

About ICLEI-South Asia

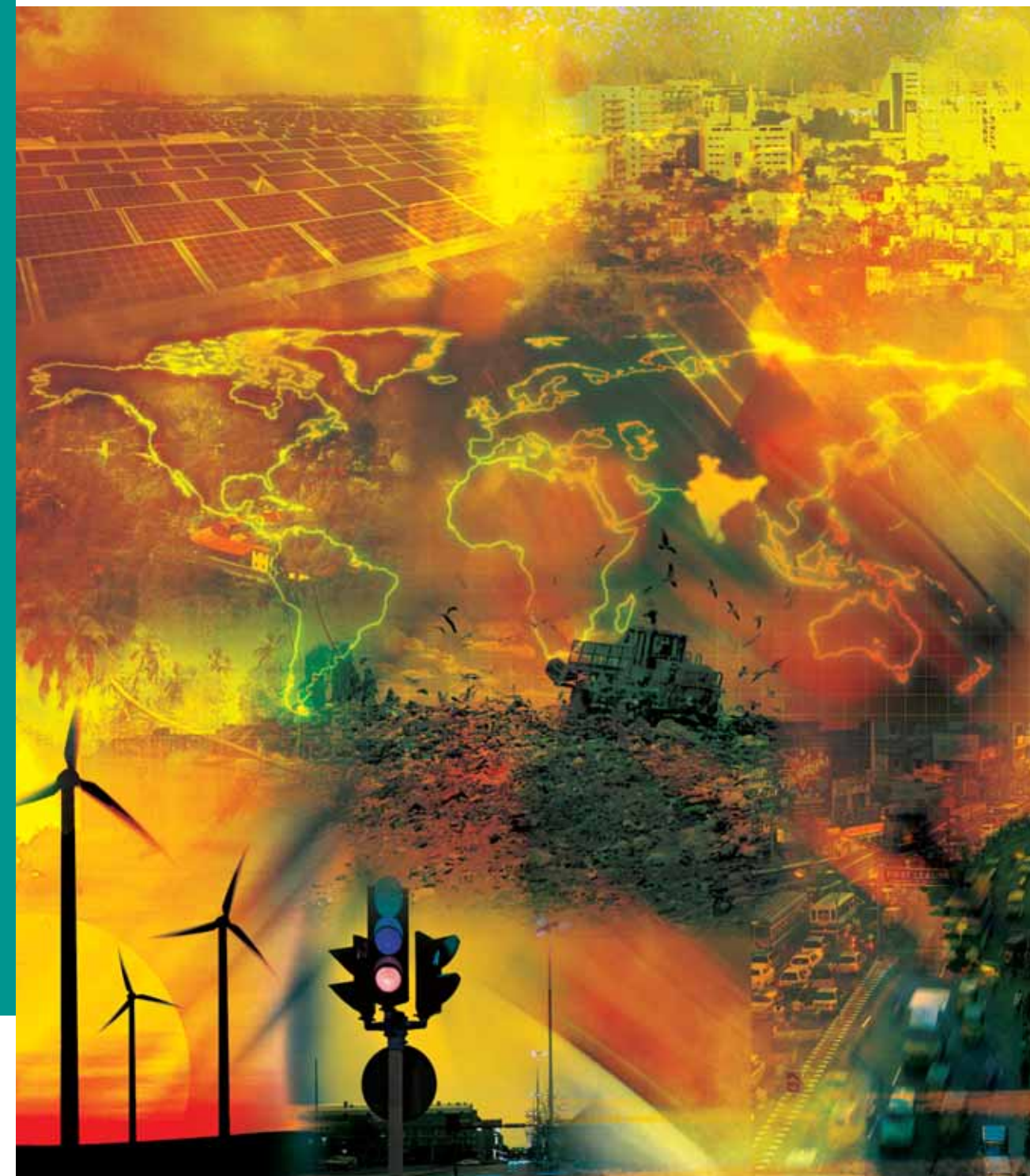
ICLEI-South Asia, the South Asian regional chapter of ICLEI Local Governments for Sustainability has a mission to help regional cities in their efforts to promote sustainable development. The Secretariat is located at NOIDA, India and is functional since 2005. It has been working with several large and small local governments on the issues of environmental sustainability, energy and climate change. It provides solutions to local environmental issues through various programmes and influences international negotiations by raising collective voices of local governments at various international fora. It is part of a United Nations recognised, membership-based global association of over 1,100 local governments.

About British High Commission

Strategic Programme Fund: The Strategic Programme Fund (SPF) is the UK Foreign and Commonwealth Office's (FCO) flagship programme budget. It was originally launched in 2003 under the name of the Global Opportunities Fund. The Foreign and Commonwealth Office's Strategic Programme Fund (SPF) seeks to create real, measurable outcomes in support of the FCO's policy goals. This programme supports FCO's Strategic Objective "To promote a low carbon, high growth global economy".

For more information on SPF, please visit www.ukinindia.fco.gov.uk

Energy and Carbon Emissions Profiles of 54 South Asian Cities



Note to the Reader

This report is an output of the 'Roadmap of South Asian Cities and Local Governments for the Post 2012 Global Climate Agreement and Actions' project and is prepared by ICLEI-South Asia with support from the British High Commission. This report provides a brief inventory of energy status and carbon emissions of 54 South Asian cities.

Comments and suggestions are welcome and could be sent to ICLEI-South Asia.

E iclei-southasia@iclei.org

ICLEI-South Asia Team

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Mr Fergus Auld
First Secretary

Preface

What once was considered a scientific theory and was limited only to academic discussions, is today a grave concern facing mankind. Climate change is a reality and there is a need for immediate, effective and responsible actions. Action is needed from all parts of the society across the globe. The local governments have a crucial role to play, as a tier of government closest to the citizens and with the ability to implement climate smart actions locally.

The British High Commission has initiated the 'Roadmap of South Asian Cities and Local Governments for the Post 2012 Global Climate Agreement and Actions' project through ICLEI-South Asia, funded under the Strategic Programme Fund (SPF) of the UK's Foreign and Commonwealth Office. The report would support South Asian local governments in understanding the contribution of city level carbon emissions and develop regional consensus on local action plans. It will act as a platform for them to collectively contribute to international efforts and reach a fair, ambitious and effective agreement at COP 15 in Copenhagen.

The project has developed City Energy Status Reports and Carbon Emissions Inventory for 54 large South Asian Cities for the first time. Based on this data, cities developed plans to combat climate change at local level. These actions include efficient water usage, effective solid waste management and generating clean energy and thereby decrease air pollution.

We hope this wealth of information will be used by the respective agencies in their future planning and actions. And the network of South Asian local governments created under the project will contribute towards sharing best practices and deliver efficient public services.

I am delighted to see the level of awareness and enthusiasm shown by the South Asian local governments. We highly appreciate the work done by ICLEI-South Asia in coordinating the enormous task of gathering information from the South Asian cities and in compiling this comprehensive report. The British High Commissions in New Delhi, Colombo, Dhaka and Kathmandu, and the Deputy High Commissions in Mumbai, Chennai, Kolkata and Bengaluru look forward to deepening our collaboration with cities across South Asia on this vital, progressive and win-win agenda.

Regards,

Mr Fergus Auld
First Secretary, Climate Change and Energy
British High Commission

Message from the President and Secretary General, ICLEI

Dear Readers,

ICLEI – Local Governments for Sustainability, is a network, an agency and a movement of over 1,100 cities from every continent. Since 1990, ICLEI acts as the leading alliance of the cities and local governments in their efforts to achieve global sustainability through local sustainability.

Scientists and civil society have long been advocating that climate change shall be considered as the biggest challenge that humanity has faced so far. For many years, issues focusing on reduction of emissions of anthropogenic greenhouse gases, were considered as the priority and the responsibility of developed countries.

After more than two decades of collaborative action, the international community has come up with the conclusion that tackling climate change is in fact a successful means to reach energy efficiency, energy security, sustainable jobs, cleaner air and better livelihood around the world.

Thus, it has been widely accepted that reducing emissions paves the way for a transition to a low carbon, climate resilient human communities.

Since early 1990s, right after the adoption of the United Nations Framework Convention on Climate Change and long before any discussions on the Kyoto Protocol, ICLEI and its member cities started committing themselves to significant reductions in CO₂ emissions. Based on the success of the past 20 years, ICLEI's Council, which gathered hundreds of local leaders from around the world in Edmonton, Canada 2009, has noted that we must act faster and faster, arrive at deeper CO₂ reductions, and choose more radical solutions, if we want to ensure the continued existence of life on Earth.

This report, prepared by extraordinary efforts of the Director and Staff of ICLEI-South Asia, along with the generous support of the British High Commission, through valuable contributions of national and sub-national governments resulting from a fruitful collaboration with partnering local governments, is a concrete evidence that dealing with climate change is possible and necessary in each and every part of the world, including South Asian nations and cities.



Mr David Cadman
President



Mr Konrad Otto-Zimmermann
Secretary General

It is possible to expect that the findings of this report will provide a significant and solid background for all stakeholders to start developing appropriate policies in all relevant fields.

More importantly, it is our sincere hope and wish, that the experience and dialogues established within the course of the project, be considered as first steps for establishing sustainable local-national-international partnerships on the way to Copenhagen in December 2009.

Hence, ICLEI and other global network of cities and local governments believe that such spirit of partnership is the key to achieve a global, strong, comprehensive international climate change regime now, up to and beyond 'Post 2012', where each and every citizen of the world will have a better and more equitable chance to survive, share and prosper.

With kindest regards,

Mr David Cadman
President
ICLEI

Mr Konrad Otto-Zimmermann
Secretary General
ICLEI

MESSAGE

Message from the Executive Director, ICLEI-South Asia

Off late, there has been an increased focus on following a responsible growth path, one that takes into consideration the impacts that our actions have on the environment. In this direction, South Asian federal governments and specialised sectors have pledged their commitment and support to address climate change in various forums. Similarly, national committees in various countries are working on finding practical solutions to this issue. However, there is little focus on urban centres and their impact on climate change even though there is a specific need to develop the city government's capacity to engage different stakeholders to address local climate issues.

ICLEI-South Asia, with the support from the British High Commission, is working on the 'Roadmap of South Asian Cities and Local Governments for the Post 2012 Global Climate Agreement and Actions' project and has come out with this unique 'City Energy Status Report and Carbon Emissions Inventory for 54 South Asian Cities'.

The project, being a South Asian initiative, gave ICLEI-South Asia an opportunity to visit and interact with Ministers, Mayors and other senior officials of countries like Bhutan, Bangladesh, Nepal and Sri Lanka and gain insights about their opinions and concerns.

The team was delighted to see the enthusiasm of the local and national governments of the respective countries participating in the project. In India too, the selected Urban Local Bodies (ULBs) and their state governments have been very cooperative in sharing the necessary information for the report.

We hope this report will help all stakeholders, in particular, the participating national and local governments, to plan and implement climate change policies and actions and help the world to combat climate change.

With best regards,

Mr Emani Kumar
Executive Director
ICLEI-South Asia



Mr Emani Kumar
Executive Director



Mr Chetan Vaidya
Director

Message from the Director, NIUA

In 2001, about 286 million people were living in urban areas of India and it was the second largest urban population in the world. The urban population is expected to rise to around 38 per cent by 2026. India has to improve its urban areas to achieve the objective of economic development. Huge investment is required in India's urban sector. Since public funds for these services are inadequate, Urban Local Bodies (ULBs) have to look for innovative approaches for financing and managing urban services. In response to urban problems, the Government of India launched a reform-linked urban infrastructure investment project, Jawaharlal Nehru National Urban Renewal Mission (JnNURM).

The National Institute of Urban Affairs (NIUA) is a premier agency for urban development and management research, training and information dissemination in the country. It enjoys the support and commitment of the Ministry of Urban Development (MoUD), Government of India. The institute has completed a large variety of projects including policy research studies and evaluation studies in areas of urban development, management and governance including urbanisation and urban policy, urban management, urban infrastructure and services, urban environment, etc. NIUA supports MoUD in planning and implementing JnNURM. It is the national coordinator for PEARL/JnNURM that networks 65 JnNURM cities and is also the knowledge manager for high powered experts committee on urban infrastructure.

The 'Roadmap of South Asian Cities and Local Governments for the Post 2012 Global Climate Agreement and Actions' project is a joint effort by ICLEI-South Asia and NIUA with support from the British High Commission, which has created the 'Energy Status Report and Carbon Emissions Inventory for 54 South Asian Cities'. The report, a result of a rigorous fact finding exercise, would help in better assessing the situation at local level and charting out the future course of action. The need of the hour is to take well-thought actions, and reports like these would be helpful in this direction.

With regards,

Mr Chetan Vaidya
Director
National Institute of Urban Affairs

“As the Minister for Urban Development, Sri Lanka, I would personally encourage all the cities in Sri Lanka to join ICLEI’s endeavour. The workshop done in Sri Lanka on October 1, 2009 in Kandy, gave the local governments the much needed guidance and experience to all the Mayors, Deputy Mayors, Chairmen and Councillors who were present on the occasion. Like the other cities in Asia, we too have problems in solid waste management, street lighting, water management, etc. Recently, ICLEI with the support from BHC collected data from few cities in Sri Lanka. I do hope that in the near future, Sri Lanka will benefit from ICLEI with the support from BHC and other donor agencies to eliminate the above problems.”

Mr Rohana Dassanayake
Minister for Urban Development
Sri Lanka

“As the local governments of respective countries are involved in the disposal of waste, supply and use of electricity for street lighting, buildings, water pumping systems, etc., which cause carbon emissions, the local governments have some responsibility to manage these activities efficiently. In this context, this initiative by ICLEI-South Asia and the British High Commission is useful in providing information and generating knowledge among local governments to implement activities to reduce carbon emissions.”

Dr Mihir Kanti Majumdar
Secretary, Ministry of Environment
and Forests, Government of the
People’s Republic of Bangladesh

“The threat of climate change is alarming and is evident from the changing sea level and melting glaciers. The issue of climate change shall be addressed through a holistic approach rather in isolation. I strongly feel a need of effective efforts for environmental protection from the government, local authorities and private sector. Considering that the increasing irregularities in the seasonal weather patterns and a global rise in temperatures is already being felt throughout the world, immediate and radical action is imperative and such studies will help the cities to understand their position on energy consumption and the resulting emissions thereof.”

Mr Umesh Prasad Mainali
Former Secretary, Ministry of
Environment Science and Technology
Government of Nepal

“I would like to mention just a few words. As we all know Bhutan is a fast emerging urban society, it’s all a very new phenomenon and hence, people have to face this aspect in a new way. How to make a proper urban citizen is going to be a major concern for Bhutan. Hope we all come out with good deliberations towards making an environment-friendly urban society, which would help in tackling issues like climate change.”

Mr DASHO J DORJEE
Advisor
National Environment Commission
Bhutan

QUOTES
IN

Acknowledgement

ICLEI-South Asia and the British High Commission wish to thank the following Urban Local Bodies (ULBs) and their utilities for their cooperation in providing the information that made this publication possible.

Participating Urban Local Bodies

India

Agra	Ahmedabad	Asansol
Bengaluru	Bhavnagar	Bhopal
Bhubaneswar	Chennai	Coimbatore
Dehradun	Faridabad	Gurgaon
Guntur	Gwalior	Haldia
Indore	Jabalpur	Jaipur
Jamshedpur (UA)	Kanpur	Kochi, Ernakulam
Kolkata	Lucknow	Madurai
Mysore	Nagpur	Nashik
Patna	Pune	Raipur
Rajkot	Ranchi	Sangli
Shimla	Surat	Thane
Thiruvananthapuram	Tiruchirapalli	Udaipur
Vijayawada	Visakhapatnam	

Bangladesh

Dhaka	Chittagong	Khulna
Rajshahi		

Bhutan

Thimphu	Phuentsholing
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Sri Lanka

Colombo	Kandy	Kurunagela
Matale		

Nepal

Kathmandu	Lalitpur	Pokhara
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We would also like to thank our partners for having helped us in collecting and compiling this report.

Bangladesh Centre for Advanced Studies (BCAS) – Dhaka, Bangladesh

City Managers’ Association – Karnataka, India

City Managers’ Association – Madhya Pradesh, India

Energy Forum – Colombo, Sri Lanka

Geosensing Information Pvt. Ltd. – Chennai, India

Municipal Association of Nepal (MuAN), Kathmandu, Nepal

School of Planning, Centre for Environmental Planning and Technology – Ahmedabad, India

SENES Consultants India Pvt. Ltd. – NOIDA, India

Society for Environment Education & Development (SEED) – Lucknow, India

University of Petroleum & Energy Studies – Gurgaon, India

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About the Project

India, Bangladesh, Bhutan, Nepal, Sri Lanka

As the effects of the rapidly changing climate start showing, there is an increased possibility of the fast growing urban settlements being highly vulnerable to its impacts as more than 75 per cent of the world's energy is consumed by them. This makes the need to develop the city government's capacity to engage stakeholders from interdisciplinary backgrounds and sectors to address local climate issues, imperative.

The 'Roadmap of South Asian Cities and Local Governments for the Post 2012 Global Climate Agreement and Actions' project, supported by the British High Commission is a South Asian regional initiative, (under ICLEI's Bali to Poznan to Copenhagen roadmap) led by elected representatives of active South Asian cities, to develop an overall regional approach and consensus for addressing urban climate change. Further, it seeks to enable them to participate in the Post 2012 International Negotiation Processes on Climate Change.

Project Activities

- Associated with 54 local governments in the South Asian region along with regional and national level, local government associations and other local partners
- Collected city energy consumption and related carbon emissions inventory data of 54 South Asian cities. Conducted analysis of the collected information using the Harmonised Emissions Analysis Tool (HEAT, <http://heat.iclei.org/>)
- Formulated generic city action plans as a guiding framework for addressing climate change issues in the local context, which will support broad national urban climate change action framework
- The project outcome and analyses along with generic action plans were shared with project cities and a survey was carried out to gather their feedback and comments
- Through four sub-national (in India) and four national (in Bangladesh, Bhutan, Nepal and Sri Lanka) workshops, efforts were directed to make aware and build capacities of local decision makers and other stakeholders (CBOs,

NGOs, institutions, etc.) by giving presentations on their energy status and guiding them with the next possible steps forward

- Provided platform for local governments to generate a South Asian position/consensus/opinion on international environmental treaties for the formation of a realistic, robust, durable and fair framework of commitments in the 'Post 2012' period
- Consolidated feedback/suggestions and presented in above mentioned workshops and showcased their status and needed actions so as to build a consensus
- Coordinated and empowered a 'Local Government Delegation' comprising local leaders from all parts of the South Asian region, to participate in interaction with the international negotiation process at COP 14 and the parallel national dialogues in Poznan, Poland (Will form a delegation to participate at COP 15 as well)
- Documentation of activities and outcomes under the project to act as a reference for continued action by participating South Asian cities to further develop and share strategies and solutions towards local action for climate protection

Information for the Reader

- The study is based on the data collected from the engineering and administrative departments of the participating Urban Local Bodies (ULBs) to assess the energy consumption by them for services rendered to the citizens across the city. This study also collected data from relevant agencies responsible for energy supply to various sectors contributing to infrastructure growth within the city such as residential, commercial, industrial, transportation, etc., however, not owned by ULBs
- The study follows the principle drawn from WRI/WBCSD/ICLEI GHG Protocol guidelines through a structured feedback process
- The equivalent carbon emissions from the selected fuel and energy sources for local governments and community operations is calculated using Harmonised Emissions Analysis Tool (HEAT), a unique and customised emissions calculation tool/software for ULBs/local governments
- The result is arrived at through a rigorous and structured feedback process by engaging engineering and administrative staff at one level, followed by the involvement of municipal leaders, relevant institutions and ministries at another level
- The study covers the operations owned by Municipal Corporations as Corporation Level emissions (that includes all the services such as street lighting, water supply system, sewage system, etc.) and the City Level emissions that includes the rest of the city information (such as residential, transportation, commercial, etc.)
- The Community Energy Consumption includes the energy consumption information of sectors like residential, commercial, industrial, transportation, waste, others, etc. The unit has been mentioned in the middle row with the type of energy. The last column has the entire consumption figure of 2007-08. The second table has the entire consumption figure at the Corporation Level which includes street lighting, water supply system, sewage system, building and facilities, etc.
- The City Level and Corporation Level carbon emissions pattern has been shown with the help of two pie charts at the bottom of the page. The total City Level carbon emissions, city per capita has also been given in the report

- The same pattern has been followed for all the cities
- The names of the commissioners and mayors were taken at the time of compiling this report

Measures and Metrics

Carbon Dioxide (CO₂): CO₂ is the reference of comparison of all GHGs.

Carbon Dioxide Equivalent (CDE): A metric measure used to compare the emissions from GHGs based on their GWP. Carbon dioxide equivalents are usually expressed as “Million Metric Tonnes of Carbon Dioxide Equivalents (MMTCDE)” or “Million Short Tonnes of Carbon Dioxide Equivalents (MSTCDE)”.

Emissions Factor

Weighted Average Emissions Rate (tCO ₂ /MWh) (excl. Imports)			
	2005-06	2006-07	2007-08
NEWNE	0.84	0.83	0.82
South	0.73	0.72	0.72
India	0.82	0.80	0.80

Weighted Average Emissions Rate (tCO ₂ /MWh) (incl. Imports)			
	2005-06	2006-07	2007-08
NEWNE	0.84	0.82	0.81
South	0.73	0.72	0.72
India	0.81	0.80	0.79

Source-CEA (<http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm>)

HEAT, Emissions Factor			
	2005-06	2006-07	2007-08
NEWNE	0.56	0.56	0.68
South	0.62	0.62	0.62

<http://heat.iclei.org/ICLEIHEAT/application/datasets/efview.jsp?treeid=64&treename=&nodeid=2659&itemline=.32&endnode=Y&disptype=efactors&fview=def>

Notes and Assumptions

Data has been collected from various sources, a few of which have been mentioned in the table below. However, some information was not available, so the study used various methodologies and assumptions to create most probable values.

Sector	Sources
Electricity (Residential/Commercial/Industrial)	State Electricity Board Distribution Agency
LPG (Residential/Commercial/Industrial)	Individual Agencies such as IOCL, BPCL, HPCL, etc.
Transportation (Petrol/Diesel)	Individual Agencies such as IOCL, BPCL, HPCL, etc.
Waste Generation	City Health Officer
Fuel Wood	Crematorium/Other Small Distributors, etc.
Coal	Individual Agencies
Kerosene	Individual Agencies/ Distributors
Corporation (Street Lighting/ Water Supply, etc.)	Urban Local Bodies

ICLEI-South Asia Team

Abbreviations, Acronyms and Units

BEE	Bureau of Energy Efficiency
BHC	British High Commission
CBO	Community Based Organisation
CEO	Chief Executive Officer
CFL	Compact Fluorescent Lamp
CH ₄	Methane
CNG	Compressed Natural Gas
COP	Conference of the Parties
HEAT	Harmonised Emissions Analysis Tool
IAS	Indian Administrative Service
ICLEI	International Council for Local Environmental Initiatives
ICLEI-SA	ICLEI Local Governments for Sustainability- South Asia
JnNURM	Jawaharlal Nehru National Urban Renewal Mission
kg	Kilogram
kL	Kilolitre
kWh	Kilo Watt Hour
LDO	Light Diesel Oil
LPG	Liquefied Petroleum Gas
MoEF	Ministry of Environment and Forests
MoUD	Ministry of Urban Development
MSW	Municipal Solid Waste
MT	Metric Tonne
NGO	Non-Governmental Organisation
NIUA	National Institute of Urban Affairs
PEARL	Peer Experience & Reflective Learning Programme
SPF	Strategic Programme Fund
Sq km	Square Kilometre
SPV	Solar Photovoltaic
STP	Sewage Treatment Plant
T/Year	Tonnes Per Year
TeCO ₂	Tonnes of CO ₂ equivalent
TPD	Tonnes Per Day
UA	Urban Agglomeration
UFW	Unaccounted Flow of Water
ULB	Urban Local Body
WBCSD	World Business Council for Sustainable Development
WRI	World Resource Institute



Agra

UTTAR PRADESH, INDIA

Mr Anand Vardhan
Municipal Commissioner
Tel: +91 562 2520 616

Ms Anjula Singh Mahaur
Mayor

City Profile

Situated on the banks of the river Yamuna – Agra is a major tourist destination in India. Its Mughal era buildings, especially the *Taj Mahal*, has given it fame across borders. It has also been a vibrant centre of culture, art and religious philosophies and is noted for its leather products, glass products, handicrafts, carpets, etc.

