URBAN LEDS
URBAN LOW EMISSION DEVELOPMENT STRATEGIES

I·C·L·E·I Local Governments for Sustainability

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Urban-LEDS Project

Promoting Low Emission Urban Development Strategies in Emerging Economies

Cities in Action - Update 2014

The Urban-LEDS project is funded by the European Union.

Executive summary

Responding to population growth, climate change, limited global resources and the need for sustainable development, the Urban-LEDS project is a flagship international climate change mitigation project funded by the European Union. It supports rapidly growing cities in four emerging economy countries: Brazil, India, Indonesia and South Africa.

Thirty seven (37) cities from five regions are engaging, sharing, and learning. Exploring how to engage a wide range of key stakeholders, optimize relevant policy, create necessary structures and processes, and set up teams to plan and drive the low emission development strategy and action plan processes – these are but a few of the activities unfolding in a comprehensive process to embed low emission development into all walks of life, into all sectors of the cities. The local governments involved are discovering how to connect green growth to low carbon development.

The Urban-LEDS project shows how cities in any country in the world – whether global South or North – can approach a complex issue. Using climate change mitigation as a "reality check", they are addressing energy security, widening access to affordable and sustainable energy, using local renewable energy resources, involving people, organizations and various levels of governments, and building skills – working together to outline an urban low emission development strategy (Urban LEDS).

This publication provides a snapshot of the current project status.

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Gino Van Begin

Secretary General, ICLEI – Local Governments for Sustainability

"The future is an urban one. Proper planning and implementation of Low Emission Development Strategies in cities is key to ensure this is an economically, socially and environmentally sustainable future. Cities in emerging economy countries play a central role in this, considering their growth trends. Their impact on climate change has to be curbed, yet their development supported. We wish to inspire more cities to follow this approach – as a win-win for all."

Joan Clos

Executive Director, UN-Habitat

"Cities are the hub of human life. It is critical to ensure that urban development focuses on a resilient, low-emission, sustainable way forward. The Urban-LEDS project addresses this, and UN-Habitat supports these efforts of promoting sustainable urbanization in emerging economies."

The project in brief

Project Basics:

- **Title:** Promoting Low Emission Urban Development Strategies in Emerging Economy Countries (Urban-LEDS)
- **Objective:** To enhance the transition to low emission urban development in emerging economy countries
- **Duration:** 01 March 2012 – 31 August 2015 (42 months)
- **Total Budget:** 6,700,000 € / Funding mechanism: European Union (EuropeAid/DCI-ENV/2011/269-952)
- **Implementing partners:** UN-Habitat and ICLEI
- **Keywords:** local climate action; greenhouse gas accounting; MRV process (Measurable, Reportable, Verifiable); stakeholder involvement; vertically integrated NAMAs (Nationally Appropriate Mitigation Actions); Local Government Climate Roadmap.

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In each country, two Model Cities are assisted in formulating and adopting their Urban-LEDS, and share their experiences with Satellite Cities, which observe, learn and share their own experiences. Experienced European Cities support the process, sharing their own experiences and know-how.

Implementing partners

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UN-Habitat: The United Nations Human Settlements Programme (UN-Habitat) is the United Nations' agency for sustainable urban development. Through its World Urban Campaign, normative activities and technical support, it promotes the development of more compact, better integrated and connected cities that foster equitable, sustainable and low-emissions urban development, and that are resilient to climate change.

ICLEI
Local Governments for Sustainability

ICLEI – Local Governments for Sustainability: ICLEI – Local Governments for Sustainability (ICLEI), established in 1990, is the world's leading network of over 1,000 cities, towns and metropolises in 88 countries, committed to building a sustainable future. By helping its Members to make their cities sustainable, low-carbon, resilient, biodiverse, resource-efficient, healthy and happy, with a green economy and smart infrastructure, it impacts over 20% of the global urban population.

Funder

The European Union is funding the Urban-LEDS project. In 2011 the European Union (EU) has outlined its Agenda for Change, guiding its development and cooperation activities. This supports actions that address poverty reduction and good governance, as well as inclusive and sustainable growth. All these issues are directly related to tackling climate change and transitioning towards sustainable energy. The Urban-LEDS project illustrates how the EU supports urban low emission development as an effective approach that brings together key stakeholders, working together under the leadership of local governments, to explore a better future for all.

Main project activities

Cities in Action

Local governments are taking the lead – exploring, planning, implementing, and evaluating Low Emission Development in their cities. They work with a wide range of stakeholders, and are supported by experts in many different fields. The **Model Cities** under development are sharing experiences with the **Satellite Cities** that observe, share and learn. International exchange between the cities supports peer learning, also with **European Cities** engaging.

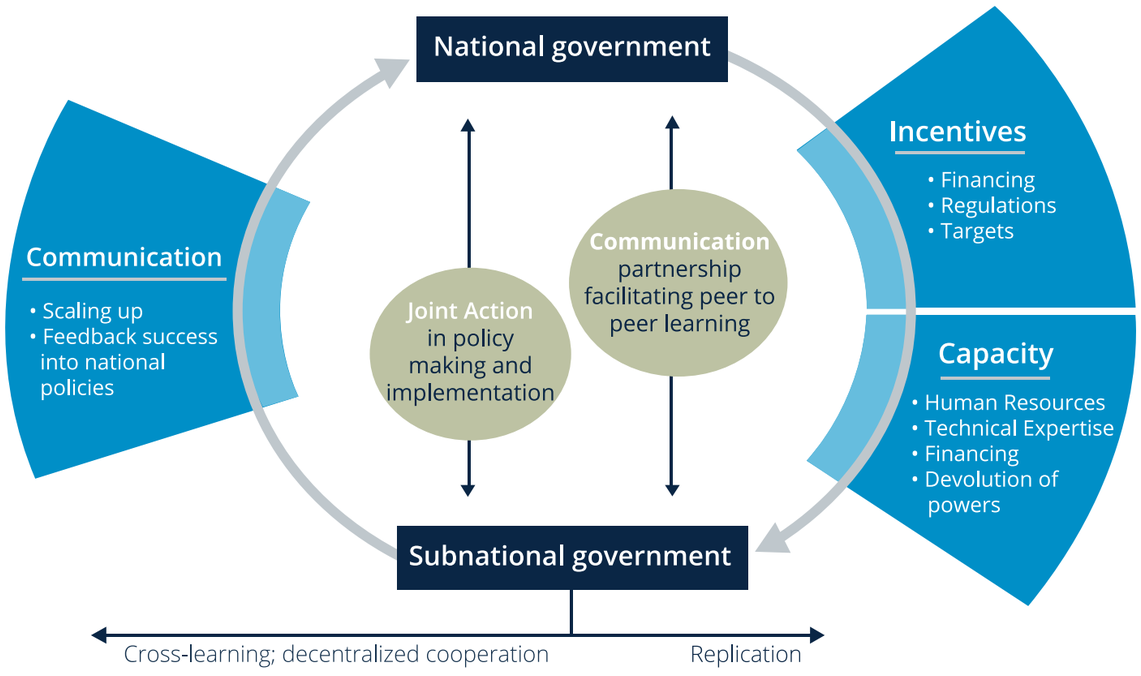
What is an urban LEDS?

