





**GIRONA**  
**LAKs Inventory & MAP provides strategic focus on renewable energy and energy efficiency to create emissions reductions**

*Introduction*

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| <b>Name of the municipality</b> | Girona, Spain   |
| <b>Case Study Abstract</b>      | <p>A climate Mitigation and Adaptation Action Plan (MAP) has been produced by the Municipality of Girona due to their involvement in the LAKs Project. This plan provided opportunities to develop the strategic directions related to energy identified in an earlier Local Sustainability Action Plan (2004) and the Energy Policy adopted in 2007. The MAP updates and strengthens the list of potential actions and provides citizens with information on actions that they, and their city, can do to achieve significant climate protection targets.</p> <p>The LAKS project also helped the city prepare the SEAP for submission to the Covenant of Mayors.</p> <p>The MAP identifies that total emissions from the whole community in the year 2001, the base year for the analysis, were 591.894 tCO<sub>2</sub>e, or 7,9 tCO<sub>2</sub>e per capita. The Municipality's owned or controlled buildings, vehicles and facilities, and all urban waste management were directly responsible for approximately 5% of these community emissions.</p> <p>Girona has decided to achieve a reduction of emissions per capita of 20% in relation to 1990 (and 40% in relation to baseline year 2001) resulting in a target of 4,7 tCO<sub>2</sub>e per capita by 2020. This includes reducing energy consumption from 25 MWh per capita in 2001 to 16 MWh per capita by 2020.</p> <p>The MAP includes details on a wide range of planned emissions reduction measures (actions). Major measures have been planned to achieve savings in the municipal and community (private) buildings sectors, street lighting, municipal fleet and improved public transport and actions such as green procurement that support movement towards a low-carbon economy.</p> <p>The most significant measures proposed involve the installation of a new waste treatment facility, a biogas generator and an incinerator, and the installation of a district heating network to use the waste heat. Other measures include the use of solar energy systems for hot water and photovoltaic electricity generation. Refurbishment of two small hydro power stations will also reduce electricity emissions.</p> <p>For the longer term, the introduction of the proposed new light rail system, and changes recommended to the existing system, will produce significant community transport emissions reductions. Energy efficiency changes proposed for the industrial and commercial sectors, and new residential building codes will produce large savings in future, but will have a smaller impact by 2020.</p> <p>Changes to the private transport mix – more electric and biofuels etc – will also have a significant impact, but there is little the municipality can do to impact on this trend. Support for public electric vehicle charging stations, and a leadership role in</p> |



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|  | <p>changing city-owned vehicles is proposed.</p> <p>Improvements to the Municipality's own buildings and the public lighting systems will continue. Establishment of a local energy agency and a new sustainable public procurement initiative are also being considered.</p>   |
| <b>Project logo &amp; City Logo</b>          |    |
| <b>General overview for the LAKs project</b> | <p>The LAKs project (Local Accountability for Kyoto goalS) was established as a LIFE+ project in 2009 with the aim of demonstrating the potential for cities to grasp opportunities and create synergies to actively contribute to the achievement of the Kyoto goals and targets set by the European Commission within the 2008 climate action and renewable energy package.</p> <p>As direct representatives of the population, municipalities are very important actors in the struggle to implement climate protection policies and actions. They have the role of planner and implementer of the visions and plans to improve the climate resilience of their community.</p> <p>Municipalities are appropriate bodies to implement local climate protection policies, implement local actions and administer incentives aimed at encouraging effective GHG emissions reductions within a community. Municipalities can ensure that proposed actions also look after the health and welfare of local people, and that appropriate benefits from local actions will flow to their community.</p> |

