Local authorities as key actors for climate protection in Germany and in France

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Abstract:
“The local level is decisive for climate protection.” In a recent survey addressing all 1102 municipalities in Baden-Württemberg, 13.5% of the responding persons completely agree (10/10) with this statement, and still 38.6% more give at least 7 points of 10). Only 14.6% do not agree at all (0-3/10). The question “compared to national possibilities of influence, climate protection measures on local level have rather less impact” is denied by a comparable part of the municipalities (n=270, 24.5%; survey realized by the authors).

The paper analyses the role of municipalities for climate protection, comparing the French and the German situation:
They differ a lot. While the objectives are in line with the European goals in both countries, in France, there is a top-down approach with an obligation of defining a strategy for all municipalities larger than 50,000 inhabitants until 2012. In Germany, financial and legal incentives and a bottom-up approach can be observed. Participation and exchange in networks play a more important role. In France, the proceedings are more standardised, whereas in Germany many individual approaches co-exist.

One step for the analysis was the realisation of an extensive quantitative online survey in 2009/2010. In parallel, the authors are involved in an ANR (French National Research Agency) project that analyses the current approaches for climate protection in France and aims at identifying more holistic strategies.

This will allow the comparison and the conclusion on recommendations for climate protection on local level. The paper will focus on the anchorage of climate protection in local policies, the changing role of Agenda 21, drivers and barriers and the identification of strategies for successful climate protection on local level in the European context.

Keywords: climate protection strategies, barriers and success factors, France, Germany local authorities
Introduction
The influence of human activities on climate is widely recognised in the scientific community and in society. The dangers that can be expected all over the world due to global warming are well known thanks to the activities of the IPCC (Intergovernmental Panel on Climate Change, IPCC 2007). Economic consequences have been published in the “Stern report” in 2006. Also, energy costs represent an increasing budgetary burden for local and regional governments and consequently an increasing motivation for energy savings.

In a quantitative survey realized by the authors, answered by 270 municipalities in Baden-Württemberg, one of the 16 federal countries of Germany, ca. 1/3 of the local representatives already told about negative impacts of climate change in their towns, especially floods and intense rain. Figure 1 shows the frequencies for current and anticipated impacts of climate change in local areas (Laborgne et al. 2010). The awareness of local consequences in the present or future appears to be very high.

![Figure 1: Frequencies (in %) of current and future impacts of climate change (survey among all municipalities in Baden-Württemberg)](image)

The experiences with local effects of climate changes are focused on flood hazards, caused by intense rain or rivers, storms and damages in forests. Also worse harvests, caused by heat and droughts, are assumed with high probability in many cities. For all listed items the representatives of the cities have expected an increasing magnitude of such negative consequences of climate change. Positive effects such as better harvests also are also expected to increase weakly, but the estimation of such effects is very low.

Many scientific experts are anticipating a reinforcement of negative effects, regarding infrastructure, agriculture and forest (e.g. IPCC 2007). On different political levels, solutions are discussed to mitigate climate change and to adapt to its consequences. Targets are defined in order to induce actions by different actors. On international level, the Kyoto protocol in 1997 and the following climate conferences (Johannesburg 2002, Bali 2007) aimed at reducing CO2-emissions on the whole planet. For Europe, the European Council published in March 2007 its resolution to cut greenhouse gases by 20% (compared to 1990) until 2020, to

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2 Quantitative Online-Survey addressing all 1102 communities of Baden-Württemberg, realized in 2009/2010 by the European Institute for Energy Research and the University of Stuttgart, funded by EnBW (German energy supplier).
3 The present article only concentrates on mitigation activities.
increase energy efficiency by 20% and to reach 20% renewable energy by 2020 (Press release European Parliament 2008). Germany fixed the target to reduce greenhouse gases by 40% until 2020 (Meseberg 2007) and France adopted the European goals and defined the “facteur 4”, the division by four of its greenhouse gas emissions until 2050 (Ministère de l’Ecologie et du Développement 2004).

In order to reach these ambitious goals, actors on all political and societal levels have to take an active part in climate protection, down to local level. There is a need for more social techniques to improve technological innovations. This process will need the participation of inhabitants of cities as consumers and as citizens to increase the acceptance and therefore the efficiency of climate protection measures and technologies.

“The local level is decisive for climate protection.” In the survey cited before, 13.5 % of the responding persons completely agree (10/10) with this statement, and still 38.6 % more give at least 7 points (of 10). Only 14.6 % do not agree at all (0-3/10), the average is about 6.2. The question “compared to national possibilities of influence, climate protection measures on local level have rather less impact” is denied by a comparable part of the municipalities (n=270, 24.5 %). In the present article, the scope of action of local authorities will be assessed, comparing the French and the German context. There will be a special focus on barriers and success factors, on participation and the role of local Agendas 21.