An urban Low Emissions Development Strategy (urban LEDS), or Low Emissions Urban Development Strategy, defines a pathway to transition a city to a low emission, green and inclusive urban economy. Such strategies are integrated into ongoing city development plans and processes.

Supporting improved vertical integration

A key element under exploration is "vertical integration" (also referred to as "sub-national integration" or a "multi-governance approach"). This refers to different levels of government – from national/federal to state/provincial and local government – jointly addressing improvement and mutually reinforcing coordinated approaches for planning, implementation and reporting. Considering that each level of government has its **specific mandate and responsibilities**, effective vertical integration between different levels of government is essential, especially in the context of addressing climate change (mitigation and adaptation), sustainable development and energy security. This is a key issue to be explored in the context of **optimizing governmental efforts** in tackling climate change – supporting national initiatives to scale up LED and ensure continued local engagement.

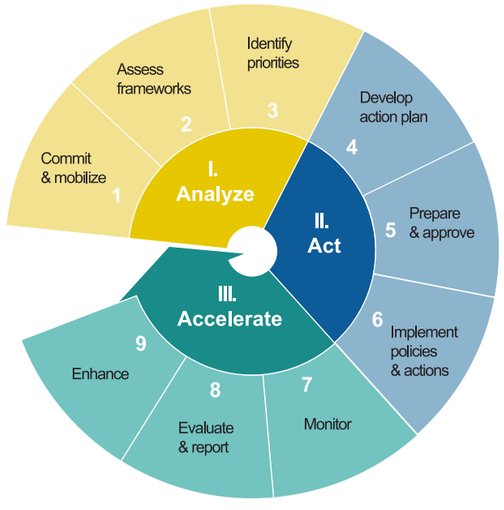
Vertical Integration



Source: Green Growth Best Practices (2014)

Support for Local Governments

All cities are offered **ICLEI's GreenClimateCities program**, as a comprehensive and effective methodology for institutionalizing low emission development. From "Analyze" to "Act" and "Accelerate", each phase offers tools and guidance, for example on:



GreenClimateCities Methodology

- **Creating political processes:** Set up (or fine-tune) structures, tasks and responsibilities, and institutionalizing processes to guide and lead the way.
- **Compiling a greenhouse gas (GHG) inventory:** Collect data and start an inventory-building process, reporting inventory results in the carbonn Climate Registry (cCR).
- **Setting targets and key performance indicators:** Use targets to move towards a specific outocme. These can be GHG reduction or avoidance targets, as well as socio-economic targets.
- **Identifying LEDS priorities:** Use inventory results and explore low carbon / green growth / sustainable development integrated priorities with stakeholders – e.g. sectoral or cross-cutting areas such as urban / spatial planning for low carbon development, waste, transport, and buildings. Explore actions that can be "fast-tracked" for implementation.
- **Reviewing relevant contexts:** Understand national, regional and international contexts, as impacts. Explore the local situation and assess municipal staff and councilors understanding and awareness of climate change, as well as their motivation for engaging.
- **Building internal capacity:** Identify and respond to capacity development needs of political leaders and municipal staff in a well-planned program.
- **Engaging with stakeholders:** Identify and engage with key internal and external stakeholders to ensure success. Without people you will not achieve success!

Solutions Gateway

Offering Low Carbon Solutions for Urban Development Challenges, the Solutions Gateway is an online resource platform for local governments. It offers guidance and support on possible Low Emissions Development (LED) Solutions for their cities and towns. Solutions are generic actions that are recommended for exploration, also clusters as Solutions Packages – processes or groups of actions, which local governments that can help to deliver climate change mitigation results and enhance local sustainable development. Taking an integrated approach, Solutions include information on the enabling and multiplying actions essential to maximize their effectiveness and generate synergies, including: policy, regulatory, governance, capacity building, awareness raising, stakeholder engagement, etc.

Pool of Experts

The Pool of Experts is a global network of experts who can provide strategic, technical, organizational and financial advice to support Local Governments in the definition and implementation of Low Emission Development Strategies (LEDS). It includes **experts from research and academia, consultancies, the business sector, NGOs and other institutions, including local and national governments.** The Pool of Experts addresses key urban development challenges such as energy, transport, waste, smart urban infrastructure, buildings, urban planning, poverty, finance, climate change mitigation, as well as integrated approaches.

Measurable, Reportable, Verifiable (MRV) climate action

Accurate, transparent and consistent MRV systems are critical components of any future global, national and subnational climate action. In the Urban-LEDS project we are exploring a simple yet useful MRV system, linked to the GreenClimateCities program and built into the carbonn Climate Registry, the global reporting platform for local and sub-national climate action.

The **carbon*n* Climate Registry (cCR)** is the world's leading reporting platform to enhance transparency, accountability and credibility of climate action (mitigation and adaptation) of local and subnational governments. It collects information on commitments (targets / goals), performance (GHG inventories) and actions. It is designated as the central repository of the **Compact of Mayors** which was launched at the Climate Summit 2014. The aim is to scale-up local climate action, addressing climate change mitigation and adaptation.

MRV is also linked to **Nationally Appropriate Mitigation Actions (NAMAs)**, to enhance sustainable development, technology, financing and capacity-building. In the Urban-LEDS project we are exploring vertically integrated NAMAs (V-NAMAs) as an approach to enhance the impact of climate mitigation actions. Guidance on V-NAMAs is developed with the GIZ and Ecofys.

New standard for greenhouse gas accounting and reporting

The World Resources Institute (WRI), ICLEI and C40 Cities Climate Leadership Group (C40), along with other partners including UN-Habitat, the World Bank and others, have partnered to create the **Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC)** – the world's most widely-endorsed GHG accounting and reporting standard for cities.

By providing a consistent and transparent way to measure emissions that conforms with IPCC (International Panel on Climate Change) 2006 national guidelines, the GPC enables cities to build more effective climate strategies and track the performance of actions already underway. City leaders can also use reliable and comparable data they collect to make a compelling case for low-carbon development funding from national and international sources

Advocacy: recognize, engage, empower

The **Local Government Climate Roadmap** is an advocacy process supported by a broad coalition of local government networks, in response to the Bali Action Plan. It aims to ensure that a strong and ambitious global climate regime is designed and implemented in the post-2015 period. National governments are called on to fully recognize, engage and empower their local and subnational governments – optimizing and coordinating effective climate action. This relates directly to improved vertical integration which is being explored in the 4 target countries, working with national, subnational and local governments, exploring ways to improve regular communication and exchange, joint planning, capacity to engage, financing, and coordination of planning, reporting and evaluating progress. The advocacy also provides a vehicle for addressing Urban-LEDS-type considerations in global processes.

ICLEI is the focal point for the **Local Government and Municipal Authorities (LGMA) Constituency** at the United Nations Framework Convention on Climate Change (UNFCCC). The **"Friends of Cities"** at the UNFCCC was established to create an avenue for national governments to engage in pivotal political discussions on local climate action, exploring how substantial progress can be made in the recognition, engagement and empowerment of local and sub-national governments.

