HOW EUROPEAN CITIES PLAN TO RESPOND TO CLIMATE CHANGE – AMBITIONS OF 885 CITIES IN THE EU-28

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In collaboration with ~30 researchers:
Does the claim hold true for European cities?

Regular assessments of Local Climate Plans (LCPs) in representative selection of European cities:

1. How are mitigation and adaptation LCPs distributed across European cities and countries?
2. Which types of LCPs exist?
3. What are the main topics and objectives of LCPs, e.g. are city targets sufficient to reach 1.5/2°C?
4. What are potential drivers or barriers to develop LCPs?

“Cities lead the way in climate change actions” (Kousky & Schneider, 2003; Rosenzweig et al., 2010)
200 Urban Audit cities in 11 countries = 17% of the pop EU-27

Database with 120 variables per city:
- LCPs & content
- Membership in international climate networks
- Socio-economic data & Natural aspects

LCP selection:
- Planning and strategic policy documents targeting the entire city area
- Tackling climate change mitigation and/or adaptation
- Published as one document; no single actions

Many cities do not have any plans, particularly in Southern Europe
But selected cities are show case examples of urban leadership, e.g. London, Paris

- 65% of cities have a mitigation LCP; 29% adaptation LCP; 22% joint LCPs

Adaptation plans:
Urban planning largest category
→ rather “comprehensive” and vague, not concrete

Mitigation plans:
energy & renewables
→ rather sectoral

Calculated respective national GHG reduction targets, if all cities in a country had the same targets like the representative national sample:

\[ T_U = \sum_{i=1}^{N} \frac{P_i T_i}{\sum_{j=1}^{N} P_j} \]

- **EU-11** committed to -37% of GHG emissions; **EU-27** to -27%.
- **EU** would need about 80% (back then) to reach 2°C target !!!!!!
“Carbon tree”

Reckien, D. et al. (2014) Climate char plans from 200 urban areas in 11 cour
Drivers of LCP development (positive correlation):
- Member of climate network
- Population size
- GDP/cap
- Adaptive capacity (ESPON Climate)

Barriers (negative correlation):
- Unemployment rate
- Proximity to coast
- High summer temperatures (Southern Europe)
- Future vulnerability (incl. natural, social and governance factors) (ESPON Climate)

Mitigation plans:
- *Population size* (1.00), *unemployment rate* (0.74) and *adaptive capacity* (1.19) significantly predict mitigation plans ($R^2 = 0.57$).

→ Climate networks are important information sources
→ “Adaptive capacity” is very important

• 885 Urban Audit (UA) core cities across the EU-28

• UA cities are a balanced and regionally representative sample, i.e.
  • geographically dispersed and
  • varying in size, also for smaller cities (<50,000 inhabitants).

Map of the location of Eurostat Urban Audit cities, shown with resident population as of 1st January 2012 (Eurostat, 2016).

Typology of LCPs in Europe

A. Comprehensive and stand-alone
- Plan addressing climate change in which mitigation and/or adaptation are mentioned in the title or as a motivation in the introduction, e.g. Local Climate Mitigation and/or Adaptation Plan

B. Mainstreamed and inclusive
- Other municipal plan including climate change aspects, e.g. sustainability plan, resilience plan, development/master plan, core strategy

C. Partial GHG sources or impacts
- Stand-alone document which partially address climate change with regard to particular sectors, such as energy, or particular impacts, such as heat waves (floodings, etc.)

D. Operational
- Plan developed for specific municipal operations, such as universities, schools, housing associations, hospitals, e.g. carbon management plan in the UK

E. Climate-related
- Plan with relevance to the climate issue but without focus on climate change, e.g. municipal emergency plan, civil protection plan, air quality plan

F. Areal
- Local Climate Action Plan for parts of a city/urban area

Sectoral alignment or types of integration in existing local policy frameworks

### Type A-1 – LCPs NOT legally required → EU-24

<table>
<thead>
<tr>
<th>A1</th>
<th>UA Cities</th>
<th>Mitigation plans</th>
<th>Adaptation plans</th>
<th>Joint plans</th>
<th>No plans</th>
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<td>%</td>
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<td>101</td>
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<tr>
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<tr>
<td>Sweden</td>
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<td>76.9</td>
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<td>224</td>
<td>36.6</td>
<td>69</td>
<td>11.3</td>
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Type A-1 – LCPs NOT legally required → EU-24
**Type A-2—LCPs legally required → EU-4**