**Formalisation of climate protection and energy efficiency goals in municipalities**

Until the nineties, the debate about environmental protection was concerning technical solutions (end-of-pipe, since the 50s), planning (land use planning, environmental planning, since the 60s) and preservation of resource protection (in the 70s). In the eighties, people were still rather concerned by pollution, like the damages caused by acid rain and the extinction of species and energy savings (Wietschel 2002). Kassel was one of the first cities establishing an energy saving plan in 1979 (Stadt Kassel 2005). First CO2 balances were already available but ambitious climate protection strategies for municipalities emerged only later.

Local energy plans for cities have already been defined before the 90s, action plans with defined climate protection goals emerged in the 90s (for example, the IFEU defined strategies for CO2 reduction in Heidelberg in 1992 (IFEU 1992)). The first indicator system for sustainable development in Germany was developed in 1997 by the “Forschungsstätte der Evangelischen Studiengemeinschaft (FEST4)” and tested in the frame of a research project of the ministries of the environments in Hessen, Thüringen, Bayern and Baden-Württemberg in 2000 in order to support local Agenda 21 projects (Gehrlein 2004, p.124p). Another campaign has been led by the Deutsche Umwelthilfe (DUH) in 2000 and other suppliers of indicator systems are B.A.U.M.-Consult GmbH or the ECOLOG-Institut. Several municipalities defined their own indicator systems, partly with the help of other institutions. But these approaches are not representative for the majority of existing municipalities. Mostly, larger municipalities were concerned. In the majority of cases, there is still an important need of knowledge on the own energy consumptions, the CO2 emissions and the possibilities to decrease them.

One possible answer is the creation of networks. Since the conference of Rio 1992, cities and municipalities have allied in different organisations, such as ICLEI (International Council for Local Environmental Initiatives) in order to support each other for the realisation of Agenda 21. Over 1200 cities, towns, counties, and their associations worldwide comprise ICLEI's growing membership. ICLEI works with these and hundreds of other local governments.

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4 http://www.friedensdienst.de/Forschungsstaette-der.79.0.html, 30/08/2010
through international performance-based, results-oriented campaigns and programs\textsuperscript{5}. The European Sustainable Cities & Towns Campaign (ESCTC, http://www.sustainable-cities.eu/) has more than 2000 participants and is the largest European initiative for urban sustainability. It has been co-managed and supported by ICLEI since its launch in Aalborg, Denmark, in 1994 where the “Aalborg Commitments” were defined initially. Since then, the Aalborg Commitments have been revised and further developed. They have two main objectives [Aalborgplus10, 2004, p.1]:

- “They aim to raise awareness and highlight the need for local governments across Europe to act in an integrated way to meet the growing challenges of sustainability. They can, in this sense, be a valuable complementary document to the forthcoming EU Thematic Strategy on Urban Environment.”
- “The Aalborg Commitments are designed as a practical and flexible tool for local action and achievements. On signing the Aalborg Commitments, local governments enter a target-setting process in dialogue with local stakeholders and incorporating existing Local Agendas 21 or other sustainability action plans.”

The topics related to climate protection are: “Local Management towards sustainability” (2), “Natural common goods” (3), “responsible consumption and lifestyle choices” (4), “planning and design” (5) and “local to global” (10).

The Climate Alliance was founded at the same time as ICLEI, in 1990. Since its foundation, around 1.400 cities, municipalities and districts have joined the Climate Alliance. The member cities and municipalities aim for the reduction of greenhouse emissions. For achieving this goal local climate strategies are developed and implemented, especially in the energy and transport sectors. Furthermore there are measures to raise the public’s awareness for the protection of the rainforest and to abstain in municipal procurement from tropical timber derived from destructive logging\textsuperscript{6}.

Such networks play a role for exchange of experience, or even concrete cooperation and foster a horizontal Europeanization. Almost 1400 cities and towns have joined at least one of the three European Networks working on climate change (Kern 2009).

**Local authorities and climate protection**

Local authorities can be defined as an administrative unit of local government. In the present article, it is used as a generic term for all local governments and local public offices on the level of a city or a municipality. The political term „municipality“ varies a lot in different countries, even inside Europe. There are important differences concerning the local constitution, the competences, the degree of organisation and the financial budget.

(Greenhalgh 2007) identifies three facets to local authorities:

- **Corporate Role**
  - Commission, own & management assets
  - Employ many people
  - Have pension fund investments

- **Service Provider**
  - Planning
  - Environment
  - Waste collection and disposal

- **Community Leader**
  - Shaper of place
  - Duty of care
  - Welfare of community

\textsuperscript{5} www.iclei.org

\textsuperscript{6} www.klimabuendnis.org
This reflects in the field of climate change mitigation: The Climate Alliance of European Cities identifies four categories of roles for climate change mitigation in local authorities: 1) consumer and model, 2) planner and regulator, 3) advisor and promoter, 4) provider and supplier.