Photovoltaic house, generating electricity

Inside a landfill gas recovery plant

Green roof on urban building

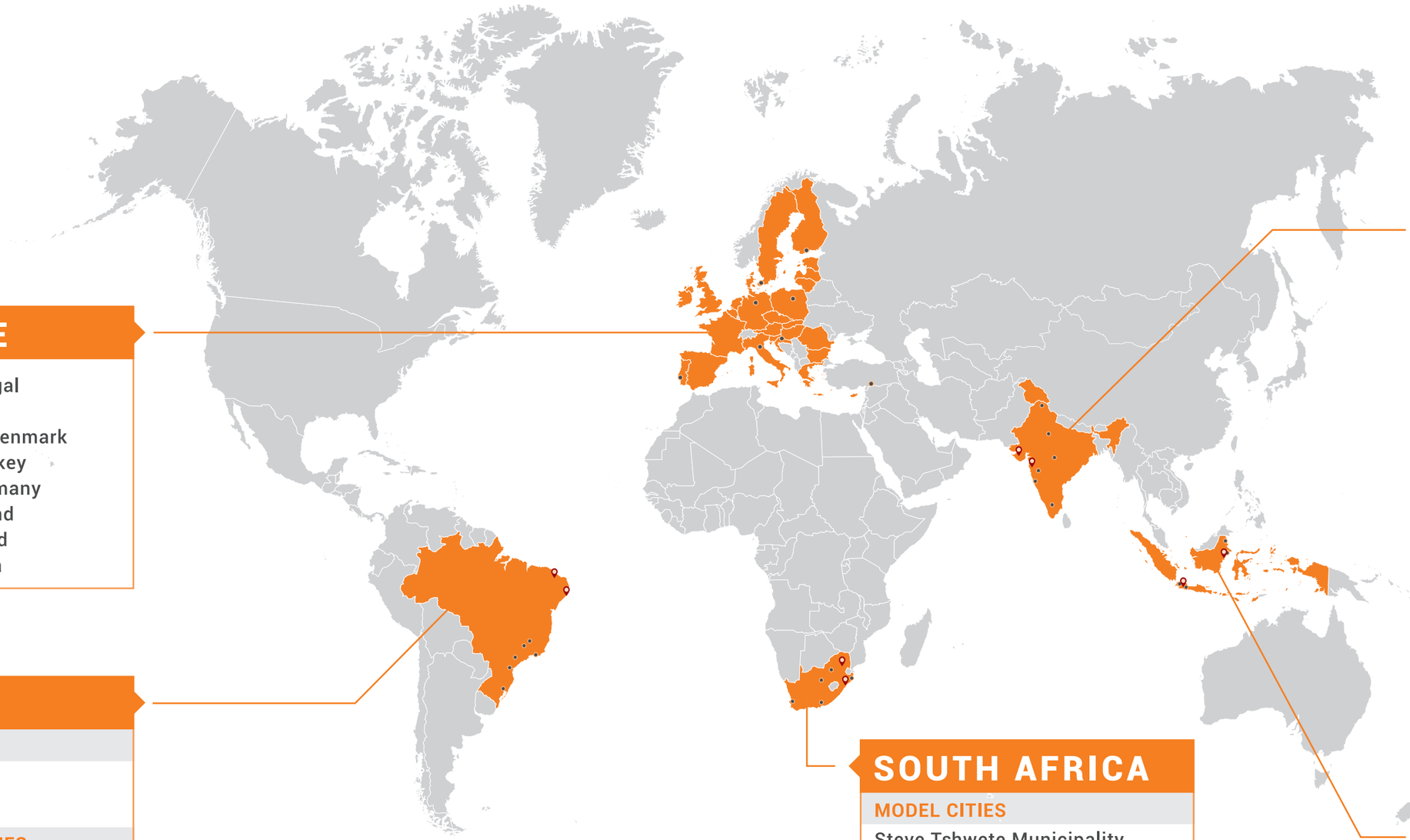
Mass transit train

Biogas Installation Processing

Sav/fe drinking water

The Urban-LEDS Cities

Presenting 8 Model Cities and 21 Satellite Cities in 4 Emerging Economy Countries, supported by 8 European Cities



EUROPE

Almada, Portugal
Bologna, Italy
Copenhagen, Denmark
Gaziantep, Turkey
Hannover, Germany
Helsinki, Finland
Warsaw, Poland
Zagreb, Croatia

BRAZIL

MODEL CITIES

Fortaleza
Recife

SATELLITE CITIES

Betim
Belo Horizonte
Curitiba
Porto Alegre
Rio de Janeiro
Sorocaba

INDIA

MODEL CITIES

Rajkot
Thane

SATELLITE CITIES

Coimbatore
Gwalior
Nagpur
Panaji
Pimpri-Chinchwad
Shimla

SOUTH AFRICA

MODEL CITIES

Steve Tshwete Municipality
KwaDukuza Municipality

SATELLITE CITIES

Mogale City Local Municipality
Nelson Mandela Bay Municipality
Saldanha Bay Municipality
Sol Plaatje Municipality
uMhlathuze Local Municipality

INDONESIA

MODEL CITIES

Balikpapan
Bogor

SATELLITE CITIES

Bontang
Kabupaten Bogor
Tangerang Selatan
Tarakan

Model Cities Satellite Cities

What is the Urban-LEDS City Network?

This network is comprised of Model Cities, Satellite Cities and experienced European Cities – engaging in useful South-South-North exchange and peer learning opportunities, as well as a chance to play an active role in the international advocacy process – towards a new international climate change regime.

The Urban-LEDS City Network was created to enable local decision-makers and municipal technical staff to share experiences, and to address concerns with their peers and with experts. Peer-to-peer exchange, study tours, workshops and conferences are part of this process.

Focus on 4 countries

Brazil

200 million inhabitants

Brazil covers an area of 8,515,767.049 km². It has 200 million inhabitants and a population growth rate of 1%. It has 5570 cities and regional governments, 61 metropolitan regions, 26 states and one federal district. National total GHG emissions were about 2 MtCO2e in 2010. A voluntary commitment adopted in 2009 aims at reducing projected emissions by between 36% and 39% below the business-as-usual scenario by 2020. Aligned to this, is Brazil's commitment to cut deforestation by 80% from historic levels by 2020. An estimate from 2012 of the national patterns of GHG emissions shows a substantial decrease in land use change related emissions, accompanied by a significant increase of emissions in the energy sector. The Federal Government defined sectoral mitigation plans – many of them relevant to cities, where emissions are increasing.

Indonesia

247 million inhabitants

One of the most populated countries worldwide (247 million people in 2012), with an average yearly increase in population of 0.95%, Indonesia plays a prominent role in addressing climate change. As President of the 13th Conference of the Parties (COP13) to the UNFCCC, Indonesia hosted the UN Climate Conference in Bali 2007. Here the Bali Roadmap and Bali Action Plan were decided on, helping to advance move forward in international negotiations. The country is committed to reducing emissions by 26% below its business-as-usual level by 2020, using domestic resources (and up to 41% with international support). The first step in articulating this commitment with local authorities is the Regional Action Plan for Reducing Greenhouse Gas Emissions (RAD-GRK), which has been applied in each of the 34 provinces hosting 413 regencies and 98 municipalities.

Model Cities Satellite Cities

South Africa

51 million inhabitants

South Africa has a population of about 51 million people (2013), growing on an average by 1.3% annually. 0.6% of the urban population are living in one of the 278 municipalities of the nine provinces. The main national guidelines for Local Climate Action and Energy are embedded in the National Climate Change Response White Paper from 2011. The recent National Development Plan sets out a long-term vision for the country in which low-carbon development and a green economy play an important part. The government is encouraging the private sector and smaller public entities to be innovative and develop low carbon projects through the Green Fund. South Africa's National Appropriate Mitigation Action (NAMA) initiative is a voluntary climate change mitigation initiative committed to reducing GHGs by 37% by 2020, and by 42% in 2025.

India

1.21 billion inhabitants

India's population is about 1.21 billion inhabitants (2011), growing at an average rate of 1.76% annually. One third of the urban population lives in the 390 municipalities. India has set a national target to reduce emissions intensity of its Gross Domestic Product (GDP) by 20-25% from 2005 levels by 2020. The Prime Minister released the National Action Plan on Climate Change (NAPCC) in June 2008, featuring measures that promote India's development objectives while also yielding co-benefits such as effectively addressing climate change. Renewable energy is on the rise, and the country plans to generate 100 million jobs in green technology over the next 10 years through a policy initiative aimed at making India a "manufacturing hub of the world". It has been estimated that the solar industry alone will employ at least 100,000 specially-trained personnel across the skill spectrum, including management, engineering, and research and development.

Model City Fortaleza

Low carbon vision:

Become a sustainable city able to make economic growth compatible with environmental conservation, guaranteeing the use of renewable energy and with an effective waste management policy. Fortaleza has to take responsibility and leadership to drastically reduce GHG emissions, becoming an eco-efficiency, resilient city.

Final energy consumption in the community:
Data available only for electricity consumption (per inhabitant): 2.794.880 Mwh (2007)

GHG emissions from the community:
3.827.521 tCO2e (2012)

Main economic activity:
Tourism, Industry, Commerce

Main priority sectors for Low Emission Urban Development:
Waste, Mobility, Urban Planning and Spatial Development, Street Lighting, Renewable Energy

Commitments:

The city is in the process of analyzing data in order to stipulate concrete commitments.

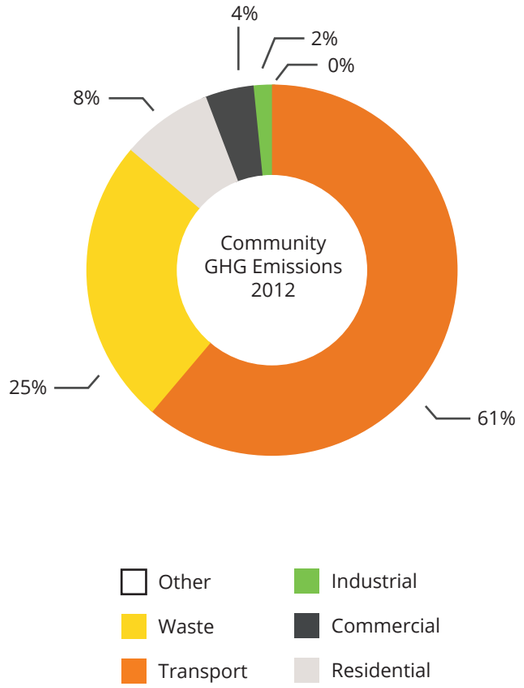
Area: 314.93 km²

Population: 2.5 million

Pop. Annual Growth: 1.45 % (200-2010)

City Budget: USD 1.8 billion (2012)

GHG inventory established in project:



Brazil

www.fortaleza.ce.gov.br

LED actions enabled by the Urban-LEDS project :

Fortaleza Afforestation Plan

Fortaleza's actions concentrate on energy, waste and climate change activities. The 'Fortaleza Afforestation Plan' is being established to increase tree cover in the municipality, aiming at neutralizing CO2 and hence mitigating atmospheric pollution. Additional benefits are an increased quality of life through increased comfort and air quality in the city.

Minha Casa, Minha Vida (My Home, My Life)

Fortaleza also runs a program called "Minha Casa, Minha Vida" for installing solar systems on homes for water heating (solar thermal) and electricity (photovoltaics).

Municipal Integrated Waste Management Plan

In 2011 Fortaleza produced 1.758 million tons of waste (average of 4.8 thousand kilograms per day) which is sent to the Caucaia landfill. To deal with waste management problems the local government has developed a Municipal Integrated Waste Management Plan, and is also establishing a separation and recycling process with R$ 900 million (about USD 372.000) investment.

Fortaleza's first GHG inventory

Fortaleza developed a GHG inventory as part of the project and now has a better understanding of where and how emissions can be decreased. In addition, the city's low carbon vision is currently being outlined, planned for finalization in early 2015.

Energy Efficient Schools

Most recently an efficient building pilot project was launched, with 13 schools being made more energy efficient. The city is currently hiring construction companies and Acqua certifiers for the first pilot plant.

Further engagements:

- Reporting in the carbon*n* Climate Registry (www.carbonn.org)
- GHG inventory is compliant with the Global Protocol on Community-Scale Gas Emissions (GPC)

"Fortaleza aims to develop a municipal governance model based on social inclusion, participation, cooperation, and having transparency and sustainability as the transversal elements in public administration. The Urban-LEDS project offers a platform to help us obtain the leadership, technical know-how and methodologies to implement appropriate policies."

Roberto Cláudio, Mayor of Fortaleza

Model City Recife

Low carbon vision:

The city is committed to be a model of social and economic development based on sustainability. To this end Recife has developed a Municipal Policy on Climate Change and Sustainability to guide actions on sustainability and climate change mitigation and adaptation. These activities are part of its Current Government Program (2013-2016). Recife aims to be a leader in the Brazilian North-eastern region.

Final energy consumption in the community:
Data available only for electricity consumption (per inhabitant): 2.794.880 Mwh (2007)

GHG emissions from the community:
3.115.341 tCO2e (2012)

Main economic activity:
Industry, Services, Fishery, Tourism

Main priority sectors for Low Emission Urban Development:
Transport/ Mobility, Urban Planning/Spatial Development, Green Spaces, Waste, Buildings

Commitments:

The city is in the process of analyzing data in order to set specific commitments based on factual information from the GHG inventory.

LED actions enabled by the Urban-LEDS project :

The Municipal Integrated Waste Management Plan

The Recife Metropolitan Region produces 4,982.30 tons of waste per day, of which almost 100% is sent to a landfill. Only 0.17% of the waste produced is being recycled. To overcome the problems regarding waste management, the City of Recife has developed the Municipal Integrated Waste Management Plan and implemented a campaign to collect electronic waste. To reduce emissions by decreasing the amount of waste sent to landfills, the implementation of waste separation and recycling systems is being explored in the Urban-LEDS project – a first initiative recently decided on, is to start a domestic composting program in 2015.