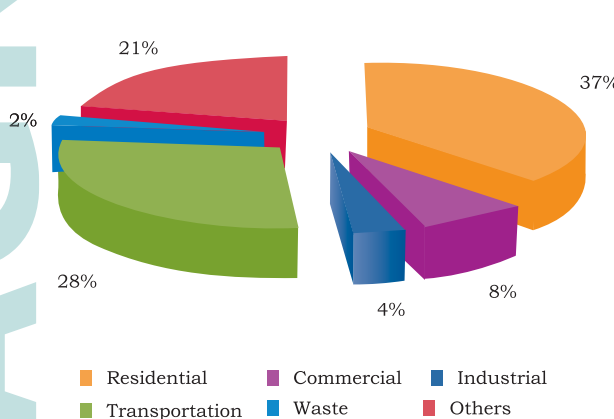
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	413.53
	LPG (MT)	10,013.96
	Kerosene (kL)	33,408
Commercial	Electricity (Million kWh)	114.97
	LPG (MT)	NA
Industrial	Electricity (Million kWh)	53.09
Transportation	Diesel (kL)	50,442
	Petrol (kL)	49,376
	CNG (kg)	930,271
	Auto LPG (kg)	1,548
Waste	MSW (tpd)	710
Others	Electricity (Million kWh)	318.09
	Fuel Wood (MT)	7,200

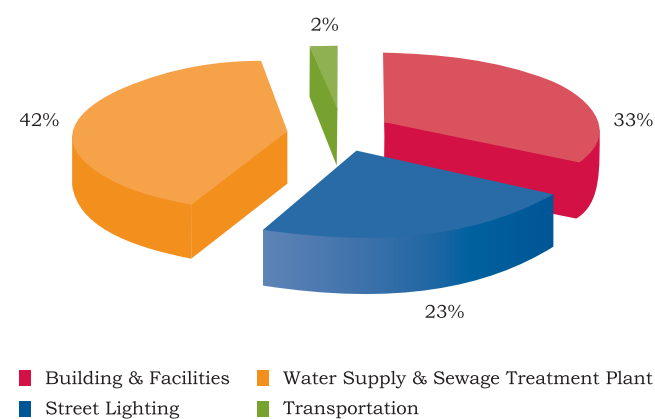
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	46.91
Street Lighting	Electricity (Million kWh)	32.37
Water Supply & STP	Electricity (Million kWh)	57.75
Transportation	Petrol (kL)	868.4
	Diesel (kL)	21.6
	CNG (kg)	7,566

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Ahmedabad

GUJARAT, INDIA

Mr Inderjeet Prasad Gautam, IAS
Municipal Commissioner
Tel: +91 79 2539 1811-30

Mr Amit Shah
Mayor

City Profile

The largest city in Gujarat, Ahmedabad is a commercial hub. Located on the banks of the river Sabarmati, the city is the administrative centre of Ahmedabad district. Though not a tourist spot, the city is known for its welcoming people. The economy of the city is supported by migrant workers from different parts of Gujarat and neighbouring states.

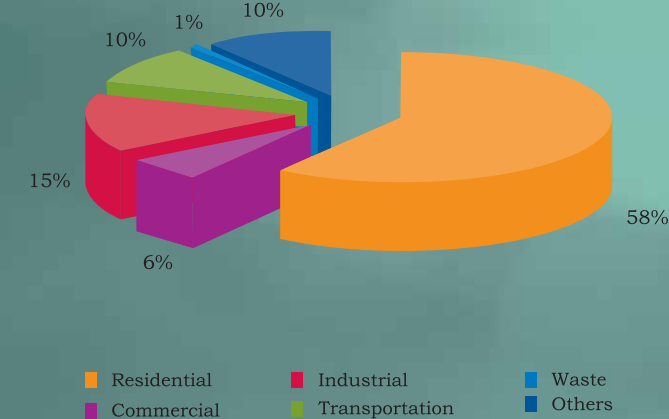
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	1,334.22
	Kerosene (kL)	93,810
Commercial	Electricity (Million kWh)	948.12
Industrial	Electricity (Million kWh)	2,266.62
Transportation	Diesel (kL)	272,160
	Petrol (kL)	200,824
Waste	MSW (tpd)	2,242
Others	Auto Gas (MT)	43,046
	CNG (MT)	55,034

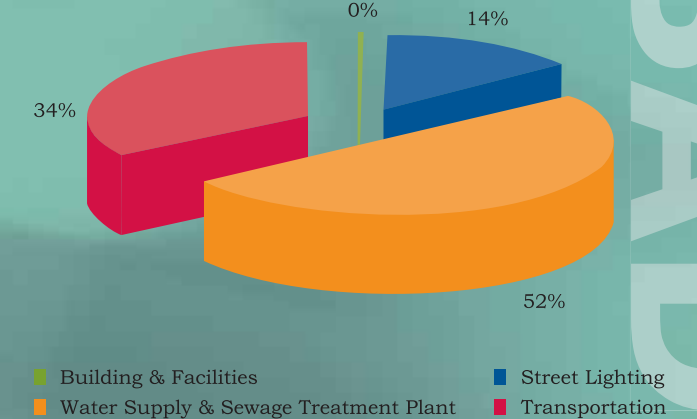
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.77
Street Lighting	Electricity (Million kWh)	33.17
Water Supply & STP	Electricity (Million kWh)	122.59
Transportation	Petrol (kL)	27.33
	Diesel (kL)	7,354.73
	CNG (kg)	2,168,119

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Asansol

WEST BENGAL, INDIA

Mr Yadav Mondal
Chief Executive Officer
Tel: +91 341 2302 491

Mr Tapas Banerjee
Mayor

City Profile

Located in Bardhaman District on the western periphery of West Bengal, Asansol is the second largest city of the state. The city has rich coal and steel industries, a committed and large workforce and reasonably high per capita income. It is one of the most culturally and ethnically diverse places in India.

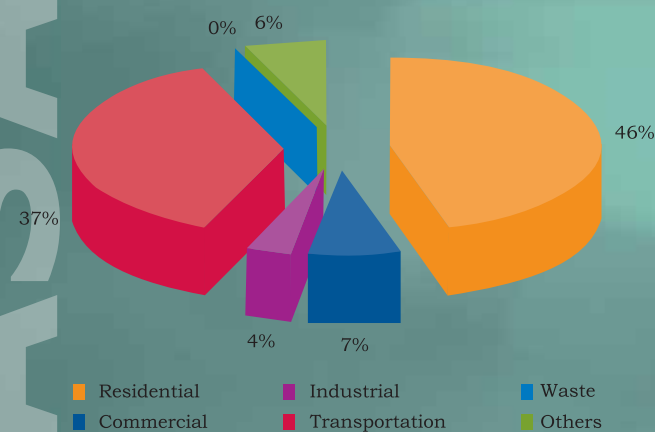
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	67.58
	LPG (MT)	6,686.8
	Kerosene (kL)	18,840
Commercial	Electricity (Million kWh)	19.1
Industrial	Electricity (Million kWh)	9.95
Transportation	Diesel (kL)	23,360
	Petrol (kL)	8,980
Waste	MSW (tpd)	NA
Others	Electricity (Million kWh)	8.9
	Fuel Wood (MT)	750
	CNG (MT)	360

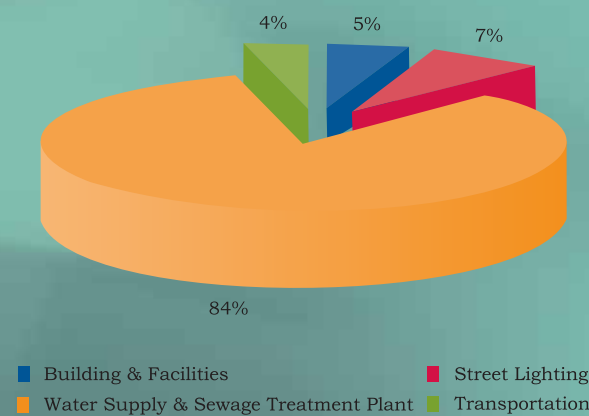
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.45
Street Lighting	Electricity (Million kWh)	0.64
Water Supply & STP	Electricity (Million kWh)	7.55
Transportation	Petrol (kL)	23.9
	Diesel (kL)	110

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Bengaluru

KARNATAKA, INDIA

Mr Bharat Lal Meena, IAS
Municipal Commissioner
Tel: +91 80 2222 1286

City Profile

Bengaluru is located in the south-eastern part of Karnataka. Known as the Silicon Valley of India, Bengaluru is the fastest growing metropolis in India. The city is home to many colleges, research institutions, heavy industries, defence organisations, aerospace, telecommunications, etc.

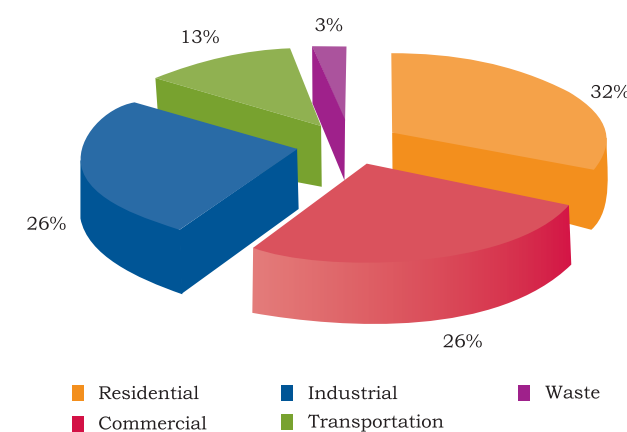
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	2,879.29
	LPG (MT)	166,983.60
	Fuel Wood (MT)	10,085.60
	Kerosene (kL)	60,084
Commercial	Electricity (Million kWh)	2,610.3
	LPG (MT)	9,064.824
Industrial	Electricity (Million kWh)	2,610.10
	LPG (MT)	216,710.23
Transportation	Diesel (kL)	72,600
	Petrol (kL)	237,500
Waste	MSW (tpd)	5,033
Others	Electricity (Million kWh)	149.88

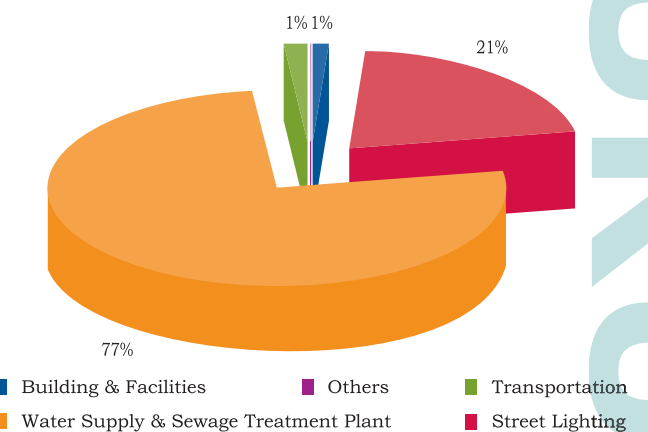
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	4.15
Street Lighting	Electricity (Million kWh)	89.07
Water Supply & STP	Electricity (Million kWh)	319.64
Transportation	Petrol (kL)	140.47
	Diesel (kL)	1,209.57
	LPG (MT)	111.14
Others	Fuel Wood (MT)	30

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Population	Area
4.3 Million (2001)	224.66 sq km

- Activities in Bengaluru contribute to 6.36 Million TeCO₂ in 2007-08
- Per capita emissions for Bengaluru have been 0.82T/Year in 2007-08
- The Corporation Level Emissions are about 4.14 per cent of the total city emissions



Bhavnagar

GUJARAT, INDIA

Mr Pradeep Sharma
Municipal Commissioner

Ms Rina Rameshchandra Shah
Mayor

City Profile

Bhavnagar, named after its founder and ruler Bhavsinhji Gohil, is the sixth largest city in the state of Gujarat. The city hosts a large number of diamond cutting and polishing units, salt and marine chemicals, plastics, ship building and breaking industries. It is also known as the cultural capital of Saurashtra.

Community Energy Consumption

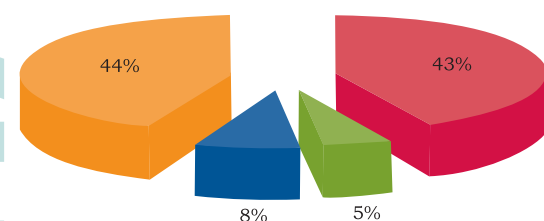
Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	284.69
	Kerosene (kL)	43,144.3
Commercial	Electricity (Million kWh)	53.17
Industrial	Electricity (Million kWh)	79.45
Transportation	Diesel (kL)	96,394
	Petrol (kL)	37,515
Others	Electricity (Million kWh)	0.04

Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	1.23
Street Lighting	Electricity (Million kWh)	42.26
Water Supply & STP	Electricity (Million kWh)	188.25

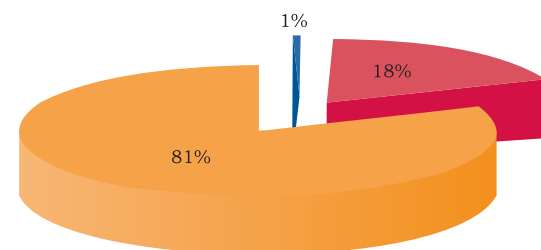
- Activities in Bhavnagar contribute to 0.83 Million TeCO₂ annually
- Per capita emissions for Bhavnagar have been 1.11T/Year in 2007-08
- The Corporation Level Emissions are about 2.39 per cent of the total city emissions

City Carbon Emissions 2007-08



■ Residential ■ Industrial ■ Others
■ Commercial ■ Transportation

Corporation Carbon Emissions 2007-08



■ Building & Facilities ■ Street Lighting
■ Water Supply & Sewage Treatment

Bhopal

MADHYA PRADESH, INDIA

Mr Manish Singh, IAS
Municipal Commissioner
Tel: +91 755 2542 070/5286 239

Mr Sunil Sood
Mayor

City Profile

The city of lakes, Bhopal is the capital of Madhya Pradesh and one of the fastest growing cities in the country. It is the administrative and political hub of the state. The city boasts of multiple profiles; the old city with marketplaces, mosques, palaces and the new city with exquisite parks, gardens and streamlined modern structures.

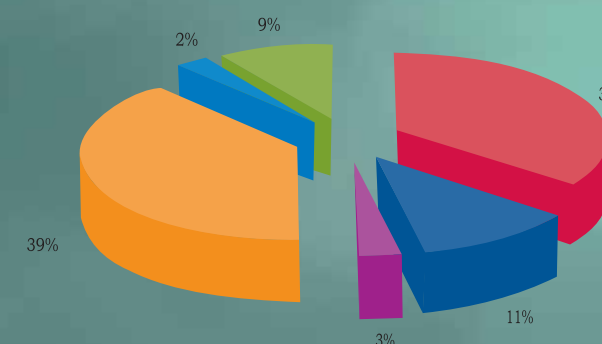
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	340.1
	LPG (MT)	49,240
	Fuel Wood (MT)	1,275.3
	Kerosene (kL)	11,941
Commercial	Electricity (Million kWh)	112.9
	LPG (MT)	2,184
	Kerosene (kL)	2,388
Industrial	Electricity (Million kWh)	29.5
Transportation	Diesel (kL)	59,369.8
	Petrol (kL)	48,842.5
Waste	MSW (tpd)	550
Others	Electricity (Million kWh)	103.8

Corporation Energy Consumption

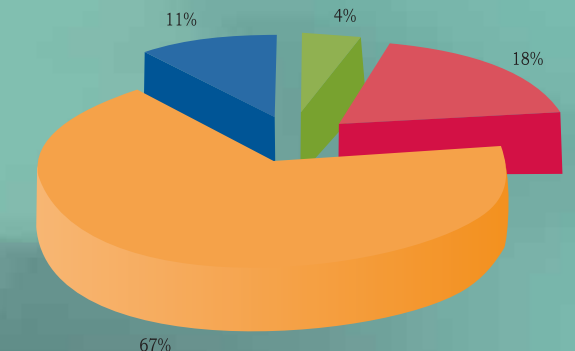
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	4.38
Street Lighting	Electricity (Million kWh)	17.50
Water Supply & STP	Electricity (Million kWh)	77.85
Transportation	Petrol (kL)	24.00
	Diesel (kL)	2,486.63

City Carbon Emissions 2007-08



■ Residential ■ Industrial ■ Waste
■ Commercial ■ Transportation ■ Others

Corporation Carbon Emissions 2007-08



■ Building & Facilities ■ Water Supply & Sewage Treatment Plant
■ Street Lighting ■ Transportation



Population	Area
1.43 Million (2001)	284 sq km

- Activities in Bhopal contribute to 0.74 Million TeCO₂ annually
- Per capita emissions for Bhopal have been 0.31T/Year in 2007-08
- The Corporation Level Emissions are about 8.83 per cent of the total city emissions



Bhubaneswar

ORISSA, INDIA

Mr D R K Singh, IAS
Municipal Commissioner
Tel: +91 674 2431 403

Mr Ananta Narayana Jena
Mayor

City Profile

Bhubaneswar is the capital of Orissa and the Temple City of India. It is the living example of the Kalingan style of temple architecture. The city has a long history of 3,000 years and today, it has become a centre of economic and religious importance. It is also a popular tourist destination for both Indian and international tourists.

Population	Area
0.64 Million (2001)	135 sq km

- Activities in Bhubaneswar contribute to 0.97 Million TeCO₂ annually
- Per capita emissions for Bhubaneswar have been 0.84T/Year in 2007-08
- The Corporation Level Emissions are about 1.17 per cent of the total city emissions

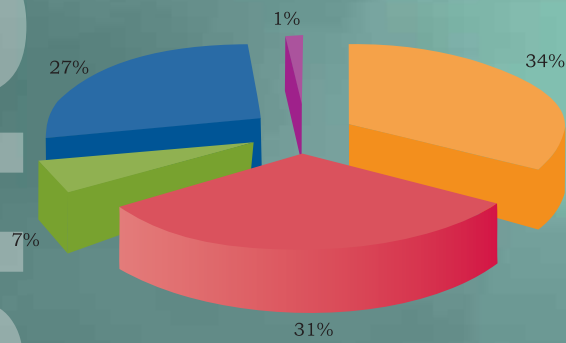
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	323.60
	LPG (MT)	22,269.6
	Kerosene (kL)	8,288.2
Commercial	Electricity (Million kWh)	318.26
	LPG (MT)	710.8
Industrial	Electricity (Million kWh)	64.73
Transportation	Petrol (kL)	40,753
	Diesel (kL)	58,388
Waste	MSW (tpd)	375

Corporation Energy Consumption

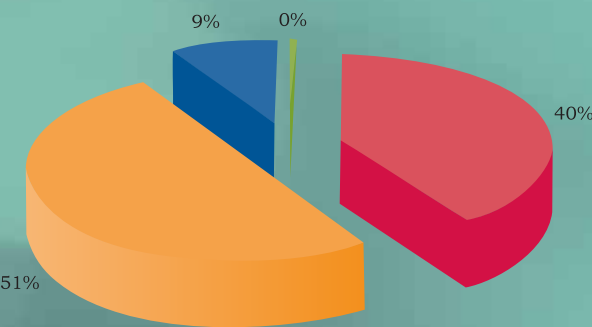
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.11
Street Lighting	Electricity (Million kWh)	8.1
Water Supply & STP	Electricity (Million kWh)	10.23
Transportation	Petrol (kL)	13.021
	Diesel (kL)	337.650

City Carbon Emissions 2007-08



Residential Commercial Industrial Building & Facilities Water Supply & Sewage Treatment Plant
Transportation Street Lighting

Corporation Carbon Emissions 2007-08



Building & Facilities Water Supply & Sewage Treatment Plant
Street Lighting Transportation

Chennai

TAMIL NADU, INDIA

Mr Rajesh Lakhoni, IAS
Municipal Commissioner
Tel: +91 44 2538 3783

Mr M Subramaniam
Mayor

City Profile

Chennai is the capital of Tamil Nadu and the fourth largest metropolitan city of India. Formerly known as Madras, it is located on the Coromandel Coast of Bay of Bengal. Its economy is largely supported by automobile, technology, hardware manufacturing and healthcare sectors.



Population	Area
4.34 Million (2001)	181.06 sq km

- Activities in Chennai contribute to 3.82 Million TeCO₂/Year
- Per capita emissions for Chennai have been 0.91T/Year in 2007-08
- The Corporation Level Emissions are about 2.68 per cent of the total city emissions

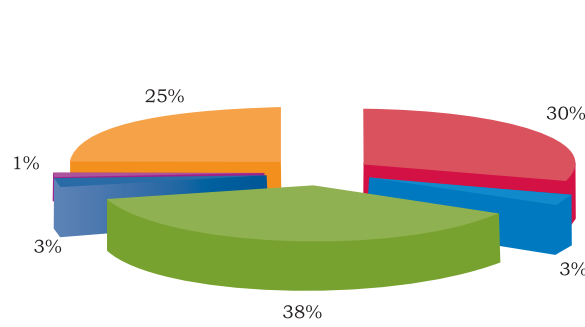
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	589
	LPG (MT)	197,748
Commercial	Electricity (Million kWh)	176
Industrial	Electricity (Million kWh)	78
Transportation	Diesel (kL)	346,180
	Petrol (kL)	178,970
Waste	MSW (tpd)	3,641
Others	Electricity (Million kWh)	1,850.20

Corporation Energy Consumption

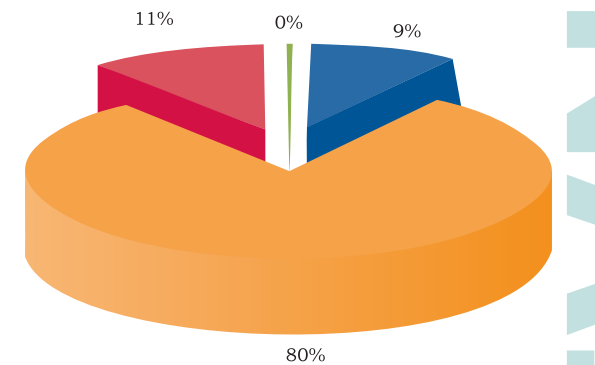
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.3
Street Lighting	Electricity (Million kWh)	15.5
Water Supply & STP	Electricity (Million kWh)	129.85
Transportation	Petrol (kL)	139.8
	Diesel (kL)	3,839.58

City Carbon Emissions 2007-08



Residential Commercial Industrial Building & Facilities Water Supply & Sewage Treatment Plant
Transportation Waste Others Street Lighting

Corporation Carbon Emissions 2007-08



Building & Facilities Water Supply & Sewage Treatment Plant
Street Lighting Transportation



Population	Area
0.93 Million (2001)	105.5 sq km

- Activities in Coimbatore contribute to 1.27 Million TeCO₂ annually
- Per capita emissions for Coimbatore have been 1.37T/Year in 2007-08
- The Corporation Level Emissions are about 0.67 per cent of the total city emissions

Coimbatore

TAMIL NADU, INDIA

Mr Anshul Mishra, IAS
Municipal Commissioner
Tel: +91 422 2396 026

Mr R Venkatachalam
Mayor

City Profile

The second largest city of Tamil Nadu, Coimbatore is also known as Kovai. Situated on the banks of the river Noyyal, Coimbatore is the Manchester of South India. It is known for its textile mills, factories, engineering firms, automobile parts manufacturers, healthcare facilities, educational institutions, hospitality and Kongu Tamil.

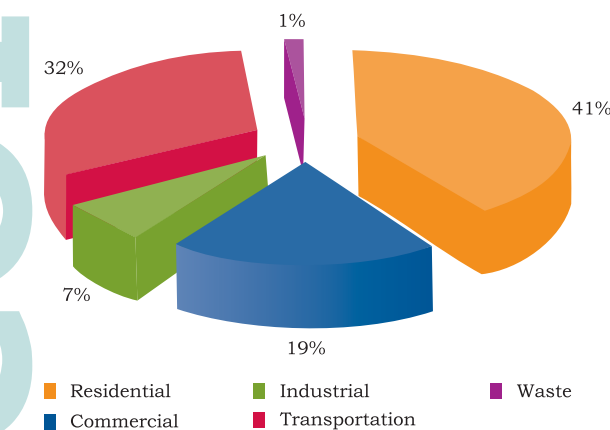
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	645.86
	LPG (MT)	70,874
	Kerosene (kL)	36,234
	Fuel Wood (MT)	66,520
Commercial	Electricity (Million kWh)	375.92
Industrial	Electricity (Million kWh)	144.19
Transportation	Diesel (kL)	87,312
	Petrol (kL)	65,310
Waste	MSW (tpd)	601

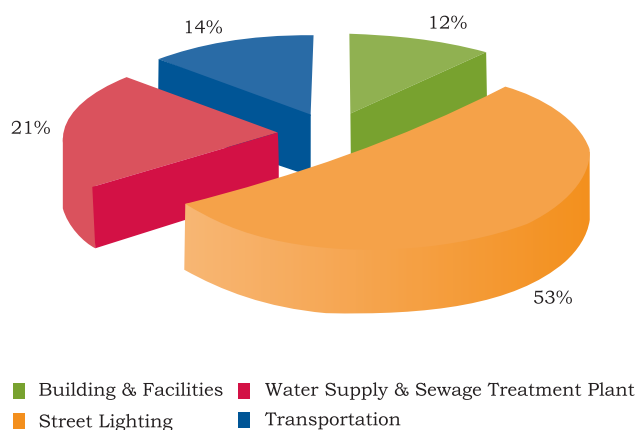
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	1.6
Street Lighting	Electricity (Million kWh)	7.3
Water Supply	Electricity (Million kWh)	2.9
Transportation	Petrol (kL)	49.74
	Diesel (kL)	370.19

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Dehradun

UTTARAKHAND, INDIA

Mr Indudhar Dudai
Municipal Commissioner
Tel: +91 135 2657 884/2655 620

Mr Vinod Chamoli
Mayor

City Profile

Dehradun is the capital of the state of Uttarakhand. Located on the north-west of the Indian Gangetic plains, Dehradun has one of the highest per capita income in the country. The city is known for its Basmati rice and lychees. Dehradun is popular as a tourist destination being en-route to Mussorie.

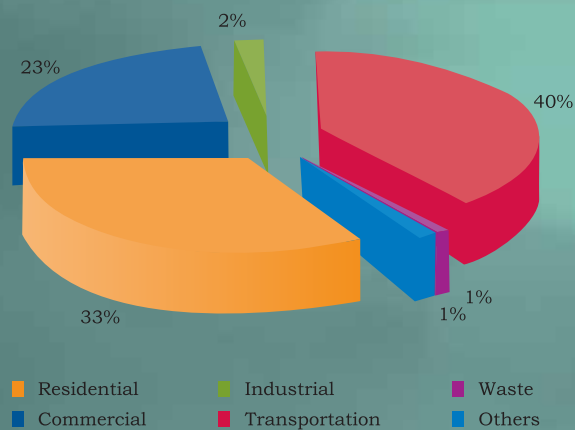
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	234.66
	LPG (MT)	28,699
	Kerosene (kL)	10,668
Commercial	Electricity (Million kWh)	192.7
Industrial	Electricity (Million kWh)	19.34
Transportation	Diesel (kL)	44,435
	Petrol (kL)	42,457
Waste	MSW (tpd)	143
Others	Fuel Wood (MT)	525
	Electricity (Million kWh)	10.16

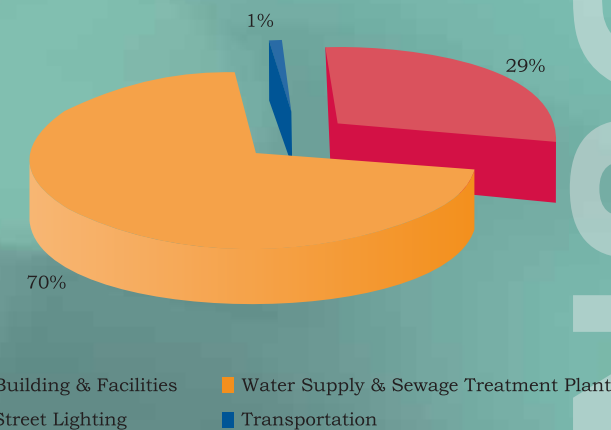
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.06
Street Lighting	Electricity (Million kWh)	17.56
Water Supply & STP	Electricity (Million kWh)	42.08
Transportation	Petrol (kL)	22.99
	Diesel (kL)	119.40

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Faridabad

HARYANA, INDIA

Mr C R Rana, IAS
Municipal Commissioner
Tel: +91 129 2416 465

Ms Brahmwati Khatana
Mayor

City Profile

A south-eastern town in the state of Haryana, Faridabad is a major industrial city. It alone generates about 60 per cent of the state's revenue from its industrial units. It was built in 1607 by Shaikh Farid with the objective of protecting the highway passing through the town. Faridabad became the 12th district of Haryana on August 15, 1979.

Population	Area
1.05 Million (2001)	208 sq km

- Activities in Faridabad contribute to 2.46 Million TeCO₂ annually
- Per capita emissions for Faridabad have been 1.58T/Year in 2007-08
- The Corporation Level Emissions are about 2.06 per cent of the total city emissions

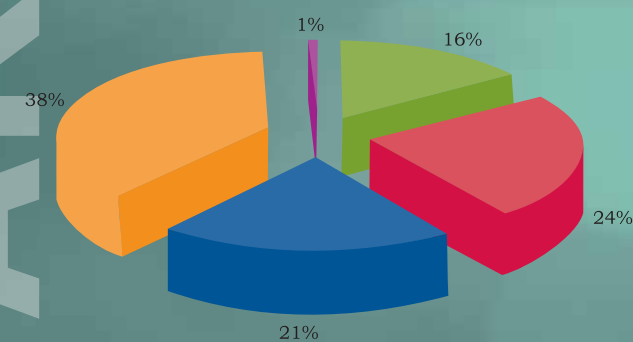
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	473.50
	LPG (MT)	3,414.38
	Kerosene (kL)	24,678
Commercial	Electricity (Million kWh)	867
Industrial	Electricity (Million kWh)	756
	LPG	NA
Transportation	Diesel (kL)	280,397
	Petrol (kL)	62,761
Waste	MSW (tpd)	480

Corporation Energy Consumption

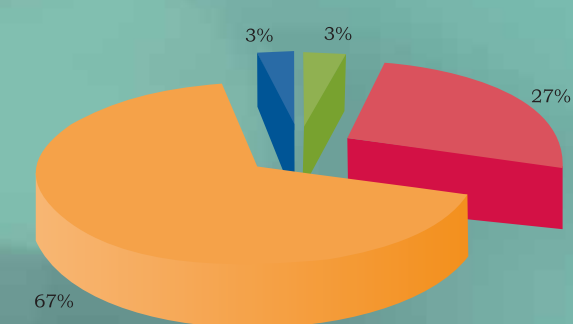
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	2.37
Street Lighting	Electricity (Million kWh)	19.89
Water Supply & STP	Electricity (Million kWh)	49.76
Transportation	Petrol (kL)	47
	Diesel (kL)	480

City Carbon Emissions 2007-08



Residential Industrial Waste
Commercial Transportation

Corporation Carbon Emissions 2007-08



Building Facilities Water Supply & Sewage Treatment Plant
Street Lighting Transportation

Guntur

ANDHRA PRADESH, INDIA

Mr K Ilambarithi, IAS
Municipal Commissioner
Tel: +91 863 2224 202/2241 689

Mr R Mohan Sai Krishna
Mayor

City Profile

Guntur is located along the east coast of Bay of Bengal in Andhra Pradesh. It has a coastline of 100 kilometres and is identified as a major transportation and textile hub. It is also known for the export of chillies, cotton, tobacco and paddy. It is home to the historically significant Amaravati, Bhattiprolu and Sitanagaram monuments.



Population	Area
0.51 Million (2001)	63.15 sq km

- Activities in Guntur contribute to 0.56 Million TeCO₂ annually
- Per capita emissions for Guntur have been 0.71T/Year in 2007-08
- The Corporation Level Emissions are about 1.72 per cent of the total city emissions

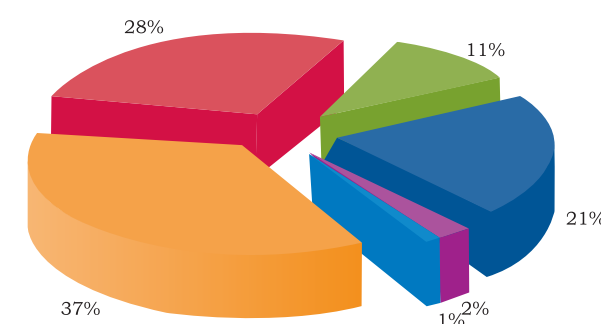
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	255
	LPG (MT)	645,293.87
	Kerosene (kL)	1,733
	Fuel Wood (MT)	14,888
Commercial	Electricity (Million kWh)	250
	LPG (MT)	19,929.13
	Kerosene (kL)	174
Industrial	Electricity (Million kWh)	93.75
Transportation	Diesel (kL)	20,200
	Petrol (kL)	25,700
Waste	MSW (tpd)	356
Others	Electricity (Million kWh)	10.03

Corporation Energy Consumption

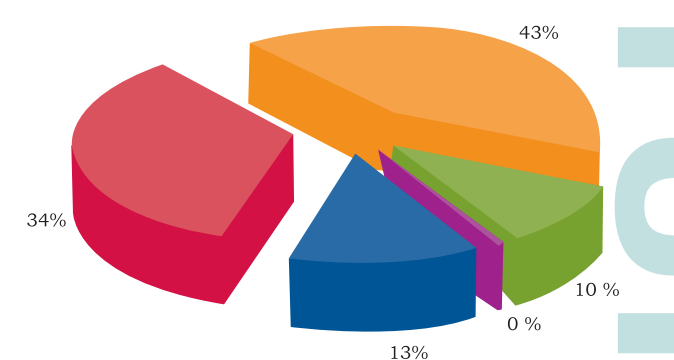
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	1.97
Street Lighting	Electricity (Million kWh)	5.29
Water Supply & STP	Electricity (Million kWh)	6.56
Transportation	Petrol (kL)	6.54
	Diesel (kL)	331.56
Others	Petrol & Diesel (kL)	9

City Carbon Emissions 2007-08



Residential Industrial Waste
Commercial Transportation Others

Corporation Carbon Emissions 2007-08



Building & Facilities Water Supply & Sewage Treatment Plant
Street Lighting Transportation Transportational



Gurgaon

HARYANA, INDIA

Mr R K Khullar, IAS
Municipal Commissioner
Tel: +91 124 2220 011

City Profile

Gurgaon is the sixth largest city of Haryana. It has grown extensively during the last decade due to its proximity to West and South Delhi. Gurgaon is one of Delhi's four major satellite cities and is therefore considered to be a part of the National Capital Region of India.

Population	Area
0.17 Million (2001)	120 sq km

- Activities in Gurgaon contribute to 2.55 Million TeCO₂ annually
- Per capita emissions for Gurgaon has been 2.13T/Year in 2007-08
- The Corporation Level Emissions are about 0.27 per cent of the total city emissions

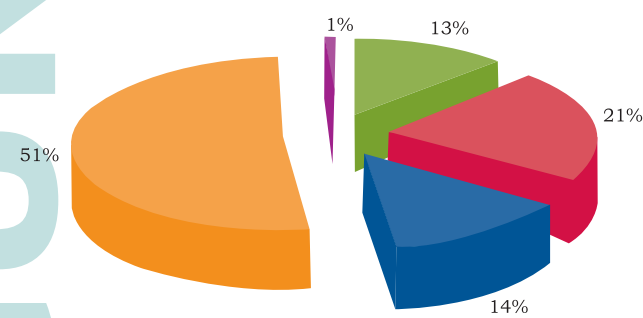
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	401.60
	LPG (MT)	34,438.50
	Kerosene (kL)	16,756
Commercial	Electricity (Million kWh)	800.89
Industrial	Electricity (Million kWh)	503.28
Transportation	Diesel (kL)	397,148
	Petrol (kL)	79,564
Waste	MSW (tpd)	570
Others	Electricity (Million kWh)	0.05

Corporation Energy Consumption

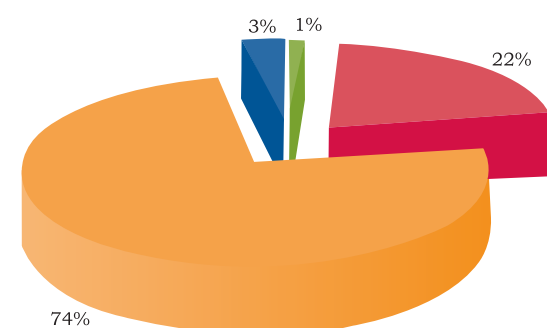
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.10
Street Lighting	Electricity (Million kWh)	2.17
Water Supply & STP	Electricity (Million kWh)	5.86
Transportation	Petrol (kL)	15
	Diesel (kL)	66

City Carbon Emissions 2007-08



■ Residential ■ Industrial ■ Waste ■ Commercial ■ Transportation

Corporation Carbon Emissions 2007-08



■ Building & Facilities ■ Street Lighting ■ Water Supply & Sewage Treatment Plant ■ Transportation

Gwalior

MADHYA PRADESH, INDIA

Mr Pawan Kumar Sharma, IAS
Municipal Commissioner
Tel: +91 751 2438 300

Mr Vivek Narayan Shejvalkar
Mayor



Population	Area
0.82 Million (2001)	289.5 sq km

City Profile

Situated in the state of Madhya Pradesh, Gwalior is a historical place and is blessed with the legacy of classical music maestro Miya Tansen. Its most remarkable establishment is a Power House at Motijheel and a Water Supply Plant to supply water to the entire city. It is the site of factories producing cotton, yarn, paint, ceramics, chemicals, etc.

Community Energy Consumption

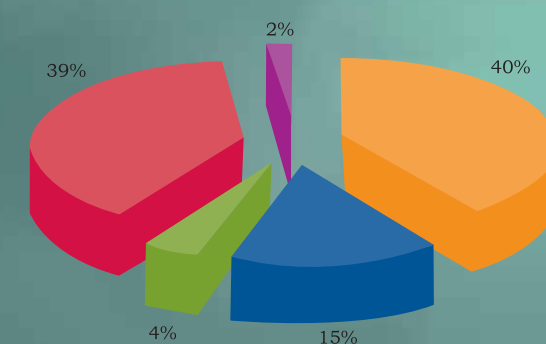
Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	253.30
	Kerosene (kL)	9,461
	Fuel Wood (MT)	1,020
Commercial	Electricity (Million kWh)	105.4
Industrial	LPG (MT)	881
	Electricity (Million kWh)	28.5
Transportation	Diesel (kL)	50,203.3
	Petrol (kL)	20,460
Waste	MSW (tpd)	285

- Activities in Gwalior contribute to 0.49 Million TeCO₂ annually
- Per capita emissions for Gwalior have been 0.37T/Year in 2007-08
- The Corporation Level Emissions are about 6.09 per cent of the total city emissions

Corporation Energy Consumption

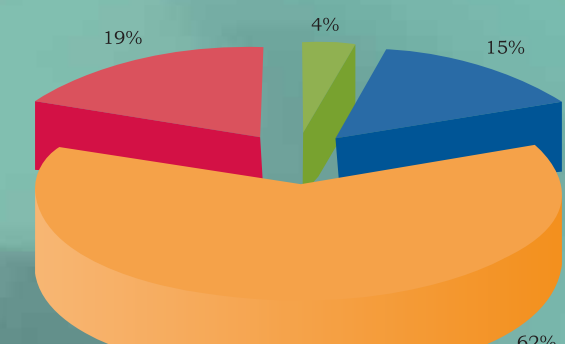
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	1.53
Street Lighting	Electricity (Million kWh)	6.67
Water Supply & STP	Electricity (Million kWh)	27.22
Transportation	Petrol (kL)	20.46
	Diesel (kL)	2,001.73

City Carbon Emissions 2007-08



■ Residential ■ Industrial ■ Waste ■ Commercial ■ Transportation

Corporation Carbon Emissions 2007-08



■ Building & Facilities ■ Street Lighting ■ Water Supply & Sewage Treatment Plant ■ Transportation



Haldia

WEST BENGAL, INDIA

Ms Tamalika Panda Seth
Chairperson
Tel: +91 3224 2529 96

City Profile

Haldia is located approximately 50 kilometres south-west of Kolkata. This industrial port city is home to South Asian Petrochemicals Limited, Indian Oil Corporation Limited (IOCL), Exide, Shaw Wallace, Tata Chemicals, Hindustan Lever, Mitsubishi Chemical Company (MCC), etc. It is also the base of the Indian Coast Guard.

Population	Area
0.17 Million (2001)	228.5 sq km

- Activities in Haldia contribute to 0.21 Million TeCO₂ annually
- Per capita emissions for Haldia have been 0.95T/Year in 2007-08

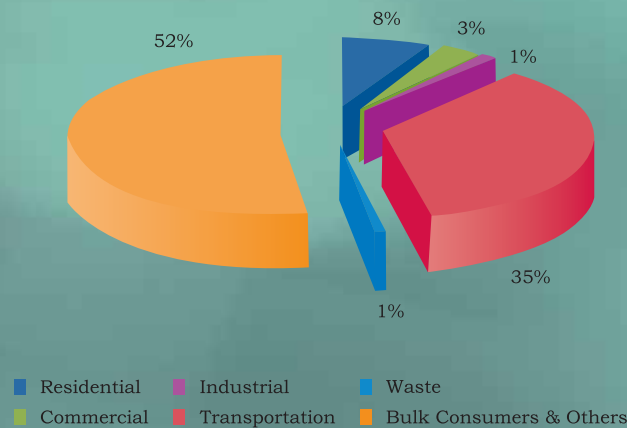
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	18.74
	LPG (MT)	1,789.80
Commercial	Electricity (Million kWh)	7.93
Industrial	Electricity (Million kWh)	2.95
Transportation	Diesel (kL)	25,440
	Petrol (kL)	2,280
Waste	MSW (tpd)	50
Bulk Consumers and Others	Electricity (Million kWh)	133.61

Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	NA
Street Lighting	Electricity (Million kWh)	NA
Water & STP	Electricity (Million kWh)	NA
Transportation	Petrol (kL)	1.76
	Diesel (kL)	48.3

City Carbon Emissions 2007-08



Indore

MADHYA PRADESH, INDIA

Mr C B Singh, IAS
Municipal Commissioner
Tel: +91 731 2431 610

Dr Uma Shashi Sharma
Mayor



Population	Area
1.47 Million (2001)	214 sq km

City Profile

Situated on the Malwa plateau, south of the Satpura range, Indore is the commercial capital of Madhya Pradesh. Indore is the administrative headquarter of Indore district and Indore division. The city is the major contributor of revenue to the state of Madhya Pradesh.

Community Energy Consumption

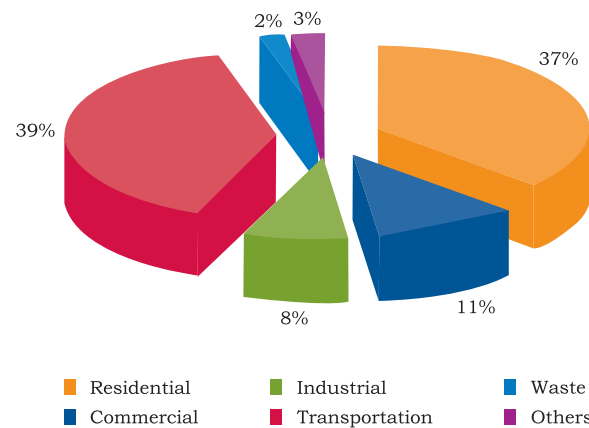
Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	466.99
	LPG (MT)	82,987
	Fuel Wood (MT)	131
	Kerosene (kL)	14,172
Commercial	Electricity (Million kWh)	157.67
	LPG (MT)	3,983
Industrial	Electricity (Million kWh)	117.03
Transportation	Diesel (kL)	102,435.5
	Petrol (kL)	39,036.83
Waste	MSW (tpd)	600
Others	Electricity (Million kWh)	36.17

- Activities in Indore contribute to 1.14 Million TeCO₂ annually
- Per capita emissions for Indore have been 0.41T/Year in 2007-08
- The Corporation Level Emissions are about 2.28 per cent of the total city emissions

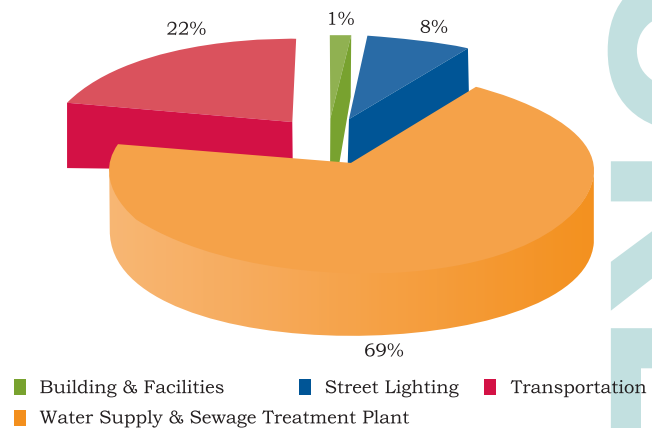
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.53
Street Lighting	Electricity (Million kWh)	2.38
Water Supply & STP	Electricity (Million kWh)	21.03
Transportation	Petrol (kL)	22.00
	Diesel (kL)	1,989.30

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Jabalpur

MADHYA PRADESH, INDIA

Mr O P Shrivastav, IAS
Municipal Commissioner
Tel: +91 761 2410 777

Mrs Susheela Singh
Mayor

Population	Area
0.93 Million (2001)	154.21 sq km

- Activities in Jabalpur contribute to 0.46 Million TeCO₂ annually
- Per capita emissions for Jabalpur have been 0.30T/Year in 2007-08
- The Corporation Level Emissions are about 7.8 per cent of the total city emissions

City Profile

The central city in the central state of India, Jabalpur is one of the largest cities of Madhya Pradesh. The city became a metropolitan city only in the last decade. Jabalpur serves as a regional wholesale market for agricultural products and implements, garments, fertilizers, drugs, etc.

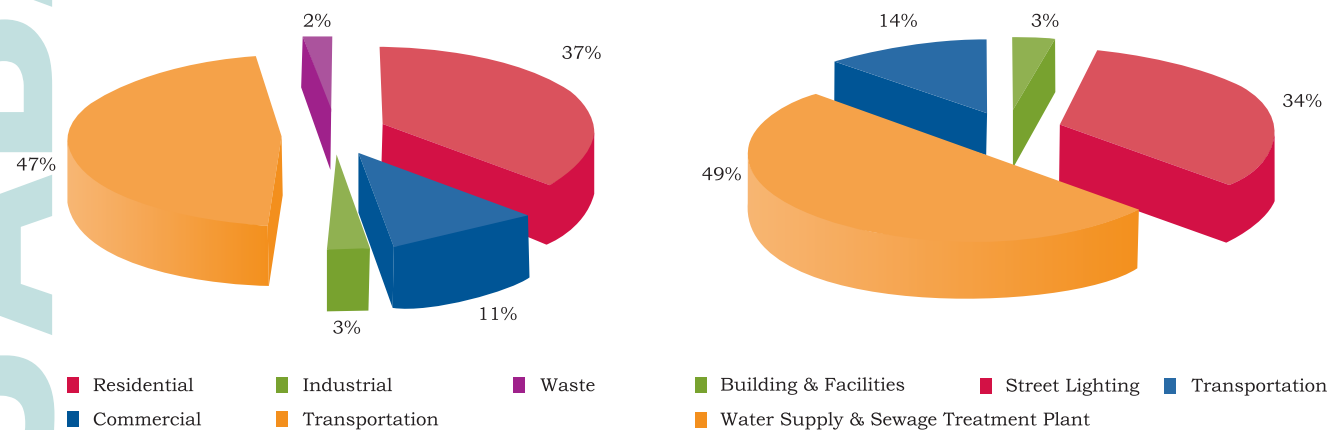
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	204.8
	LPG (MT)	37,945
	Fuel Wood (MT)	6,927
	Kerosene (kL)	11,497
Commercial	Electricity (Million kWh)	66.3
	LPG (MT)	890
	Kerosene (kL)	2,299
Industrial	Electricity (Million kWh)	18.8
Transportation	Diesel (kL)	51,110.5
	Petrol (kL)	30,584.6
Waste	MSW (tpd)	330

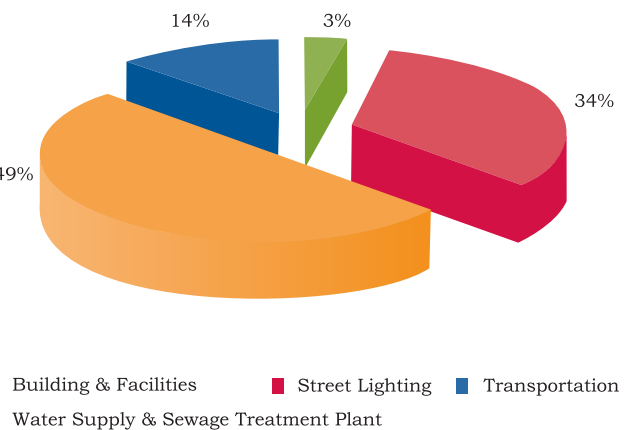
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	1.43
Street Lighting	Electricity (Million kWh)	14.34
Water Supply & STP	Electricity (Million kWh)	21.07
Transportation	Petrol (kL)	16.5
	Diesel (kL)	1,740.64

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Jaipur

RAJASTHAN, INDIA

Mr Lalit Mehra, IAS
Chief Executive Officer
Tel: +91 141 2742 823

Mr Pankaj Joshi
Mayor



Population	Area
1.40 Million (2001)	200.4 sq km

City Profile

Popularly known as the Pink City, Jaipur was founded in 1727 by Maharaja Sawai Jai Singh. Jaipur is the capital of the majestic state of Rajasthan. It is known for its historical importance and monuments like Hawa Mahal, Nahargarh Fort, Amer Fort, etc. The city boasts of rich traditions and customs.

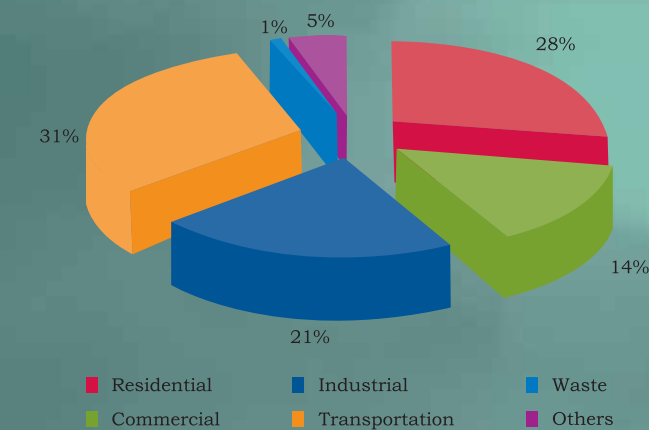
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	919.06
	LPG (MT)	86,965
	Kerosene (kL)	16,932
Commercial	Electricity (Million kWh)	504.11
Industrial	Electricity (Million kWh)	740.24
Transportation	Diesel (kL)	145,224
	Petrol (kL)	137,881
Waste	MSW (tpd)	621
Others	Electricity (Million kWh)	133.21
	Coal (Tonnes)	13,200

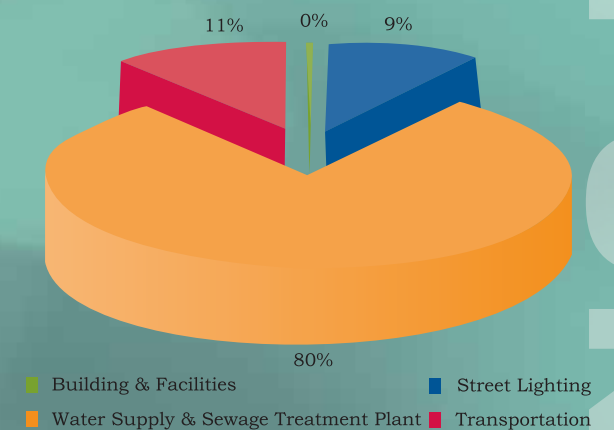
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	3.15
Street Lighting	Electricity (Million kWh)	29.85
Water Supply & STP	Electricity (Million kWh)	109.61
Transportation	Petrol (kL)	NA
	Diesel (kL)	1,666.67

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Jamshedpur

JHARKHAND, INDIA

Mr Rabindra Kr Agarwal, IAS
Deputy Commissioner
Tel: +91 657 2426 929

City Profile

The industrial city of India, Jamshedpur was named in honour of its founder, Jamshedji Nausserwanji Tata. The city is located in the east Singhbhum district of Jharkhand on the Chota Nagpur plateau. The city is also called the Steel city or Tata city. Jamshedpur has a significant presence of Tata companies.

Population	Area
0.57 Million (2001)	230.59 sq km

- Activities in Jamshedpur contribute to 5.51 Million TeCO₂ annually
- Per capita emissions for Jamshedpur have been 2.76T/Year in 2007-08

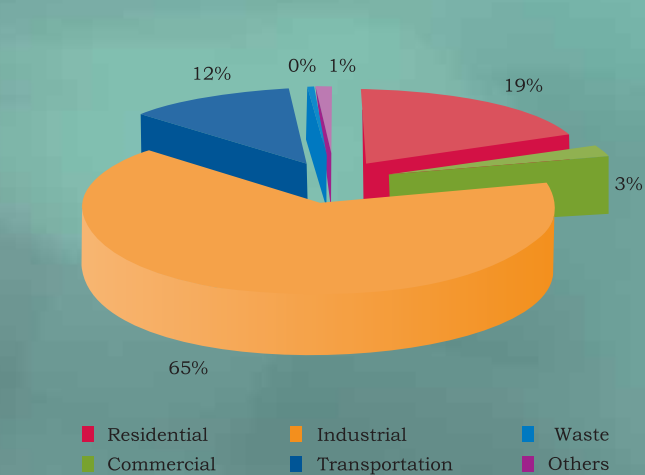
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	1,049.38
	LPG (MT)	12,324
	Kerosene (kL)	17,543
Commercial	Electricity (Million kWh)	154.18
Industrial	Electricity (Million kWh)	3,765.20
Transportation	Diesel (kL)	200,043
	Petrol (kL)	47,636
Waste	MSW (tpd)	560
Others	Electricity (Million kWh)	67.94

Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	NA
Street Lighting	Electricity (Million kWh)	NA
Water Supply & STP	Electricity (Million kWh)	NA
Transportation	Petrol (kL)	43.47
	Diesel (kL)	317.32

City Carbon Emissions 2007-08



Kanpur

UTTAR PRADESH, INDIA

Mr Rajiv Sharma
Municipal Commissioner
Tel: +91 512 2551 416/2546 194

Mr Ravindra Patni
Mayor



Population	Area
2.55 Million (2001)	300 sq km

City Profile

The ninth most populous city in India and the largest in Uttar Pradesh, Kanpur is the economic capital of the state. Kanpur is one of the biggest producers of textile and leather products in India and is also home to many institutes and organisations of national repute like IIT Kanpur, GSVM Medical College, Reserve Bank of India, etc.

Community Energy Consumption

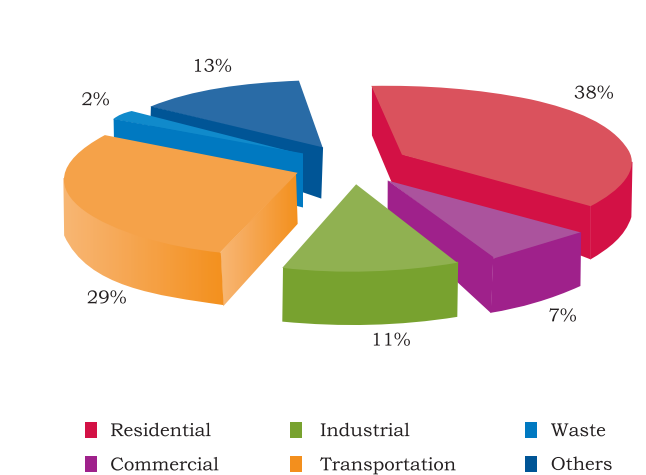
Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	806.70
	LPG (MT)	608,044
	Kerosene (kL)	48,384
Commercial	Electricity (Million kWh)	214.14
Industrial	LPG (MT)	3,975
	Electricity (Million kWh)	320.66
Transportation	Diesel (kL)	40,645
	Petrol (kL)	53,828
	CNG (kg)	10,225,631
Waste	MSW (tpd)	1,200
Others	Electricity (Million kWh)	361.16

- Activities in Kanpur contribute to 1.95 Million TeCO₂ annually
- Per capita emissions for Kanpur have been 0.45T/Year in 2007-08
- The Corporation Level Emissions are about 3.2 per cent of the total city emissions

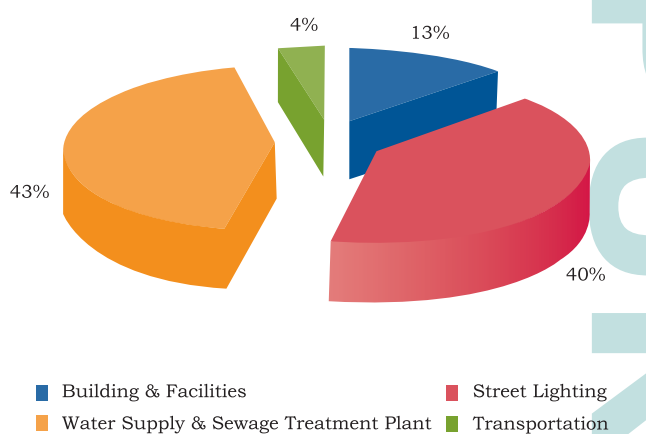
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	12.24
Street Lighting	Electricity (Million kWh)	36.38
Water Supply & STP	Electricity (Million kWh)	39.12
Transportation	Petrol (kL)	638.02
	Diesel (kL)	208.32
	CNG (kg)	7,326

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Kochi

KERALA, INDIA

Mr P G Thomas, IAS
Secretary
Tel: +91 484 2369 007

City Profile

Formerly known as Cochin, Kochi is located in the Ernakulam district of Kerala. Kochi is one of the principle sea ports of India and a growing centre of shipping industries. It is a growing centre for information technology, tourism and international trade. It is a commercial hub of Kerala and one of the fastest growing second-tier metros in India.

Community Energy Consumption

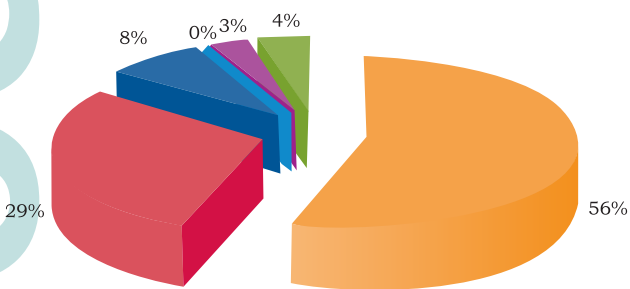
Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	237.45
	LPG (MT)	NA
Commercial	Electricity (Million kWh)	123.77
Industrial	Electricity (Million kWh)	35.59
Transportation	Diesel (kL)	NA
	Petrol (kL)	NA
Waste	MSW (tpd)	250
Others	Electricity (Million kWh)	18.13

Corporation Energy Consumption

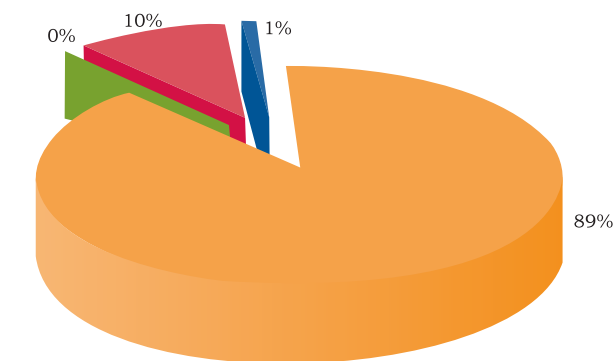
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.285
Street Lighting	Electricity (Million kWh)	28.62
Water Supply & STP	Electricity (Million kWh)	0.24
Transportation	Petrol (kL)	43.19
	Diesel (kL)	663

- Activities in Kochi contribute to 0.26 Million TeCO₂ annually
- Per capita emissions for Kochi have been 0.4T/Year in 2007-08
- The Corporation Level Emissions are about 7.53 per cent of the total city emissions

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Residential Industrial Waste Building & Facilities Street Lighting
Commercial Transportation Others Water Supply & Sewage Treatment Plant Transportation

Kolkata

WEST BENGAL, INDIA

Mr Arnab Roy, IAS
Municipal Commissioner
Tel: +91 33 2286 1234/1034

Mr Bikash Bhattacharya
Mayor



City Profile

Formerly known as Calcutta, Kolkata is located on the eastern bank of the river Hooghly. It is India's third largest metropolitan city and is the world's eighth largest urban agglomeration. It was the capital of British India till 1911. A centre of education, industries, science and culture, it is the main commercial and financial hub of eastern India.

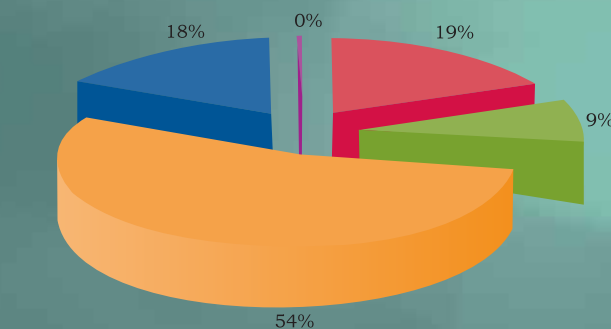
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	1,196.06
	LPG (MT)	75,997
Commercial	Kerosene (kL)	292,240
	Electricity (Million kWh)	984.54
Industrial	Electricity (Million kWh)	503.16
	Coal/Wood (Tonnes)	2,929,348
Transportation	Diesel (kL)	488,955
	Petrol (kL)	117,987
Waste	MSW (tpd)	4,000
Others	Electricity (Million kWh)	NA

Corporation Energy Consumption

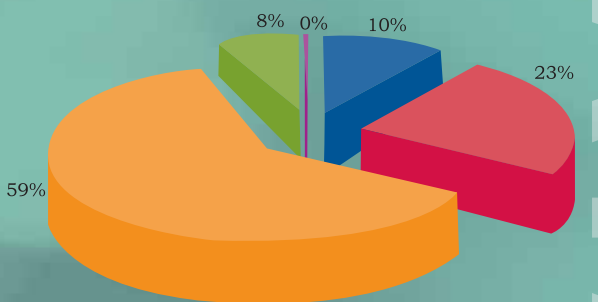
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	23.14
Street Lighting	Electricity (Million kWh)	53.04
Water Supply & STP	Electricity (Million kWh)	138.84
Transportation	Petrol (kL)	540
	Diesel (kL)	4,320
Others	LPG (MT)	5,280
	LDO (kL)	960

City Carbon Emissions 2007-08



Residential Industrial Waste Building & Facilities Street Lighting Transportation
Commercial Transportation Water Supply & Sewage Treatment Plant Others

Corporation Carbon Emissions 2007-08





Lucknow

UTTAR PRADESH, INDIA

Mr Shailesh Kumar Singh, IAS
Municipal Commissioner
Tel: +91 522 2622 440

Mr Dinesh Sharma
Mayor

City Profile

The City of *Nawabs*, Lucknow is the capital of the most populous state of India, Uttar Pradesh. The city is known for its cultural heritage and *chikan* embroidery. Located in the historical Awadh region, Lucknow has been a multicultural city known for its manners, gardens, poetry, music and cuisines.

Population	Area
2.18 Million (2001)	310.01 sq km

- Activities in Lucknow contribute to 2.37 Million TeCO₂ annually
- Per capita emissions for Lucknow have been 0.64T/Year in 2007-08
- The Corporation Level Emissions are about 20.77 per cent of the total city emissions

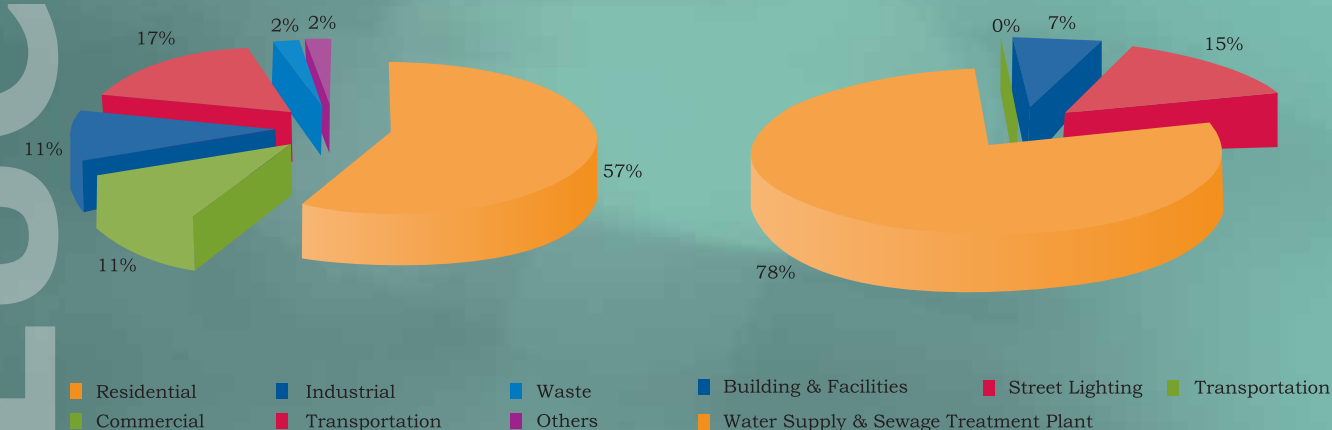
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	1,656
	LPG (MT)	732,023
	Kerosene (kL)	57,896
Commercial	Electricity (Million kWh)	384
	LPG (MT)	NA
Industrial	Electricity (Million kWh)	372
	LPG	NA
Transportation	Diesel (kL)	54,476
	Petrol (kL)	87,926
	CNG (kg)	1,295,732
Waste	MSW (tpd)	1,550
Bulk Consumers and Others	Electricity (Million kWh)	72

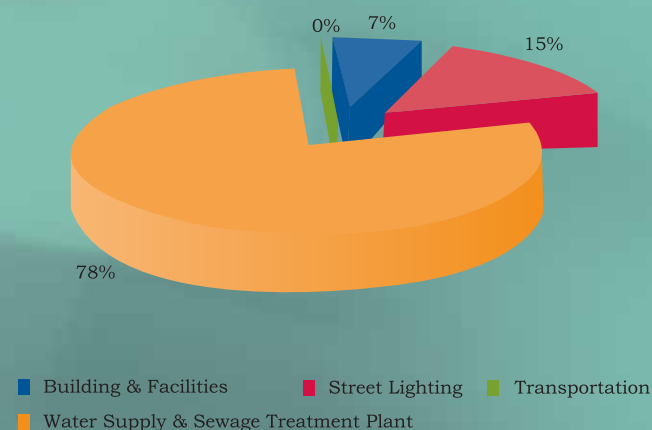
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	47.23
Street Lighting	Electricity (Million kWh)	108
Water Supply & STP	Electricity (Million kWh)	563
Transportation	Petrol (kL)	54.73
	Diesel (kL)	81.80
	CNG (kg)	6,498

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Madurai

TAMIL NADU, INDIA

Mr S Sebastine
Municipal Commissioner
Tel: +91 452 2531 116

Ms G Thenmozhi
Mayor

City Profile

Madurai is the oldest inhabited city in the Indian peninsula. Situated on the banks of the river Vaigal in Tamil Nadu, Madurai is widely known as the city of temples. The cultural capital of Tamil Nadu, it is the second largest city of the state after Chennai. The Meenakshi temple of Madurai is a great architectural marvel.



Population	Area
0.92 Million (2001)	109 sq km

- Activities in Madurai contribute to 0.28 Million TeCO₂ annually
- Per capita emissions for Madurai have been 0.31T/Year in 2007-08
- The Corporation Level Emissions are about 8.64 per cent of the total city emissions

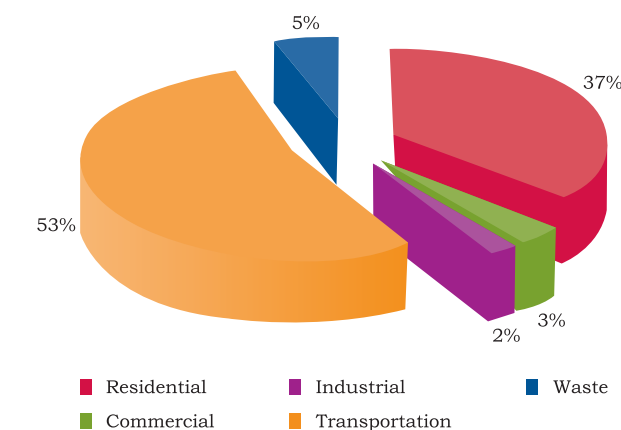
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	50
	LPG (MT)	37,570
	Kerosene (kL)	27,187
	Fuel Wood (MT)	15,512
Commercial	Electricity (Million kWh)	15
Industrial	Electricity (Million kWh)	9
Transportation	Diesel (kL)	35,054
	Petrol (kL)	21,323
Waste	MSW (tpd)	450

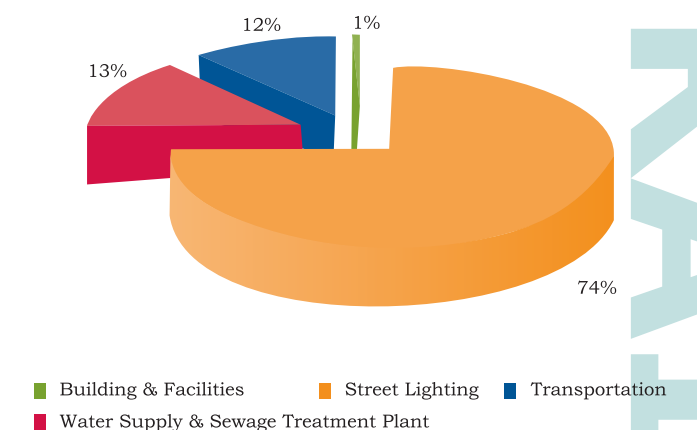
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.21
Street Lighting	Electricity (Million kWh)	29.15
Water & STP	Electricity (Million kWh)	5.12
Transportation	Petrol (kL)	NA
	Diesel (kL)	1,022

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Mysore

KARNATAKA, INDIA

Mr K S Raykar, IAS
Municipal Commissioner
Tel: +91 821 2418 803

Mr Purushotham
Mayor

City Profile

The second largest city of Karnataka, Mysore is situated at the base of the Chamundi hills. It is the second largest exporter in the state of Karnataka after Bengaluru. It is an educational, commercial and administrative centre of the state. It is also a major tourist attraction.

Population	Area
0.75 Million (2001)	128.42 sq km

- Activities in Mysore contribute to 0.94 Million TeCO₂ annually
- Per capita emissions for Mysore have been 0.72T/Year in 2007-08
- The Corporation Level Emissions are about 6.8 per cent of the total city emissions

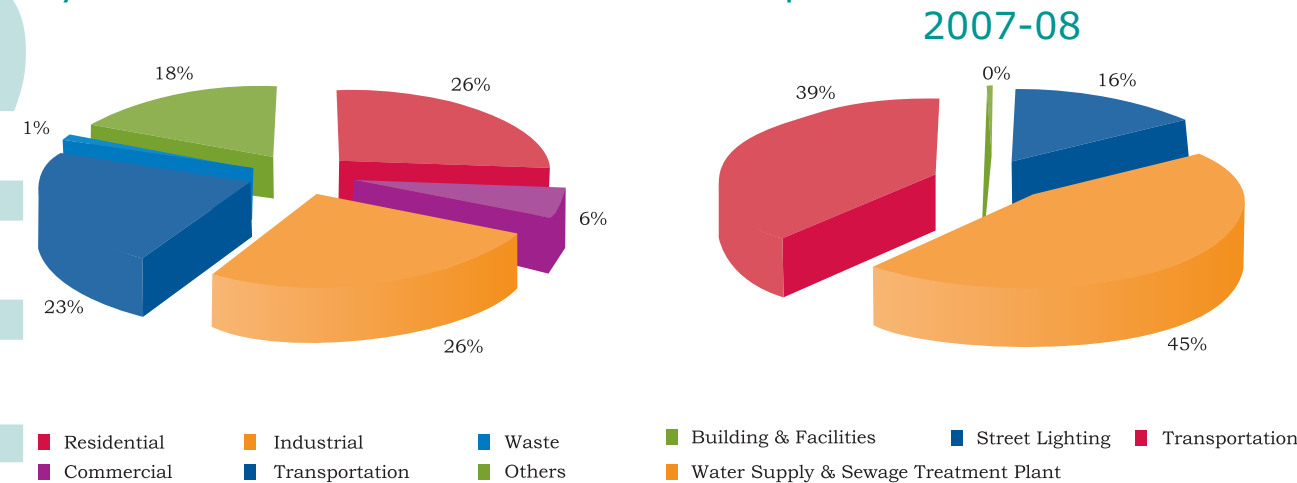
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	237.7
	LPG (MT)	2,398
	Fuel Wood (MT)	12,400
	Kerosene (kL)	32,604
Commercial	Electricity (Million kWh)	92.23
	LPG (MT)	8,348.68
	Others	NA
Industrial	Electricity (Million kWh)	380.38
	LPG (MT)	1,056.58
	Others	NA
Transportation	Diesel (kL)	51,000
	Petrol (kL)	30,800
Waste	MSW (tpd)	300
Other	Million kWh	272.708

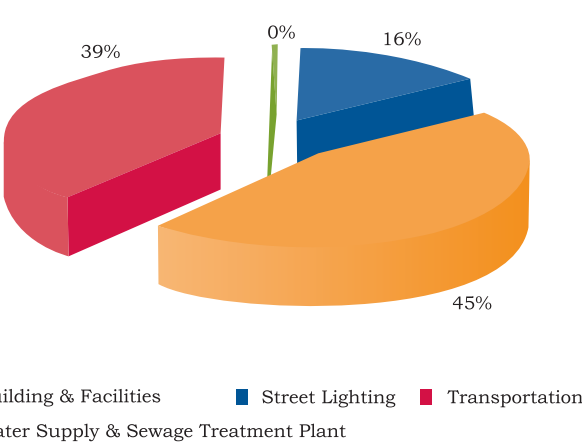
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.35
Street Lighting	Electricity (Million kWh)	16.02
Water Supply & STP	Electricity (Million kWh)	46.34
Transportation	Petrol (kL)	9.64
	Diesel (kL)	318.00
Others	LPG (MT)	0.58
	Fuel Wood (MT)	22

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Nagpur

MAHARASHTRA, INDIA

Mr Aseem Gupta, IAS
Municipal Commissioner

Ms Mayatai Iwanate
Mayor

City Profile

Also known as the city of oranges, Nagpur is an important administrative centre of the state of Maharashtra. It is the third largest city of the state after Mumbai and Pune. It is the seat of the annual winter session of the Maharashtra Vidhan Sabha.



Population	Area
2.05 Million (2001)	218 sq km

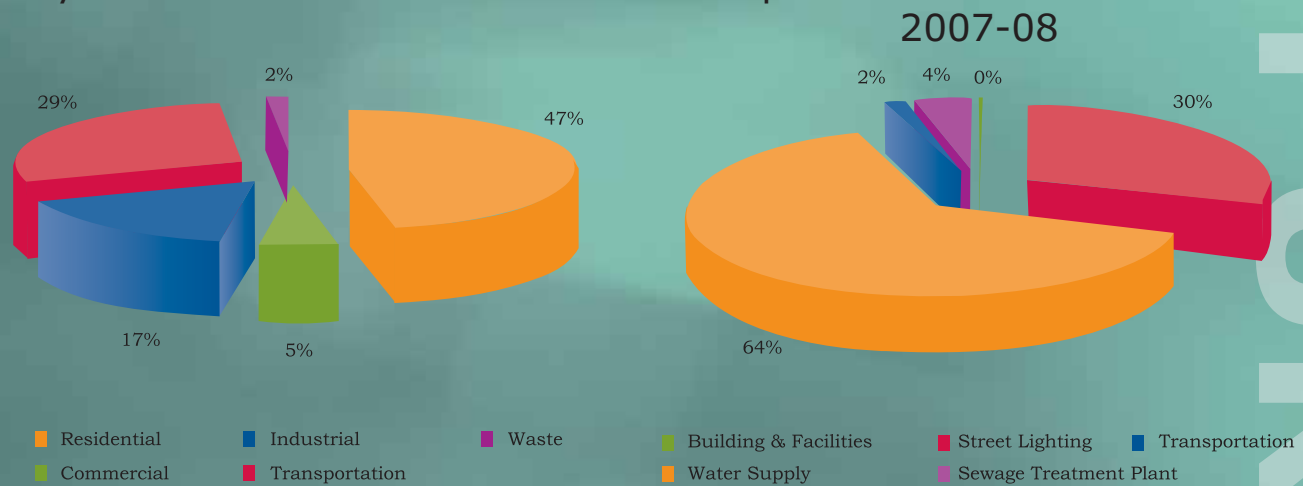
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	548
	LPG (MT)	109,897
	Fuel Wood (MT)	2,400
	Kerosene (kL)	38,497
Commercial	Electricity (Million kWh)	142
	LPG (MT)	2,341
Industrial	Electricity (Million kWh)	479
Transportation	Diesel (kL)	85,237
	Petrol (kL)	86,026
Waste	MSW (tpd)	770

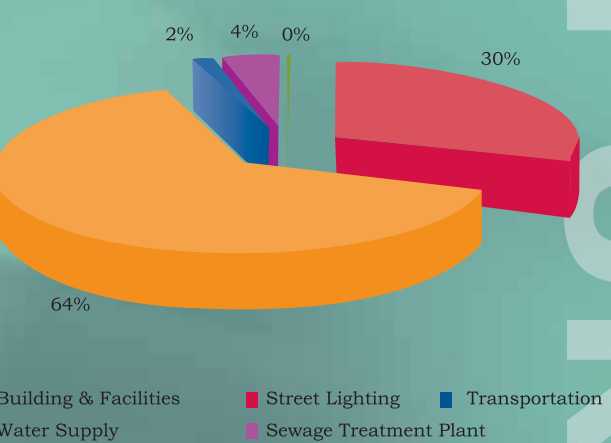
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.22
Street Lighting	Electricity (Million kWh)	32.96
Water Supply & STP	Electricity (Million kWh)	74.61
Transportation	Petrol (kL)	58.630
	Diesel (kL)	1,268.28

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Nashik

MAHARASHTRA, INDIA

Mr Bhaskar Digambar Sanab, IAS
Municipal Commissioner
Tel: +91 253 2578 206

Mr Vinayak Pandey
Mayor

City Profile

The wine capital of India or the Grape City, Nashik is situated on the Western Ghats of Maharashtra state. It is a growing industrial and educational centre. The city is known for its picturesque surroundings and pleasant climate. It is also famous for its religious and historical places. Nashik is the third most industrialised city of Maharashtra.

Population	Area
1.07 Million (2001)	259.13 sq km

- Activities in Nashik contribute to 0.67 Million TeCO₂ annually
- Per capita emissions for Nashik have been 0.34T/Year in 2007-08
- The Corporation Level Emissions are about 8.94 per cent of the total city emissions

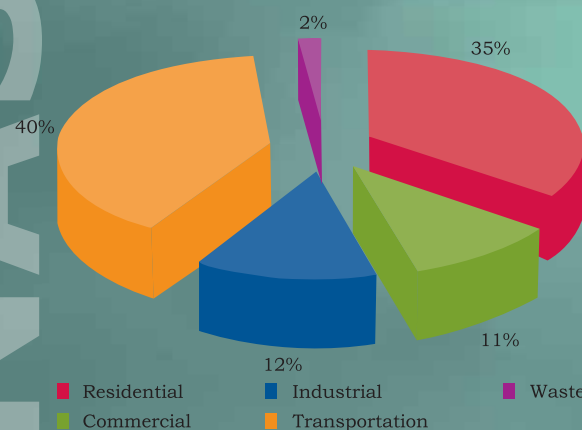
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	268.1
	Fuel Wood (MT)	55
	Kerosene (kL)	2,280
Commercial	Electricity (Million kWh)	83.5
	LPG (MT)	NA
	Coal (MT)	300
Industrial	Electricity (Million kWh)	94.2
	Coal (MT)	1,980
	Fuel Wood (MT)	300
Transportation	Diesel (kL)	47,659
	Petrol (kL)	53,487
Waste	MSW (tpd)	350

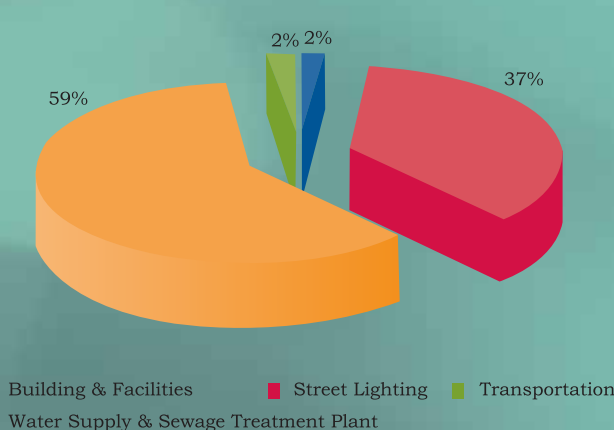
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	1.28
Street Lighting	Electricity (Million kWh)	25.52
Water Supply & STP	Electricity (Million kWh)	41.53
Transportation	Petrol (kL)	33.68
	Diesel (kL)	465.8

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Patna

BIHAR, INDIA

Mr K Senthil Kumar, IAS
Municipal Commissioner
Tel: +91 612 2223 791

City Profile

Patna is the capital of the state of Bihar. It lies on the south bank of the river Ganga. The city is home to major political activities of the state. It is a fast growing hub of higher education with many prestigious institutes setting up in the city. It is the gateway to famous Buddhist and Jain pilgrimage centres.

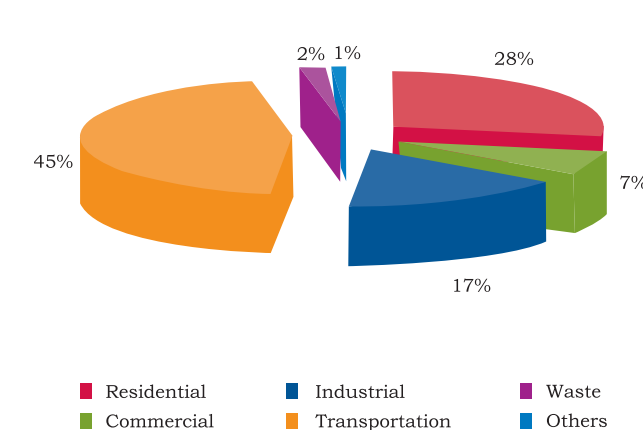
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	364.45
	LPG (MT)	54,083
	Kerosene (kL)	18,804
Commercial	Electricity (Million kWh)	144.04
Industrial	Electricity (Million kWh)	359.39
Transportation	Diesel (kL)	267,762
	Petrol (kL)	62,394
Waste	MSW (tpd)	1,130
Others	Electricity (Million kWh)	19.62
	Fuel Wood (MT)	2,250
	Coal (MT)	2,250

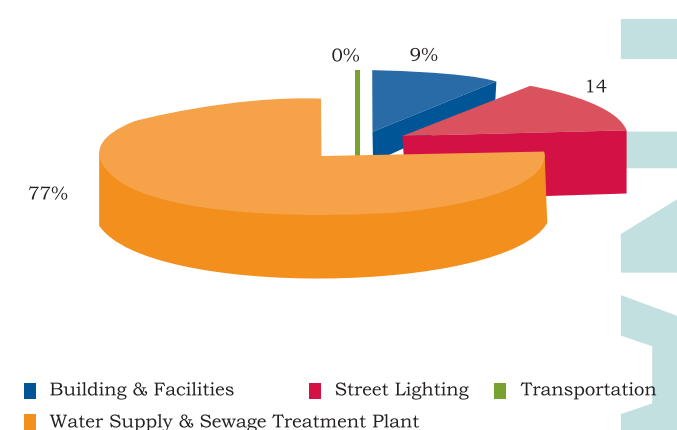
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	74.37
Street Lighting	Electricity (Million kWh)	11.59
Water Supply & STP	Electricity (Million kWh)	63.74
Transportation	Petrol (kL)	62.48
	Diesel (kL)	36.8

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Pune

MAHARASHTRA, INDIA

Mr Mahesh Zagade
Municipal Commissioner
Tel: +91 20 2550 1100

Ms Rajlaxmi Bhosale
Mayor

Population	Area
2.53 Million (2001)	450.69 sq km

- Activities in Pune contribute to 6 Million TeCO₂ annually
- Per capita emissions for Pune have been 1.31T/Year in 2007-08
- The Corporation Level Emissions are about 2.16 per cent of the total city emissions

City Profile

Pune, the Queen of the Deccan, is the second largest city of Maharashtra. It is known for its scenic beauty, rich mineral resources and educational facilities. It is also growing as an industrial region with many information technology and automotive companies setting up base here. It is the eighth most populous metropolitan city in India.

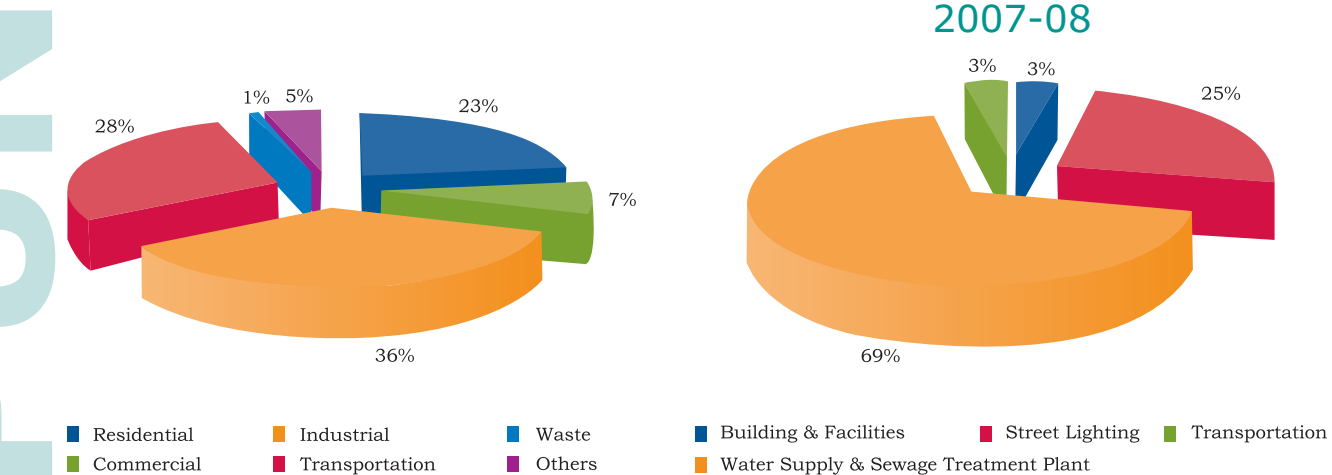
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	1,351.80
	LPG (MT)	88,975
	Fuel Wood (MT)	1,152
	Kerosene (kL)	78,024
	Coal (Tonnes)	420
Commercial	Electricity (Million kWh)	522.5
	LPG (MT)	NA
	Coal (MT)	2,800
Industrial	Electricity (Million kWh)	2,526.1
	Coal (MT)	2,400
Transportation	Diesel (kL)	358,279
	Petrol (kL)	279,467
Waste	MSW (tpd)	1,200
Others	Electricity (Million kWh)	321.1

Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	4.96
Street Lighting	Electricity (Million kWh)	38.19
Water Supply & STP	Electricity (Million kWh)	103.82
Transportation	Petrol (kL)	108.20
	Diesel (kL)	1,413.30

City Carbon Emissions 2007-08



Raipur

CHHATTISGARH, INDIA

Mr Amit Kataria, IAS
Municipal Commissioner
Tel: +91 771 2227 395

Mr Sunil Kumar Soni
Mayor



Population	Area
0.75 Million (2001)	154 sq km

City Profile

The capital of the newly formed Chhattisgarh, Raipur is situated in the south-east of the upper Mahanadi valley and the bordering hills in the south and the east. Raipur is popular for the variety of rice it offers. It has a tropical wet and dry climate.

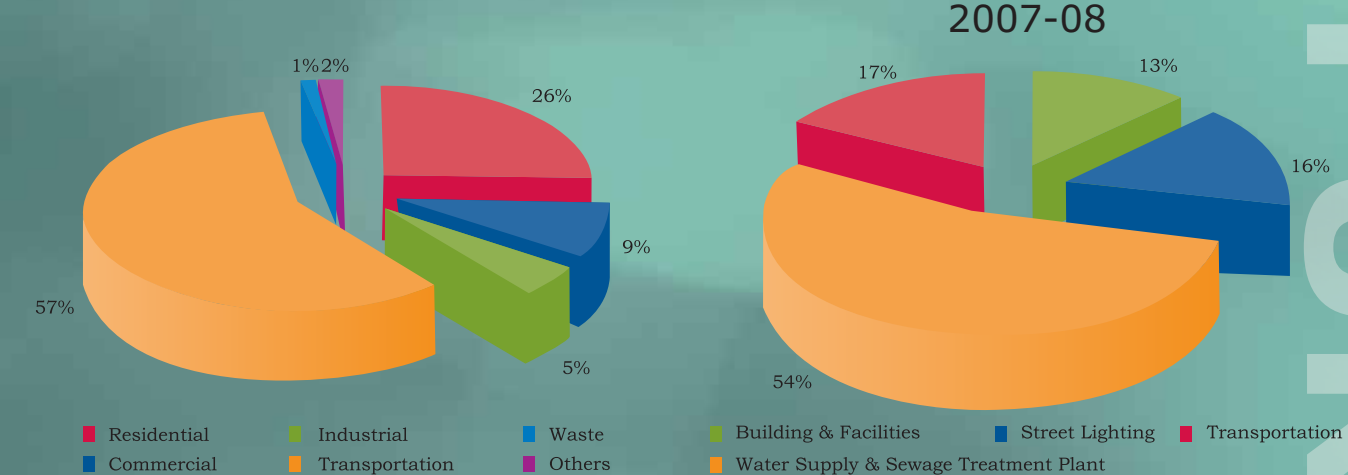
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	263.58
	LPG (MT)	33,657
Commercial	Electricity (Million kWh)	90.92
Industrial	Electricity (Million kWh)	50.49
Transportation	Diesel (kL)	150,586
	Petrol (kL)	56,487.9
Waste	MSW (tpd)	300
Others	Electricity (Million kWh)	20.29

Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	4.94
Street Lighting	Electricity (Million kWh)	6.47
Water Supply & STP	Electricity (Million kWh)	21.67
Transportation	Petrol (kL)	188.85
	Diesel (kL)	203.56

City Carbon Emissions 2007-08





Rajkot

GUJARAT, INDIA

Mr D H Brahmbhatt, IAS
Municipal Commissioner
Tel: +91 281 2239 971

Ms Sandhya Vyas
Mayor

City Profile

Rajkot is the fourth largest city of Gujarat located on the banks of the Aji and Niari river. Rajkot was the ancestral home of Mahatma Gandhi. It is ranked 22nd in the world's fastest growing cities list. The city is famous for mirror work, *bandhani* sarees, bead work, patch work, silk embroidery, jewellery market and watch parts.

Population	Area
0.96 Million (2001)	104.86 sq km

- Activities in Rajkot contribute to 0.88 Million TeCO₂ annually
- Per capita emissions for Rajkot have been 0.67T/Year in 2007-08
- The Corporation Level Emissions are about 2.80 per cent of the total city emissions

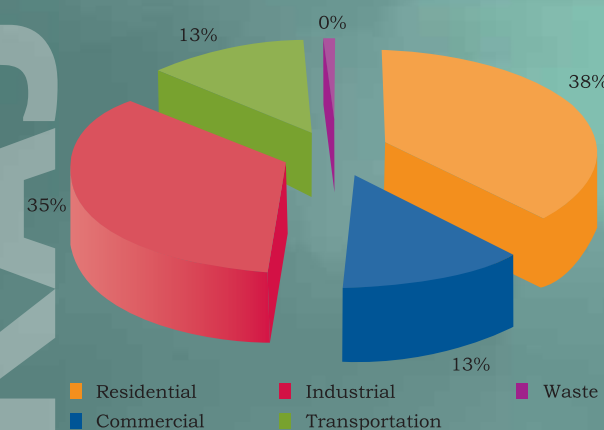
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	316.28
	LPG (MT)	NA
	Kerosene (kL)	24,167
Commercial	Electricity (Million kWh)	133.79
Industrial	Electricity (Million kWh)	360.49
	LPG (MT)	1,178
	CNG (MT)	1,588
Transportation	Diesel (kL)	21,539
	Petrol (kL)	8,559
Waste	MSW (tpd)	227

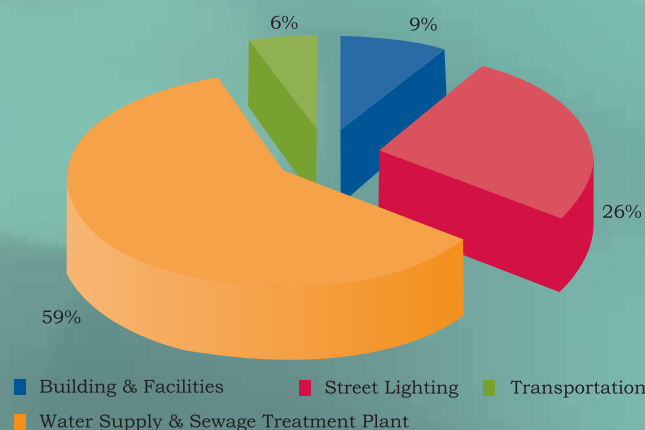
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	2.56
Street Lighting	Electricity (Million kWh)	7.65
Water Supply & STP	Electricity (Million kWh)	16.97
Transportation	Petrol (kL)	40.50
	Diesel (kL)	457.53

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Ranchi

JHARKHAND, INDIA

Dr Sunil Kumar Singh
Chief Executive Officer
Tel: +91 651 2203 469

Mr Rama Khalkho
Mayor

City Profile

Ranchi is the capital of the newly formed state of Jharkhand situated in the valley of Chotanagpur. It is known for its picturesque natural beauty, waterfalls, cool climate, barren rocks and hillocks. It is an emerging industrial town. It also boasts of several educational institutions. The city is also rich in natural resources.



Population	Area
0.84 Million (2001)	111 sq km

- Activities in Ranchi contribute to 2.88 Million TeCO₂ annually
- Per capita emissions for Ranchi city have been 1.97T/Year in 2007-08
- The Corporation Level Emissions are about 0.06 per cent of the total city emissions

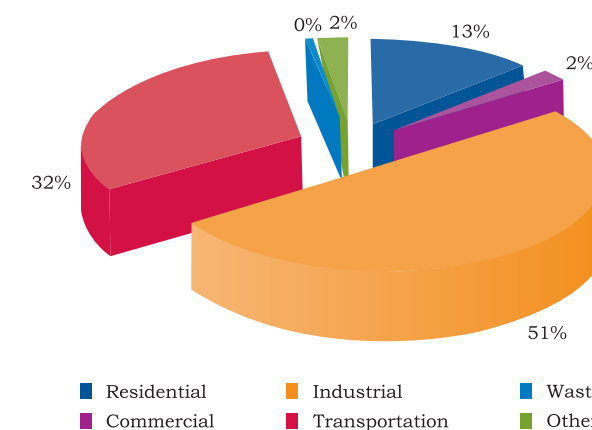
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	327.58
	LPG (MT)	362.95
	Kerosene (kL)	23,765
Commercial	Electricity (Million kWh)	61.19
Industrial	Electricity (Million kWh)	200.13
Transportation	Diesel (kL)	242,365
	Petrol (kL)	92,604
Waste	MSW (tpd)	360
Others	Electricity (Million kWh)	74
	Coal (MT)	811,904

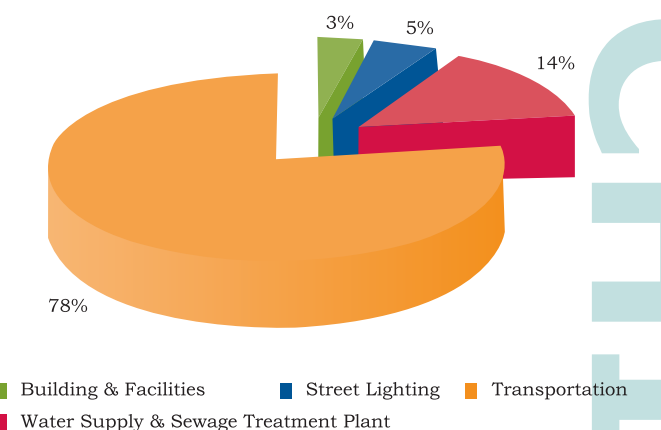
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.07
Street Lighting	Electricity (Million kWh)	0.10
Water Supply & STP	Electricity (Million kWh)	0.3
Transportation	Petrol (kL)	16.28
	Diesel (kL)	480

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Population	Area
0.44 Million (2001)	142 sq km

- Activities in Sangli contribute to 0.47 Million TeCO₂ annually
- Per capita emissions for Sangli have been 0.52T/Year in 2007-08
- The Corporation Level Emissions are about 3.4 per cent of the total city emissions

Sangli

MAHARASHTRA, INDIA

Mr D P Metake
Municipal Commissioner
Tel: +91 233 2323 167

City Profile

Sangli is located in western Maharashtra. It is surrounded by Satara, Solapur, Vijapur, Kolhapur, Belgum and Ratnagiri. It is located in the river basins of the Warna and Krishna river. Sangli is the largest trading centre for turmeric and raisins in India. It is located in the sugar belt of Maharashtra.

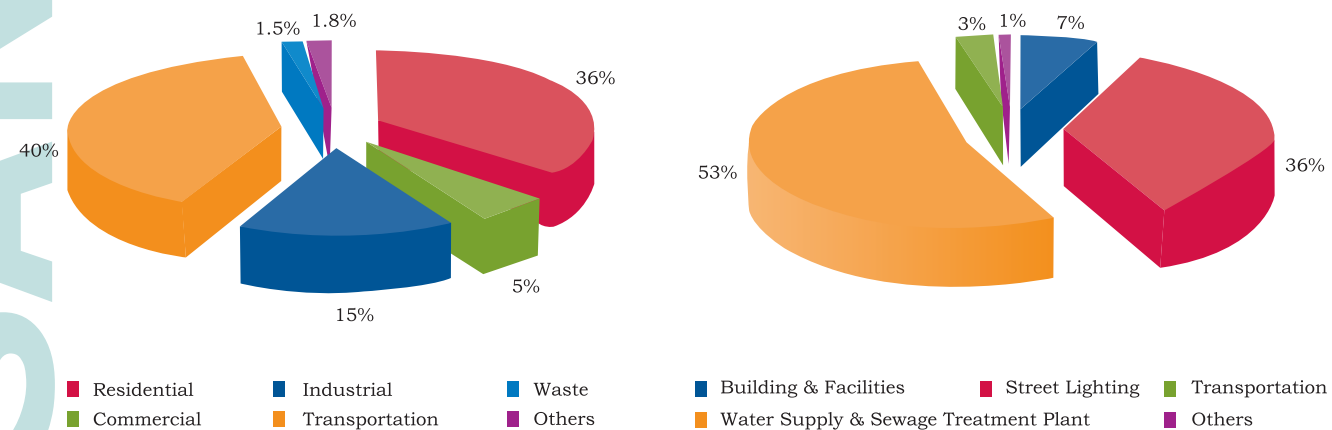
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	70.56
	LPG (MT)	10,554
	Fuel Wood (MT)	480
	Kerosene (kL)	33,360
	Coal (MT)	30
Commercial	Electricity (Million kWh)	24.34
	Coal (MT)	80
Industrial	Electricity (Million kWh)	43.14
	Coal (MT)	15,000
Transportation	Diesel (kL)	32,531
	Petrol (kL)	55,458
Waste	MSW (tpd)	190
Other	Electricity (Million kWh)	8.87

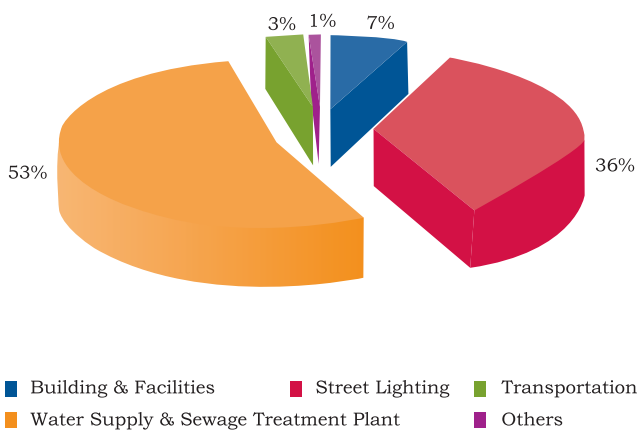
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	1.23
Street Lighting	Electricity (Million kWh)	6.84
Water Supply & STP	Electricity (Million kWh)	9.94
Transportation	Petrol (kL)	32
	Diesel (kL)	144.03
Others	Kerosene (kL)	34.05

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Shimla

HIMACHAL PRADESH, INDIA

Mr Amarnath Sharma, IPS
Municipal Commissioner
Tel: +91 364 2640 845

Mr Narinder Kataria
Mayor

City Profile

The Queen of the Hills, Shimla is the capital of Himachal Pradesh. It was the summer capital of British India. A popular tourist destination, Shimla is located in the north-west Himalayas at an altitude of 2,128 metres. It is famous for its neo-gothic architecture dating back to the colonial era and is surrounded by forests of pine and oak.

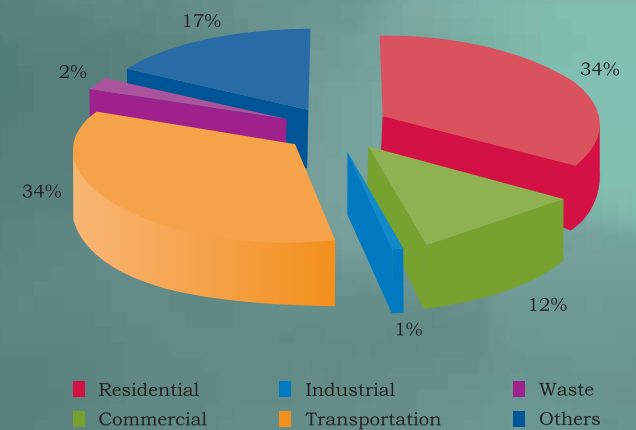
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	53.92
	LPG (MT)	759
	Kerosene (kL)	4,320
Commercial	Electricity (Million kWh)	25.3
	LPG (MT)	NA
Industrial	Electricity (Million kWh)	1.53
	LPG	NA
Transportation	Diesel (kL)	10,512
	Petrol (kL)	7,215
Waste	MSW (tpd)	93
Others	Electricity (Million kWh)	35.53

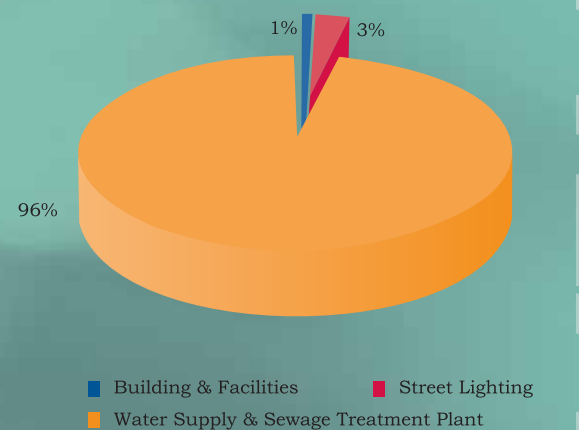
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.56
Street Lighting	Electricity (Million kWh)	2.15
Water Supply & STP	Electricity (Million kWh)	76.46
Transportation	Petrol (kL)	12.56
	Diesel (kL)	26.42

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Surat

GUJARAT, INDIA

Ms S Aparna, IAS
Municipal Commissioner
Tel: +91 261 2422 244

Ms Kanubhai G Mavani
Mayor

City Profile

Surat is the eighth largest city in India, located in the western part of Gujarat. It is situated on the bank of the river Tapti. The city is largely recognised for its textile and diamond industry. 92 per cent of the diamonds of the world are cut and polished in Surat. It is also the third cleanest city in India after Chandigarh and Gandhinagar.

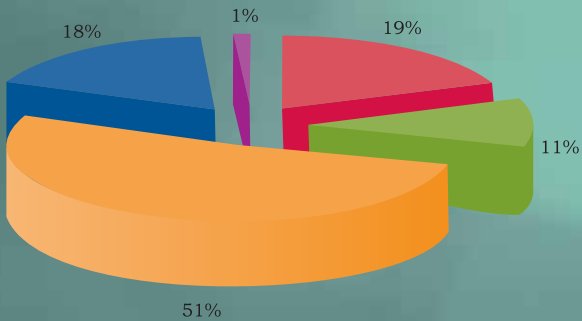
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	531
	Fuel Wood (MT)	320.08
	Kerosene (kL)	74,910
Commercial	Electricity (Million kWh)	414
	LPG (MT)	320.08
Industrial	Electricity (Million kWh)	2,033
Transportation	Diesel (kL)	108,569.50
	Petrol (kL)	119,938.50
	CNG (kg)	790,80
Waste	MSW (tpd)	1,093

Corporation Energy Consumption

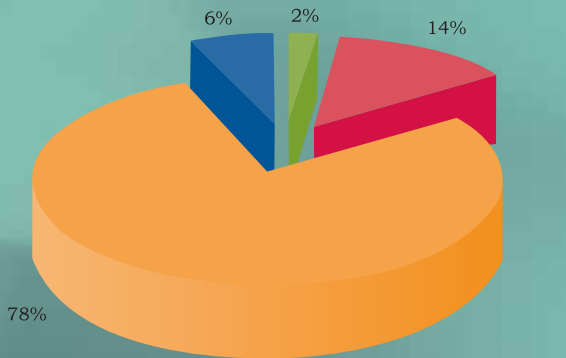
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	9.56
Street Lighting	Electricity (Million kWh)	19.01
Water Supply & STP	Electricity (Million kWh)	100.77
Transportation	Petrol (kL)	60
	Diesel (kL)	2,664

City Carbon Emissions 2007-08



Residential Industrial Waste
Commercial Transportation Street Lighting

Corporation Carbon Emissions 2007-08



Building & Facilities Water Supply & Sewage Treatment Plant Transportation

Thane

MAHARASHTRA, INDIA

Mr Nandkumar Jantre, IAS
Municipal Commissioner
Tel: +91 22 2533 6523

Ms Smita Subhas Indulkar
Mayor



City Profile

The terminus of the first railway in India built from Mumbai in 1853, Thane is situated on the western bank of the Thane creek with the Parsik hills on the east and the Yeour hills on the west. It was an important Portuguese trading centre. The city has various historical buildings, including a fort and several churches.

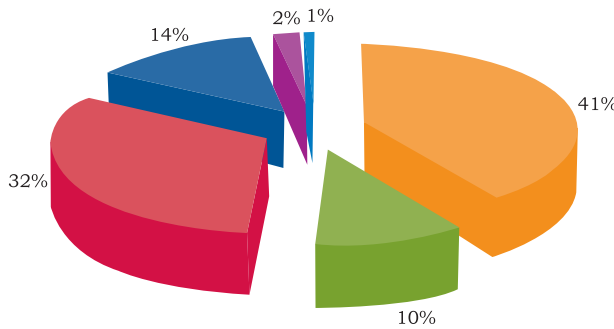
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	513.05
	LPG (MT)	19,745.87
	Kerosene (kL)	25,468
Commercial	Electricity (Million kWh)	172.94
	LPG (MT)	820.439
Industrial	Electricity (Million kWh)	537.73
	Kerosene (kL)	102,379.68
Transportation	Diesel (kL)	18,828.67
	Petrol (kL)	20,630.05
Waste	MSW (tpd)	600
Others	CNG (scmd)	73,000
	Briquette (MT)	21,000

Corporation Energy Consumption

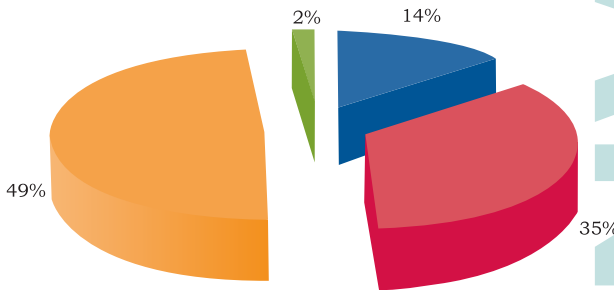
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	5.93
Street Lighting	Electricity (Million kWh)	14.99
Water Supply & STP	Electricity (Million kWh)	20.99
Transportation	Petrol (kL)	68.331
	Diesel (kL)	107.180
	CNG (scmd)	8,160

City Carbon Emissions 2007-08



Residential Industrial Waste
Commercial Transportation Others

Corporation Carbon Emissions 2007-08



Building & Facilities Water Supply & Sewage Treatment Plant Transportation



Thiruvananthapuram

KERALA, INDIA

Mr P S Md Sagir, IAS
Municipal Commissioner
Tel: +91 471 2332 085

Mr C Jayan Babu
Mayor

City Profile

Thiruvananthapuram is the capital of Kerala, located on the west coast of India, near the extreme south. Referred to as the 'Evergreen City of India' by Mahatma Gandhi, it is characterised by undulating terrain of low coastal hills and busy commercial alleys. It is the largest and the most populous city of Kerala.

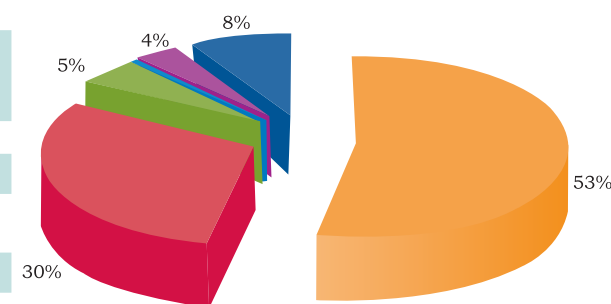
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	193.98
	LPG (MT)	NA
Commercial	Electricity (Million kWh)	110.31
	LPG (MT)	NA
Industrial	Electricity (Million kWh)	18.17
	LPG	NA
Transportation	Diesel (kL)	NA
	Petrol (kL)	NA
Waste	MSW (tpd)	250
Others	Electricity (Million kWh)	30.71

Corporation Energy Consumption

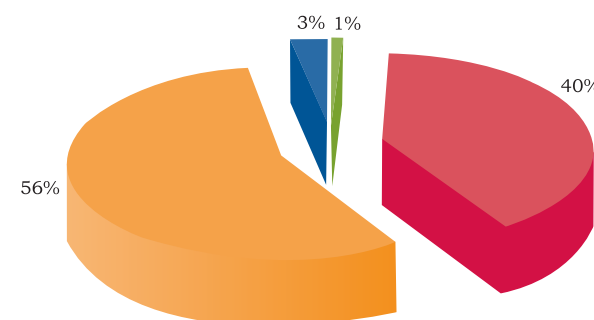
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.68
Street Lighting	Electricity (Million kWh)	33.334
Water Supply & STP	Electricity (Million kWh)	46
Transportation	Petrol (kL)	NA
	Diesel (kL)	554.9

City Carbon Emissions 2007-08



Residential Commercial Industrial Waste Building & Facilities Street Lighting Transportation
Others Water Supply & Sewage Treatment Plant

Corporation Carbon Emissions 2007-08



Tiruchirapalli

TAMIL NADU, INDIA

Mr T T Balsamy, MA
Municipal Commissioner
Tel: +91 431 2412 860

Ms Sarubala R Thondaiman
Mayor

City Profile

The fourth largest city in Tamil Nadu, Tiruchirapalli is a bustling town and a thriving commercial centre, famous for artificial diamonds, cigars, handloom cloth, glass bangles and wooden and clay toys. The town and its famous forts were built by the Nayaks of Madurai and is home to the famous Rockfort temple.

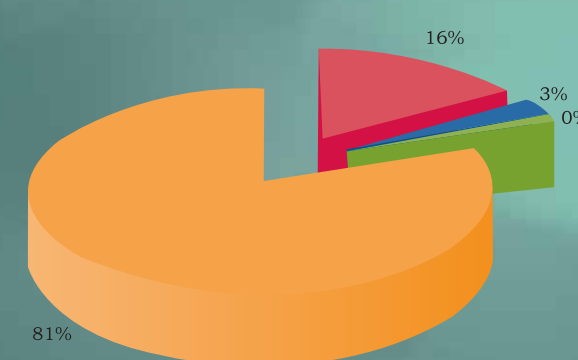
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	455
	LPG (MT)	NA
Commercial	Electricity (Million kWh)	79
Industrial	Electricity (Million kWh)	14
Transportation	Diesel (kL)	NA
	Petrol (kL)	NA
Waste	MSW (tpd)	432
Others	Electricity (Million kWh)	NA

Corporation Energy Consumption

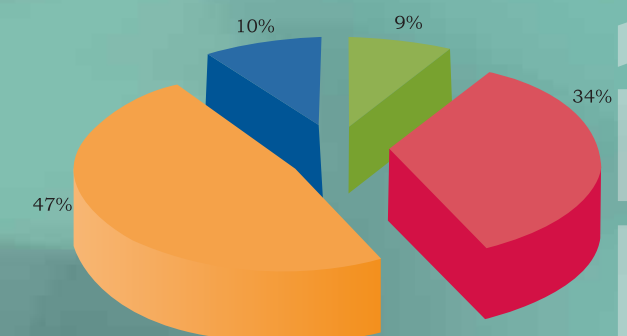
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	3.02
Street Lighting	Electricity (Million kWh)	12.07
Water & STP	Electricity (Million kWh)	16.41
Transportation	Petrol (kL)	14.4
	Diesel (kL)	755.16

City Carbon Emissions 2007-08



Residential Commercial Industrial Waste Building & Facilities Street Lighting Transportation
Water Supply & Sewage Treatment Plant

Corporation Carbon Emissions 2007-08



Population	Area
0.75 Million (2001)	146.90 sq km

- Activities in Tiruchirapalli contribute to 0.35 Million TeCO₂ annually
- Per capita emissions for Tiruchirapalli have been 0.33T/Year in 2007-08
- The Corporation Level Emissions are about 6.11 per cent of the total city emissions



Udaipur

RAJASTHAN, INDIA

Mr Balmukund Asawa
Municipal Commissioner
Tel: +91 294 2421 255

Mr Ravindra Shrimali
Mayor

City Profile

The historic capital of the former kingdom of Mewar, Udaipur is a city situated in Rajasthan. Also known as the ‘City of Lakes’ for the beautiful lakes that it hosts, the city best captures the Rajput era through its palaces, which today, have been converted into luxury hotels.