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<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
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<tr>
<td>Denmark (A2)</td>
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<tr>
<td>France (A2)</td>
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<td>Slovakia (A2)</td>
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<td>95</td>
<td>58.3</td>
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<td>4 countries (A2)</td>
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<td>174</td>
<td>63.7</td>
<td>154</td>
<td>56.4</td>
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<tr>
<td>24 countries (A1)</td>
<td>612</td>
<td>224</td>
<td>36.6</td>
<td>69</td>
<td>11.3</td>
</tr>
<tr>
<td>28 countries (A1 + A2)</td>
<td>885</td>
<td>398</td>
<td>45.0</td>
<td>223</td>
<td>25.2</td>
</tr>
</tbody>
</table>

→Difference between non/obligatory LCPs:
- ~factor 2 for mitigation, factor 5 for adaptation
- "threshold effect"

**EU-28 A1 & A2:**
- ~45% of cities have mitigation, ~25% adaptation, 16% joint plans
- Large diversity across the EU; more plans in Central & Northern EU

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Type A-2 – LCPs legally required → EU-4

EU-28:
- Size matters: >70% of the cities above 1 million inhabitants have a mitigation and/or adaptation plan

Type A-1 and A-2 LCPs

### Type A-1, A-2 + A-3 LCPs

<table>
<thead>
<tr>
<th>A1/ A2/ A3</th>
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<td></td>
<td>N</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>A1 plans (24 countries)</td>
<td>612</td>
<td>224</td>
<td>36.6</td>
<td>69</td>
<td>11.3</td>
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<tr>
<td>A2 plans (4 countries)</td>
<td>273</td>
<td>174</td>
<td>63.7</td>
<td>154</td>
<td>56.4</td>
</tr>
<tr>
<td>A3 plans in cities w/o A1/ A2 plans (28 countries)</td>
<td>460</td>
<td>188</td>
<td>40.9</td>
<td>3</td>
<td>0.0</td>
</tr>
<tr>
<td>All A3 plans, i.e. in cities with or without A1/ A2 plans (28 countries)</td>
<td>885</td>
<td>333</td>
<td>37.6</td>
<td>103</td>
<td>11.6</td>
</tr>
<tr>
<td>All cities with A1, A2 or A3 plans (sum of lines 1-3)</td>
<td>885</td>
<td>586</td>
<td>66.2</td>
<td>226</td>
<td>25.5</td>
</tr>
</tbody>
</table>

### EU-28 A1 & A2 & A3:

→~66% of cities have mitigation, ~26% adaptation, ~16% joint plans

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Mainstreaming as form of effectiveness:

Mitigation
Mainstreaming as form of effectiveness:

Adaptation

Legend
Type of Adaptation LCPs

City Location
- UA City Location
- Capital

National obligation to develop LCPs
- LCPs not compulsory
- LCPs compulsory

SDS4DRR

2nd Assessment of Local Climate Plans in Europe, Dec. 2016-Feb. 2017

SDS4DRR

Mainstreaming as form of effectiveness:

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2nd Assessment of Local Climate Plans in Europe, Dec. 2016-Feb. 2017
Mainstreaming as form of effectiveness:

Mitigation:
- ~12% of plans mainstreamed

Adaptation:
- ~29% of plans mainstreamed

When adapting cities decide three times more for mainstreaming.
Current local ambitions are not enough to reach the 2C target.

- Potential impacts, and vulnerability do not lead to more LCPs
  - Providing risk information not sufficient
  - Vulnerable locations need particular attention & support

- National obligation leads to more LCPs & allows harmonization
  - National guidelines and ‘climate laws’ helpful
    - Though, laws may lead to ‘threshold effect’ and infringe quality of LCPs

- Mainstreaming seems easier for adaptation → more research needed whether mainstreaming leads to more effective plans (i.e. implementation, outcome)

Future research → Content analysis of LCPs wrt sectors, targets, finances, community involvement, gender issues, effectiveness
Please find more about this initiative in:


