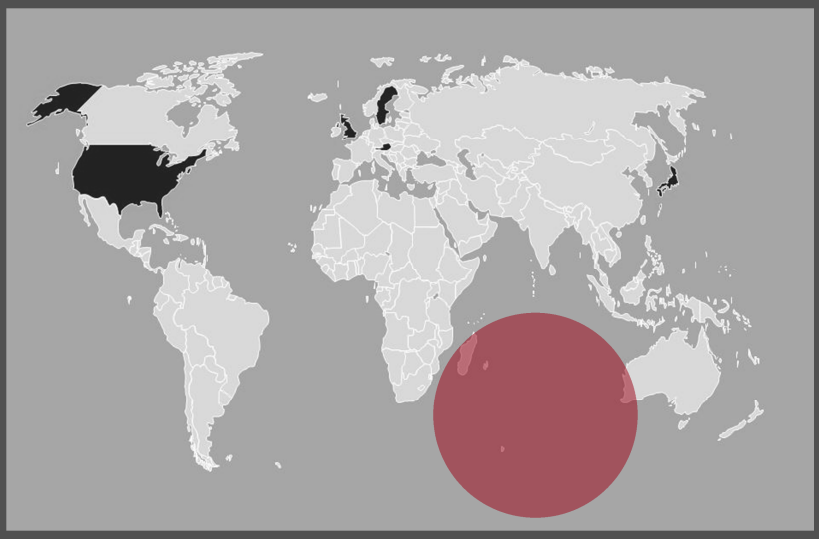
adelphi



Promoting Local Climate Mitigation

Governmental support for local authorities' mitigation activities in Austria, Germany, Japan, Sweden, the United Kingdom and the States of California and Connecticut in the U.S.

Stefanie Schaefter, Till Mohns, Dr. Minu Hemmati and Susann Offenmueller

Supported by a grant of the German Federal Ministry for the Environment Nature Protection and Nuclear Safety (BMU)

As at: March 31 2013

Scoping Study

Content

1 Introduction

Global greenhouse gas emissions (GHG) need to be drastically reduced in order to limit the negative consequences of climate change. Local authorities[1] can and need to play a decisive role in climate mitigation, particularly in the face of stagnant international climate negotiations. While national GHG emission reduction targets are negotiated internationally, in the end they have to be implemented also at the local level. Local authorities are powerful actors in their sphere of influence and are thus able to initiate fundamental transformative processes towards sustainable development.

An increasing number of countries recognise the huge potential for climate mitigation at the local level. Local authorities are increasingly considered to be amongst the key actors of national climate policy in a growing number of countries. Even though successful governmental approaches promoting local climate mitigation have been around for several years, they did not receive as much spotlight as other policy developments.

Hence, the present study aims at showcasing strategies and instruments used by public bodies to support local authorities in their climate change mitigation efforts. Three questions guided this research:

- What are the main strategies and policies defining the framework for local mitigation activities at the national/state level?
- What are the main (financial) incentives provided to support local climate mitigation?
- What are the main platforms for enhancing exchange and learning among local authorities, administrative organisations and governments in regard to local climate mitigation activities?

Six **progressive countries** were analysed: **Austria, Germany, Japan, the United Kingdom** (UK), **Sweden** and the United States of America (U.S.), where the analysis focussed particularly on the states of **California and Connecticut**.[2] The goal was to include countries from different regions around the world that demonstrate substantial efforts in promoting local climate action at the national and regional policy level. The initiatives and programmes presented go back at least five years and include diverse approaches, such as financial incentives and networking opportunities. Additionally, these industrial countries share certain legislative and political structures that make it even more interesting to juxtapose their approaches.

Our findings are based on in-depth desk research and altogether fifteen semi-structured telephone interviews. These country studies do not represent comprehensive evaluations and the findings of this report are not meant as final conclusions. The goal is rather to record observations and develop hypotheses. They primarily serve to spur discussions on strategies and instruments used in promoting local climate mitigation.

The study presents country profiles for each of the countries and states that were studied. They focus on both structures and policies, as well as on instruments and incentive schemes provided by national and regional authorities in order to promote local climate mitigation. Additionally, they provide insights into platforms and fora established to facilitate exchange and learning between local authorities and among state and national authorities.

[1] A local government is a form of public administration; usually it is the lowest tier of administration within a given state. In this study, the term is used synonymously to local authority. Formal names and entities of local governments differ from country to country. Common terms include, for example, county, prefecture, district, city, town, borough, municipality, shire or village.

[2] In particular we would like to thank our interview partners for the valuable insight they provided into this policy area and for their thoughtful feedback on draft versions of this study. In addition, we would like to thank our colleagues Henrike Peichert, Christian Kind and Lena Theiler who contributed significantly to the development of this study.

The study is part of the project "International Exchange and Learning on Supporting Climate Mitigation at the Local Level"[3] supported by a grant of the German Federal Ministry for the Environment, Nature Protection and Nuclear Safety (BMU). The research was preceded by a variety of events, including a side event and dinner dialogue at the COP 18 in Doha, Qatar, in order to explore potential interest in the topic. These events were co-hosted by BMU, the Covenant of Mayors of the EU Commission and the Climate Alliance. The Doha discussions were followed by a planning meeting in February of this year, which was attended by representatives and experts from national ministries and agencies, NGOs, and research institutes.

[3] For more information on adelphi and the project, please refer to http://www.adelphi.de/en/projects/project_database/dok/43525.php?pid=583.

2 Country profiles

2.1 Austria

Austria's national government has long supported some aspects of local climate mitigation such as thermal insulation and energy efficiency in buildings through established formats which originally targeted environmental protection in a broader sense. As such, local authorities have not directly been addressed by national authorities. In 2012 only, the Federal Ministry of Agriculture, Forestry, Environment and Water Management launched a pilot programme which explicitly promotes authorities in their climate mitigation activities. This programme complements well established, comprehensive instruments for consultation and information which have been running for almost a decade. At the moment, the policy field of local climate mitigation is very dynamic since there are lively discussions on the expansion of the pilot programme as well as on the adoption of a national energy efficiency law. If the law is voted as planned in 2013 or 2014, it will have direct implications for local authorities.

STRUCTURES & POLICIES

Climate Strategy and Policy

Austria ratified the UNFCCC, signed the Kyoto Protocol and set a target for a 13 % reduction of GHG emissions between 2008 and 2012, as compared to the 1990 baseline. The responsible government ministry with respect to climate protection is the *Lebensministerium* - Federal Ministry of Agriculture, Forestry, Environment and Water Management. The *Lebensministerium* is supported by the Environment Agency Austria, which develops emissions projections and provides advice on climate and energy-related policies and measures.[4]

As a federal state, Austria is comprised of nine provinces, or *Länder*, which share legislative power with the national government following the subsidiary principle. The main competencies of the *Länder* are energy distribution, law and order, public health, and sport and leisure. Within the federal provinces and districts there are a total of 2,354 local authorities. Federal support for local authorities' climate mitigation activities is not an explicit strategy at the national level. Instead, the *Länder* are primarily responsible for supporting local climate mitigation efforts.[5]

At the national level, two policies are of primary relevance for local climate change mitigation activities; the Austrian Climate Strategy and the National Climate protection law. The **Climate Strategy** (2007), an adaptation of the 2002 strategy, relies on a wide range of different measures and essentially rests on the pillars of industry, housing and construction, the development of local public transport and the purchase of CO_2 emission credits from other countries. The Climate Strategy aims at stepping up the use of renewable energy, saving energy, improving energy efficiency and promoting the use of environmental technologies.[6]

[4] The Government of Austria, Lebensministerium 2007: Anpassung der Klimastrategie Österreichs zur Erreichung des Kyoto-Ziels 2008-2012. Retrieved March 22, 2013, from http://www.lebensministerium.at/umwelt/klimaschutz/klimapolitik_national/klimastrategie/Klimastrategie.html.

[5] Casado-Asensio, Juan and Reinhard Steurer: CLIP-IN: Climate Policy Integration in Federal States: Adaptation, Mitigation and Sustainable Development in Austria, Germany and Switzerland. Retrieved March 22, 2013, from http://www.wiso.boku.ac.at/fileadmin/_/H73/H732/CLIP-IN/CLIP-IN_Analytical_frame_FINAL.pdf.

[6] The Government of Austria, Lebensministerium 2007: Anpassung der Klimastrategie Österreichs zur Erreichung des Kyoto-Ziels 2008-2012. Retrieved March 22, 2013, from http://www.lebensministerium.at/umwelt/klimaschutz/klimapolitik_national/klimastrategie/Klimastrategie.html.

Climate legislation

The **National Climate Protection Law** (2011) defines responsibilities at both the federal and the *Länder* levels. Local authorities are not explicitly addressed. The Climate Protection Law sets mitigation targets for different sectors. The *Länder* are responsible for the implementation of climate mitigation and addressing local communities.[7]

At the level of the *Länder*, **Energy Efficiency Laws** target local authorities as one focus area. The laws include measures that the local authorities are obliged to implement (e.g. energy management, contribution to climate mitigation). Currently an Energy Efficiency Law is also being discussed at the national level. With adoption planned for 2013 or 2014, one focus of the law will be public procurement (best practice examples, criteria on durability, energy consumption etc.). The specifications will be mandatory for local authorities.[8]

INCENTIVES & FUNDING

Financial Instruments

In Austria the two major instruments supporting local authorities in their climate change mitigation efforts are the Environmental Support Scheme and the Climate and Energy Fund.

Since 1986, the **Environmental Support Scheme,** with a goal of stimulating environmentally friendly investments, has primarily targeted private companies. However, it also addresses public companies, for example in the fields of local energy supply, public transport or real estate. The annual budget is around €92 million. Energy efficiency measures receive €30 million, with the building sector as the main funding target. Of this money, €5-6 million is directed towards the public companies and local authorities (e.g. for hospitals, schools, town halls). Currently 95 per cent of all measures financed through the Environmental Support Scheme are related to climate mitigation. Since 2012 have local authorities additionally been able to receive direct support, and only in a limited number of areas, such as modernising the insulation of buildings and installing LED street lights. Overall, funds under the Environmental Support Scheme are well established, well known and in demand. The support is not subject to a tender process but based on strict criteria, where each authority that meets the criteria receives support. Since the standards for selection are increased as soon as there are too many applicants, Austria thus follows a benchmark system.[9]

The second instrument, the **Climate and Energy Fund**, established in 2007, aims to support local authorities as well as private companies and households, and is limited to new and innovative approaches in the field of energy and climate change mitigation. It has an annual budget of around €150 million, with approximately half of the funds being spent on transport related projects. Around €730 million was provided by 2012 through 111 support programmes for around 43,000 single climate and energy related projects.[10] The majority of the fund is channelled through one-year programmes, such as the Climate and Energy Model Regions (since 2009). Each region consists of a group of around seven or eight communities with the common goal of building a self-sufficient energy supply by 2030. The programme supports the employment of a programme manager for climate change related activities in the region. The manager's work focusses on concepts and studies for measures related to energy and climate, as well as advisory services and networking. Investments in pilot measures are not supported. However, an expansion of the programme in this direction is currently under discussion.

