

## Embedding a low emissions approach into the municipal 5-year development plan

Following a comprehensive multi-stakeholder consultation effort, the Urban-LEDS City of Bogor reviewed its existing spatial planning frameworks and strategically integrated low emission development into its 5-year Development Plan. A comprehensive Strategic Environment Assessment also increased awareness and efforts across the city government for energy efficiency and other low emissions development working areas.

### Summary

Through a comprehensive multi-stakeholder consultation process, the Urban-LEDS City of Bogor reviewed its existing spatial planning frameworks and integrated low emissions development (LEDS) principles into its 5-year mid-term Development Plan (RPJMD). The RPJMD, which speaks to Bogor's determination to strategically implement LEDS, prioritizes: introducing integrated low-emission transportation systems that emphasize pedestrians and cyclists; establishing city-wide waste management schemes and facilities; the development of green building standards to accelerate the use of low emission development technologies, materials, and design strategies; improving spatial planning and urban development projects to reduce vulnerability to climate-related risks; and enhancing accessibility and user-friendliness of urban facilities in general, in order to improve overall quality of life.

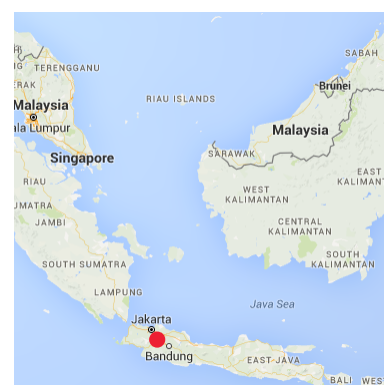
Conducting a Strategic Environmental Assessment (SEA) proved to be a helpful policy tool for the process of integrating LEDS principles and activities into the city's 5-year development planning, and doing so in a participatory manner.

Bogor's key achievements through the Urban-LEDS project included the collaborative elaboration of the above-mentioned planning documents (the SEA and 5-year Development Plan that incorporated LED principles and activities as well as budgeting for LEDS activities until 2019), and also ignited increased awareness and efforts across the city government concerning energy efficiency and other low emission development principles.

### From 'Rain City' to Low Emission Development Champion

Bogor, formerly known as Buitenzorg, is located inland in a mountainous region of West Java, 60 kilometers south of Jakarta. The city is home to just over one million inhabitants and is recognized as an important economic, scientific, and cultural center. In the early 19th century, Bogor briefly served as the Dutch East Indies administrative center, and has since reinvented itself as a tourism hub with a wealth of historical and cultural heritage. For centuries, Bogor has been known as "the Rain City" because of frequent precipitation, including during the dry season.

Bogor is among the fastest growing cities in Indonesia due to its strategic location neighboring the capital. As a rapidly urbanizing city, Bogor faces numerous challenges, including controlling urban sprawl and the rapid deployment of infrastructure and



### Facts & Figures

**Population / Land area**  
1,220,000 (2013) / 118.5 km<sup>2</sup>

**Municipal budget**  
USD 11.8 Million (2014)

**Greenhouse gas inventory**  
Yes, since 2014

services to keep pace with population growth. Other major challenges facing the city include:

- Traffic congestion from private vehicle use and a lack of infrastructure to promote walking, cycling and public transportation options
- Providing a city-wide waste management scheme and evenly distributed collection facilities
- Discordant building standards with no common set of green building guidelines
- No recent urban spatial planning framework to account for urban growth and ensure cross-sectoral low emission development (LED) planning

In order for Bogor to continue growing sustainably, city officials realized they needed a strong spatial planning framework and a strategic mid-term plan for the next five years. Through the Urban-LEDS project, the Model City of Bogor has set itself on a low-emission trajectory through prudent urban planning to guarantee long-term sustainable development.