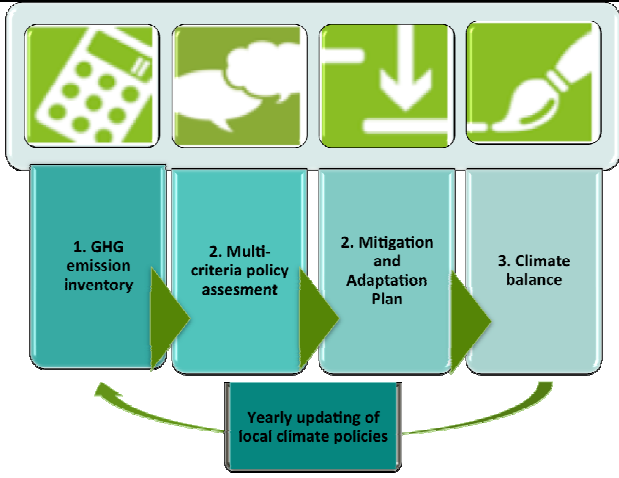
***Municipal profile***

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| <b>Population</b>                   | 96.605 (2010)                           |
| <b>Land area</b>                    | 39,14 km <sup>2</sup>                   |
| <b>Municipal annual budget</b>      | 96.075.960 € (2011)                     |
| <b>Baseline emissions / capita</b>  | 7,9 tCO <sub>2</sub> per capita in 2001 |
| <b>Baseline energy use / capita</b> | 25 MWh per capita in 2001               |



*The case study*

| <b>Case Study</b>  | <b>Developing a climate action plan for the Municipality of Girona</b>  |
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| <b>Context of Girona</b>   | <p>The Municipality of Girona is close to the Pyrenees mountains, and the Mediterranean sea and the city of Barcelona. Girona is the capital of the Province of Girona, in the Autonomous Community of Catalonia, Spain. The city lies on the transport route between Barcelona and the rest of Europe and has good road, rail and airport connections.</p> <p>The economy is service oriented. The city acts as administrative, and business capital for the Province of Girona, and this creates a commuting destination for work, study, shopping and leisure. The economy is also increasingly oriented to tourism, thanks to its heritage assets and the near-by low-cost airport, which also services Barcelona and the Costa Brava. The city values its connections to the university and the many research and development activities that help to add value to products sent through Spain to the rest of the European Union.</p>  |
| <b>LAKs climate accountability system, audit and roadmap processes</b> | <p>The LAKs project (Local Accountability for Kyoto Goals) was conceived to embed policies that help tackle climate change into each municipality's decision making and accountability processes. To be effective, climate change policies need to be implemented across all sectors and departments of a municipality. This means that is more difficult to coordinate and monitor the results than with other policies, and they can be competing for resources.</p> <p>Overcoming these issues is very challenging and this can be a reason for the lack of commitment of cities to climate protection activities. For this reason, the LAKs Project developed a range of planning and implementation tools and processes to simplify the process for municipalities that have committed to deal with climate issues. The LAKs climate accountability process is shown in the diagram shown (see attachment 5).</p> <p>All LAKs project planning tools and methodologies developed were conceived by Indica in collaboration with the four city partners and ARPA. Peer-review site-visits to each municipality were conducted by the LAKs partners and Indica, in order to assist the municipality audit existing energy and climate related policies and processes and to review opportunities for inclusion in their local action plan.</p> |