[7] The Government of Austria, Lebensministerium 2007: 106. Bundesgesetz: Klimaschutzgesetz – KSG. Retrieved March 22, 2013, from http://www.lebensministerium.at/umwelt/klimaschutz/klimapolitik_national/klimaschutzgesetz.html.

[8] Adensam, Dr. Heidelinde and Dr. Florian Haas 2012: Grundzüge des Energieeffizienzgesetzes und der Energieeffizienzrichtlinie. Presentation Vienna, September 20, 2012.

[9] The Government of Austria, Lebensministerium 2012: UFI - Umweltförderung im Inland. Retrieved March 22, 2013, from http://www.lebensministerium.at/umwelt/klimaschutz/ufi/ufi.html.

[10] Climate and Energy Fund 2013: Jahresprogramm 2013 des Klima- und Energiefonds. Retrieved March 22, 2013, from http://www.klimafonds.gv.at/assets/Uploads/Jahresprogramme/jahresprogramm20130315.pdf.

The 106 Climate and Energy Model Regions' that exist today represent approximately half of all Austrian communities and 20 to 30 per cent of the population of Austria. In 2012, €1.6 million was available to support Climate and Energy Model Regions.[11]

Beginning in 1993, the Austrian *Kommunalkredit* Public Consulting has been processing all of the federal programmes named above on behalf of the Environment Ministry, the Climate and Energy Fund and other partners. In total, the *Kommunalkredit* Public Consulting handles around 3,000 requests annually.[12]

Information and Consultation

In addition to the Environmental Support Scheme and the Climate and Energy Fund, **Klima:aktiv** has also supported climate and energy advisory needs since 2004. Its primary objective is to introduce and promote climate friendly technologies and services - consisting of a bundle of measures of regulation, taxes, and subsidies. The Klima:aktiv programme offers advice to local authorities regarding energy, mobility, and related issues. Agreeing on specific climate and energy targets, local authorities receive the necessary advisory support. Furthermore, communities receive support for participating in the e5-programme. The mobility programme and other programmes under Klima:aktiv each have an annual budget of around €150,000-200,000. Klima:aktiv is co-financed with funds from the Environmental Support Scheme with €5-6 million annually.[13]

Furthermore, the *Länder* have established diverse regional advisory programmes, in some cases dating back to the 1990s. Energy and climate-related advisory services for companies and households, as well as for local authorities, co-finance up to a maximum of 50 per cent of the total costs. These programmes have a budget of around €100,000 - 200,000 for local authorities, which is financed partly via the national Environmental Support Scheme.

EXCHANGE & LEARNING

National level exchange

An interdisciplinary working group on climate and energy has been established at the national level, consisting of representatives from different ministries and chambers (economy, commerce, agriculture). The group discusses the future development of the climate and energy support framework.[14]

At the local level exchange and learning are supported through various measures, for example, using the structures provided through the Climate and Energy Model Regions. Around 90 regional "climate managers" meet once a year, exchanging good practice experiences and discussing challenges. Communities within the e5-programme also form an active network.[15] Furthermore, thirteen local authorities signed up for the Covenant of Mayors in Austria[16] and 939 local authorities are members of the Climate-Alliance, which, amongst other activities, organises meetings to support the exchange of information and experiences among its member communities. In addition, a best-practice database

[11] For more information on the Climate and Energy Model Regions, please refer to http://www.klimaundenergiemodellregionen.at/start.asp?ID=242147&b=5121.

[12] For more information on Kommunalkredit Public Consulting, please refer to http://www.publicconsulting.at/kpc/de/home/das_unternehmen/.

[13] For more information on Klima: aktiv, please refer to http://www.klimaaktiv.at/.

[14] The Government of Austria, Lebensministerium 2012: Nachhaltigkeitskoordination. Retrieved March 22, 2013, from http://www.nachhaltigkeit.at/article/articleview/69871/1/25658.

[15] For more information on the various cooperation and networking activities in Austria, please refer to http://www.nachhaltigkeit.at/article/archive/25544.

[16] Covenant of Mayors 2013: Signatories Austria. Retrieved March 22, 2013, from http://www.konventderbuergermeister.eu/about/signatories_de.html?q=Unterzeichner+suchen...&country_search=at&population=&date_of_adhesion=&status=.

exists with more than 100 selected climate projects from throughout Austria – both on-going and already implemented.[17]

International exchange

Local authorities participate in networks such as EUROCITIES, ICLEI, the Covenant of Mayors, the Climate Alliance, and others. Austria is in constant bilateral exchange on the development of the policy field, for instance with its neighbours Germany and Switzerland.

➔ Austria has proven to be an interesting case because of current political developments and discussions in favour of local climate mitigation, for example the expansion of a pilot funding programme or the adoption of a national energy efficiency law with direct implications for local authorities. In addition, the benchmark standard applied when selecting projects under the environmental protection scheme might also be an interesting approach for other countries. Projects funded under national support schemes usually run not longer than one year. However, a certain degree of financial stability is guaranteed since the national Environmental Support Scheme is fed through budget funds and not directly linked to the European Union Emission Trading Scheme as compared to other countries. Due to relatively low prices for emission certificates, Germany for example is currently seeking options to stabilize financial support for climate mitigation in the long-run.

[17] Climate Alliance 2013: Mitglieder in Österreich. Retrieved March 22, 2013, from http://www.klimabuendnis.at/mitglieder.asp?b=357.

2.2 Germany

The promotion of local climate mitigation is well established and institutionalised in Germany. The policy field receives additional attention since the German Federal Government announced the German Energy Transformation ("Energiewende") and the phase out of nuclear power in 2011. Local authorities fulfil particularly important tasks in shifting from fossil and nuclear to renewable energy. The National Climate Initiative and the Directive for Local Climate Mitigation (Kommunalrichtlinie) are powerful and comprehensive funding instruments which have the strength to foster and distribute local climate mitigation activities across the country which in turn are one of the key pillars of the "Energiewende". Besides, the German Federal Ministry for the Environment is comprehensively supporting information and consultation opportunities for local authorities.

STRUCTURES & POLICIES

Climate Strategy and Policy

By adopting the Energy Concept 2050 in 2010 (revised in 2011), the German government has set ambitious national climate mitigation targets, namely to achieve a 40 per cent reduction of greenhouse gas emissions by 2020, a 55 per cent reduction by 2030 and an 80-95 per cent reduction by 2050, as compared to 1990 levels.[18] There is no overall law regulating German climate policy, but rather individual provisions at the federal, state and municipal level. At the federal level, the Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and the Federal Environment Agency (UBA) are mainly responsible for coordinating and governing local climate mitigation. They have initiated and supported many projects regarding emission reduction, energy efficiency and the expansion of renewable energy both nationally and internationally since 2008. In 2011, the German Federal Government launched the German Energy Transformation ("Energiewende"). With this process, the government aims to initiate and facilitate a comprehensive restructuring of the overall energy system, replacing nuclear and fossil fuels with renewable energy as its basis by the year 2050.[19] In order to achieve these ambitious targets, local authorities are considered central in promoting climate mitigation. The federal government and the *Länder* (states) share their legislative power. However, the *Länder* have only limited competencies for adopting their own legislation in regard to climate mitigation, as compared to the federal level.[20]

Climate legislation

The **National Climate Initiative,** established in 2008, is the main national programme for promoting climate mitigation in Germany. It is revised and expanded annually, based on a comprehensive participatory process that incorporates the needs and practical advice of

[18] The Government of Germany, Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) 2010: Energy Concept 2050: Milestones and Assessments. Retrieved March 22, 2013, from http://www.bmu.de/en/topics/climate-energy/transformation-of-the-energy-system/resolutions-and-measures/energy-concept-2050-milestones-long-term-development-path-for-ambitious-climate-protection-targets-energy-efficiency-and-renewables/.

[19] The Government of Germany, BMU 2011: General information: transformation of our energy system. Retrieved March 22, 2013, from http://www.bmu.de/en/topics/climate-energy/transformation-of-the-energy-system/general-information/.

[20] Biedermann, Anna 2011: Klimaschutzziele in den deutschen Bundesländern. Federal Environment Agency (UBA). Retrieved March 22, 2013, from http://www.umweltdaten.de/publikationen/fpdf-l/4146.pdf.

experts and stakeholders. Three main target groups have been identified in this context: business and industry, consumers, and local authorities. They all receive targeted support for the implementation of energy efficiency and mitigation activities.[21] The programme is financed through budget funds as well as from the Special Energy and Climate Fund fed by revenues from the European Union Emission Trading Scheme (ETS).[22] Between 2008 and 2011 around €400 million were invested and nearly 1.4 million tonnes of CO_2 emissions were saved as a result of the programme. At the same time, there is lively discussion centred on the development of a stable, long-term financial framework for supporting climate activities. On-going monitoring and evaluation guarantees the identification of obstacles and the sound development of new programmes.[23]

INCENTIVES & FUNDING

Financial Instruments

One of the core elements of the National Climate Initiative is the **Directive for Local Climate Mitigation** *(Kommunalrichtlinie)*, a financial instrument for funding local climate mitigation projects. Local authorities are encouraged to apply for support in consultation services and for the development of climate protection strategies and concepts. Moreover, they can apply for the implementation of mitigation measures such as the conversion to high-efficiency power technologies, climate friendly traffic infrastructure and technologies avoiding greenhouse gas emissions in dumping grounds. Another element of the *Kommunalrichtlinie* is supporting schools and day-care facilities in establishing energy saving models. Additionally, local authorities may receive up to a 40 per cent refund for employing municipal climate managers.[24] Climate managers fulfil important tasks for enhancing local climate mitigation. They are responsible for the conceptualisation, coordination and implementation of mitigation activities, project management, consultation of policy makers, data collection and analysis, supervision of decision-making processes, the organisation of citizens' dialogues, etc.[25] At the same time, they usually have to mediate interests of different, sometimes opposing stakeholders within their jurisdiction. In order to strengthen their abilities to cope with such challenges, extra funding opportunities have been made available for building networking, facilitation and process design capacities since the last amendment of the directive in the beginning of 2013.[26]

[21] The Government of Germany, BMU 2013: The Climate Initiative. Retrieved March 22, 2013, from http://www.bmu-klimaschutzinitiative.de/en/.