Population	Area
0.38 Million (2001)	37 sq km

- Activities in Udaipur contribute to 0.62 Million TeCO₂ annually
- Per capita emissions for Udaipur have been 0.76T/Year in 2007-08
- The Corporation Level Emissions are about 6.33 per cent of the total city emissions

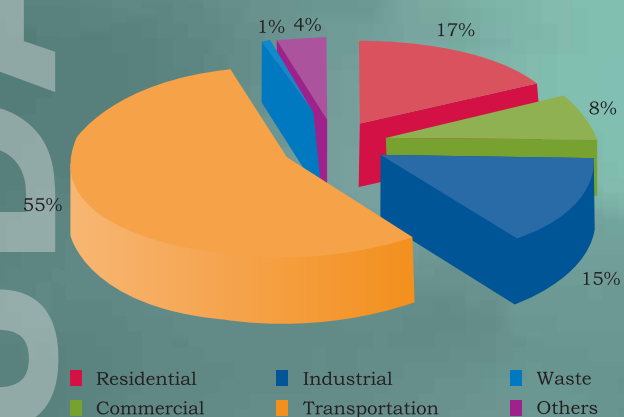
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	137.24
	LPG (MT)	17,704
	Kerosene (kL)	4,873.62
Commercial	Electricity (Million kWh)	76.31
Industrial	Electricity (Million kWh)	131.26
Transportation	Diesel (kL)	96,354
	Petrol (kL)	29,718
Waste	MSW (tpd)	125
Others	Electricity (Million kWh)	20.85
	Coal (Tonnes)	7,200

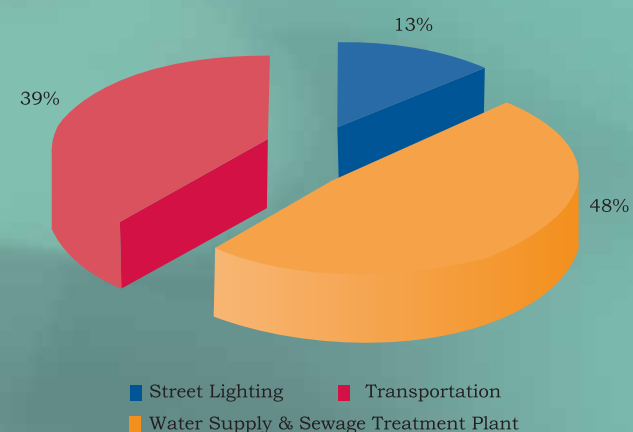
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	NA
Street Lighting	Electricity (Million kWh)	7.41
Water & STP	Electricity (Million kWh)	27.69
Transportation	Petrol (kL)	5.89
	Diesel (kL)	270.18

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Vijayawada

ANDHRA PRADESH, INDIA

Mr Pradyumna P S, IAS
Municipal Commissioner
Tel: +91 866 2421 058

Ms Muttamsetty Venkata Ratna Bindu
Mayor

City Profile

Vijayawada, also known as Bezawada, the third largest city in Andhra Pradesh, has earned the title of ‘Business Capital of Andhra Pradesh’, due to its prominence as a major trading and business centre. Located on the banks of the Krishna river, the city’s railway junction is the third largest in the world.

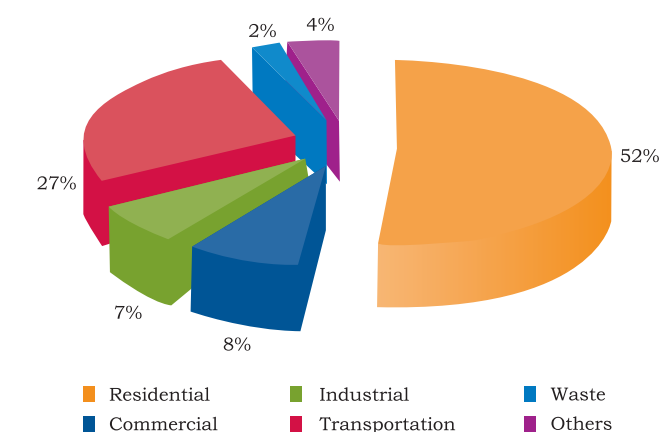
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	398.88
	LPG (MT)	27,104.45
	Kerosene (kL)	2,984
Commercial	Electricity (Million kWh)	190.72
	LPG (MT)	1,511.105
	Coal (Tonnes)	17,280
Industrial	Electricity (Million kWh)	162.36
	Industrial oil (kL)	1,187.7
	Coal (Tonnes)	16,014
Transportation	Diesel (kL)	86,898
	Petrol (kL)	22,445
Waste	MSW (tpd)	350

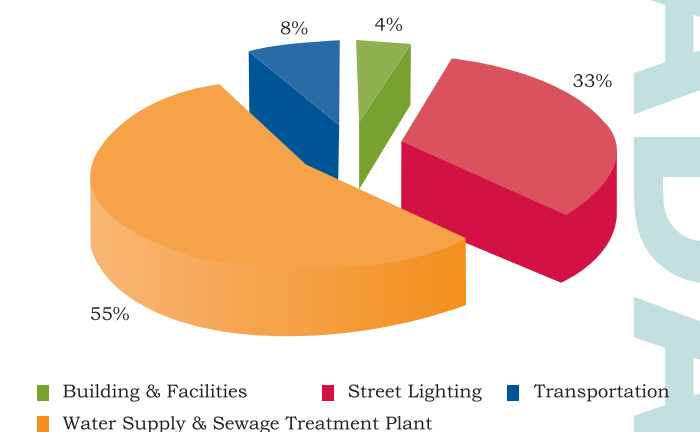
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	1.36
Street Lighting	Electricity (Million kWh)	10.41
Water Supply & STP	Electricity (Million kWh)	15.62
Transportation	Petrol (kL)	20.04
	Diesel (kL)	474.92

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Population	Area
0.85 Million (2001)	110.14 sq km

- Activities in Vijayawada contribute to 1.47 Million TeCO₂ annually
- Per capita emissions for Vijayawada have been 0.90T/Year in 2007-08
- The Corporation Level Emissions are about 1.2 per cent of the total city emissions



Visakhapatnam

ANDHRA PRADESH, INDIA

Mr B Sridhar, IAS
Municipal Commissioner
Tel: +91 891 2746 300

Mr P Janardhan Rao
Mayor

City Profile

Visakhapatnam, also known as Vizag is a coastal port city in Andhra Pradesh. Home to the Eastern Naval Command of the Indian Navy, the city is also called the 'City of Destiny'. It hosts several heavy industries and has one of the largest ports and the oldest shipyards in the country. It has the only natural harbour on the eastern coast of India.

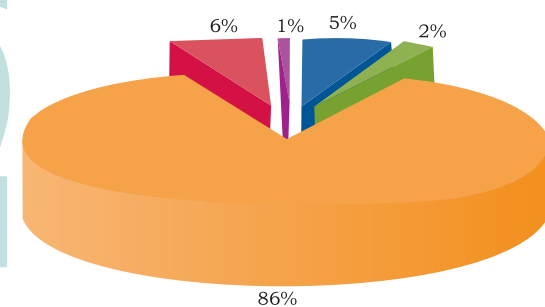
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	494.08
	LPG (MT)	34,678
	Kerosene (kL)	2,196
	Fire Wood (MT)	9,300
Commercial	Electricity (Million kWh)	206.02
Industrial	Electricity (Million kWh)	982.69
	Coal (MT)	4,062,709
Transportation	Diesel (kL)	149,294
	Petrol (kL)	45,963
Waste	MSW (tpd)	880

Corporation Energy Consumption

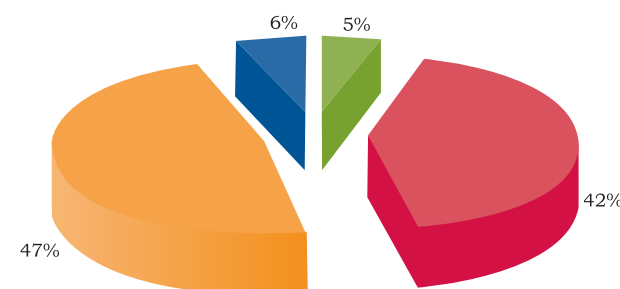
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	16.64
Street Lighting	Electricity (Million kWh)	20.13
Water Supply & STP	Electricity (Million kWh)	14.91
Transportation	Petrol (kL)	105.72
	Diesel (kL)	390.61

City Carbon Emissions 2007-08



■ Residential ■ Industrial ■ Waste ■ Building & Facilities ■ Street Lighting ■ Transportation
■ Commercial ■ Transportation ■ Water Supply & Sewage Treatment Plant

Corporation Carbon Emissions 2007-08



Chittagong

BANGLADESH

Mr Md Shamsuddoha
Secretary
Tel: +880 31 610007

Mr Alhaj A B M Mohiuddin Chowdhury
Mayor

City Profile

Chittagong is the second largest city and the main seaport of Bangladesh. Situated on the banks of the Karnaphuli river, it is nestled between the Chittagong Hill Tracts and the Bay of Bengal. Chittagong is a major centre for commerce and industry in South Asia.

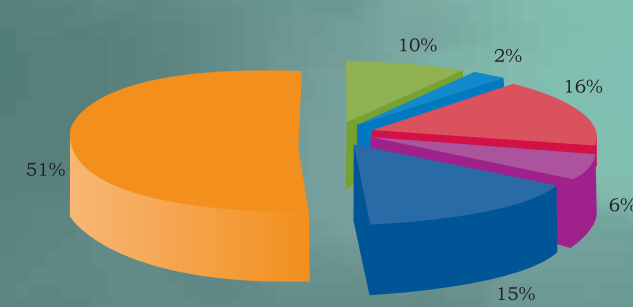
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	59.63
	LPG (MT)	NA
Commercial	Electricity (Million kWh)	15.19
	LPG (MT)	NA
Industrial	Electricity (Million kWh)	101.60
Transportation	Diesel (kL)	4,854.48
	Petrol (kL)	42,097.618
	Octane (kL)	31,511.64
Waste	MSW (tpd)	1,100
Others	Electricity (Million kWh)	35.37

Corporation Energy Consumption

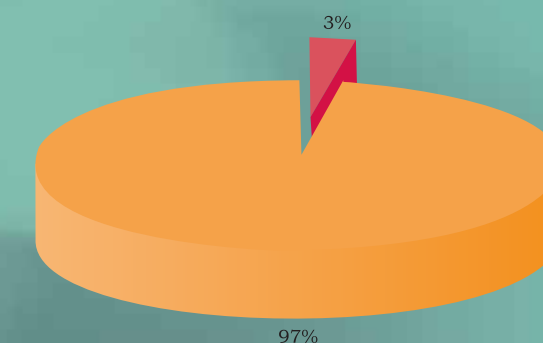
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	NA
Street Lighting	Electricity (Million kWh)	NA
Water Supply	Electricity (Million kWh)	27.16
Sewage System	Electricity (kWh)	NA
Transportation	Petrol (kL)	64.12
	Diesel (kL)	686.25
	Octane (kL)	7.96

City Carbon Emissions 2007-08



■ Residential ■ Industrial ■ Waste ■ Building & Facilities ■ Street Lighting ■ Transportation
■ Commercial ■ Others ■ Transportation

Corporation Carbon Emissions 2007-08



■ Water Supply ■ Transportation



Population	Area
2.53 Million (2001)	157 sq km

- Activities in Chittagong contribute to 0.38 Million TeCO₂ annually
- Per capita emissions for Chittagong have been 0.10T/Year in 2007-08
- The Corporation Level Emissions are about 9.87 per cent of the total city emissions



Dhaka

BANGLADESH

Mr Sadeque Hossain Khoka
Mayor
Tel: +880 2 9563504

City Profile

Formerly known as Dacca and Jahangir nagar, Dhaka is the capital of Bangladesh. A mega city in itself, it is also one of the major cities of South Asia. Located on the banks of the Buriganga river, Dhaka is famed as the City of Mosques and for producing the finest muslin. It is a prime centre for culture, education and business.

Population	Area
6.73 Million (2001)	153.84 sq km

- Activities in Dhaka contribute to 4.27 Million TeCO₂ annually
- Per capita emissions for Dhaka have been 0.63T/Year in 2007-08

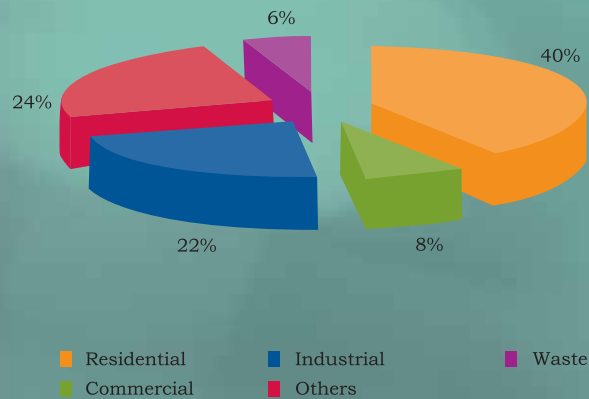
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	2,753.81
	LPG (MT)	NA
Commercial	Electricity (Million kWh)	536.46
	LPG (MT)	NA
Industrial	Electricity (Million kWh)	1,502.29
	LPG (MT)	NA
Transportation	Diesel (kL)	NA
	Petrol (kL)	NA
Waste	MSW (tpd)	NA
Others	Electricity (Million kWh)	1,660.33

Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	NA
Street Lighting	Electricity (Million kWh)	24.63
Water Supply	Electricity (Million kWh)	NA
Sewage System	Electricity (Million kWh)	NA
Transportation	Petrol (kL)	NA
	Diesel (kL)	NA

City Carbon Emissions 2007-08



Khulna

BANGLADESH

Mr Tapan Kumar Ghosh
Chief Executive Officer
Tel: +880 171 2548406

Mr Md Moniruzzaman Moni
Mayor

City Profile

Located on the banks of the Rupsha and Bhairab rivers, Khulna is the third largest city of Bangladesh. It is also one of the major industrial and commercial hubs of the country. The city is located 333 kilometres south-west of Dhaka.



Population	Area
0.84 Million (2001)	59.57 sq km

- Activities in Khulna contribute to 0.77 Million TeCO₂ annually
- Per capita emissions for Khulna have been 0.09T/Year in 2007-08
- The Corporation Level Emissions are about 7.9 per cent of the total city emissions

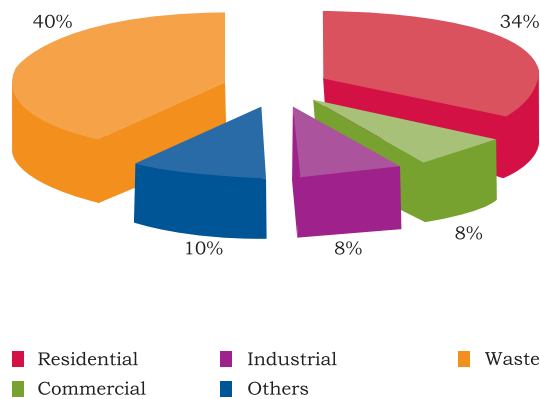
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	41.77
	LPG (MT)	NA
Commercial	Electricity (Million kWh)	9.47
	LPG (MT)	NA
Industrial	Electricity (Million kWh)	9.98
	Kerosene (kL)	NA
Transportation	Diesel (kL)	NA
	Petrol (kL)	NA
Waste	MSW (tpd)	520
Others	Electricity (Million kWh)	13.03

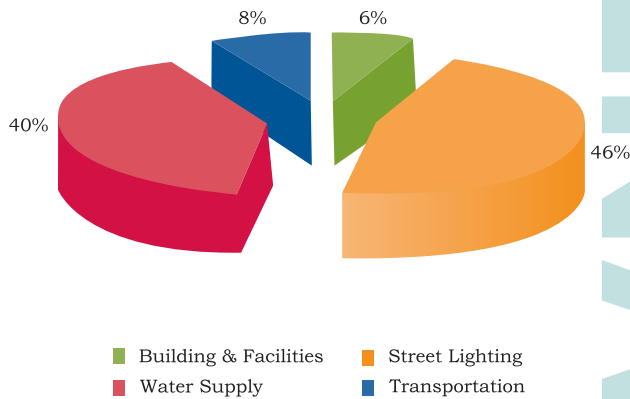
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.6
Street Lighting	Electricity (Million kWh)	4.5
Water Supply & STP	Electricity (Million kWh)	3.9
Transportation	Petrol & Octane (kL)	49.97
	Diesel (kL)	132.01

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Rajshahi

BANGLADESH

Mr S M Zahedul Karim
Chief Executive Officer
Rajshahi Development Authority

Mr AHM Khairuzzaman
Mayor

City Profile

The north western city of Bangladesh, Rajshahi is situated on the northern banks of the river Padma. It is also known as the ‘education city’ and the ‘silk city’. Though archaeological research dates Rajshahi back to 1634 AD, the city started gaining importance post 1825, when it was made the administrative centre of the East India Company.

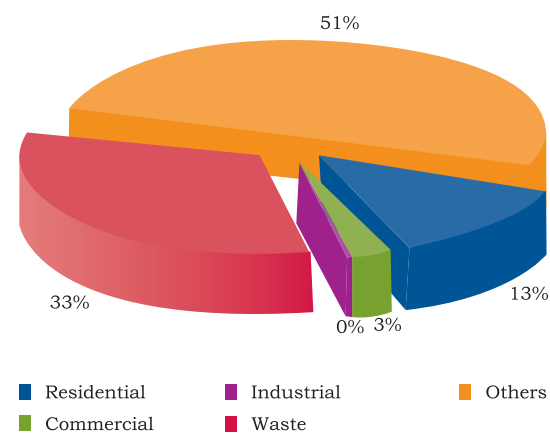
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	11.77
	LPG (MT)	NA
Commercial	Electricity (Million kWh)	2.21
	LPG (MT)	NA
Industrial	Electricity (Million kWh)	0.082
	LPG	NA
Transportation	Diesel (kL)	NA
	Petrol (kL)	NA
Waste	MSW (tpd)	300
Others	Electricity (Million kWh)	44.7

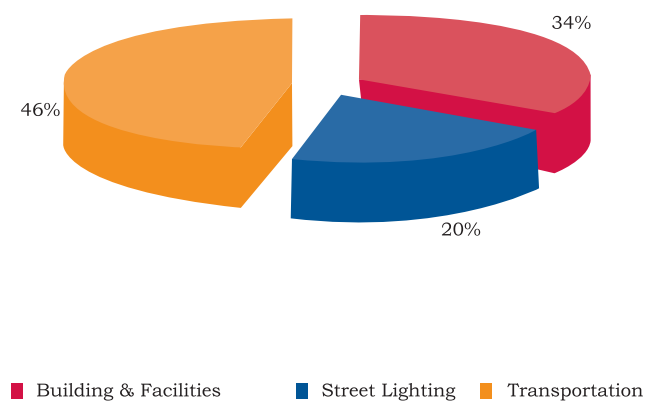
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.07
Street Lighting & Water Supply	Electricity (Million kWh)	0.04
Sewage System	Electricity (Million kWh)	NA
Transportation	Petrol (kL)	4.10
	Diesel (kL)	20.08

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Phuentsholing

BHUTAN

Mr Kunzang Norbu
Mayor
Tel: +975 5 252168

City Profile

The border town of Southern Bhutan, Phuentsholing lies opposite to the Indian town of Jaigaon and has a thriving local economy, resulting from cross-border trade. The natural beauty of the Amo Chuu, commonly known as the Torsha river, and the jungles that lie close by, teaming with exotic flora and fauna, are favourite tourist spots.

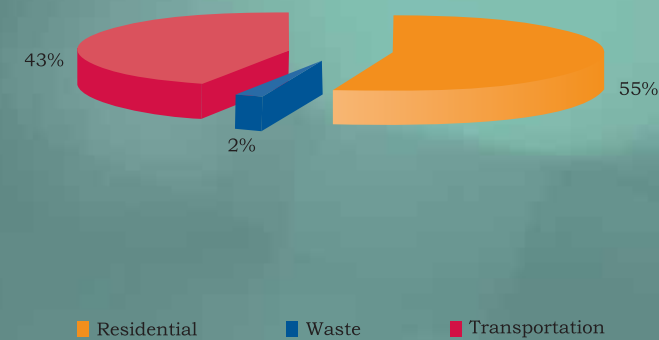
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	5.61
	LPG (MT)	10,226
Commercial	Electricity (Million kWh)	5.70
	LPG (MT)	NA
Industrial	Electricity (Million kWh)	46.02
	LPG	NA
Transportation	Diesel (kL)	2,130.62
	Petrol (kL)	2,865.68
Waste	MSW (tpd)	15
Others	Electricity (Million kWh)	0.38

Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	NA
Street Lighting	Electricity (Million kWh)	0.18
Water Supply	Electricity (Million kWh)	1.02
Sewage System	Electricity (Million kWh)	0.03
Others	Electricity (Million kWh)	0.68

City Carbon Emissions 2007-08



Population	Area
0.02 Million (2005)	NA

- Activities in Phuentsholing contribute to 0.02 Million TeCO₂ annually
- Per capita emissions for Phuentsholing have been 0.64T/Year in 2007-08



Thimphu

BHUTAN

Mr Phuntsho Gyeltshen
Executive Secretary
Tel: +975 2 327513

City Profile

Thimphu is the capital city of Bhutan and also the name of the surrounding valley and Dzongkhag, the Thimphu District. It is the largest population centre in the country.

Population	Area
0.09 Million (2001)	NA

- Activities in Thimphu contribute to 0.03 Million TeCO₂ annually
- Per capita emissions for Thimphu have been 0.33 T/Year in 2007-08
- The Corporation Level Emissions are about 0.45 per cent of the total city emissions

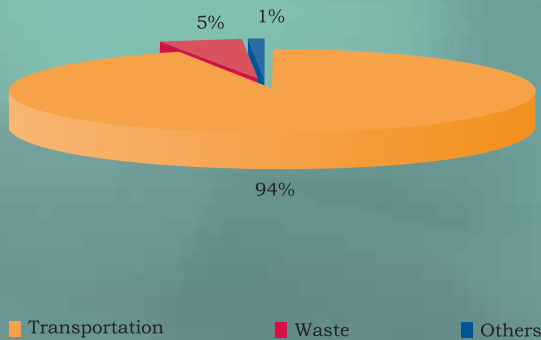
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	80.73
	LPG (MT)	NA
Commercial	Electricity (Million kWh)	21.01
	LPG (MT)	NA
Industrial	Electricity (Million kWh)	3.91
	LPG	NA
Transportation	Diesel (kL)	7,002.22
	Petrol (kL)	5,042.48
Waste	MSW (tpd)	40
Others	Electricity (Million kWh)	25.10

Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.10
Street Lighting	Electricity (Million kWh)	0.19
Water Supply	Electricity (Million kWh)	0.33
Sewage System	Electricity (Million kWh)	NA
Transportation	Petrol (kL)	3.62
	Diesel (kL)	51.99

City Carbon Emissions 2007-08



Kathmandu

NEPAL

Mr Niranjan Baral
Executive Officer
Tel: +977 1 4231481

City Profile

Situated at an altitude of approximately 1,400 metres, Kathmandu is the capital and the largest metropolitan city of Nepal. Surrounded by four mountains, Shivapuri, Phulchowki, Nagarjun and Chandragiri, the city boasts of having the most advanced infrastructure among urban areas in Nepal.