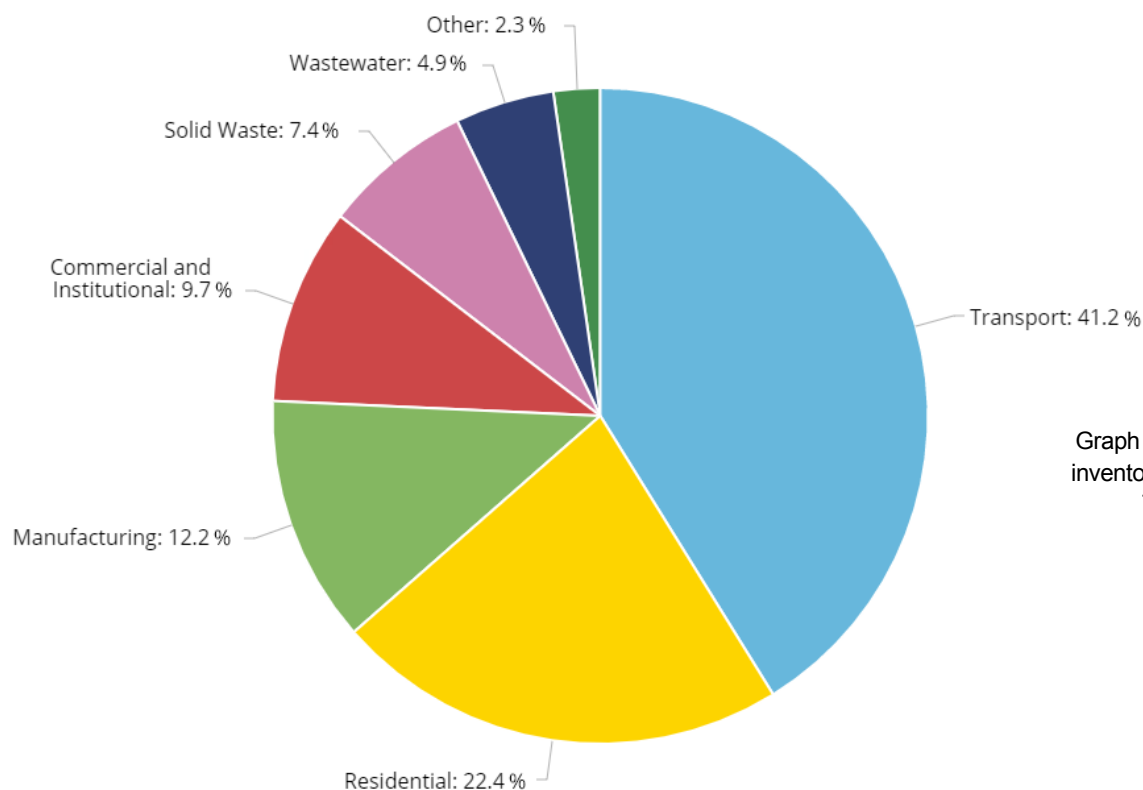
### **Data-driven priority setting: Bogor's GHG performance inventory**

At the onset of the Urban-LEDS project, Bogor had a clear vision to become an environmentally friendly city. Prior to revising the City's urban planning framework, the City completed its first GHG inventory in 2014 to identify key emitting sectors and priorities for the City's five-year plan.

Within the Urban-LEDS project, the City completed a series of GHG inventories to help set its LED priorities. The inventory from 2015 (please see in Graph 1 on the following page), reveals that the majority of the city's community-scale total emissions of 2,632,687 tons CO<sub>2e</sub> result from the transportation, residential and manufacturing sectors.



Photo 1: Bogor City is situated in the shadow of a giant, the dormant Gunung Salak volcano



Graph 1: Bogor's municipal GHG inventory, broken down by sector.  
Total: 2,632,687 tons CO<sub>2e</sub>

## Leveraging existing policies for low-carbon planning

In April 2014, the City of Bogor inaugurated Mayor Bima Arya Sugiarto. The Mayor has been an avid supporter of the city's transition towards a green economy using a low-emission development approach. In his inauguration speech, he shared his vision to sustainably "transform Bogor into a more livable city". The finalization of the RPJMD was the vanguard of the Mayor's inaugural agenda.

Key national policies supported the expedition of this priority, namely the Indonesian Ministry of Home Affairs Regulation No. 67/12, which mandates that the "Governor, Regent, or Mayor shall conduct a Strategic Environmental Assessment (SEA) as a basis to develop their long-term and mid-term development plan, in order to reduce the potential impact and/or environmental risks of development that might occur."

## Stakeholder engagement for the Strategic Environmental Assessment

In February 2014, supported by the Urban-LEDs project, Mayor Bima organized and actively led a series of workshops and multi-sectoral focus group discussions (FGD) to design Bogor's Strategic Environment Assessment (SEA) for the RPJMD. Key local and subnational/national stakeholder representation included:

- Ministry of Home Affairs: Home Affairs provided guidelines for strategic environmental assessment data collection, stakeholder mapping and simple guidance for data analysis.
- Ministry of Environment and Forestry: Environment and Forestry were mandated to assess strategic issues including climate mitigation and adaptation in the strategic environmental assessment for the RPJMD. Furthermore, this Ministry provides the linkage between national and local SEA elaborations.
- City of Bogor, Mayor's Office: The Mayor's Office has shown a strong political leadership and support to the working group on incorporating the LEDs principle and climate mitigation action into the RPJMD.



- City of Bogor, Planning Agency: As the main focal point and the leader of the working group, the Planning Agency played a significant role in coordinating all the relevant working units. Additionally, as a member of the municipal budgeting committee, the Planning Agency was able to ensure that LEDS activities were advocated for.
- City of Bogor, Environmental Agency: As the working unit which receives GHG calculation training using HEAT+ tools, the Environmental Agency provides data on, and develops clear analysis for, emission factors.
- Pertamina and Hiswanamigas: This external stakeholder provides data on gas selling and using to develop analysis model on emission in transportation sector.
- Perusahaan Listrik Negara: The state-owned electricity enterprise provides data on electricity using on develop analysis models on emissions in building and residential sector.