As “consumer and model”, a local administration gives a good example e.g. by saving resources and by realizing a sustainable procurement policy. It can influence energy demand directly through the management of its own energy use, but also indirectly by informing and motivating end-users about how they can use energy more efficiently. As “planner and regulator”, it can specify standards and influence urban development e.g. high urban density or integrated land use and transport planning and prescribe the use of renewable energies or the connection to a local heating grid (e.g. “Marburger Solarsatzung”). As “advisor and promoter”, the local community acts as enabler, sensitizing and informing citizens and/or giving incentives in form of subsidies or space for installing power stations. As “provider and supplier” it influences by the way, the offer is designed. Decisions on the energy mix in favour of more efficient systems and renewable energy can promote local energy production and reduce dependencies on energy resources from other regions.

Bulkeley and Kern (2004) observe for Germany a tendency towards a mostly enabling role of local authorities.

Guidelines by upper levels

According to the principle of subsidiarity, a central authority should have a subsidiary function, performing only those tasks which cannot be performed effectively at a more immediate or local level. Subsidiarity only applies under the condition that the local authority is able to solve its tasks autonomously and is not overstrained. So the impact of legislation on upper levels is relevant for municipalities, too. In a top-down approach the most important consequences of the European, the national and the federal level on municipalities are outlined.

European level

On European level, important impulses for climate protection are given. The first climate-related initiative of the European Commission was in 1991 when it released its “Community strategy to limit carbon dioxide emissions and improve energy efficiency”. In June 2000, it launched the European Climate Change Programme (ECCP). The goal of the ECCP is to identify and develop all the necessary elements of an EU strategy to implement the Kyoto Protocol. The second European Climate Change Programme (ECCP II) was launched in October 2005.

In March 2007 the EU’s leaders endorsed an integrated approach to climate and energy policy that aims to combat climate change and increase the EU’s energy security while strengthening its competitiveness. They committed Europe to transforming itself into a highly energy-efficient, low carbon economy. To kick-start this process, the EU Heads of State and Government set a series of demanding climate and energy targets to be met by 2020. These are (press release European Parliament 2008):

- A reduction in EU greenhouse gas emissions of at least 20% below 1990 levels
- 20% of EU energy consumption to come from renewable resources
- A 20% reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency.

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8 http://ec.europa.eu/environment/climat/eccp.htm, 30/08/2010
Collectively they are known as the 20-20-20 targets and they are often referred to on national or local level. In January 2008, the European Commission proposed binding legislation to implement the 20-20-20 targets. This ‘climate and energy package’ was agreed by the European Parliament and Council in December 2008 and became law in June 2009. Moreover, several European directives that have to be transposed to National law, influence directly and indirectly climate protection strategies, such as the Directive on energy performance of buildings (2002/91/EC) or the Directive on energy end-use efficiency and energy services (2006/32/EC).

At the same time, the increasing competences of the EU decrease the freedom of action of municipalities in many fields and force them to the privatisation of provisional sectors which leads indirectly to a loss of control for municipalities (Bogumil/Holtkamp 2006: 218). Positive integration, which implies the harmonisation of decision-making structures in the EU, can directly cause changes in competition and privatisation in municipalities (Bogumil/Holtkamp 2006: 223). Because of the regionalisation of subsidies of the European Union, it is necessary for municipalities to cooperate with each other (Heinz 2000: 5). Municipalities organized themselves in the Council of European Municipalities and Regions (CEMR). CEMR promotes a united Europe based on democracy and a regional and local self government. “Its committees and working groups seek to influence draft EU legislation to make sure the interests and concerns of local and regional authorities are taken into account from the earliest stages of the EU legislative process” (http://www.ccre.org/).

National level – administrative structure of Germany and France

Germany

In Germany, there are 16 “Bundesländer”, 12,295 Cities and Municipalities, among which 80 metropolis. In 2003 12.7 million inhabitants (15.4% of the population lived in rural areas (Statistisches Bundesamt 2005). The political and societal maxim of subsidiarity puts self-administration over state-run action. According to this, the central authorities only perform those tasks which cannot be performed effectively at a more immediate or local level. Municipalities are the lowest level with an increasing number of responsibilities. In Germany, two thirds of the public expenditures are spent by municipalities and 75-90 % of the federal laws are put into practice (Bolay 2006). Compared to the degree of financial autonomy and the competences of administration and politics, municipalities are the worst equipped political level, as they depend directly on the “Länder” according to the German constitution (Bogumil/Holtkamp 2006: 9). Simultaneously, German municipalities face a large budget deficit since 1992. In 2003, the record was 8.5 billion Euro (Karrenberg/Münstermann 2005). This could even been doubled in 2010. This creates a rather difficult framework for climate protection activities.