[22] The Government of Germany, BMU 2011: General information: Climate Initiative. Retrieved March 22, 2013, from http://www.bmu.de/en/topics/climate-energy/climate-initiative/general-information/.

[23] The Government of Germany, BMU 2012: Die Klimaschutzinitiative. Ziele und Bilanz. Retrieved March 22, 2013, from http://www.bmu-klimaschutzinitiative.de/de/ziele_und_bilanz.

[24] Centre of Excellence for Climate Change Mitigation in Municipalities (SK:KK) 2012: Richtlinie zur Förderung von Klimaschutzprojekten in sozialen, kulturellen und öffentlichen Einrichtungen im Rahmen der Nationalen Klimaschutzinitiative. Retrieved March 22, 2013, from http://www.kommunaler-klimaschutz.de/files/pdf/121025_kommunalrichtlinie_2013_bf.pdf.

[25] For more information on climate managers, please refer to http://www.klimaschutz-manager.de/arbeitsgebiet_1.html.

[26] SK:KK 2013 : Die Kommunalrichtlinie – Zentrale Änderungen und zusätzliche Fördermöglichkeiten für Kommunen ab dem 1. Januar 2013. Retrieved March 22, 2013, from http://www.kommunaler-klimaschutz.de/files/pdf/bersicht_Novellierung_KRL.pdf.

Information and Consultation

In 2012, 19 cities and municipalities were selected to take part in the **Masterplan 100% Climate Protection** programme, which constitutes another element of the *Kommunalrichtlinie*. For four years participants will benefit from special assistance in developing a strategy to reduce their GHG emissions by 95 per cent by 2050 against the 1990 baseline, thus becoming national pioneers. In the second phase of the programme, the Masterplan implementation will be supported, for instance through local climate managers. The Masterplan communities serve as role models for the German vision of 2050. They not only benefit from financial support, but also from extensive training and networking activities, scientific consultation and publicity.[27]

There is also a variety of award schemes for the promotion of climate mitigation at both the federal and the state level. Awards are mainly used to motivate and activate local entities, including citizens. At the same time, good practice examples and success stories can be highlighted. The most prominent award is the Local Climate Mitigation Competition (Wettbewerb Kommunaler Klimaschutz) initiated by the Centre of Excellence for Climate Change Mitigation in Municipalities (SK:KK) at the German Institute of Urban Affairs (Difu).[28]

In total, the Federal Ministry for the Environment has supported more than 3,000 climate mitigation projects in more than 1,700 local authorities since 2008, with a total financial volume of €191 million, while demand has continued to increase.[29]

EXCHANGE & LEARNING

National level exchange

In Germany, there are several platforms bringing together different actors and stakeholders in the field of climate mitigation. The German federal government is engaged in an on-going dialogue process with the *Länder* (**Bund-Länder exchange on climate change)**. Since 2008, they have been meeting regularly in order to discuss current questions and challenges in regard to climate and energy policy. It is also a platform for *Länder* and communities to formulate their perspectives on national climate policy.

The **Centre of Excellence for Climate Change Mitigation in Municipalities** (SK:KK) was established in 2008 and is financed by the Federal Ministry for the Environment and the umbrella organisations for local authorities.[30] It is coordinated by the German Institute of Urban Affairs (Difu) and fulfils various bridging and consultative tasks. SK:KK organises exchanges that build linkages between local authorities and the Federal Ministry for the Environment. Other services include providing information on funding and good practice through publications, in-person and telephone consultation on funding programmes, trainings, facilitation of networking and information events and general public relations.[31]

[27] SK:KK 2013: Masterplan 100% Klimaschutz. Retrieved March 22, 2013, from http://www.kommunaler-klimaschutz.de/f%C3%B6rderprogramme/bmu-f%C3%B6rderprogramm/masterplan-100-klimaschutz.

[28] SK:KK 2013: Wettbewerb Kommunaler Klimaschutz. Retrieved March 22, 2013, from http://www.kommunaler-klimaschutz.de/wettbewerbe/kommunaler-klimaschutz.

[29] The Government of Germany, BMU 2012: Die Klimaschutzinitiative. Ziele und Bilanz. Retrieved March 22, 2013, from http://www.bmu-klimaschutzinitiative.de/de/ziele_und_bilanz.

[30] These are the German Association of Cities and Towns, the Association of German Counties and the German Association of Towns and Communities.

[31] SK:KK 2013: Information und Beratung für Kommunen. Unser Angebot. Retrieved March 22, 2013, from http://www.kommunaler-klimaschutz.de/unser-angebot.

Local authorities active in climate mitigation also meet regularly at frequent national and regional conferences, facilitated for instance by SK:KK or the German Association of Towns and Communities (DStGB) or by networks such as the Climate Alliance and others.[32] Energy agencies, for instance in North Rhine-Westphalia, offer comprehensive project databases in order to share good practices and guidelines on successful climate action.[33]

International exchange

German local authorities are actively engaged in networks such as EUROCITIES, ICLEI, Climate Alliance or the Covenant of Mayors, to name a few. The German Government holds strong bilateral relations with a range of partner countries in and out of Europe. The International Climate Initiative has been designed to promote climate mitigation and adaptation activities in emerging economies and developing countries. Germany is thus a strong partner in distributing technologies and knowledge. Since 2008 the initiative funded 256 projects in more than 60 countries with a total budget of €556 million.

➔ Support for local climate mitigation in Germany is both comprehensive and well institutionalised. Local authorities receive funding, information, consultation, capacity building and platforms for exchange and learning. BMU established a governance framework in close cooperation with specialized partner institutions which offer services in each category mentioned. Besides, the Federal Ministry for the Environment aims to improve and optimize funding constantly. Consequently, there is a variety of projects accompanying this policy area with targeted research activities, evaluation of present and development of new instruments.

[32] German Association of Towns and Communities (DStGB) 2013: Energiewende und kommunaler Klimaschutz. Retrieved March 22, 2013, from http://www.dstgb.de/dstgb/Schwerpunkte/Energiewende%20und%20kommunaler%20Klimaschutz/.

[33] For more information on the energy agency North Rhine-Westphalia, please refer to http://www.energieagentur.nrw.de/.

2.3 Japan

Japan is very active in the field of local climate mitigation and is promoting its ideas and technologies in Asia. A range of larger cities receive targeted support for demonstrating climate leadership both nationally and internationally. Japan is particularly active in national as well as regional networks such as the High-level seminar on Environmentally Sustainable Cities. There the national government as well as regional and local actors work together with partners from industry, NGOs, academia and politics in countries ranging from North America over South and Southeast Asia to the Pacific region in order to promote environmentally sustainable urban planning and development.

STRUCTURES & POLICIES

Climate Strategy and Policy

As part of the UNFCCC framework, Japan has agreed to reduce its GHG emissions by 25 per cent by 2020 compared to 1990 levels.[34] In 2010, the Japanese cabinet adopted the "New Growth Strategy - Blueprint for Revitalizing Japan".[35] The government thus seeks to create 1.4 million new environment-related jobs and channel over €400 million in new environment-related markets. Thereby, worldwide GHG emissions shall be reduced by 1.3 billion tons of CO_2 equivalent.[36] Activities emphasized in the strategy in order to achieve these targets are: support for the promotion of renewable energy use, promotion of low carbon investment, spread of energy-saving electrical appliances, efficient supply and demand of electricity and recycling of domestic materials. The Ministry of the Environment (MoE) is promoting measures to facilitate local climate action; the total annual budget for local climate policy is estimated at €31 million, including funds from the MoE and the Ministry of Economy, Trade and Industry (METI). National guidelines outlining climate action frameworks, methods for calculating GHG emissions and advice on reducing emissions at the local level are currently being revised by an expert committee and will be published presumably by the end of the year.

Japan is very active in promoting the Clean Development Mechanism (CDM) and related activities throughout the Asian-Pacific region. After the 2011 earthquake and nuclear accident in Fukushima, it is very unlikely that Japan will sign new emissions reduction obligations after of the Kyoto protocol expires. Consequently, the government is working on developing new instruments similar to CDM apart from UNFCCC modalities. At the same time, especially in those parts which have suffered massively from the nuclear accident, there are many initiatives demanding local control over energy supply and clean energy sources.

[34] United Nations Framework Convention on Climate Change UNFCCC 2013: Appendix I - Quantified economy-wide emissions targets for 2020. Retrieved March 25, 2013, from http://unfccc.int/meetings/copenhagen_dec_2009/items/5264.php.

[35] The Cabinet of Japan 2010: The New Growth Strategy. Blueprint for Revitalizing Japan. Retrieved March 25, 2013, from http://www.meti.go.jp/english/policy/economy/growth/report20100618.pdf.

[36] UNCSD 2012: New Growth Strategy: Blueprint for Revitalizing Japan. Retrieved March 25, 2013, from http://www.uncsd2012.org/index.php?page=view&type=99&nr=65&menu=137.

Climate legislation

The Environment Basic Act of 1994 and the Act on Promotion of Global Warming Countermeasures of 1998 set the basis for local climate mitigation as they divide responsibilities between national and local level.[37] Overall objectives and policy frameworks for tackling climate change are developed by the national government. Local authorities instead develop policies to be implemented in their jurisdiction in compliance with national plans. In order to promote measures against global warming, local authorities are required to prepare two types of Local Implementation Plans. The first is the Public Sector Business Implementation Plan which is mandatory for each local authority. It foresees measures for office activities such as management and operation of public buildings and facilities, public transportation, procurement and others. The second is the Local Area Implementation Plan which is mandatory for municipalities with more than 200,000 inhabitants and voluntary for smaller entities. It covers broader measures related to industry, agriculture, forestry, transportation, waste recycling, and others.

INCENTIVES & FUNDING

Financial Instruments

EcoModel-Cities are part of the New Growth Strategy approved by the Cabinet in 2010. The strategy also refers to the **FutureCities project**. It seeks to create sustainable, visionary cities, which will become role models for other cities worldwide. Selected EcoModel-Cities receive national funding for implementing actions to boost low carbon development, eco-agriculture, eco-tourism, clean technologies for urban energy management systems and a healthy and sustainable lifestyle. Relevant ministries and agencies will explicitly subsidise "next-generation social systems and equipment". Regulatory and tax reforms have also been announced in this context.[38] Lessons learnt and best practices shall be compiled in order to promote an intergovernmental partnership with other Asian countries.