A Strategic Environmental Assessment (SEA) offers a comprehensive, evidence-based decision-making framework to ensure the inclusion of LED and resilience into urban policies and plans. Although the SEA is recognized as an important urban planning and policy instrument at the national and sub-national levels, the majority of Indonesian local governments lack the capacity to implement a SEA.

Under the Urban-LEDS project, the City collaborated with the Danish Embassy for International Development Cooperation under the Indonesian-Danish Environmental Support Program (Danida ESP3 Program). This Cooperation works closely with the Indonesian Ministry of Environment to help cities and local governments develop their SEA. The Ministry of Environment and Forestry, through unit member Professor Hariadi Kartodiharjo of the National Council of Climate Change Management, provides the linkage between national and local SEA elaboration.

Photo 2: The SEA multi-stakeholder working group hard at work.





Photo 3: Urban nature in the Rain City

## Pinpointing Priorities & Analyzing Outcomes

The City's SEA identified climate change as one of the strategic issues facing Bogor. Workshop participants were divided into four groups to explore specific issues namely, (1) Bogor's rising GHG emissions; (2) environmental degradation; (3) spatial planning; (4) potential climate hazards and disasters; and (5) capacity building on indicators that were developed in previous focus-group discussions.

Starting in March 2014, the Urban-LEDS working group conducted a series of surveys and interviews in parallel with the workshops to collect baseline information and data. Once baseline information was gathered in collaboration with a SEA consultant, the City working group conducted a coordinated exercise to verify the information and enhance the data quality. This was performed in cooperation with all stakeholders relevant to reducing municipal emissions, including the City Planning Agency, Environmental Agency, and private sector. To support this effort further, the ICLEI Indonesia Urban-LEDS Project Office conducted an analysis based on secondary data collected from municipal reports, documents, other academic publications, and scientific articles related to climate change, and broader environmental issues.

After compiling the results from this analysis, the ICLEI project team conducted a workshop with the City's working group to verify the research results and facilitate a discussion among all stakeholders.

## Budget and Financing

Through the Urban-LEDS project implemented by ICLEI and UN-Habitat, and financed by the European Commission, funding was made available for training, capacity building, and the dissemination of documented information, with the overall aim of making Bogor a "Model City" for low emission urban development.

The Urban-LEDS team in Indonesia consisted of three staff members who provided technical and policy support to the City of Bogor for the development of the GHG emissions inventory, the SEA, and the RPJMD. These staff members also conducted exchanges with Indonesian, South African, Brazilian, Indian and European cities.



## Results

By combining the expertise of technical departments and keeping the political dimension involved, the project ensured that the LED priorities were incorporated into the RPJMD. The RPJMD was enacted in 2014 and secured the commitment of 750 Million IDR (ca. USD 57,000) each year until 2019 for climate mitigation and adaptation activities. Some interventions have already been implemented, including: the non-motorized transport program; energy saving measures undertaken by passing a memorandum concerning the regulated use of air-conditioners; and a city government-owned bus running on cooking oil which is used to transport employees; encouraging municipal staff to bicycle. Such actions acknowledge that the local government strongly adheres to LED principles and recognizes the importance of implementing demonstration projects.

Table 1, below, lists LED actions and initiatives which directly influenced the RPJMD. During consultative processes, all findings and agreed upon priorities were presented to the Mayor, and became the initial framework document for discussions led by municipal urban development consultative body, the Musrembang.