In general, for a municipality in Germany, one distinguishes four categories of duties (according to (Gabriel, Ahlstick, Kunz 1997: 329p) in (Walter 2002)): voluntary duties of self-administration (freiwillige Selbstverwaltungsaufgaben), binding duties of self-administration (Pflichtige Selbstverwaltungsaufgaben), binding duties on instruction (Pflichtaufgaben zur Erfüllung nach Weisung) and instructions on demand (Auftragsangelegenheiten). Climate protection activities can be mainly assigned to the voluntary duties of self-administration. Consequently, they do not have a very high priority and budget restrictions create important barriers.

Relation between administration and politics

The mayor is the head of administration. He is responsible for the conduct and supervision of the course of business of the whole administration (Bogumil/Holtkamp 2006: 68). The classical division of powers is not appropriate to describe the relation between administration
and politics in German municipalities. The Council is part of the administration (of the executive) and can therefore not be described as a parliament. A clear division of politics and administration is not observable. One reason might be that the Council does not have legislative powers (Bogumil/Jann 2005: 179).

In larger municipalities (cities) on the other hand, a modern local democracy has developed (Wollmann 1998, in: Bogumil/Jann 2005: 179). There are rights for minority fractions for the call of the Council, the enforcement of agenda items, and the deputy mayors are elected by the Council. The Council itself is elected in the form of a parliament and possesses the right to develop the budget, norms and the controlling function (Bogumil/Jann 2005: 179f.). In summary, the relation between administration and politics has a special form, which is further regulated in the municipality codes.

France

In France, the administrative structure is more centralized than in Germany. Most laws are elaborated and implemented on national level. Further competences are settled on the administrative levels Région (26), Département (100) and municipality (commune) (36,682). There has been no local government reform as in Germany to reduce the number of municipalities (see Table 1). This is why there are three times more municipalities in France than in Germany although the overall population is smaller.

Table 1: Size of municipalities in France (Source: DGCL, January 2009)

<table>
<thead>
<tr>
<th>o Municipalities</th>
<th>o Number of municipalities</th>
<th>o Total number of inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Less than 500 inhabitants</td>
<td>20,493</td>
<td>4,723,916</td>
</tr>
<tr>
<td>o 500 to less than 3,500 inhabitants</td>
<td>13,361</td>
<td>16,870,427</td>
</tr>
<tr>
<td>o 3,500 to less than 10,000</td>
<td>1,904</td>
<td>11,046,319</td>
</tr>
<tr>
<td>o 10,000 to less than 50,000</td>
<td>802</td>
<td>16,767,160</td>
</tr>
<tr>
<td>o More than 50,000</td>
<td>122</td>
<td>15,220,329</td>
</tr>
<tr>
<td>o Among those more than 100,000</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>o TOTAL</td>
<td>36682</td>
<td>64,628,151</td>
</tr>
</tbody>
</table>

However, many municipalities are organised in confederations (25,000 établissements publics de coopération intercommunale)

\footnote{9Les syndicats intercommunaux, les syndicats mixtes, la communauté urbaine, la communauté d'agglomération, la communauté de communes, le syndicat d'agglomération nouvelle}

Since the laws of decentralisation in 1982, more competences are delegated from the national to the regional level. Before, every département was governed by a prefect, named by the government. In 1982, far reaching fiscal and administrative rights have been ceded to the locally elected representatives and since 2003, an amendment to the article 1 of the constitution states that the organisation of France is decentralised. Decentralisation proceeds slowly but the main concentration of political and economic power is still in the Region around Paris (Ile de France).
Legal framework for climate protection in municipalities

Germany
In 1995, Germany committed for the first time to reduce its CO₂-emissions by 25 % until 2005 compared to 1990. In 2000, the first national climate protection programme was amended. It was renewed in 2005. The main instruments to put the programme into practice base on regulation, market incentives and support programmes. Several laws regulate energy efficiency issues, such as the renewable energy law (2000), based on the electricity feed-in law from 1991, or the energy efficiency ordinance “Energieeinsparverordnung” (EnEV) that has become operational on the 1st of February 2002 and substitutes the Heat protection ordinance (WSchV) and the heating ordinance (HeizAnLV).

The energy saving ordinance defines the minimum standards for new and existing buildings concerning their isolation properties and the quality of the installations. The EnEV and their covering norms, define how to calculate the primary energy need, the final energy need and the heating energy need and which limits have to be preserved.

In parallel, the Federal Government promotes a stronger use of renewable energies with subsidies and long-term, low-interest loans with resources of the KfW (Kreditanstalt für Wiederaufbau - promotional bank). Some examples are:

- KfW - CO₂- Reduction Programme (Programme 1996)
- KfW - CO₂- Buildings Rehabilitation Programme (Programme 2001)
- KfW - Housing Modernisation
- KfW - Ecological Construction
- KfW - Solar Power Generation

The different laws and ordinances are further amended to meet the German climate protection goals of the reduction of greenhouse gas emissions by 40% in 2020 compared to 1990. At its meeting in Meseberg in August 2007 the Cabinet adopted an ambitious energy and climate programme, consisting of 29 key elements. On 5 December 2007 the Cabinet submitted a comprehensive package of 14 acts and ordinances. Another, smaller package containing further legislative proposals followed in May 2008.