Public LED Lighting and Biofuel for the Municipal Fleet

Recently, Recife also selected a pilot area in the historical center for replacing conventional light bulbs with light emitting diodes (LED) lighting to save energy. It is planned

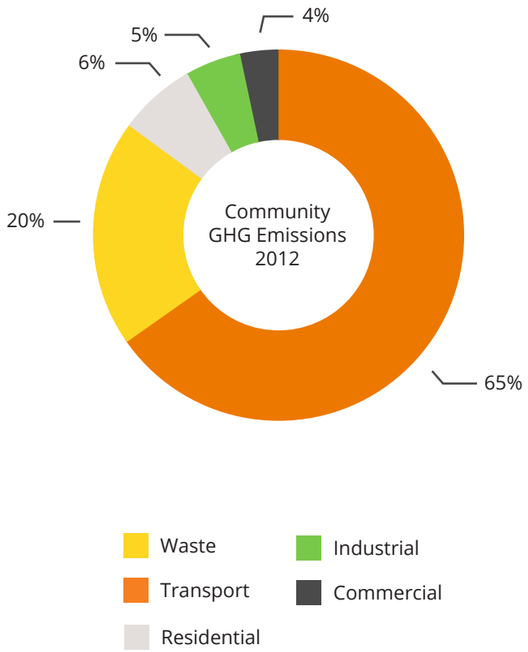
Area: 218.435 km²

Population: 1.5 million

Pop. Annual Growth: 0.8 % (2000-2010)

City Budget: USD 1.5 billion (2012)

GHG inventory established in project:



Brazil

www2.recife.pe.gov.br

to extend this later to public spaces and buildings. The Urban-LEDS project has supported the city to make this a priority action, leading to an investment of USD 1.7 million. The overall goal is to save 50% to 70% in energy consumption in this pilot area and then to replicate this approach in other areas of the city. Some traffic lights were also substituted. In the near future, the city plans to make its municipal fleet more sustainable by replacing gasoline with ethanol (biofuel). Recife will also be the first city in Brazil to have an electric car sharing scheme in partnership with the State Government.

Carbon sinks

Recife's afforestation is among the priorities of the urban and environmental development policy. The presence of trees in the city is important to maintain the ecological balance. 6,716 trees will be planted in 451 Streets in 8 neighborhoods.

Creation of bus corridors (North/South and East/West)

These exclusive corridors will improve passenger transport flow in Recife and to other cities in the Metropolitan Region. Recife is the third Brazilian Capital and the sixth city in the world where most time is lost in traffic, which compromises the quality of life. Citizens will regain 3 hours of their day, once it operates. Implementation support comes from an urban planner from the International Society of City and Regional Planners (ISOCARP).

Increase of bike lanes in the city

Recife is a flat city with beautiful landscapes. The majority of the population did not have dedicated bike lanes. Mayor Geraldo Júlio authorized the use of bike lanes, using streets especially on weekends when car access is restricted.

Capibaribe River Navigability Project

Boats to transport passengers is explored as an additional transport option on 2 routes – at an average speed of 18km/h – respectively covering 11 km (western route) and 2.9 km (northern route). Stations for arrival and departure are to be linked to the metropolitan transport system. This will allow passengers to use their ticket in the whole public transport. The new system will attend eighty thousand passengers per month.

Sustainable Construction Code Recife has recently adopted a code and certification for sustainable construction.

Further engagements:

- Reporting in the carbon*n* Climate Registry (www.carbonn.org)
- Earth Hour City Challenge participant (2014)
- GHG inventory is compliant with the Global Protocol on Community-Scale Gas Emissions (GPC)

"We have made the commitment to a social and economic model structured on a sustainable basis. The Urban-LEDS initiative is a key factor in helping us to meet our targets."

Geraldo Júlio, Mayor of Recife

Model City Rajkot

Low carbon vision:

Under the aegis of the Gujarat State's "100-day-Target for Progressive Gujarat" campaign, Rajkot Municipal Corporation has launched the "Smart City" Programme, addressing the development of a low carbon economy. This includes raising awareness among citizens for the vision of Rajkot Municipal Corporation for what a "Smart City Rajkot" is. SMART has been defined by the Municipal Corporation with the following: "S" stands for Sensitive: The system and city will become sensitive for everybody. "M" means Modern: With people to get access to all modern facilities. "A" is for Affordable, where everyone can get affordable housing, health care, education, transportation and access to all basic facilities. "R" for Robust relates to infrastructure facilities that will be strengthened. "T" stands for Technology, with operations and services of the Municipal Corporation serving people with better planning by usage of technology.

Final energy consumption in the community:
31,906,427 GJ (2012-2013)

GHG emissions from the community:
2,735,428 tCO2e (2012-2013)

CO2 reduction target (community):
14% by 2016 (2011)

Main economic activity:
Oil Engine & Machine Tools, Foundry Industry, Engineering and Automobile Industries, Castor Oil Industries

Main priority sectors for Low Emission Urban Development:
Street Lighting, Sewage, Water Supply

Commitments:

Rajkot City has been declared a solar city by the Government of India, and has committed to voluntary targets to reduce 10% of conventional energy of the projected demand of 2013 from 2008 to 2013.

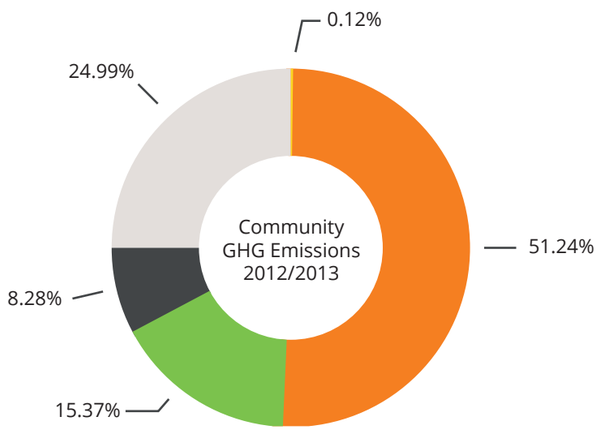
Area: 104.86 km²

Population: 1.3 million (2011)

Pop. Annual Growth: 2.5 % (2014-2015)

City Budget: USD 338.51 billion (2012)

GHG inventory established in project:



LED actions enabled by the Urban-LEDS project :

Solar energy, waste management, BRT and tree planting

Many actions in Rajkot focus on solar energy. The city has taken various initiatives covering the installation of grid-connected & off-grid rooftop solar photovoltaic (PV) systems on office buildings; energy saving street lighting; a municipal solid waste processing plant and good practices in solid waste management; a Bus Rapid Transit System (BRT) as well as planting trees to increase the city's green cover, which decreases carbon and has a cooling effect for mitigation and adaptation to climate change.