**Table 1: LED actions and initiatives which impacted Bogor's 5-year Plan**

Policy	<ul style="list-style-type: none"> <li>• Mission Number 3 of the City, 2014, includes: introduction of integrated low-emission transportation systems that prioritize pedestrians and cyclists;</li> <li>• 5-Year Development Plan (RPJMD), 2014: transforming the city's urban development through a low emission development strategy and strengthening the city's adaptive capacity to climate change related risks</li> <li>• City Regulation on Waste Management, 2016: strengthening the City's capacity to operate a sustainable waste management system based on the reduce, reuse and recycle method</li> </ul>
Regulation	<ul style="list-style-type: none"> <li>• Incorporation of low carbon initiatives into the Bogor City Government's 2015 budget</li> <li>• Formulation of the "Mayoral Decree" identifying 7 practical LED steps to be implemented (still in progress as of August 2016)</li> <li>• Bogor's Mayor Referral Letter on Energy Efficiency, which presents the Mayoral mandate for all the municipal working units for energy efficiency through acts such as turning lamps off during the daytime and not using air conditioning before 11 AM</li> <li>• The City's Sustainable Building Standard, comprising Mayoral Decree and technical guidelines (still in progress as of August 2016).</li> </ul>
Fiscal	<ul style="list-style-type: none"> <li>• Budget allocation for GHG Inventory every year from 2015 to 2019</li> <li>• Budget allocation for Bus Rapid Transit corridor</li> <li>• Budget allocation for transportation fleet that uses renewable energy</li> </ul>
Governance	<ul style="list-style-type: none"> <li>• Mayor Decree on the establishment of an LED Working Group to coordinate climate change mitigation efforts across municipal departments.</li> </ul>
Stakeholder engagement	<ul style="list-style-type: none"> <li>• Public consultation for Musrembang stakeholders included: Ciliwung merdeka, Kota Pusaka, P4W, Bike to Work, Pertamina, Hiswanamigas, Paguyupan Kampung Tengah, Telapak, Satu Dunia</li> <li>• Stakeholders involved in multi-sectoral focus group discussions: Ciliwung merdeka, Kota Pusaka, P4W, Bike to Work, Pertamina, Hiswanamigas, Paguyupan Kampung Tengah, Telapak, Satu Dunia</li> </ul>
Raising awareness	<ul style="list-style-type: none"> <li>• The engagement of staff for the SEA process and the RPJMD increased awareness and efforts across the city government concerning energy efficiency and other low emission development principles</li> </ul>

## Lessons Learned

- Multi-stakeholder planning is a long-term effort and the success of integrating urban LEDS in the city's 5-year Development Plan was not realized overnight. Several challenges, such as high staff turnover, hindered progress on data collection for the GHG inventory which was conducted during the project's first year.
- The continuous presence of proactive Urban-LEDS project staff helped create an enabling environment for data sharing and introduce changes to the status quo.
- The joint collaboration between the Danish and Indonesian Ministries to conduct the SEA were instrumental to the creation of the RPJMD. However, it was equally important to have a strong foundation of both local technical staff and political figures which were highly involved in the drafting process. Mayor Bima has tasked the Regional Planning Board with integrating Bogor's previous urban development plans with the new Low Emission Development plan. Additionally, a designated environment agency called Badan Lingkungan Hidup is responsible for developing, implementing, and reporting on the GHG inventory and climate change mitigation and adaptation action plan.
- Political commitment and mandate for inter-departmental coordination is key. Recognizing that urban development is a cross-cutting concern, the Mayor enacted a decree to establish an Urban-LEDS working group as a coordinating body to facilitate inter-departmental cooperation. Because Bogor has been host to the Indonesian President's Office since 2015 (Photo 4), it has led by example by enacting strong environmental policies as a result of data-driven priority setting. The Mayor's leadership resulted in a strong wave of international support from organizations and networks such as ICLEI, further stimulating Bogor to pursue environmentally sound development policies for GHG emissions reduction and strengthen adaptive capacity for management of climate-related disasters.

*"2013 to 2015 were milestone years for Bogor in improving the city's low emission development strategy. We have a strong commitment and good planning to continue and improve the implementation of LEDS in Bogor as part of the support to the Indonesian national emission reduction commitment".*

- Mayor Bima Arya



Photo 4: The Presidential Palace in Bogor is home to the Indonesian President's Office

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- The finalization of the RPJMD has served as a springboard for further urban LED action including: Green Building Standardization; a Mayoral Decree on the Transition to EcoMobility emphasizing walkable streets; a Mayoral Decree on 'Heritage City Management' focusing on building retrofitting; pedestrian areas; and conversion of street lighting to light-emitting diodes (LEDs), as well as replacing the traditional light bulbs with LEDs in heritage buildings.

## Replication

The processes used by the City of Bogor are relevant to other local governments in Indonesia. The effectiveness of Bogor in getting the cooperation of other city government departments and energy suppliers by involving the Mayor and senior managers in the early stages of Urban-LEDs should be emulated wherever possible. Performing an emissions analysis and Strategic Environmental Assessment are steps which can be followed by other Indonesian city governments wanting to include low carbon options in their development planning, providing that funding is available.

## Further Reading

<http://urbanleds.iclei.org/index.php?id=188>

## About the Urban-LEDs Project



The Urban-LEDs project, funded by the European Commission, and implemented by UN-Habitat and ICLEI, has the objective of enhancing the transition to low emission urban development in emerging economy countries.

Selected local governments in Brazil, India, Indonesia and South Africa a comprehensive methodological framework (the GreenClimateCities methodology) to integrate low-carbon strategies into all sectors of urban planning and development.



This series of local case studies is produced within the Urban-LEDs project funded by the European Union, and implemented by UN-Habitat and ICLEI, which has the objective of enhancing and the transition to low emission urban development in emerging economy countries.

They represent solely the views of the authors and cannot in any circumstances be regarded as the official position of the European Union.

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