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety launched in 2008 the climate initiative, a comprehensive support programme to finance climate protection. It uses the revenues from emissions trading. Cities, municipalities, “Landkreise”, as well as churches, universities, associations and cultural institutions can apply for support for:

- Climate protection concepts
- Climate friendly technologies in electricity production
- Lighthouse projects with the concept of CO₂-neutrality

10 The BINE “Förderkompass Energie” (with a simplified version on the dena homepage www.dena.de) and the BMWI give an overview over the existing support programmes.
In the German Climate Initiative local authorities are defined as “a supporting pillar”. “The Climate Initiative focuses on energy efficiency and thus helps to reduce regular energy costs. This presents a twofold opportunity for local authorities. Firstly, this sector has a particularly high saving potential in terms of energy consumption and CO₂ emissions. Local authorities which invest in climate protection cut their energy costs in the long-term - whether in schools, swimming pool or town halls - and ease the burden on the municipal budget.” […] “Moreover, the support provided by the National Climate Initiative enables local authorities to boost the economy, triggering the modernisation of infrastructure and the development of innovative technologies. This directly benefits local industry, supporting firms in the area, creating long-term employment and raising the export opportunities for industry as a whole. In this way the local authorities can inject important impetus at a time of economic weakness.” (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety 2010)

Furthermore, non-governmental organisations organise many information campaigns, competitions and promotional events for climate protection. Some research institutes, such as ifeu (Heidelberg), or engineering offices support cities with the redaction of their climate protection concept.

The resulting picture shows many individual strategies and initiative with a broad range of different solutions. The impulses are mainly bottom-up and no concept is identical to another. The advantage is that strategies and measures tend to be designed for and emanating from specific local contexts. A disadvantage is that even the balancing methods for the CO₂ balance differ a lot and comparability is difficult. Currently, there are important efforts to unify the approaches and to define a common method and tool that is applied by all municipalities and which allows centralised data storage and the comparison of different municipalities. But as long as the proposed software tools are still perceived as too expensive by many municipalities, no real standardisation is to be expected. The formalisation of the different efforts in a climate protection concept still lacks in many municipalities as it was seen in the survey (Laborgne et al. 2010).

**France**

As a consequence of the Kyoto protocol (1997) and its self-commitments of saving CO₂, in France, three plans have been implemented on national level (Action Réseaux Climat France 2010):

- Plan National de Lutte contre le Changement Climatique (PNLCC, National Plan to fight against Climate Change) in 2000.
- Plan National Habitat Construction et Développement Durable (PNHCDD, National Plan on Housing Construction and Sustainable Development) 2002.

Saving objectives have been fixed for each sector. The territorial anchorage has been explicitly referenced to, but the role of the local authorities has not been highlighted. In parallel, the instruments for local city and building design have been reformed by the law SRU (Solidarité et renouvellement urbain, solidarity and urban renewal). This led to the increasing role of the planning document plan local d’urbanisme (PLU, local city planning) which is now the most important instrument for city planning on the level of municipalities or confederations of municipalities. It offers more freedom for the integration of sustainability or climate protection goals compared to the plan d’occupation des sols, that regulated the usage of the soil in a top-down way until 2000. Another reform concerned the so-called schéma de
cohérence territoriale (SCOT, scheme of territorial coherence). On the level of the municipalities or confederations of municipalities, the share of urban, industrial, tourist, agricultural or natural zones is fixed and the articulation of the different goals of housing, transport and industrial development are coordinated.

Concretely, they can influence future energy consumption on their territory by:

- **Orienting the urban development, opening or closing zones for housing, industrial development and infrastructure and limiting the urban sprawl;**
- **Defining future constructible zones;**
- **Offering transport modes, adapted transport grids;**
- **Integrating energy and climate objectives in politics of urbanism and transport.**

Currently, local authorities still have to get used to these new instrument on the level of city planning and its potentials for a comprehensive climate protection policy (Réseaux Action Climat France 2010).