Energy efficiency and sustainable transport options

Some activity highlights that are underway feature a training programme on green building guidelines, sustainable transport initiatives and industrial energy efficiency. The focus on energy efficiency includes developing a street lighting policy and conducting an Energy Service Company (ESCO) feasibility study for the implementation of light emitting diode (LED) street lighting. This plan will help identify and define areas based on width of the road, area usage and lighting requirements.

Re-use of waste water and solar PV systems for schools

Furthermore, an energy audit of the water pumping system is being carried out and a decentralized waste water system is being explored as a pilot project, to enable the re-use of waste water and reduce carbon emissions. Further, planning is underway of stand-alone solar PV systems for two municipal schools to reduce the peak load with a capacity of 10 kWp (kilowatt-peak).

Further engagements:

- Reporting in the carbon*n* Climate Registry (www.carbonn.org)
- Earth Hour City Challenge participant (2014)
- GHG inventory is compliant with the Global Protocol on Community-Scale Gas Emissions (GPC)

"The devastating impact of climate change is visible across the globe with rise in number of adverse calamities each year. Necessary political and collective will by National, State & Local Government is required to make serious headway towards addressing the challenges posed by climate change. At Rajkot we have created the Climate Core Team to prepare a roadmap and guide the city towards a low carbon economy."

Rakshaben Raghubhai Boliya, Mayor of Rajkot

Model City Thane

Low carbon vision:

Moving towards a low carbon economy by exploring various innovative technological solutions and integrating them into city level activities to ensure the better delivery of services to the citizens of Thane city.

Final energy consumption in the community:
7,895,164 GJ (2007-2008)

GHG emissions from the community:
1,252,120 tCO2e (2007-2008)

Main economic activity:
Secondary Sector – Industry, Manufacturing, Metalworking Industry, Vehicles, Electrical Equipment, Chemicals, Food, Paper.

Main priority sectors for Low Emission Urban Development:
Thane City has been a pioneer in taking innovative steps towards low carbon development and has taken part in many of the international and national projects. The key areas where the city has introduced interventions are renewable energy and energy efficiency in buildings; street lighting; water supply; waste to energy. Implementation of the solar city program is a priority, with energy efficiency, net metering based renewable energy power plants, light emitting diode (LED) street lighting, energy efficiency in water supply, and waste-to-energy plants identified as action areas.

Commitments:

Participating in the national "Development of solar cities program", the city is committed to reduce projected conventional energy demand by 10% by 2013 in the period 2008-2013. In addition, the local government set a renewable energy target of 6% reduction by 2015 (from 2011) for community-based emissions and the energy efficiency target of 7% by 2015 (from 2010) for the community.

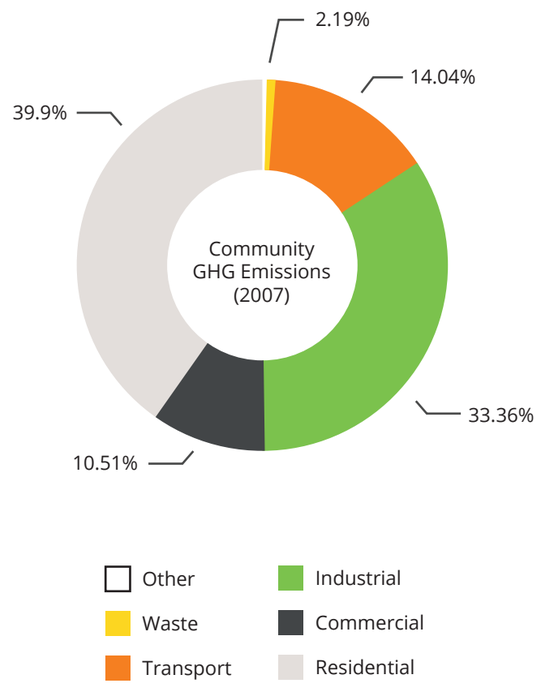
Area: 128.23 km²

Population: 1.8 million (2011)

Pop. Annual Growth: 3 %

City Budget: USD 360.64 million (2014-2015)

GHG inventory:



India

thanecity.gov.in

LED actions enabled by the Urban-LEDS project :

Energy-efficient street lighting

Recently the city completed its first GHG inventory. In addition to this, an energy service company (ESCO) has been engaged to audit 10,000 of the 70,000 street lights in Thane and outline financial plans for implementation. This mitigation activity will improve illumination levels, large-scale energy efficiency and system modernization for better operation and maintenance of street lighting, reducing costs of the local government.

Green building policy and municipal drivers training

Some other highlights of a few ongoing activities are: the development of a local green building policy. To support this, a background study and data collection have been conducted. An existing building approval process has been documented to support this work. Moreover, a municipal driver training program is currently under development – training drivers of the municipal transport system on good driving practice to optimize fuel efficiency and consequently reduce emissions. The training will be provided by the Petroleum Conservation and Research Association.

Further engagements:

- Reporting in the carbon*n* Climate Registry (www.carbonn.org)
- Earth Hour City Challenge participant (2014)
- GHG inventory is compliant with the Global Protocol on Community-Scale Gas Emissions (GPC)

"Thane Municipal Corporation has been a pioneer in taking initiatives to combat climate change issues. Participation in the Urban-LEDS project is a unique opportunity for Thane city, and it is committed to active participation in the project so as to reap the potential benefits available to the city."

Sanjay Bhaurav More, Mayor of Thane

Model City Balikpapan

Low carbon vision:

Making Balikpapan City livable and environmentally sound, to be realized based on an orientation towards a green social economy.

Final energy consumption in the community:
1,321,557 GJ (2011)

GHG emissions from the community:
1,480,438 tCO2e (2013) *Scope 1 emissions

Main economic activity:
Trade and Services.

Main priority sectors for Low Emission Urban Development:

Commitments:

The city is in the process of analyzing data to set specific commitments based on factual information from the draft GHG inventory.

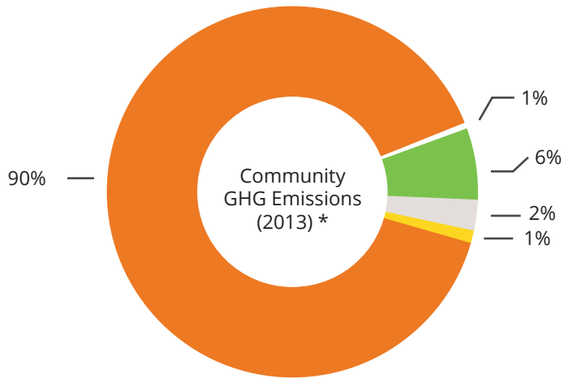
Area: 503.3 km²

Population: 0.66 million

Pop. Annual Growth: 3.8 %

City Budget: USD 258.33 million (2014)

GHG inventory established in project:



- Fugitive Emissions from Fuels
- Solid Waste
- Fuel Combustion Activities
- Livestock
- Wastewater Treatment & Discharge

* Indicative per September 2014

Indonesia

www.balikpapan.go.id

LED actions enabled by the Urban-LEDS project :

First GHG inventory and identifying LEDS activities

Balikpapan is in the stage of finalizing its 1st GHG inventory. The current indicative results show that the highest emission contributor is the transport sector. Further, there is huge potential carbon sink from the city forest and open green spaces. The local government is incorporating LEDS principles and has identified LEDS activities for: Redevelopment of the Coastal Road precinct in accordance with LEDS principles; a range of actions through the private sector Corporate Social Responsibility (CSR) committee; building and lighting retrofit activities; as well as waste management.