The Ministry of Economy, Trade and Industry promotes the **Next-generation Energy and Social Systems Demonstration project**. Yokohama, Toyota, Kyoto Prefecture (Kansai Science City) and Kitakyushu have been chosen to develop and implement a "Japanese version" of smart-grids which later shall be introduced overseas. Tasks to be completed include: the establishment of energy management systems, the introduction of renewable energy, energy efficiency measures (for example in the transportation sector), and the inclusion of local governments, local businesses and the local population.[39]

Japan's most prominent programme for promoting local climate policy is the **EcoModel-City project** launched in 2008.[40] 13 cities have been chosen according to emission reduction targets of more than 50 per cent by 2050; innovative and leadership potential for the region, the country and beyond; a policy approach coherent with local needs; feasibility of the action

[37] Imura, Hidefumi and Ikuyo Kikusawa 2012: Low-Carbon and Eco-Cities in Japan: Searching for Local Energy Solutions in the Shadow of Nuclear Crisis. Conference paper. Low-Carbon and Eco-Cities in East Asia. June7-8, 2012, Hong Kong.

[38] Regional Revitalization Office, Cabinet Secretariat, Government of Japan 2013: "FutureCity " Initiative. Retrieved March 25, 2013, from http://futurecity.rro.go.jp/english/FutureCity_Initiative.pdf.

[39] Energy Conservation and Renewable Energy Department, Government of Japan 2013: Selection of Next-Generation Energy and Social Systems Demonstration Areas. Retrieved March 25, 2013, from http://www.meti.go.jp/english/press/data/pdf/N-G%20System.pdf

[40] Yokohama, Kitakyushu, Obihiro, Toyama, Shimokawa, Minamata, Kyoto, Sakai, Iida, Toyota, Yusuhara, Miyakojima and several wards of Tokyo participate in the EcoModel-City and Future Cities Initiative.

plan; and the inclusion of sustainability aspects in future city development, etc. The core of the project lies in special state funds granted to the selected cities for implementing their action plans. The Cabinet Secretariat is in charge of the project in order to guarantee coordination among the involved ministries, the municipalities, and other partner institutions such as universities and businesses. The cities are asked to create a vision of 2050, to formulate a road map and action plan, to identify potential barriers and bottlenecks and to determine the role of each stakeholder.

Consultation and information

In order to facilitate this process of becoming EcoModel-Cities, the government created the **Council for Low-Carbon Cities**. It comprises 89 cities, 46 prefectures, 12 governmental offices, 29 NGOs and 28 private sector organisations interested in the policy area. The government also plans to disseminate best practices and share lessons learnt not only with cities in Japan, but also with other international partners working on similar visions.

EXCHANGE & LEARNING

National level exchange

The **Coalition of Local Governments for Environmental Initiative (COLGEI)**[41] is a network comprising far more than Japan's largest and most prominent cities. Its 55 members jointly agreed on specific targets in a variety of fields: nature conservation, climate protection, energy, water, and others. The initiative offers various services to its members, for example an estimation of their GHG emissions and the resulting savings potential or the formulation of a local climate policy. Together with Hosei University, the network has developed a low carbon policy index to evaluate low carbon policies and programmes. Partners from Thailand and Vietnam have already indicated interest in this method.

International exchange

One important platform for intergovernmental exchange and learning is the **High-level seminar on Environmentally Sustainable Cities** (ESC), a network organised by the governments of Vietnam, Japan, Australia and Indonesia, and the ASEAN Secretariat and ASEAN Working Group on Environmentally Sustainable Cities. This "flagship initiative" funded by the Japan-ASEAN Integration Fund (JAIF) includes the 10 ASEAN member states, plus Australia, China, India, Japan, the Republic of Korea, and New Zealand, as well as the United States and Russia. Local governments, bilateral and international development agencies, city networks, NGOs, private companies, academia and community groups complete the comprehensive picture of participants. Meetings have been held annually since 2010 in order to discuss necessary reforms for the promotion of environmentally sustainable cities, potential opportunities for collaboration and knowledge transfer.[42]

Japan is the most industrialised country in the region and is, thus, of great importance for neighbours and countries within its sphere of influence. Japan has the opportunity to promote low carbon development and related technologies in the region. The government con-

[41] You can find more information on COLGEI under http://www.colgei.org/intro/colgei.html.

[42] High Level Seminar on Environmentally Sustainable Cities 2013: 4th High Level Seminar On Environmentally Sustainable Cities. Retrieved March 25, 2013, from http://hls-esc.org/.

sequently holds close relationships to the ASEAN countries, China, India, etc. The Japan International Cooperation Agency (JICA) is very active in this policy field.

➔ The shift from nuclear to renewable energy remains challenging for Japan, especially after the nuclear accident at Fukushima. Nuclear power has been a key pillar of the New Growth Strategy. Today the restoration and revitalisation of affected areas is the first priority for both the national and local government, and of course the most important step in this transformation. The process is both difficult and promising, climate mitigation activities can be used to create useful synergies. Some of the cities participating in governmental programmes have also been struck by the Great Earthquake in 2011. Besides, most of the programmes have typically been launched years before. It will thus remain interesting to observe policy developments in Japan in the future.

2.4 Sweden

Sweden is very progressive in supporting climate mitigation at the national as well as at the local level. There is a CO_2 feeding funds for climate action. 282 out of 292 local authorities and 20 out of 21 counties received funding for mitigation measures in their jurisdiction. Programmes specifically developed to promote sustainable development and climate mitigation at the local level have been running for more than a decade already. They mainly include funding and networking opportunities.

STRUCTURES & POLICIES

Climate Strategy and Policy

The Swedish Government has set a target of reducing the country's GHG emissions by 40 per cent by 2020, which is twice as much as the EU goal.[43] In Sweden the Ministry of the Environment[44] is responsible for climate policy, whereas energy efficiency policies fall under the responsibilities of the Ministry of Enterprise, Energy and Communications[45]. Support programmes relevant to local climate change mitigation are processed by the Swedish Energy Agency[46].

Sweden is a unitary state, divided into 21 counties. The 290 municipalities have far-reaching competencies related to environment, waste management, water supply, education, health protection, social services, public transport and roads. Swedish municipalities, county councils and regions have a considerable degree of autonomy and have independent powers of taxation. The municipalities are quite independent regarding climate change mitigation activities compared to other countries studied.[47] The ambitious climate goals set by the national Government are also adopted at the local level – and the other way around, as the Government acknowledges the role of local authorities and supports them in their efforts to achieve their climate goals.

Climate legislation

The climate policy framework in Sweden is mainly defined by the Integrated Climate and Energy Policy, the Energy Efficiency Directive and the CO_2 tax, which was introduced in 1991. The CO_2 tax, along with the energy tax and the VAT, increased the price of energy, driving transformation towards low carbon and energy efficient developments at the local level. As municipalities are allowed to own energy companies, Sweden's Green Electricity Certificates Scheme is another driver for low-carbon developments at the local level.

[43] Sectors falling under the EU ETS are not included in the target.

The Government of Sweden 2009: Climate and energy policy for a sustainable future. Retrieved March 25, 2013, from http://files.eesi.org/sweden_policy_030009.pdf.

[44] For more information on the responsibilities of the Swedish Ministry of the Environment, please refer to http://www.government.se/sb/d/2066.

[45] For more information on the responsibilities of the Swedish Ministry of Enterprise, Energy and Communications, please refer to http://www.government.se/sb/d/2067.

[46] You can find more information on the Swedish Energy Agency under http://www.energimyndigheten.se/en/.

[47] Swedish Association of Local Authorities and Regions 2009: Local Action on Climate Change – Swedish Experiences. Retrieved March 25, 2013, from http://brs.skl.se/brsbibl/kata_documents/doc39454_1.pdf.

The Swedish Integrated Climate and Energy Policy[48] (2008/2009) is focussing on three issues: a fossil-fuel independent transport sector, increased energy-efficiency and promotion of renewable energies. The local level is mainly addressed through action plans regarding transportation, building planning, waste and others. In 2010 Sweden passed the Energy Efficiency Directive, which included measures to be implemented in counties and local authorities.[49] The extension of the directive beyond 2014 is currently under discussion.

Other policies relevant to local authorities' climate change mitigation efforts include public purchasing and regulation such as the Law on Physical Planning. Through the latter, local authorities are obliged to develop plans for energy use, distribution etc. Furthermore, there is currently a discussion concerning the proposal of energy management systems for local authorities similar to the systems promoted for companies.

INCENTIVES & FUNDING

Financial instruments

Most of the funding for local authorities' climate change mitigation efforts originates from local taxes and fees.

From 1998 to 2012, direct state grants for actions and investments were given to the local and regional level, mostly for local environment and climate investment, as well as energy conversion and efficiency measures in public buildings.

Since 1998, local investment programmes encouraged local authorities to undertake activities on a broad set of issues, such as nature conservation, waste and energy. During 1998-2002, with some projects running through 2008, the Local Investment Programme for Ecological Sustainable Development for the Public Sector supported projects dealing with energy and environmental protection in a broader sense. The programme, with a total budget of €600 million was run under the authority of Agency for Nature Protection. Under the successive Climate Local Investment Programme[50] (KLIMP) (2003-2008) with some projects running through 2012, 126 projects and 900 actions where supported. The total KLIMP budget of €180 million triggered investments of around €800 million.

Currently, funding on a similar level is provided through the **Energy Efficiency Directive**. In 2011, 282 out of 290 Swedish municipalities participated; as did 20 out of the 21 counties. The programme has an annual budget of around €9 million and provides grants via the Swedish Energy Agency. It is likely to be prolonged beyond 2014. Around €30,000 per municipality and county can be used to employ an expert responsible for planning, implementing and reporting on climate and energy activities (e.g. insulation of buildings, transport, LED streetlights).[51] Investment costs are not covered. Additionally, county administration boards can apply for the support of specific projects. Today, 15 projects have been implemented in 20 counties. While around €3 million per year is provided to support county administrative

[48] The Government of Sweden 2009: Climate and energy policy for a sustainable future. Retrieved March 25, 2013, from http://files.eesi.org/sweden_policy_030009.pdf.

[49] Swedish Energy Agency 2012: Energy Efficiency Policies and Measures in Sweden. Retrieved March 25, 2013, from http://www.odyssee-indicators.org/publications/PDF/sweden_nr.pdf.