In a first evaluation of the results of the national programme to fight climate change, the results were judged as not satisfying. For that reason, in 2004, another national plan for climate protection has been implemented and in 2005, the law POPE (*loi de programmation et d’orientation de la politique énergétique*, programmation and orientation of energy politics) fixed the ambitious goal of “Facteur 4”, the reduction of greenhouse gas emissions from 1990 to one quarter in 2050. The importance of local authorities has been recognised explicitly. This should be put into practice by the redaction of local climate protection plans (*Plan Climat Energie Territorial*, PCET) on all administrative levels from 2004 on. Anyhow, there was no obligation and only few pilot communes to develop such a strategy. Simultaneously, the law POPE imposed the trading of white certificates. Between the 1st of July 2005 to the 30th of June 2009, 54 TWh final energy should be saved (obligation of the energy providers) (Percebois 2005). These reductions could be realised in all sectors, including transports. Local authorities can also receive white certificates and sell them to the energy provider. This can be considered as additional incentive. In the second period, the goal will be set much higher but the final decision is still not taken/ published\(^\text{15}\).

The most important event for French environmental and climate protection politics took place in 2007: the *Grenelle de l’environnement*\(^\text{16}\). Representatives of different interest groups came together and amended ambitious declarations. This was highly reflected in the media. In 2008, the first law for the implementation of these objectives has been amended. Among others, all municipalities with more than 50,000 inhabitants *should* have published a PCET (plan climat énergie territorial) until 2012. Within the law Grenelle II (n°2010-788, 12th of July 2010) the elaboration of a carbon balance and of a PCET became obligatory for the State, the Regions, the départements, «communautés urbaines», » communautés d’agglomération » and municipalities or confederations of municipalities with more than 50,000 inhabitants before the end of 2012. Anyhow, there is no penalty defined by now in case this obligation is not fulfilled (Grenelle II 2010). This is a very typical example of French top-down policies.

The current status shows that municipalities still have a long way to go. The observatory of ADEME shows the effective number of PCET that have been launched (see Figure 2). In August 2010, only 201 projects existed, taking into account all administrative scales and stages (preparation, realisation, evaluation) (ADEME 2010).

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\(^{15}\) In August 2010

For the Agenda 21, it was a rather similar process. Local authorities were encouraged to realise an Agenda 21 from national level. It was not driven by the citizens as in Germany. Currently, there are about 550 local Agenda 21 programmes in France (Comité 21 2010). The climate protection strategies are promoted as part of the Agenda 21 strategies.

So-called contracts are another tool for French local authorities. From 2002-2006, the contract ATEnEE (Actions Territoriales pour l’Environnement et l’Efficacité Energétique, Territorial actions for environment and energy efficiency) allowed to integrate energy efficiency or greenhouse gas reduction challenges in their territory policies. Since 2008, these contracts have been replaced by the COT (contrat d’objectif territorial, contract of territorial objective).

The current degree of commitment by the different means has been summarised by (Tracés Urbain 2010) in Table 2.
Table 2: Degree of commitment at different levels in France (adapted according to Tracés Urbain 2010)

<table>
<thead>
<tr>
<th>Support organisation</th>
<th>PCET – 4 stages of advancement (according to ADEME)</th>
<th>Agenda 21</th>
<th>Contract ATEEnE</th>
<th>Territorial unit in France</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Realization</td>
<td>Development</td>
<td>Diagnostic &amp; mobilization</td>
<td>Preparatio n</td>
</tr>
<tr>
<td>Commune</td>
<td>9</td>
<td>0.02</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>“Intercommun alité”</td>
<td>2</td>
<td>8</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>“Communauté d’agglomérati on”</td>
<td>7</td>
<td>3.87</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>“Communauté de communes”</td>
<td>1</td>
<td>0.04</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>“Communauté urbaine”</td>
<td>1</td>
<td>6.25</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>SCOT</td>
<td>1</td>
<td>0.34</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Pays</td>
<td>8</td>
<td>2.27</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>National Natural Parc</td>
<td>8</td>
<td>17.39</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Department</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Region</td>
<td>8</td>
<td>30.77</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>8</td>
<td>36</td>
<td>46</td>
</tr>
</tbody>
</table>

The last years have brought important advances but there is still a large potential for supplementary action. Moreover, the declaration of willingness in the climate protection plans has to be transformed into real commitment, action and monitoring of the engaged actions.

**Comparison**

In Germany, local climate protection policy is influenced by actors on all administrative levels. Nevertheless there are more competences on the local level than in France. The German approach can be described as more bottom-up, individual initiatives are implemented by convinced politicians and other actors like local citizens (Markl, Avci 2009). The local communities are more often member of European city networks (see websites of the different networks). This can be a strategy to compensate a lack of resources and for local argumentation. Another mean for dealing with lacking financial resources are Public Private Partnerships. Established in Germany since the 1990ies, they were first used in the transportation sector. Since several years, there are numerous energy performance contracting projects for energy efficiency in which public buildings are energetically modernized by private companies. This instrument is quite contested and perceived differently. While for example the Dena (German Energy Agency\textsuperscript{17}) recommends it actively, Stuttgart developed the intracting concept without a private financing (EnergieCités 2002).

