enough. The source of emissions needs to be clearly determined, in particular, who holds the responsibility for the emissions, i.e. the city authorities, other public bodies, private businesses or residents? Determining the responsibility helps decide the most appropriate actions to reduce emissions.

Furthermore, once the territorial issue has been addressed, it is important to decide which indirect city emissions to account. Many emissions are indirect, in particular when related to energy use, with energy generation often lying beyond city boundaries. Should the emissions caused by energy demand be incorporated or should they be excluded? This means deciding whether these are based on a territorial principle (point of use) or on an activity principle (point of generation). Table A2 shows that different accounting methods are used, which give very different results. For the activity principle, the accounting of indirect emissions created from energy consumption should also include the kind of energy source (for example a renewable energy source). The activity principle also requires deciding exactly which activities performed in the city will be taken into account. This is important for all emissions generated outside the city boundaries but that are caused by activities within, such as air travel of its citizens or visitors flying in.

*Table A2. Allocation of electricity emissions in cities*

	Point of use	Point of generation
CO2 Grobbilanz	X	
ECO2Region	(X)	(X)
GRIP	X	
Bilan Carbone	X	X
CO2 Calculator		X
Project 2 Degrees	X	X

### 3. Different inventory tools

The problem of the different approaches of coverage and type of emissions is aggravated by the different reporting standards (Table A3). Some of the standards are not even IPCC compatible.

Table A3. Reporting standards

	GHG Protocol	ISO	ICLEI	IPCC
CO2 Grobbilanz				
ECO2Region	(X) a	(X) a		(X) a
GRIP				(X) b
Bilan Carbone		X		
CO2 Calculator				X
Project 2 Degrees	X	X	X	(X) c

a) The inventories following the recommendations of the Climate Alliance are not consistent with IPCC guidelines. However, the Eco2-Region tool allows also for the compilation of inventories that are consistent with the IPCC guidelines.

b) GRIP inventories allocate electricity to the point of use and not the point of generation. Otherwise they are consistent with the IPCC guidelines.

c) Project 2 Degrees states that the inventory is consistent with the IPCC. However, it is not clear whether some adjustment for the local level (and if so in which fields) have been made.

This would call for creating a united standard method in line with the IPCC guidelines on:

1. Transparency
2. Completeness
3. Consistency
4. Comparability
5. Accuracy

*Table A4. Synopsis of range of the divergence between methodologies studied*

<b>Variable</b>	<b>Range of variation</b>
GHG measured	Only CO <sub>2</sub> ⇔ all GHGs
Global warming potential values	2 <sup>nd</sup> IPCC AR ⇔ 4 <sup>th</sup> IPCC AR
Setting organizational boundaries	only operations controlled by the public authority ⇔ all activities of the city
Scope of measurement	only direct emissions ⇔ direct, indirect and life cycle emissions
Sector definitions	Highly variable: e.g. transport
Quantifying emissions	Default emission factors ⇔ regional/local emission factors

*Source:* Véolia Environment Institute, “Comparative Analysis of Local GHG Inventory Tools for Cities”, presentation made at CEPS Task Force meeting of 15 October 2009.

#### **4. Conclusions**

It is important that the interoperability of the different methodologies is increased to allow cities to compare their performance and understand their needs and facilitate the policy decision-making process.

There are three options that would allow a properly functioning coordinated approach by cities:

- a) increase the interoperability between the methods,
- b) develop an international standard and
- c) adopt a unique tool.

#### **The principles**

It is important that the methodology of the IPCC is used and complemented, in order to address the needs of the cities, by the methodologies being developed by WRI/WBCSD for out-of-boundaries emissions. Data should be sufficiently disaggregated to assist in making policy decisions, meaning that emissions sources and types of emissions need to be identified clearly.

The inventories should include out-of-boundary emissions such as passenger and cargo links by rail or air. Emissions from waste that is generated by the city but treated beyond the city limits should also be accounted for.

## **ANNEX 3. LIST OF TASK FORCE MEMBERS AND INVITED GUESTS AND SPEAKERS**

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