[50] The Swedish Environmental Protection Agency 2004: Local Investment Programmes. The way to a sustainable society. Retrieved March 25, 2013, from http://www.naturvardsverket.se/Documents/publikationer/91-620-8174-8.pdf.

[51] Hagnell, Andreas 2010: Local Action on Climate Change – The Swedish Experience. Retrieved March 25, 2013, from http://www.kunnat.net/fi/tietopankit/tapahtumat/aineisto/2010/viides-ilmastokonferenssi/Documents/2_Hagnell.pdf.

boards to prepare climate and energy strategies, €1-2 million per year is attributed as "project money" for implementing projects such as thermal insulation and streetlights.

For about a decade, the national government supports **"municipal energy and climate advisers"**. Households, organisations and companies can obtain advice and support free of charge, mainly on heating and energy, but also on transport.[52] In 2012 the programme's budget was €8 million. The support typically finances a half-time position of an energy and climate manager, who sometimes serves more than one local authority.

There are a number of initiatives in which the central government is cooperating with local authorities on issues closely linked to climate change mitigation. The county administration boards are responsible for developing regional environmental targets and energy and climate strategies in cooperation with local and regional authorities. National agencies such as the *Traffic agency* and the *Housing and Planning Agency* have conducted projects for developing and implementing methods of planning with municipalities.

Information and consultation

Another example is the **Sustainable Municipalities Programme**[53], which supports networking and provides minor financial resources for climate projects in Swedish municipalities on, for instance, urban planning, energy-efficient buildings, biogas, procurement, business development and information dissemination. In 2003 the programme started as a networking platform with the ambition to put the energy restructuring into a wider community perspective. The programme focusses on frontrunner cities that meet specific criteria. Today, 37 out of 290 municipalities take part in the programme. Whereas parts of the funds are directly accessible by participants, additional support can be applied for in order to implement concrete projects (e.g. technical pilot measures). The programme has also been extended to research projects. The programme is open until 2014 and is currently being evaluated. Other examples of national-local programmes include the cooperation between the national traffic agency and local authorities on sustainable mobility.

Furthermore the central government finances 14 **regional energy offices** dealing with 30 local authorities. The programme, which was first started using EU funds, today has an annual budget of around €2 million for coordination and support of local climate and energy advisors and local authorities through networking and training.

EXCHANGE & LEARNING

National level exchange

Swedish municipalities have been very active in working on local Agenda 21 processes, especially in the areas of urban planning, energy-efficient buildings, biogas, procurement, business development and information.

Various networks and support strategies exist to support exchange and learning for sustainability and climate change mitigation. The county administration boards' tasks also include networking among municipalities, not only through climate and energy coordinators, but also seeking to involve senior politicians. In the Sustainable Municipality Programme, several

[52] Swedish Energy Agency 2010: Successful counselling. Retrieved March 25, 2013, from http://213.115.22.116/System/TemplateView.aspx?p=Energimyndigheten&view=default&cat=%2fBroschyrer&id=cbcc87fdb7dd406fab31a4edae5efe34.

[53] For more information on the Sustainable Municipality Programme, please refer to http://www.energimyndigheten.se/en/Sustainability/The-Sustainable-Municipality/.

professional groups are involved, including public planning and energy officers as well as politicians. From 2008 until 2012 the **"**Delegation for Sustainable Cities"[54] invested €30 million for bringing together the central Government, the business community and local authorities at a national platform for sustainable urban development. The national co-financing has typically covered about a quarter of the costs.

Two networks at national level are the **Swedish Eco-municipalities**[55], focussing on concepts for sustainability in local councils, and the group of some 25 Climate Municipalities (Klimatkommunerna[56]) - an association that works to reduce GHG emissions by boosting motivation and opportunities of municipalities to carry out concrete measures, by exchanging experience and distributing information.

Furthermore, the Swedish Association of Local Authorities and Regions[57] (SALAR) promotes local climate mitigation through guidance documents, good practice reports and conferences. The Government consults with SALAR, among other institutions, regarding current and planned support instruments for local climate mitigation.

International exchange

A large number of municipalities in Sweden are engaged in international exchange programmes such as EUROCITIES, ICLEI, Climate Alliance, the Union of Baltic Cities, the Nordic and Baltic Aalborg Commitments Network. In Sweden there are currently also 50 signatories to the Covenant of Majors. SybioCities is a network for international exchange and development on technology and municipal solutions.[58]

➔ The promotion of local climate mitigation has long been part of national climate policy and is thus well established. Concepts which have proven to be successful are funding for the employment of climate managers as well as the support for progressive and successful local authorities as part of the "sustainable municipalities" programme. What remains challenging is the inclusion of industry, also at the local level. The introduction of regulations on energy monitoring and management is currently being discussed.

[54] The Delegation for Sustainable Cities 2013 Take action now!: Retrieved March 25, 2013, from http://www.hallbarastader.gov.se/Uploads/Files/806.pdf.

[55] For more information on Eco-municipalities, please refer to http://www.sekom.nu/index.php/in-english.

[56] For more information on the Climate Municipalities, please refer to http://www.klimatkommunerna.se/.

[57] For more information on SALAR, please refer to http://english.skl.se/about_salar.

[58] For more information, please refer to http://www.symbiocity.org/.

2.5 United Kingdom

In the United Kingdom, Scotland, Wales and Northern Ireland each have their own executive structures whereas England is governed directly through the UK government. Since national policies and instruments have been analysed, the focus of this chapter mainly lies on England where the promotion of local climate mitigation is very dynamic. National strategies to promote local climate mitigation are currently shifting from grant based funding to more flexible solutions such as contracting or low-interest loans. The UK government only recently launched the Green Deal which is now the main instrument for the promotion of climate mitigation. Even if it is not exclusively targeted at local authorities, it offers interesting options and entry points for local climate mitigation. Local climate mitigation is also being supported in the other regions. However, within the scope of this study existing policies and instruments in Scotland, Wales and Northern Ireland have not been taken into consideration.

STRUCTURES & POLICIES

Climate strategy and policy

The UK set statutory targets of an 80 per cent reduction of GHG emissions by 2050 and at least a 34 per cent reduction by 2020, as compared to the 1990 baseline.[59] The British Government has two key departments addressing climate change and energy issues: the Department of Energy and Climate Change (DECC) and The Department of Environment, Food and Rural Affairs (DEFRA). In addition, the Department of Communities and Local Government covers a number of areas such as housing, planning, buildings, and the environment.

Local authorities are one of the main target groups of national climate policy, especially when it comes to mitigating activities. However, following the abolishment of a framework demanding that local authorities reduce per capita CO_2 emissions, local climate mitigation is now a voluntary task.[60] They are now required to report on measures they propose to take in order to improve the energy efficiency of all their residential accommodation.[61] However, there are now intense discussions on climate change and social justice related to both adaptation and mitigation, for example within the Local Government Association (LGA). Identifying synergies between climate change and problems such as unemployment and demographic change present both challenges and an opportunities to foster innovation. Developing creative and innovative solutions can become one of the major strengths of British climate policy and can offer important lessons for other countries.

[59] The Government of the United Kingdom, Department of Energy and Climate Change 2013: Reducing the UK's greenhouse gas emissions by 80% by 2050. Retrieved March 18, 2013, from https://www.gov.uk/government/policies/reducing-the-uk-s-greenhouse-gas-emissions-by-80-by-2050/supporting-pages/carbon-budgets.

[60] Ibid.

[61] Under The Home Energy Conservation Act 1995 new guidance was issued to all English local authorities in July 2012.

Climate legislation

In the Climate Change Act of 2008 defines UK's GHG emission reduction targets as mentioned above.[62] The government further outlined carbon budgets for five year periods, the first period running from 2008 to 2012, the between 2013 and 2017. The Committee on Climate Change (CCC) is an independent body established under the Climate Change Act (2008), which advises the British Government on the level of carbon budgets and where cost-effective savings can be made. It further stresses local authorities' crucial role in climate mitigation based on their influence on buildings, surface transport and waste, which together account for 40 per cent of all GHG emissions in the UK.[63]

Given budget reductions as a result of the recent global economic downturn and a relatively low autonomy to govern, British local authorities have comparatively limited capacities and resources to actively engage in climate mitigation. City networks and representatives of local authorities' associations therefore endorse a broad reform of the fiscal and legislative systems upholding local authorities. Economic constraints tend to limit local authorities' mitigation activities, not only the UK.

INCENTIVES & FUNDING

Financial Instruments

In order to provide local freedoms and flexibilities to local authorities, there is a government policy of localism. The term describes the deregulation of targets, monitoring and evaluation principles towards a greater freedom of action and more substantial competencies for local authorities. One example can be seen in the **City Deals**, an agreement between the national government and selected cities, under which the former can allocate competencies to the latter. By gaining greater freedom of choice, for example in regard to public transportation and the right to spend tax receipts from local companies, the national government seeks to stimulate economic growth.[64] A second phase of City Deals is currently being discussed and low carbon development might become one of the key topics.

While the British government used to support local climate mitigation via numerous funding schemes, for example through Local Area Agreements or the Northwest Rural Carbon Challenge Fund (both of which have expired[65]), new instruments currently being developed only marginally include funding opportunities for local authorities. However, this change reflects DECC's shift to strategies in regard providing local flexibility and the use of new and innova-

[62] The Institute for Government 2008: The Climate Change Act (2008). Retrieved March 27, 2013, from http://www.instituteforgovernment.org.uk/sites/default/files/climate_change_act.pdf.

[63] Pryce, Tim 2012: Keeping councils at the heart of carbon reduction. Carbon Trust UK. Retrieved March 18, 2013, from http://www.carbontrust.com/news/2012/10/keeping-councils-at-the-heart-of-carbon-reduction.

[64] The Core Cities of Birmingham, Bristol, Leeds, Liverpool, Newcastle, Nottingham, Sheffield and Manchester have been the first to benefit from city deals. Until now, twenty more cities joined the programme: The Black Country; Bournemouth; Brighton and Hove; Cambridge; Coventry and Warwickshire; Hull and Humber; Ipswich; Leicester and Leicestershire; Milton Keynes; Norwich; Oxford; Reading; Plymouth; Preston and Lancashire; Southampton and Portsmouth; Southend; Stoke and Staffordshire; Sunderland and the North East; Swindon and Wiltshire, and Tees Valley.