In France, the initiatives derive to a large extend from the central state. Political orientations are implemented in a top-down approach. At the same time there are very committed actors in the local communities which have achieved the biggest results. They use a growing leeway in the course of decentralization and gradually attenuation of the traditionally strict task sharing. An illustrating example for France is the substitution of the “schéma directeur”, in which a spatial planning is realized from above by an approach at the local level (SCoT - schéma de cohérence territoriale)\textsuperscript{18}. The national energy agency ADEME also put into place important support programmes.

\textsuperscript{17}http://www.zukunft-haus.info/de/unternehmen-oeffentliche-hand/kompetenzzentrum-contracting.html
\textsuperscript{18}http://www.developpement-durable.gouv.fr/Presentation-generale.13896.html (retrieved 25.8.2010)
Climate protection concepts are not yet widespread (ADEME 2010) but promise to be more formalised and comparable than in Germany.

Since the ordinance 2004-559, public private partnerships exist in France as well. They were initiated by the ministry of Finances in the MAPPP ("mission d’appui à la réalisation des contrats de partenariat"). Since 2009 there are first contracting projects with schools (Bougrain et al. 2010). Like in Germany they are perceived as a possibility to realize energetic modernizations despite empty coffers. But like in Germany the topic is a quite controversial one.

One success factor that has been implemented in both countries is the labelling of municipalities with the European Energy Award (EEA), or Cit’ergie in France. This offers the opportunity of an external consultant and a comprehensive management system (definition of goals, definition of an action plan, and control of the goals).

**Drivers and Barriers for local climate protection**

Drivers and barriers for the success of local climate protection can be classified in general context factors, local context factors, actors and strategies. In a qualitative case study on three German municipalities, the main success factor was a local integrative and integrated win-win-strategy, the main barriers were the absence of data, the lack of consciousness and acceptance, regulations (like concerning monument protection), and lack of resources (Roudil et al. 2008). In the quantitative survey presented above (Laborgne et al. 2010), barriers and drivers where asked for in the form of an open question: “in your experience, what are factors that are especially supportive for success in local climate protection?”, “where do you see the biggest barriers?”. For both, a second question was asked for the most important barrier/driver.

Financial aspects constituted by far the most often mentioned success factor (see Figure 3). “Savings” are explicitly named by 11%, “cost-effectiveness” by 14% of the respondents. 39% name subsidies, 11% with a specification on subsidies as grants. In the qualitative case studies, this aspect had also been mentioned, there seems to be some reluctance towards subsidies in forms of public credits.

The difficult financial situation of local communities in Germany as well as in France is an important barrier for local climate protection measures. In the qualitative case studies (Roudil et al 2008), the possibility of savings was described as an important driver, especially for the convincing of reluctant actors, arguing that climate protection does not just mean costs but also local benefits. The creation and communication of local benefits constitutes an important part of successful local strategies. This means the integration of local actors, such as local trade. Local energy production as well as programmes for energy efficiency can create work and local creation of value for example in agriculture and artisanry. Subsidies are an example for energy efficiency refurbishments that create local demand for services, especially when combined to offers for training to local enterprises (Roudil et al 2008).

Other supportive factors named by a considerable part of the respondents were “public orientation/publicity” (23%) and “participation” (23%). Thus the role of the public and of its integration is estimated as being important for success. On the one hand, that leads to the question of acceptance (named explicitly by 13%), on the other hand to the necessity to sensitize and activate the citizens to do their part. The role of participation and discourses will be deepened in the following chapter.
As for the barriers, the most important factors seem to be financial problems and the lack of consciousness (see Figure 4). More than half of the respondents name “financial aspects” (59%), 29% see a lack of consciousness and/or interest” as barrier. This corresponds well to the perceived role of “Public orientation/Publicity” as supportive factor and emphasizes the importance of the role as “advisor and promoter”. When asked for the most important barrier, 64% name “financial aspects”, but still 18% “lack of consciousness and/or interest”.

**Climate Change between Chances and Challenges:**

**Challenges: Techniques and Technologies**

The detailed impacts of climate change mitigation activities can be defined by different subjective perspectives as chances or challenges. The challenges can be seen for example in the establishment of technological innovations, especially for the use of renewable energy resources, combined with new efficient decentralize organized energy technologies. Therefore companies are not only dealing with energy but also with modern technologies and services for individual consumers (i.e. households, owners of houses) and local agencies or communities. The challenges for the companies are to work out an effective change management for their business sector.
The challenge of climate change for politics is bringing responsibility for energy consumptions and emissions more close to the citizens. The assumption is that many new technologies are only efficient if their utilization on an individual level is also efficient and adequate to their potential. Aspects of acceptance, involvement, enlightenment, and participation are part of these chances for a new paradigm of energy supply system which can be called the paradigm of individual energy responsibility (Weimer-Jehle/Hampel/Pfenning 2001). Climate change shows the public how individual and systemic impacts effect the global climate in many negative ways. It is a very important political belief and issue, to make this experience and to look for life-styles and new economics, that are more save and close to nature systems and sustainable development. The challenge for politics is to break down the former ways of life-styles and economy, which result in the negative effect of climate change, caused by anthropogenic influence.