Further engagements:

- Reporting in the carbon*n* Climate Registry (www.carbonn.org)
- Earth Hour City Challenge participant (2014)
- GHG inventory is compliant with the Global Protocol on Community-Scale Gas Emissions (GPC)

"I tasked the Climate Core Team to develop the Balikpapan Urban Low Emission Development Action Plan and to work with all elements of civil society in Balikpapan city to participate in the drafting of an Urban-LED Strategy. I believe by doing so we can contribute to achieving national emission reduction commitments of 41% in 2020."

Rizal Effendi,
Mayor of Balikpapan

Model City Bogor

Low carbon vision:

Realize a clean and environmentally sound city based on developing green economy with emphasis on services that optimize the use of existing natural resources.

Final energy consumption in the community:
5,550,235 GJ (2014)

GHG emissions from the community:
4,970,635 tCO2 (2013) *Scope 1 emissions

Main economic activity:
Trade, Tourism, Services and some Industries.

Main priority sectors for Low Emission Urban Development:
Transportation, Energy efficiency, Waste management (recycling and waste-to-energy).

Commitments:

The local government is in the process of analyzing data to set specific commitments based on factual information from the draft GHG inventory. It has already set a renewable energy target for the government operations: 33% reduction by 2014.

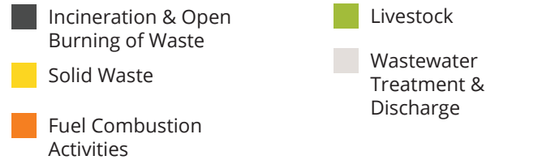
Area: 118.5 km²

Population: 0.95 million

Pop. Annual Growth: 2.79 % (tadjustment 2014)

City Budget: USD 11.79 million (2014)

GHG inventory established in project:



* Indicative per September 2014

Indonesia

www.kotabogor.go.id

LED actions enabled by the Urban-LEDS project :

Bogor City Council approved a budget of 12 million USD for sustainable transport

The city council decided at the end of November 2014 to allocate about 12 million USD (IDR 147.067 Milyar) to improve sustainable low emission transport in the city. This will support the revitalization of the Bus Rapid Transit (BRT) system "The Transpakuan" which serves 14 kilometers (km) of the city area. The buses will switch to using gas, as a low emission fuel option. Another objective is the conversion of a huge number of microbuses to either use gas (planned for 1000 microbuses) or electricity (50 microbuses). In order to implement this, the city will provide converter kits or devices to support the conversion of premium fuel to gas as well as to electricity. These actions will not only help the city reduce its emissions considerably, but also lead to better air quality and support the national government's goal of achieving its emission reduction targets.

5-year development plan and GHG inventory

Bogor is in the process of setting up a 5-year development plan (RPJMD) with an LED Strategy as a basis, guiding strategic actions until 2019. It includes a regulation on Green Building Standardization, a Mayoral Decree on Transition to EcoMobility using Pedestrianization, a Mayoral Decree on 'Heritage City Management' focusing on building retrofitting, pedestrian areas, conversion of street lighting to light-emitting diodes (LEDs) as well as replacing the traditional light bulbs with LEDs in heritage buildings. The City is currently finalizing its GHG inventory.

Bogor's Walkability Campaign

It has already decided to build 22.5 kilometers of pedestrian paths until 2020 with first phases concluded. These paths are equipped with tag tiles, bicycle lines, and green areas and are completely integrated with public transport stations and public places. A park-and-ride system is also planned.

Green Building Concept

Bogor is advancing in adopting the green building concept for buildings to be constructed from 2015 onwards. The local government has allocated funds in the annual budget to build the new House of Representative Building based on Energy Efficiency principles. In addition, a number of historic buildings in a popular heritage area have been identified for retrofitting, to be concluded in the next five years.

Waste-to-Energy Program

The local government is further developing a "waste-to-energy program" that focuses on transferring waste from compost residuals into energy.

Further engagements:

- Reporting in the carbon*n* Climate Registry (www.carbonn.org)
- Earth Hour City Challenge participant (2014)
- GHG inventory is compliant with the Global Protocol on Community-Scale Gas Emissions (GPC)

"To shift Bogor City towards a low carbon development trajectory, the city will reduce GHG emissions by developing a set of environmental and low emission city regulations and policies. The city priorities are: to improve the quality of spatial planning and implementation; promote mass transportation, pedestrians and cyclists; and encourage urban development responsiveness to disaster risk and climate change impacts."

Bima Arya Sugiarto, Mayor of Bogor

KOTA BOGOR

Model City KwaDukuza Municipality

Low carbon vision:

KwaDukuza Municipality strives to be an environmentally sustainable municipality that anticipates, manages and reduces its vulnerability to potential global and local environmental shocks and works consistently with the department of environmental affairs to drastically reduce the impact of its built environmental and urban processes on the broader envelope of natural resources.

New low-carbon vision developed in Urban-LEDS project – still to be formally adopted:

By 2030 KwaDukuza will have successfully managed its transition to low carbon development and will be:

- A distinctive urban launch pad for the Richards Bay / uMhlathuze Corridor
- A job-rich green manufacturing, renewable energy and logistics hub
- A thriving tourism destination
- A model of integrated resource management and climate change adaptation
- A Shaka[1]-inspired interface with its traditional hinterland

Final energy consumption in the community:
5,316,698.57 GJ

GHG emissions from the community:
1,008,657.49 tCO2e (2012)

Main economic activity:
Commerce, Service sectors, Agriculture.

Main priority sectors for Low Emission Urban Development:
Green Economy, Green Building and Spatial Planning, Energy Poverty.

Commitments:

Currently under discussion by the municipality is to have locally generated renewable energy of 10-15% by 2020. Further, the reduction in use of non-electrical fuel sources for cooking and heating (tentative target: to reduce by 12% by 2020) and to reduce per capita emissions by 10% by 2020.