[65] Kaffash, Jaimie 2010: Pickles announces abolition of Local Area Agreements. Public Finance. Retrieved March 18, 2013, from http://www.publicfinance.co.uk/news/2010/10/pickles-announces-abolition-of-local-area-agreements/; Energy Saving Trust 2013: Northwest Rural Carbon Challenge Fund. Retrieved March 18, 2013, from http://www.energysavingtrust.org.uk/Organisations/Government-and-local-programmes/Community-energy/Northwest-Rural-Carbon-Challenge-Fund.

tive financial instruments. The **Green Deal**[66] is the UK's most prominent mitigation instrument at the moment. For users installing energy efficiency measures in their homes and businesses, there are no upfront costs, as these are paid via energy savings on the electricity bill. For local authorities, there are various ways of benefiting from the programme, either by becoming a Green Deal provider or acting in partnership with one or more of the commercial Green Deal providers. Eight cities have become pilot areas using the Green Deal framework, creating show-homes and developing local supply chains. Local authorities are addressed as important multipliers to motivate companies and citizens to take part in the programme. The British government has also spent the equivalent of €11 million on the **Green Deal Pioneer Places Fund**[67], an initiative supporting households to take up the Green Deal. In total, 39 local energy schemes have been funded covering 150 local authorities in England. The response from local authorities was overwhelming. The Energy Secretary interpreted the huge demand for funding as a sign towards working more closely with municipalities and councils in the near future.[68]

Another mitigation tool is the Energy Company Obligation (**ECO)**. This is an obligation on the UK's six biggest energy suppliers to deliver a set carbon reduction target over a 3 year period up to March 2015. Suppliers discharge their obligations by installing energy efficiency measures in domestic households. This works in conjunction with the Green Deal and also supports fuel poor and vulnerable households. The government plans to support energy efficiency measures for 230,000 low-income households a year and is thus very relevant for local authorities. From an annual €1.5 billion, 30-50 per cent of expected investments are particularly targeted at supporting poor households.[69]

In order to overcome regional imbalances among climate active metropolitan areas and rural areas, the Energy Company Obligation incorporates rural safeguards. The Northwest Rural Carbon Challenge Fund has also been designed in order to support community-based renewable energy projects in rural North West England. It is managed by the Department for Environment, Food and Rural Affairs (DEFRA) and delivered in partnership with the Energy Saving Trust and Envirolink Northwest. Six projects have been selected, which are now receiving additional guidance. Even though it is no longer open for application, this fund still exemplifies an incentive scheme that might be interesting for other countries facing similar challenges.[70]

[66] The Government of the United Kingdom, Department of Energy and Climate Change 2010: The Green Deal. A summary of the Government's proposals. Retrieved March 18, 2013, from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47978/1010-green-deal-summary-proposals.pdf.

[67] The Government of the United Kingdom, Department of Energy and Climate Change 2012: DECC Local Authority Funds. DECC Local Authority Competition 2012-13. Retrieved March 18, 2013, from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65570/6712-local-authority-competition-fund-application-pack.pdf.

[68] The Government of the United Kingdom, Department of Energy and Climate Change 2013: Announcement £46 million boost for 132 local energy schemes. Retrieved March 18, 2013, from https://www.gov.uk/government/news/46million-boost-for-132-local-energy-schemes.

[69] For more information on the ECO-funding, please refer to http://www.energysavingtrust.org.uk/Organisations/Government-and-local-programmes/Free-resources-for-local-authorities/Local-authority-funding-guide/Funds/Local-Authorities/Energy-Company-Obligation-ECO.

[70] Pryce, Tim 2012: Keeping councils at the heart of carbon reduction. Carbon Trust UK. Retrieved March 25, 2013, from http://www.carbontrust.com/news/2012/10/keeping-councils-at-the-heart-of-carbon-reduction.

EXCHANGE & LEARNING

Hybrid instruments: National level exchange and information

There are several noteworthy local authority led initiatives seeking to bring together local authorities and other relevant stakeholders. A primary example is the **Climate Local Framework**[71], supported by the Local Government Association (LGA). This framework is an initiative designed to drive, inspire and support council action on climate mitigation and adaptation. Councils can sign up to demonstrate publicly their commitment to tackling climate change and their pledge to sharing best practices and experience. Over 50 member councils have already publicly committed to Climate Local since its launch in summer 2012. They further agreed on a common preamble and are provided with tools for achieving their goals in emission savings. Additionally, there is a forum for knowledge exchange, as well as interesting and innovative collaborations at the local level, such as Low Carbon South West[72], a community interest company[73] focussing on low carbon development. It includes businesses, academia, local authorities, and investors, as well as regional and national agencies. The platform aims at initiating, facilitating and fostering networking, knowledge exchange, training and collaboration among the members.

There is also the **Carbon Action Network**[74] which is comprised of officers from local authorities across the country. The network is a not-for-profit organisation supporting local government officers through annual and regular regional conferences, the dissemination of information, consultations and representation towards the national government. The **Core Cities Network**[75] is comprised of the councils of England's eight largest city economies outside London, which represent one third of England's population as well as one third of its economic power. The Core Cities Network functions as a platform for the cities to share best practices, support agenda setting and hold valuable dialogues with government agencies and businesses. Climate change and sustainability issues are among their key topics.

International exchange

Local authorities participate in networks such as EUROCITIES, ICLEI, the Covenant of Mayors, the Climate Alliance, and others.

➔ Recent developments in the policy area in the UK are dynamic. First, there is a general political trend towards "localism" in which national authorities seek to provide local authorities with more flexibility and freedom of action. This is closely related to a broader abolishment of targets, goals and evaluation criteria in a range of policy fields. As a result, strategies to promote local climate mitigation similarly shift from grants for the achievement of mitigation targets towards more flexible instruments such as energy company obligations. Besides, there are various opportunities which equally address households as well as local authorities both being main targets groups of UK climate policy. As most of the instruments described are rather new, it will be interesting to observe their impact.

[71] For more information on the climate local initiative, please refer to http://www.local.gov.uk/web/guest/the-lga-and-climate-change/-/journal_content/56/10171/3574359/ARTICLE-TEMPLATE.

[72] For more information on the Low Carbon South West company, please refer to http://www.lowcarbonsouthwest.co.uk/.

[73] A community interest company is a new type of company established by the British Government in 2005 under the Companies Act 2004. It is a social enterprise which uses their profits and assets for the public good.

[74] For more information on the Carbon Action Network, please refer to http://www.can.uk.net/about.php.

[75] You can find more information on the Core Cities Network under http://www.corecities.com/.

2.6 U.S.A. (California & Connecticut)

In the U.S., the majority of climate mitigation activities are undertaken at the state and local level. The federal government typically establishes broad policy goals and incentivises actions through targeted programmes. Federal agencies such as the Environmental Protection Agency (EPA) offer trainings, tools and opportunities to share best practice examples among state agencies. Constant and comprehensive support for local authorities' climate mitigation activities is provided by state agencies and other subnational actors. California and Connecticut are both particularly progressive in the promotion of renewable energies and energy efficiency. Both continue to set international standards for climate mitigation in general. Connecticut, for example, is part of the Regional Greenhouse Gas Initiative (RGGI) which was the first mandatory GHG emissions trading scheme in the U.S. established in 2009. Moreover, Connecticut is seeking to become the most energy efficient state in the U.S. and established the first green bank nationwide. California offers comprehensive support for local authorities, ranging from information and consultation over funding and networking opportunities. Moreover, California is actively engaged in various regional and international dialogue processes on climate mitigation, for instance with Canada, Mexico and other states in the U.S. The Regions of Climate Actions initiative which works internationally has its origin in California. Therefore, these two states have been chosen here in order to highlight climate mitigation activities in the U.S.

STRUCTURES & POLICIES

California

Climate strategy and policy

In addition to businesses, industry and private households, local authorities are among the main target groups of climate mitigation policy. Local authorities enjoy a high degree of autonomy to govern; still they are encouraged to adopt voluntary measures in their jurisdiction, for example in land use management. In California several state departments and agencies support local climate mitigation, for instance the Air Resources Board (ARB), the California Energy Commission, the Public Utilities Commission or the Governor's Office of Planning and Research (OPR). They provide incentives and guidance, regulatory frameworks and a limited amount of financial resources to support local action. In 2012 the OPR estimated that out of 530 cities and municipalities in California around 70 per cent actively implemented adaptation or mitigation measures. The California chapter of ICLEI (Local Governments for Sustainable Development) is another important actor in this field. They work both independently and in conjunction with local governments to support the development of greenhouse gas inventories and the formulation of climate action plans.

Since California's coastal area is likely to suffer from flooding as a result of rising sea levels as a consequence of climate change, there are many activities related to adaptation. Consequently, there are vivid discussions on the coherence of adaptation and mitigation efforts. The reform of the transport sector, which accounts for the majority of California's CO_2 emissions, remains a challenge also for local authorities. The Clean Air Initiative, Clean Car Initiative and the development of low carbon fuels are noteworthy steps forward.

Climate legislation

With the Governmental Executive Order S-3-05 the state of California set the goal to reduce its GHG emissions to the year 2000 levels by 2010; the 1990 level by 2020 and by 80 per cent by 2050. In Assembly Bill 32 of the Global Warming Solutions Act of 2006, former Governor Schwarzenegger set the emissions reduction obligations for the 2020 targets into law. The act further regulates the development of a GHG reduction strategy and a scoping plan. The scoping plan developed in 2008 foresees activities and measures such as the cap and trade scheme and a renewable portfolio standard. It thus indicates how emissions reductions will be achieved from GHG sources via regulations, market mechanisms and other actions.[76] In order to achieve these ambitious targets, the Sustainable Communities and Climate Protection Act of 2008 (SB375) requires each of the state's 18 metropolitan planning organisations (MPOs) to prepare a sustainable communities strategy (SCS). The strategy shall indicate GHG reduction measures through integrated land use, housing and transportation planning. It also regulates regional planning for state agencies in regard to certain sectors, for example transportation.[77]

Connecticut

Climate strategy and policy

The Connecticut Department of Environmental Protection and its climate and energy team are mainly responsible for supporting local climate mitigation at the state level. The Connecticut Clean Energy Finance and Investment Authority (CEFIA) as well as the Connecticut Energy Efficiency Fund (CEEF) significantly support and complement the department's activities. Local authorities are among the main target groups of state climate policy, particularly since Connecticut has been severely hit by natural disasters such as Hurricane Sandy in 2012. Such catastrophic incidents aid in boosting movement towards the decentralisation of energy supply. In the fall of 2012 Governor Malloy announced his aim to make Connecticut the most energy efficient state in the U.S.[78]

Climate legislation

The Connecticut Global Warming Solutions Act (PA 08-98) determines mandatory GHG emission targets for the state: 10 per cent below 1990 levels by 2020, 80 per cent below 2001 levels by 2050. The act also requires GHG inventory updates, energy savings from state agencies as well as additional GHG reduction strategies.[79] For state buildings, energy use shall be reduced by 10 per cent by 2013 and an additional 10 per cent by 2018 according to Section 118 of the Public Act 11-80.[80]

[76] Air Resources Board, California Environmental Protection Agency 2012: Assembly Bill 32: Global Warming Solutions Act. Retrieved March 25, 2013, from http://www.arb.ca.gov/cc/ab32/ab32.htm.