In some cities in European countries local governance and citizen groups have begun to work out programs and models to decline negative emissions of greenhouse gases and to school their citizens in more responsibility for energy consumption. Still there are no studies which summarize all the concepts and models and evaluate them by their efficiency and acceptance within the target groups. First case studies in Germany (Laborgne et al. 2010, Weimer-Jehle et al 2001, Pfenning/Bohnisch 2008, 2010, Pfening/Benighaus 2008) indicated that acceptance is associated with chances of participation to bring in individual opinions. Also climate change local politics and programs are often integrated in former concepts of environmental protection. This can be evaluated critically because it could be an attempt to avoid too much additional effort. Simultaneously, it assures continuity.

**Chances: Participation and Discourses**

The analysis of the ongoing process and initiatives against negative effects of climate change reveals that the local governance becomes very important in order to identify effective and innovative technologies. Drawn from this analysis a reduced set of concrete participation techniques can ensure this efficiency.

Citizen panels with contributions of energy companies, experts, scientists, stakeholders, NGO and local representatives are mostly helpful to work out for example a common local concept of future energy supply systems to fit with the principles of sustainable development and to reduce the negative effects of climate change (Pfenning 2010, Dietz/Stern 2008). Important issues are questions about using energy efficiently, safely and economically and to adapt the behaviour of consumers regarding this aims. Therefore climate change and local effects are the topic of such citizen panels. Special themes can be local autonomy in energy supply systems, available local energy resources and their part in this concept, principles of using external resources (renewable or fossil fuels), kinds and ways of information and education of consumers and necessary financial resources.

After finding a convention about a common local concept next steps bring in ideas about possible technologies in many discourses because there are a lot of possible technologies. Not only the economical aspects are relevant for making the decisions, also social aspects of usability, trust in actors, costs and acceptance. In discourses, interested and involved people can work out different suggestions for parts and sections of the cities, depending on their size and amount of inhabitants. Participation should normally result in acceptance and lead to more active commitment. Therefore every first discourse in any city is very important for the acceptance of such discourses themselves in the continuously process of applying technological innovations and initiating changes in behaviours.

All these participation processes and discourses rely on the local level, bringing in involved people living in sections of cities and interesting citizen in general. Results on first case studies show the need of citizens to be better informed about the options of participation as well as about optional technologies. This problem arises in many participation processes and
it is a task of social science to find methods to compensate this deficit of different information levels of the target groups (Gohl/Wüst 2008). The most popular way is to include this process of information into the stepwise participation (Pfenning/Benighaus 2008). This option works successfully in case studies (Pfenning/Benighaus 2008), also for the highly complicated and complex topics of energy supply systems. It is the special rationality of discourses that all arguments are important for the common recommendation or convention, and that different levels of information can be balanced during the whole participation process. The more complicated the topic is, the more time is needed for this step (Pfenning/Benighaus 2008).

The foundation of many local Agenda 21 groups in German cities in the 90ies indicated a high public interest in the topic of sustainable development, renewable energy resources and local implementation of associated new technologies. Now, climate change is a new topic for these groups to reanimate their influence for public discussion of energy supply systems. From a sociological point of view, participation is also required to support innovators in the local administration to establish the topic of climate change for all linked local activities of local governance, especially in contrast to economical concerns (Vetter 2008).

The citizens’ willingness to get involved in participation acts and discourses depends on their influence to impact local policy (Geißel 2008). Recommendations are not enough, because the distrust of citizens in policy is high. This is a dilemma in local governance. Still citizen participation is acting on informal levels. Nevertheless local constitutions allow formal participation by pools about special topics concerning local public interests and needs. Certainly local climate protection belongs to such a public interest. Therefore informal participation and discourses will result in formal circumstances and frameworks for local politics.

Conclusions
A lot of local authorities feel concerned by climate change and are willing to engage for mitigation and adaptation strategies. Still, there are important barriers, mainly of financial nature and partly due to the lack of consciousness of concerned actors.

In the different European countries, there are different actor constellations due to the historical context and the legal framework. They induce individual success factors but common challenges and chances.

Some common strategies for successful climate protection on local level in the European context can be identified: participation, integration, exchange on best practices, management tools, support programmes and “customised” holistic solutions for the local context that enable the municipality to act in a responsible way and in a long term perspective. On the one hand, sharing of best practices, the development of common tools, common calculation methods and some sort of standardisation can decrease the effort of the single municipality and create economies of scale. On the other hand, taking into account the local context is very important to get the optimal potential and to adapt the employed means to the local objectives and possibilities.

This article could be completed by the comparison with other European countries and deepened case studies in France.
References


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