1 Shaka Zulu was a great Zulu warrior and king who united his people and showed leadership at a key moment in history.

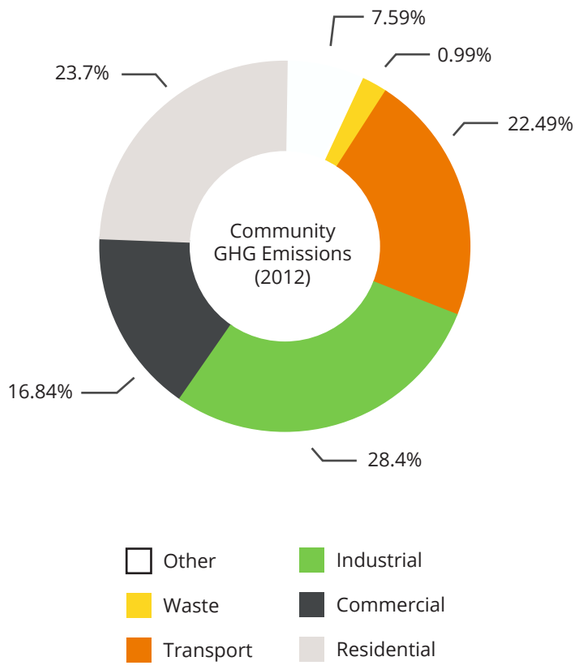
Area: 734.971 km²

Population: 0.25 million (2012)

Pop. Annual Growth: 3.2 % (2001-2011)

City Budget: USD 103.101 million (2012)

GHG inventory established in project:



South Africa

www.kwadukuza.gov.za

LED actions enabled by the Urban-LEDS project :

Participatory scenario planning process

The aim of this process was to use the future scenario planning to craft a 2030 vision and objectives with municipal staff and stakeholders. In the course of the last year scenarios have been created with a preferred vision and underlying objectives. Currently these are being reviewed by external experts.

Community engagement

Involving the wider community to get inputs into the low emission development 2030 vision. It has been developed by the municipality and local stakeholders, using creative engagement techniques including cartoons of the 2030 scenarios and a drama play depicting possible futures. This initial engagement session involved 400 local residents and further engagement with schools has already taken place. An ongoing engagement is planned.

Roll-out of 500 hotboxes (passive insulated cookers) to households

The aim is to reduce poverty, decrease energy use and fire risk, but also to promote gender empowerment. Some hotboxes have already been distributed to Ward Councilors who act as "train-the-trainers". Full roll-out and training is scheduled for January 2015. A monitoring and evaluation component is included to track emission reductions in each household.

Engagement of local businesses

The local business community is encouraged to be ambassadors for the low emission development vision within the community. This process has been kicked off and is ongoing, pursued in partnership with the local Chamber of Commerce.

Green building policy development

For 2015 it is envisaged to develop a policy and implementation plan to encourage compliance with green building criteria in new developments.

Roll-out of resource efficiency service package in local orphanages

With pending approvals, this roll-out is planned for 2015 and aims at demonstrating local leadership and reducing energy poverty through a visible retrofit project, involving strategic local leaders.

Further engagements:

- Reporting in the carbon*n* Climate Registry (www.carbonn.org)
- GHG inventory compliant with the Global Protocol on Community-Scale Gas Emissions (GPC)

"The selection as one of the seven municipalities in South Africa to participate in the Urban-LEDS Programme is a testament to our hard work and dedication in ensuring that or vision 2030 is achieved and our unyielding commitment to service delivery."

Ricardo Mthembu, Mayor of KwaDukuza Municipality

KWADUKUZA MUNICIPALITY

Model City Steve Tshwete Municipality

Low carbon vision:

To be the best community-driven Local Municipality in the world in the provision of sustainable services and developmental programs.
In 2030, Steve Tshwete is an integrated, harmonious and green locality. We are an empowered, prospering community surrounded by air that is natural and fresh, and enjoying water that is crystal clear, safe and clean. (Draft vision derived from the low-emission development scenario process during Urban-LEDS).

Final energy consumption in the community:
19,810,709 GJ (2012)

GHG emissions from the community:
3,773,288 tCO2e (2012)

Main economic activity:
Coal Mining and Manufacturing.

Main priority sectors for Low Emission Urban Development:
Energy Efficiency, Community Engagement, Integrated Planning, Green Building (Spatial Planning).

Commitments:

The city signed the committed to the 'Durban Commitment: Local Governments for Biodiversity' and 'Cleanest Municipality competition' (National and Provincial).

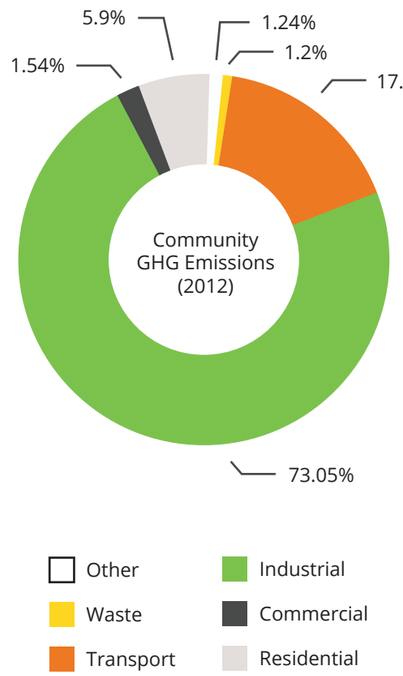
Area: 3986.99 km²

Population: 0.23 million (2011)

Pop. Annual Growth: 4.8 %

City Budget: USD 99,435,212 (2011)

GHG inventory established in project:



South Africa

www.stevetshwetelm.gov.za

LED actions enabled by the Urban-LEDS project :

Greenhouse gas inventory conducted as baseline study using 2012 data

Aim of the inventory is to understand how much the different sectors contribute to local emissions in order to inform prioritization and planning. Figures were included in the annual review of the statutory municipal Integrated Development Plan. The data for 2012 has been completed and an infographic has been created to communicate results to the wider community.

Participatory scenario planning process

This process was intended to use the future scenario planning to craft a 2030 vision and objectives with municipal staff and stakeholders. In the course of the last year scenarios have been created with a preferred vision and underlying objectives. Currently these are being reviewed by external experts.

Green Building learning exchange

The learning exchange was geared towards providing model cities with a peer-to-peer exchange on green building policy design linked to wider sustainable development strategies and policies. The exchange was done with the City of Tshwane which consequently implemented a green building by-law.

Action planning workshop

The workshop is to engage with internal and external stakeholders to discuss and decide on short and medium term projects to help achieve the 2030 vision. Initial actions have been identified and the final action plan is under development.

Green building policy development

The development of a policy and implementation plan to encourage compliance with green building criteria in new developments is planned to commence in 2015.

Roll-out of resource efficiency service package for local leaders/ prominent local buildings

If approved, the roll-out will start in 2015 and aims at demonstrating local leadership and reducing energy poverty through a visible retrofit project.

Energy audit and potential associated implementation measures for municipal water infrastructure

With the goal of reducing energy and water usage associated with the municipal water infrastructure, this is planned for 2015, upon approvals.

Further engagements:

- Reporting in the carbon*n* Climate Registry (carbonn.org)
- GHG inventory compliant with the Global Protocol on Community-Scale Gas Emissions (GPC)

"We now realize that we have a coal-based economy, that we need to think beyond 2030, and must start preparing ourselves for the end of (coal) mining. We have a preparedness to learn and understand these matters of low emission development. I believe that leadership by example is the best kind of leadership."

Councillor Mike Masina, Executive Mayor of Steve Tshwete Municipality

Implementing partners

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E: urban-leds@unhabitat.org

ICLEI World Secretariat
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ICLEI Local Governments for Sustainability

UN HABITAT FOR A BETTER URBAN FUTURE

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