[77] Air Resources Board, California Environmental Protection Agency 2013: Sustainable Communities. Retrieved March 25, 2013, from http://www.arb.ca.gov/cc/sb375/sb375.htm.

[78] State of Connecticut, Department of Energy and Environmental Protection 2013: Lead By Example – Energy Efficiency for State and Local Government. Retrieved March 18, 2013, from http://www.ct.gov/deep/cwp/view.asp?a=4405&Q=489980&deepNav_GID=2121%20.

[79] State of Connecticut, Climate Change Connecticut 2011: Timeline of CT Climate Change Milestones. Retrieved March 18, 2013, from http://ctclimatechange.com/index.php/ct-happenings/timeline/.

[80] State of Connecticut 2011: Senate Bill No. 1243. Public Act No. 11-80. An act concerning the establishment of the department of energy and environmental protection and planning for Connecticut's energy future. Retrieved March 18, 2013, from http://www.cga.ct.gov/2011/act/pa/2011PA-00080-R00SB-01243-PA.htm.

INCENTIVES & FUNDING

California

Financial instruments

The most prominent funding scheme for local climate action originates from the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Proposition 84). It authorises the equivalent of €4,148 billion in general obligation bonds to fund a variety of activities related to environmental and resource protection. Part of the funds feed the **Sustainable Communities Planning Grant and Incentive Program,** which seeks to promote local and regional sustainability initiatives consistent with AB 32. About €50.8 million in competitive state funds will be available for activities that improve air and water quality, encourage infill and compact development, reduce automobile use, protect natural resources, promote public health, increase housing affordability, revitalise urban and community centres, promote energy efficiency and conservation, and strengthen the economy.[81] The importance of climate action plans is particularly highlighted in this regard. The funds are being distributed in three cycles since 2010/2011.

Funding is also available through the **Strategic Growth Council** (SGC).[82] The SGC is an executive institution encompassing different agencies: Business, Transportation and Housing, California Health and Human Services, California Environmental Protection Agency, and the California Natural Resources Agency; the director of the Governor's Office of Planning and Research and an appointee of the Governor. The council assists local communities in their sustainable development and support of the AB 32 goals. Projects related to climate action and land use have been funded for three years now. There are two annual funding cycles for 50 projects each. The grants mainly originate from state funds. Typically, funds are generated by state departments, the cap and trade scheme and several non-traditional actors such as private foundations, universities and NGOs.

Another noteworthy source of funding is the **CoolCalifornia Community Challenge**[83]. This innovative competition between Californian cities aims at reducing carbon footprints in the community and creates a more sustainable living environment. Between April 2012 and March 2013 interested cities are asked to encourage their citizens to register and begin tracking and reducing their GHG emissions, for instance through energy savings at home, the use of public transportation etc. Residents can earn points for supportive actions such as the participation in online surveys, invitation of friends, sharing pictures with the community. Finalist cities receive a grant of €7,698. The “Coolest California City” will be awarded an extra prize.

[81] Rincon Consultants 2010: California Offers $66 Million in Sustainable Community Planning Grants. Retrieved March 22, 2013, from http://www.rinconconsultants.com/about-us/blog/bid/75355/California-Offers-66-Million-in-Sustainable-Community-Planning-Grants.

[82] State of California, Strategic Growth Council 2011: Sustainable Communities Planning Grant and Incentive Program. Retrieved March 22, 2013, from http://www.sgc.ca.gov/meetings/20111102/pgip-guidelines-2011.pdf.

[83] For more information please refer to coolcalifornia.org.

Information and consultation

A broader form of support is offered by the Air Resources Board which has developed a comprehensive **Local Government Toolkit.** It includes practical information on multiple topics including cost-saving opportunities for energy and water efficiency, transportation, purchasing, building, recycling and green energy. It also offers a carbon footprint calculator and modelling tools, as well as specific advice on how to develop a climate action plan and case studies on successful mitigation action. The Funding Wizard embedded in the webpage gives local authorities and other target groups the chance to browse and search for funding opportunities.[84]

Connecticut

Financial instruments

In Connecticut, two main funding instruments have been identified. They promote the replication of good practices rather than acceleration. The **Lead by Example** programme, initiated by the Connecticut Department of Energy and Environmental Protection, aims at reducing energy use in state and local government buildings and operations. Since 2011, the equivalent of over €7.5 million has been spent on funding 44 different energy efficiency projects in state government buildings. A programme coordinated by the Clean Energy Finance and Investment Authority and the Connecticut Energy Efficiency Fund, called the **Clean Energy Communities** programme, promotes energy efficiency and renewable energy measures. According to a points-based system, a community is rewarded with either a "Bright Idea Grant" from the equivalent of €3,849 to €11,547 for community selected energy projects or a clean energy system equivalent to 1 kilowatt (kW) of solar PV. Points are appointed for various actions, for example when households in the community sign-up for the CTCleanEnergyOptions programme, install clean energy systems (i.e. solar PV or solar thermal hot water systems), undertake a home energy assessment (i.e. Home Energy Solutions programme), or use financing programmes to provide the capital for homeowners to undertake these actions. The same applies for municipal entities that participate in a Clean Energy Finance and Investment Authority or a Connecticut Energy Efficiency Fund business or municipal renewable energy and energy efficiency programme. As such, the incentive scheme links the mobilisation of citizens, businesses and local authorities with benefits for the whole community. More than 100 out of Connecticut's 169 municipalities and cities have already participated in the programme, upholding the success of this comprehensive and innovative tool. The programme evaluation found that the number of green electricity household purchases increased by 35 per cent within the participating communities.[85] In addition, many participating communities have also engaged in national or international climate-related events such as Step It Up, National Day of Climate Conversation and various activities sponsored by 350.org. The programme demonstrates how cooperation and incentives can successfully mobilise various target groups at once. It also resembles the common shift in mind-set among state authorities: away from mainly funding local climate mitigation towards the promotion of other financing instruments such as contracting. The Clean Energy Communities programme is jointly implemented by the **Clean Energy Finance and Investment Authority (CEFIA)** and the Connecticut Energy Efficiency Fund (CEEF). CEFIA was the first green

[84] For more information on the Local Government Toolkit, please refer to http://www.arb.ca.gov/cc/localaction/localgovstrat.htm.

[85] Kotchen, Matthew J.2010: Climate Policy and Voluntary Initiatives: An Evaluation of the Connecticut Clean Energy Communities Program. National Bureau of Economic Research (NBER), Working Paper No. 16117. Retrieved March 22, 2013, from http://www.columbia.edu/cu/alliance/documents/EDF/Wednesday/kotchen.pdf.

bank in the U.S. created in 2011 out of the Connecticut Clean Energy Fund (CCEF). Between 2000 and 2010 the equivalent of €138.6 million has been spent state-wide to fund renewable energy and technology projects, as well as education and awareness programmes. The foundation of CEFIA was to change the clean energy deployment model from government rebates and subsidies to low-cost long-term financing.

CEIFA is funded by a variety of sources, for example through a of the equivalent of €0.00077/kWh ratepayer surcharge, Regional Greenhouse Gas Initiative auction allowance proceeds, federal funds and grants and private capital.[86] In Connecticut, private foundations pose a major source of funding for local climate mitigation actions, for example the **Emily Hall Tremaine Foundation** and the **John Merck Fund**. The Tremaine Foundation has provided a series of grants totalling the equivalent of more than €115,473 for Connecticut's climate change efforts, which has been used to support various activities including stakeholder processes, workshops, education, a dedicated website, videos and a climate change awards programme. The John Merck Fund has provided the equivalent of €115,473 for promoting residential solar PV installations.

Information and consultation

CEFIA as well as private foundations mainly apply financial instruments in order to promote local climate mitigation. However, the majority of programmes and projects incorporate aspects of education, awareness raising, workshops and publicity as mentioned above.

EXCHANGE & LEARNING

California

National level exchange

Local authorities come together via webinars, workshops and conferences which are usually organised by NGOs, the Institute for Local Governments, the State Energy Efficiency Collaborative (SEEC), ICLEI or the Local Government Commission. The Governor's office hosts monthly telephone calls and meetings with local governments on their climate actions. The **Association of Cities and Counties** is one of the most important partners for the state administration due to their close contacts to the local level and their comprehensive knowledge about recent developments. They also help create a trust based relationship between local and state actors. The **blue and green print planning process** has its origin in Sacramento. It is an elaborate participatory planning process including local authorities and residents who develop a joint, long term future vision of their region. These insights may well influence regional and local land use, transportation and planning policy.[87] State agencies work together within the EPA framework at the federal level and under the SEEC collaborative.

[86] Clean Energy Finance and Investment Authority 2012: Request for Proposal for Clean Energy Financial Innovation Program. Retrieved March 22, 2013, from http://www.ctcleanenergy.com/Portals/0/Clean%20Energy%20Financial%20Innovation%20Program%20RFP%20FINAL.pdf.

[87] Thorne, James H. et.al. 2009: Integration of regional mitigation assessment and conservation planning. In: Ecology and Society 14(1): 47.

International exchange

The state of California is also actively engaged in a regional dialogue together with British Columbia, Ontario, Quebec and Manitoba in Canada. They founded the Western Climate Initiative to harmonize their cap and trade programs.[88]

Connecticut

National level exchange

In Connecticut, local authorities work together via webinars, online platforms and matchmaking events such as the 2010 Municipal Summit on Climate Action that nearly all 169 towns attended. State agencies, NGOs, private foundations, and companies all provide support to local climate change efforts. The State has also supported climate change education through an ad hoc committee that has coordinated learning opportunities in classrooms, science centres and secondary school competitions (e.g., Cool It!/Keep Connecticut Cool).