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|  |  <p style="text-align: center;"><i>The LAKs climate accountability system</i></p>  |
| <p><b>LAKs GHG inventory Toolkit</b></p> | <p>ICLEI Europe and ARPA Emilia Romagna contributed to the LAKs Project by helping develop the LAKs GHG Inventory Toolkit as a calculator with supporting reference documents, to help the quantification of municipality emissions by sector and by fuels used.</p> <p>The LAKs GHG calculator is an easy-to-use spreadsheet (adapted for EU from ICLEI's CCP calculator) which converts data from energy used (fuels, heat and electricity) plus agriculture and waste activities into GHG emissions using appropriate nationally-acceptable emission factors. The emissions results are expressed in tonnes of carbon dioxide equivalent (t CO<sub>2</sub>e).</p> <p>Separate country versions of the LAKs GHG calculator were produced for Italy, Spain and Poland to ensure that the emissions factors used were acceptable for municipalities in each of those countries.</p>  |
| <p><b>GHG Inventory results</b></p>      | <p>The first inventory for the city, using 2001 data, was prepared using the DESGEL GHG calculation tool. A new inventory, using using the same 2001 data, but re-allocated to different sectors, was prepared with the LAKs GHG inventory tool. This new inventory has helped focus the action plan for climate protection activities.</p> <p>The inventory helps city staff analyse emissions and prioritise proposed measures by making sure that the largest emitters are reviewed first. The inventory will also help the staff monitor progress as the action plan is implemented. The LAKS inventory for Girona is comprehensive, and includes details for all community and municipality operational sectors.</p> <p>At 43% of total community emissions, the transport sector is the largest source of emissions for the whole community. These emissions based on the fuel sales figures for the city area. However, as Girona is on the main transport route between Spain and France (for exports to/from Europe) and many trucks refuel in the city area (fuel taxes are cheaper than in France). A methodology that considers and adjusts the allocation of transport emissions in a</p> |



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|  | <p>fair and proportionate way could be an advantage for the city.</p> <p>The residential sector with 34% of total community emissions, is the next largest emitting sector, followed by the business and commercial sector emissions (21%).</p> <p>Graphs showing the inventory result can be seen</p>  |
| <p><b>The Mitigation and Adaptation Plan</b></p> | <p>The emissions reduction measures (actions) included in the MAP are planned to achieve energy savings from municipal buildings and facilities, street lighting, municipal fleet and actions by ensuring procedures for green public procurement are introduced to support the movement towards a low-carbon economy. However, it is realised that actions that reduce community emissions, particularly from private buildings and an improved public transport system will produce the largest impacts.</p> <p>The largest reductions from the transport sector are predicted to be those that rely on substantial changes that allow private vehicles to switch to cleaner vehicle technologies. The city will only be able to influence this through leadership examples such as converting their own fleet of vehicles, and by strengthening the provision of facilities such as public charging stations for electric vehicles. However the construction of a new public light rail system, and extensions to an existing system have been proposed and these will achieve major emissions reductions.</p> <p>The installation of a new waste treatment facility, including a biogas generator and an incinerator, and the installation of a new district heating network to use the waste heat are predicted to produce significant emissions reductions for the community. Other energy production measures proposed include the installation of many more solar hot water and solar photovoltaic electricity generation systems on public buildings, schools and hospitals, and private buildings, triggered through regulations and incentives will continue. Refurbishment proposals for two small hydro power stations will result in the production of more zero-carbon electricity for the city.</p> <p>Energy efficiency changes proposed for the industrial and commercial sectors, and new residential building codes has the potential to produce large savings in future, but like the community transport sector these longer-term projects will have a more limited impact by 2020.</p> <p>Energy efficiency improvements to the Municipality's own buildings and public lighting systems will continue, and trials of new LED streetlights could make substantial savings. Establishment of a local energy agency to support the proposed activities in the community and adoption of a new sustainable public procurement initiative are also being considered.</p> |
| <p><b>Initial results achieved</b></p>           | <p>Since year 2000, when the city agreed to develop its Local Agenda 21 there has been a growing effort to implement a sustainable energy policy by the Municipality. This process accelerated after the 2008-2011 Energy Action Plan was passed in 2007. The city now has 446m<sup>2</sup> (or 312kW) of solar thermal roofs at 12 sports and school facilities; circa 100MWh/year (public + private) of electricity</p>   |