International exchange

The **New England Governors and Eastern Canadian Premiers Conference (NEG/ECP)** provides coordination for the north-eastern states in the U.S. and the eastern provinces in Canada on a variety of topics. In 2001, this group developed one of the first regional/international climate change action plans that included regional greenhouse gas reduction goals. New regional mitigation and adaptation goals and recommendations are currently being developed and will be included in the 2013 climate change action plan.

California & Connecticut

International exchange

California and Connecticut are both particularly active in the **Regions of Climate Action** initiative founded by then Governor Arnold Schwarzenegger in 2010. Regions work together internationally in order to produce local economic and environmental benefits in the form of reduced energy consumption and greenhouse gas emissions etc.[89] The initiative implements climate mitigation projects, develops practical toolkits and trainings and facilitates investments through its Green Finance Network of public and private investors. Moreover, California and Connecticut both joined the **North America 2050 (NA2050)** initiative which facilitates state and provincial efforts to design, promote and implement cost-effective policies that reduce greenhouse gas emissions. NA2050 is open to all open to all U.S. States, Canadian Provinces, and Mexican States. This initiative provides a forum for states and provinces to interact with federal officials, share success stories, and identify new leadership opportunities.[90]

➔ In California and Connecticut, local authorities are very active in climate mitigation. In California, over 70 per cent of all local governments have implemented adaption or mitigation measures. In Connecticut, more than 100 out of 169 local governments participat-

[88] For more information on the Western Climate Initiative, please refer to http://www.westernclimateinitiative.org/.

[89] For more information on the Regions of Climate Action initiative, please refer to http://regions20.org/.

[90] For more information on NA2050, please refer to http://na2050.org/.

ed in state programmes for climate mitigation. Both states also implement adaptation measures as they are likely to suffer from negative effects of climate change in the future. California is likely to experience flooding to sea level rise, whereas Connecticut has already been struck a various intense storms in the past. California offers comprehensive support for local authorities in the form of funding, toolkits and other relevant information. Connecticut instead puts more emphasis on financial instruments focussing increasingly on low-interest long-term loans and energy company obligations than on state subsidies and grants. This shift in strategy is comparable with recent developments the UK. Both states have developed instruments targeted at the mobilization of citizens through the engagement of active local governments. In California as well as in Connecticut there is a plethora of opportunities to exchange experiences and knowledge at the local level and across the country. At the same time, both states are very active in regional and international dialogues on climate mitigation, for example with Eastern and Western Canadian premiers, Mexico and other regions across the world. As such, both have proven to be very progressive in this policy area.

3 Conclusion and Outlook

Local authorities contribute significantly to achieving national GHG emission reduction targets. This study highlights existing governmental approaches to promote climate mitigation at the local level in Austria, Germany, Japan, Sweden, the United Kingdom, as well as the States of California and Connecticut in the US.

Strong governance remains challenging

The analysis shows that local authorities are increasingly recognized as crucial actors in this policy area. Existing approaches are currently being expanded, and new instruments are constantly being developed. However, the explicit promotion of local climate mitigation is still a niche within the overall area of climate and energy policy at the federal and regional level. Relevant governmental programmes are sometimes incorporated into more general schemes supporting nature conservation and environmental protection, for example the Austrian Environmental Support Scheme or California's Sustainable Communities Grant and Incentive Programme which includes aspects of water quality and public health. At the same time, there is an increasing number of instruments explicitly targeting local climate mitigation, for instance Germany's "Kommunalrichtlinie", EcoModel-Cities in Japan, or Sweden's support for municipal climate and energy advisors. Typically, there are only few government officials responsible for local climate activities in national ministries whereas subordinate agencies tend to be more specialized. They for instance have units for renewable energies, energy efficiency, clean air, transportation or public participation which are all relevant to local climate mitigation. However, sectoral agencies and departments share competencies in this regard and thus set up parallel support schemes. Local climate mitigation is a cross-cutting policy field which is highly fragmented in most of the countries analysed. Coordination among relevant agencies can have an additional benefit for successful governmental support and the institutionalization of local climate mitigation. Institutions such the interdisciplinary ministerial working group on climate and energy in Austria, the *Bund-Länder* dialogue on climate change in Germany or the Council for Low Carbon Cities in Japan seek to overcome fragmented governance structures.

Support is comprehensive but fragmented; shifts in funding strategies are visible

Existing support schemes frequently combine advisory services, dialogue platforms and limited financial support (see Table 1). Especially Germany and California offer such comprehensive packages of support to local authorities. Certain concepts have been well established in a number of countries: the funding of (local) climate managers in Sweden, Germany and Austria or the promotion of pioneer cities, for example in Germany, Japan and Sweden. Support for developing local climate mitigation strategies and support for their implementation either in the form of consultation or financial benefits are also common. Examples are the Climate and Energy Fund in Austria, Germany's "Kommunalrichtlinie", EcoModel-Cities in Japan, Sweden's Energy Efficiency Directive, the Sustainable Communities Planning Grant and Incentive Programme in California, Clean Energy Communities in Connecticut. Financial support may be in the shape of non-recurring funds, investment incentives, or long-term funding. In Germany, funding is linked to the EU emission trading scheme. In Austria, funding is explicitly linked to budget funds instead, in order to guarantee stability. In Sweden, for example, financial resources are fed by a carbon tax whereas other funding schemes initiated by the European Union have partly been adopted by the national government or connected to other EU-instruments such as the Structural Funds. Especially in the United States, private foundations and other private entities are becoming increasingly active in the promotion of local climate mitigation, such as the Emily Hall Tremaine foundation. In the UK as well as in Connecticut, there is a visible trend shifting from grant schemes to offering oth-

er, more flexible financial instruments. Low interest loans and contracting schemes for local authorities, businesses and residents are widespread.

Regional imbalances are addressed by a growing number of support schemes

Even though there are many very active cities and municipalities in each of the countries analysed, there are still visible regional imbalances, especially between active metropolitan and less active rural areas. The UK, for instance, addressed this problem by developing targeted funding schemes for rural communities, such as the Northwest Rural Carbon Challenge Fund or rural safeguards for Energy Company Obligations. The integration and motivation of small, rural and non-active municipalities will be a crucial task for the future. It is necessary to identify underlying barriers and to promote the general mind-shift needed to achieve the ambitious targets set by national governments.

Climate mitigation is increasingly discussed among regions

In each country, there is a plethora of local and regional networks, dialogue processes and forums for exchange and learning, especially at the local level. Japan is particularly active at the international level. The Japanese government is, amongst others, funding member of the High-level seminar on Environmentally Sustainable Cities which is a flagship initiative under the framework of UN ASEAN. The network comprises governments, agencies, local authorities, NGOs, businesses and academia in North America, Europe, East and Southeast Asia as well as the pacific region who all work together on the promotion of sustainable future urban planning. Connecticut and California are particularly engaged in regional dialogues, for instance with Eastern and Western Canadian provinces, regions in Mexico, and other states across the US and worldwide. In the Regions of Climate Action initiative, they work together on producing local benefits from GHG emission savings.

Outlook

The German Federal Ministry for the Environment recently announced to set up an international process on exchange and learning from the promotion of local climate mitigation in the near future. With a series of workshops until the end of 2015, the ministry seeks to support developing an international community of practice on promoting local climate mitigation. The process shall mainly address representatives of state agencies. However, the inclusion of actors and multipliers such as provinces, regions, local government association, and others will also be acknowledged and crucial for the overall success.

The interviewees demonstrated a high interest in an international process on exchange and learning. This study consequently recommends initiating an international discussion on instruments and approaches directed at local climate mitigation. A systematic cross-country comparison of existing policies and instruments would be an ideal complement. Further research questions could focus on the identification of critical success factors of support schemes or preconditions necessary for successfully transferring good practices among municipalities as well as among countries.

This table highlights the most prominent instruments to promote local climate mitigation. The list does neither claim to be comprehensive nor an evaluation of the present instruments. Initiatives and projects highlighted here are specifically targeted at the promotion of local climate mitigation and have been developed only for this particular purpose. The table shall serve as an overview for busy readers and again, spur an international discussion on existing governmental approaches. The majority of the instruments listed below show aspects of different types of instruments: financial, informational and/or partnering. However, the categorization is based on the main objective or main type of support offered in the programme.

Table 1: Overview of existing types of instruments to promote local climate mitigation

Country	Type of instrument	Name
Austria	Financial	Climate and Energy Fund
Austria	Informational	Klima:aktiv
Austria	Financial	Climate and Energy Model Regions and programme managers
Germany	Financial	Directive for Local Climate Mitigation (Kommunalrichtlinie) and Masterplan 100% Climate Protection
Germany	Partnering	Bund-Länder exchange on climate change
Germany	Informational	Centre of Excellence for Climate Change Mitigation in Municipalities
Japan	Financial	EcoModel-City and FutureCities Project
Japan	Partnering	High-level seminar on Environmentally Sustainable Cities
Sweden	Financial	Municipal Energy and Climate Advisers
Sweden	Partnering	Sustainable Municipalities Programme
Sweden	Partnering	Swedish Eco-municipalities
United Kingdom	Financial	Green Deal
United Kingdom	Partnering	LGA's Climate Local
California	Financial	Sustainable Communities Planning Grant and Incentive Program
California	Financial	CoolCalifornia Community Challenge
California	Informational	Local Government Toolkit
Connecticut	Financial	Clean Energy Communities
California & Connecticut	Partnering	Regions of Climate Action initiative

Financial instruments: grants, loans, contracting agreements, co-funding opportunities and financial reward based on incentive schemes are typical instruments to promote the implementation of climate mitigation projects, especially in regard to the use of renewable energy, energy efficiency measures such as thermal insulation or LED light bulbs.

Informational instruments: Providing information, best practice examples, toolkits and guidelines are common instruments for the promotion of local climate mitigation. They include advice on the development of climate action plans, the implementation of emission saving measures, the estimation of saving potential, and others. Consultation in person, via telephone or email is typically offered to local authorities who are interested in funding opportunities or their climate mitigation potential. Those services are usually provided by state agencies, non-for-profit organisations and networks.

Partnering instruments: Partnering instruments are networks, fora and platforms where stakeholders such as local authorities, NGOs and state agencies have the opportunity to learn from each other by sharing information and experiences. Some of these initiatives take the form of hybrids, in that they equally combine the partnering and informational and/or other types of instruments.

Photos: adelphi

adelphi

Caspar-Theyss-Strasse 14a
14193 Berlin

T +49 (0)30-89 000 68-0
F +49 (0)30-89 000 68-10

www.adelphi.de
office@adelphi.de