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|                                     | <p>produced from photovoltaic (PV) systems; two schools operate wood chip fired heating systems, and one has a geothermal heatpump system; a public bicycle service is operating, 41% of traffic lights have LED technology, and efficient street lighting has reduced its energy use by 24% compared to 2007. The city has attracted around 5.000.000€ in investments for sustainable energy.</p>   |
| <p><b>Lessons Learned</b></p>       | <p>The process of developing the Mitigation and Adaptation Plan (MAP) has provided the Municipality with an opportunity to plan for a longer period - through to 2020 and beyond. The project created openings for strategic discussions between staff and advisors and councillors to select a credible list of actions for inclusion in the plan. They also discussed the mechanisms for on-going monitoring of results. This process achieved high-value understandings and relationships for cooperation within the Municipality and other local stakeholders.</p> <p>A revised inventory baseline was produced by a team including graduates from the university and this required the calculation of new territorial data with regional authorities and other stakeholders. The methodology used and definitions of sectors used were part of the methodology used by the LAKs partners.</p> <p>An important lesson from LAKS and CoM activities has been the acknowledgement that achieving their sustainable energy commitments requires resources beyond the Municipality's capacities. Actions that could change key infrastructure and lead to significant GHG reductions, rely on decisions and investments from others, and require partnerships with other levels of government.</p>   |
| <p><b>Replication potential</b></p> | <p>The European Commission's flagship <i>Covenant of Mayors</i> programme is now providing a strong driver for similar activities by all municipalities in Europe. The LAKs partners believe that the methodologies and tools developed within this project could be very beneficial for other municipalities.</p> <p>Many of the tools and methodologies developed are available in 4 languages (English, Italian, , Polish and Catalan) and they include:</p> <ul style="list-style-type: none"> <li>• LAKS GHG Inventory tool: allows an easy calculation of all the emissions generated at a local level through an excel sheet divided in different sectors</li> <li>• GHG emissions report: summarises the main findings of the inventory in an easy to read report</li> <li>• Multi criteria policy assessment tool: This is a spreadsheet that assists with analysing a list of policies and activities that can reduce emissions at a local level so that they may be included in the mitigation and adaptation plan;</li> <li>• Multi criteria policy assessment report: This tool includes a brief introduction on the methods employed for the multi criteria analysis.</li> <li>• Mitigation and Adaptation Plan draft tool: This was developed to assist the development of the plan by guiding the municipality to divide potential interventions into long term and</li> </ul> |



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|  | <p>short term actions.</p> <ul style="list-style-type: none"> <li>• Methodologies for calculating CO<sub>2</sub> reductions: This tool assesses some relevant methodologies to calculate CO<sub>2</sub> reductions deriving from the experience of the LAKS project.</li> <li>• Mitigation and Adaptation Plan template: This tool is a word format that you can use as starting point to draft your plan</li> <li>• Climate balance template: It is structured to check the implementation of all projects mentioned in the Mitigation and Adaptation Plan, following the same structure with government and community sectors. This will help to have a coherent structure in order to facilitate comparison between the two documents (the first where projects have been planned and the second where they are monitored)</li> <li>• Updated GHG Emission Report: An updated GHG Emissions Report will help your Municipality to check the progress obtained at local level by comparing the results with the baseline year.</li> </ul> |
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**Information**

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| Municipality reference documents | Mitigation & Adaptation Action Plan: <a href="http://www.seap.girona.cat/">www.seap.girona.cat/</a><br>A summary of the MAP was submitted to CoM in March 2011. This SEAP is available from:<br><a href="http://www.eumayors.eu/about/signatories_en.html?city_id=844&amp;seap">http://www.eumayors.eu/about/signatories_en.html?city_id=844&amp;seap</a> |
| LAKs Project contacts            | LAKs Project Coordinator<br>Email: <a href="mailto:laks@municipio.re.it">laks@municipio.re.it</a><br>Web: <a href="http://www.municipio.re.it/laks">http://www.municipio.re.it/laks</a>   |
| Acknowledgements                 | This case study and all the activities and instruments developed by LAKS project have been possible thanks to the support of the LIFE+ financial instrument of the European Union.  |