Population	Area
0.70 Million (2001)	50.67 sq km

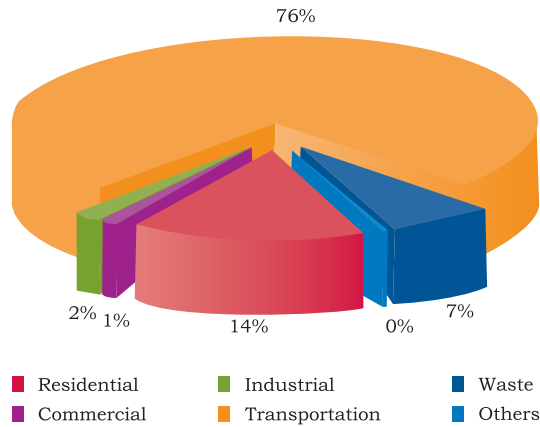
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	287.39
	LPG (MT)	25,386
Commercial	Electricity (Million kWh)	89.25
	LPG (MT)	1,148
Industrial	Electricity (Million kWh)	54.30
	LPG (MT)	2,762.25
Transportation	Diesel (kL)	32,707
	Petrol (kL)	31,785
Waste	MSW (tpd)	350
Others	Electricity (Million kWh)	61.89

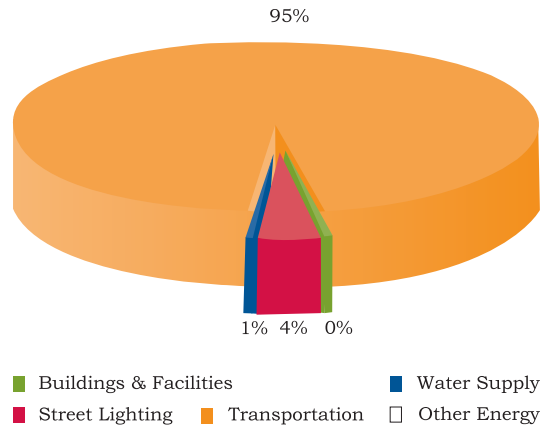
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.46
Street Lighting	Electricity (Million kWh)	5.65
Water Supply	Electricity (Million kWh)	0.68
Sewage System	Electricity (kWh)	NA
Transportation	Petrol (kL)	251
	Diesel (kL)	480
Others	Petrol & Diesel (kL)	0.25

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08





Lalitpur

NEPAL

Mr Binod Prakash Singh
Executive Officer
Tel: +977 1 5522563

City Profile

Lalitpur, also known as Patan, is a city in Nepal situated on the banks of the river Baghmati. Nestled in the Kathmandu Valley, the city was founded in 650 AD and is known for its wood and stone carvings. The city stands out with its archaeological heritage as well, especially the Krishna Mandir, a beautiful temple build entirely out of limestone.

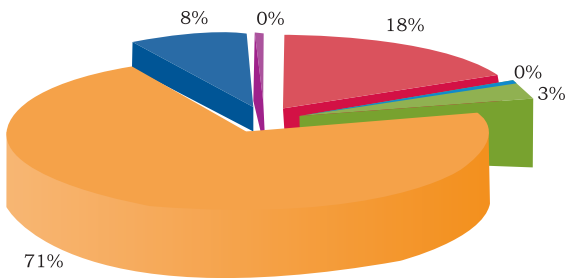
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	65.94
	LPG (MT)	5,703
Commercial	Electricity (Million kWh)	15.08
Industrial	Electricity (Million kWh)	20.94
	LPG (MT)	920.75
Transportation	Diesel (kL)	8,743
	Petrol (kL)	4.1
	Kerosene (kL)	4,655
Waste	MSW (tpd)	75
Others	Electricity (Million kWh)	19.39

Corporation Energy Consumption

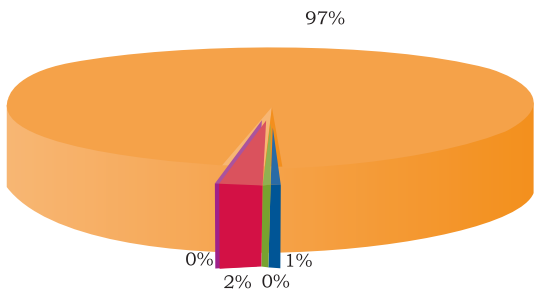
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.11
Street Lighting	Electricity (Million kWh)	0.86
Water Supply & STP	Electricity (Million kWh)	0.02
Transportation	Petrol (kL)	8.2
	Diesel (kL)	182

City Carbon Emissions 2007-08



Residential Industrial Waste
Commercial Transportation Others

Corporation Carbon Emissions 2007-08



Buildings & Facilities Water Supply
Street Lighting Transportation Others

Pokhara

NEPAL

Mr Tilak Poudel
Executive Officer
Tel: +977 61 521104

City Profile

Situated at about 827 metres above the sea level, Pokhara is the third largest city of Nepal and is one of the major tourist destinations in Nepal. The 1.5 kilometre long Fewa Lake and the Annapurna range are some of the major tourist attractions. Pokhara is also known for its Newari and Tibetan artefacts.

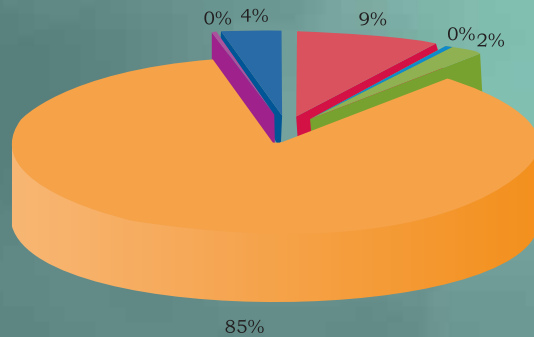
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	37.59
	LPG (MT)	3,840
Commercial	Electricity (Million kWh)	7.07
Industrial	Electricity (Million kWh)	7.05
	LPG (MT)	960
Transportation	Diesel (kL)	10,207
	Petrol (kL)	6,198
	Kerosene (kL)	5,696.5
Waste	MSW (tpd)	46
Others	Electricity (Million kWh)	8.84

Corporation Energy Consumption

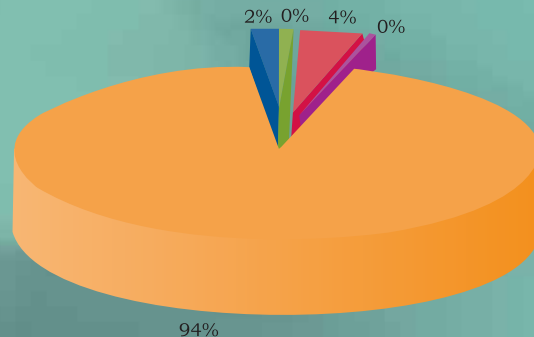
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.077
Street Lighting	Electricity (Million kWh)	0.50
Water Supply	Electricity (Million kWh)	0.0162
Transportation	Petrol (kL)	6.8
	Diesel (kL)	51.5
Others	Kerosene (kL)	0.84
	Petrol & Diesel (kL)	0.006

City Carbon Emissions 2007-08



Residential Industrial Others
Commercial Transportation Waste

Corporation Carbon Emissions 2007-08



Building & Facilities Water Supply
Street Lighting Transportation Others



Population	Area
0.18 Million (2001)	11.6 sq km

- Activities in Pokhara contribute to 0.07 Million TeCO₂ annually
- Per capita emissions for Pokhara have been 0.35T/Year in 2007-08
- The Corporation Level Emissions are about 0.23 per cent of the total city emissions



Colombo

SRI LANKA

Mrs Bhadrani Jayawardena
Municipal Commissioner

Mr Uvais Mohamed Emthiyas
Mayor

City Profile

Colombo is the largest city and the commercial capital of Sri Lanka and is located on the west coast of the island nation. The busy and vibrant city is a mix of modern life and colonial buildings and ruins. Some of its famous landmarks include Galle Face Green, the Viharamahadevi Park as well as the National Museum.

Population	Area
0.64 Million (2001)	37.31 sq km

- Activities in Colombo contribute to 0.99 Million TeCO₂ annually
- Per capita emissions for Colombo have been 1.54T/Year in 2007-08
- The Corporation Level Emissions are about 0.73 per cent of the total city emissions

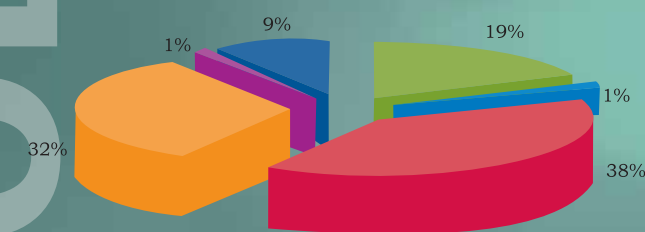
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	419.01
	LPG (MT)	6,876.03
Commercial	Electricity (Million kWh)	18.62
	LPG (MT)	NA
Industrial	Electricity (Million kWh)	454.57
	Furnace Oil (kL)	68,153
Transportation	Diesel (kL)	72,279.84
	Petrol (kL)	51,218.01
	Kerosene (KL)	8,223.89
Waste	MSW (tpd)	700
Others	Electricity (Million kWh)	219.8

Corporation Energy Consumption

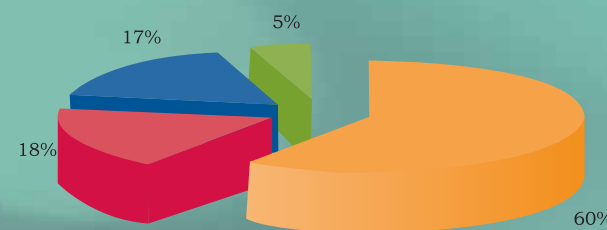
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	NA
Street Lighting	Electricity (Million kWh)	11.32
Water Supply	Electricity (Million kWh)	3.40
Sewage System	Electricity (Million kWh)	3.30
Transportation	Petrol (kL)	4.64
	Diesel (kL)	125.24

City Carbon Emissions 2007-08



Residential Commercial Industrial
Transportation Waste Others

Corporation Carbon Emissions 2007-08



Street Lighting Water Supply Transportation
Sewage Treatment Plant

Kandy

SRI LANKA

Mr C Tennakoon
Municipal Commissioner
Tel: +94 81 2234336

Mr L B Aluvihare
Mayor

City Profile

The capital of the central province of Sri Lanka, Kandy is one of the administrative cities and is a major religious centre. The name Kandy is actually the English name for Maha Nuvara (Senkadagalapura). Its location, the hills of the Kandy Valley – crossing an area of tropical tea plantations, makes it one of the most scenic cities of Sri Lanka.

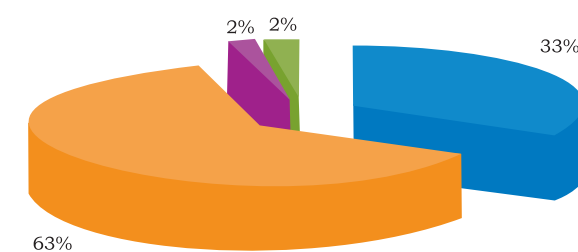
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	67.86
	LPG (KG)	670,421
	Kerosene (kL)	6,231
Industrial	Kerosene (kL)	1,099.60
	LPG (MT)	NA
Transportation	Diesel (kL)	38,401.80
	Petrol (kL)	24,102.32
Waste	MSW (tpd)	105

Corporation Energy Consumption

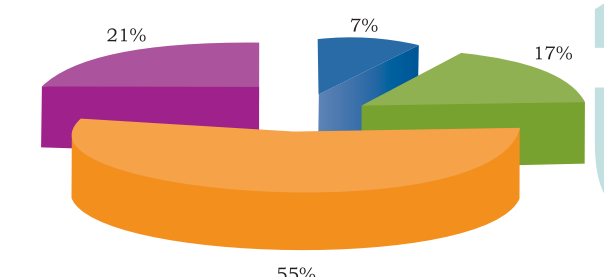
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	2.05
Street Lighting	Electricity (Million kWh)	2.53
Water Supply	Electricity (Million kWh)	6.61
Sewage System	Electricity (Million kWh)	NA
Transportation	Petrol (kL)	53.20
	Diesel (kL)	82.26

City Carbon Emissions 2007-08



Residential Industrial Transportation Waste
Building & Facilities

Corporation Carbon Emissions 2007-08



Water Supply & Sewage Treatment Plant Transportation
Street Lighting Building & Facilities



Population	Area
0.10 Million (2001)	1,940 sq km

- Activities in Kandy contribute to 0.14 Million TeCO₂ annually
- Per capita emissions for Kandy have been 1.27T/Year in 2007-08
- The Corporation Level Emissions are about 3.33 per cent of the total city emissions



Population	Area
0.02 Million (2001)	4,816 sq km

- Activities in Kurunegala contribute to 0.44 Million* TeCO₂ annually
- Per capita emission for Kurunegala have been 9.63*T/Year in 2007-08
- The Corporation Level Emissions are about 0.36 per cent of the total city emissions

Kurunegala

SRI LANKA

Mr J A B C Jayakody
Municipal Commissioner
Tel: +94 37 2222275

Mr Nimal Chandrasiri de Silva
Mayor

City Profile

Kurunegala is the capital of the Wayamba province in Sri Lanka. Considered as a transport hub, its rail-road systems link some of the important parts of the country with each other. Ethagala or the Elephant Rock, is a major topographical attraction, reaching 316 metres above the town at an altitude of 116 metres above the sea level.

Community Energy Consumption

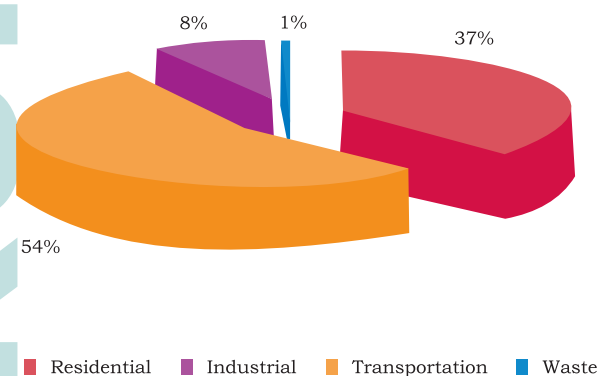
Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	376
	LPG (KG)	891.67
	Kerosene (kL)	7,468.75
Industrial	Diesel (kL)	9,896.51
	Kerosene (kL)	1,318.01
	Diesel (kL)	39,586.04
Transportation	Petrol (kL)	45,348.60
	MSW (tpd)	44

Corporation Energy Consumption

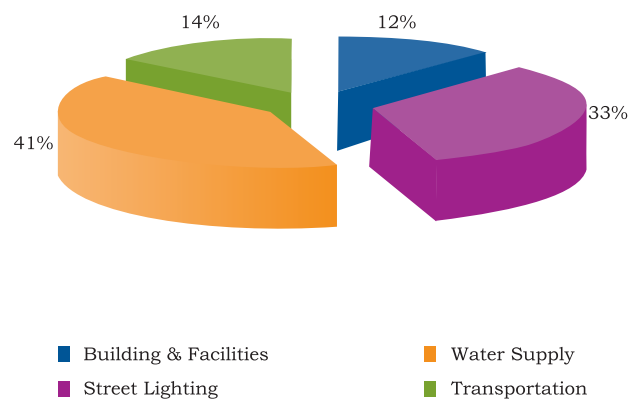
Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.51
Street Lighting	Electricity (Million kWh)	1.38
Water Supply	Electricity (Million kWh)	1.78
Sewage System	Electricity (Million kWh)	NA
Transportation	Petrol (kL)	82.19
	Diesel (kL)	NA

*Kurunegala is a major transport hub of Sri Lanka

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Matale

SRI LANKA

Mr H E M W G Dissanayake
Municipal Commissioner
Tel: +94 66 2222274

Mr Himly Mohamad
Mayor

City Profile

A town in the hill country of Sri Lanka, Matale is significant in terms of history and village living. It is home to the historic Srigiriya Rock Castle, Aluwihare Temple and Dambulla Cave Temple and the Knuckles Mountain Range and has a vast agricultural area under its bounds, where tea, rubber, vegetable and spice cultivation dominates.

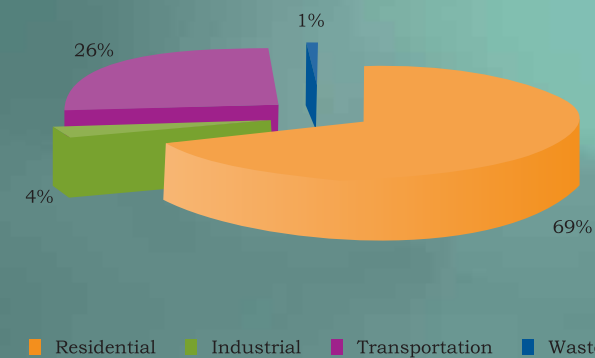
Community Energy Consumption

Sector	Energy/Fuel	Quantity
Residential	Electricity (Million kWh)	272.14
	LPG (MT)	103.67
Industrial	Diesel (kL)	2,053.92
	Kerosene (kL)	273.40
Transportation	Diesel (kL)	8,215.68
	Petrol (kL)	6,623.10
Waste	MSW (tpd)	25
Others	Electricity (Million kWh)	NA

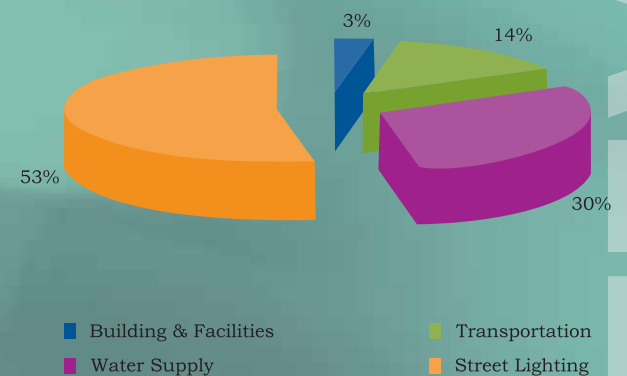
Corporation Energy Consumption

Sector	Energy/Fuel	Quantity
Building and Facilities	Electricity (Million kWh)	0.05
Street Lighting	Electricity (Million kWh)	0.96
Water Supply	Electricity (Million kWh)	0.54
Sewage System	Electricity (Million kWh)	NA
Transportation	Petrol (kL)	14.131
	Diesel (kL)	24.884

City Carbon Emissions 2007-08



Corporation Carbon Emissions 2007-08



Action Plans for Reduction of GHG Emissions

The following action plans were suggested and discussed with cities (through sample survey) to reduce carbon emissions from participating cities:

1. Street Lighting Energy Efficiency Programme has high potential of energy savings (20-25 per cent)

- Retrofit tube lighting system for 40 watt streetlights
- 100 per cent timer-based operation and installation of power saver
- Performance-based contracts for street lighting maintenance
- Design-based street lighting and LEDs for traffic signals
- Use of energy efficient fixtures



2. Building and Facilities Energy Efficiency Programme

- Implementation of measures for lighting and fans such as micro controller for lights and fans, occupancy sensors, capacitors bank daylight sensors with dimmable ballast, electronic ballast and tri-band phosphor tube lights, etc.
- Energy auditing

3. Pumping System Efficient Projects for water supply and drainage pumping stations

- Proper pump system design (efficient pump, pump heads with system head)
- Water and Energy Audit to reduce UFW
- Installation of power saver and variable speed driver
- Power factor improvement, e.g. installation of capacitors, etc.



4. Residential/Commercial and Industrial Sector

- Solar water heating system for buildings
- Usage of energy efficient appliances in lighting such as 25 per cent households replacing at least one 60 watt conventional incandescent bulb with a 15 watt CFL in the next five years



- Integration of renewable technology to reduce the diesel consumption figure
- Demand side management programmes such as for efficient appliances, etc.

5. Transportation System

- Improve public transport system
- Transport management system along major corridors
- Developing cycle lanes along city roads
- Enforcing emissions standards, etc.



6. Public Awareness

- Creating awareness amongst citizens on suitable renewable energy and energy efficiency technologies
- Awareness activities for school children on renewable energy and energy efficiency measures

7. Others

- Integration of renewable energy and energy efficiency measures in public parks
- Installation of rooftop SPV systems for peak hour demand to reduce diesel consumption
- Solar AC system in hospital buildings
- Solid waste management (composting, bio-methanisation, etc.)

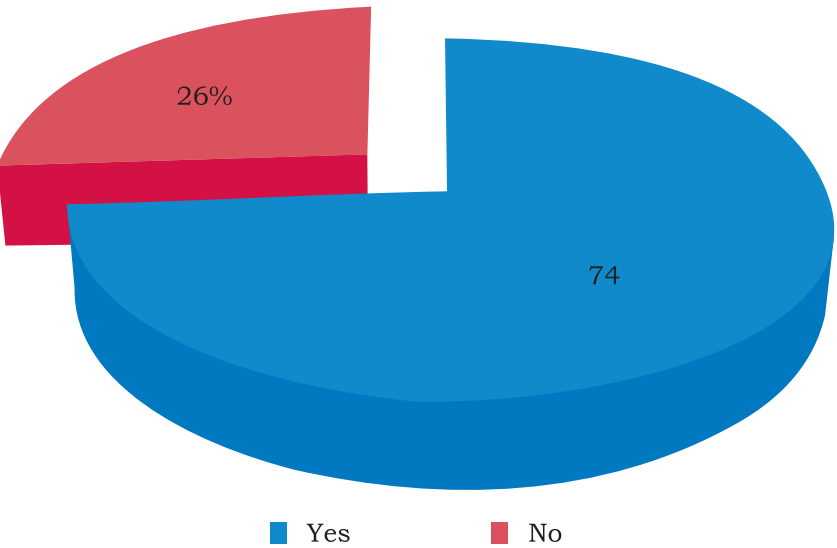


Survey Analysis

ICLEI-South Asia has conducted a survey on the action plans suggested to cities to reduce their emissions through various measures. The analysis of the responses from participating cities was carried out.

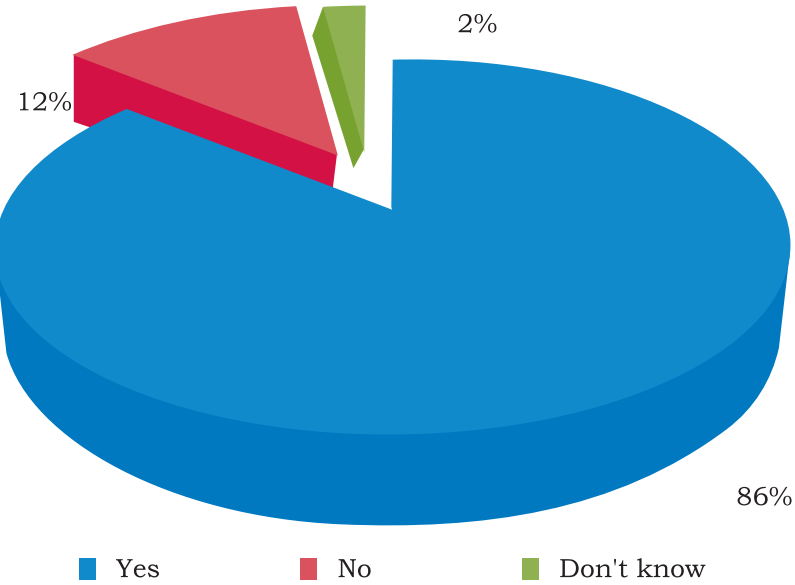
General Response

- 74 per cent of the participating South Asian cities responded to the questionnaire
- Cities appreciated the suggested action plans and agreed to take forward some of the suggested action plans
- Suggested action plans would reduce emission by 2-10 per cent
- Action plans agreed to would lead to a reduction of approximately 2.68 per cent in emissions
- Action plans agreed to would reduce the 2.5 Million tonnes of carbon



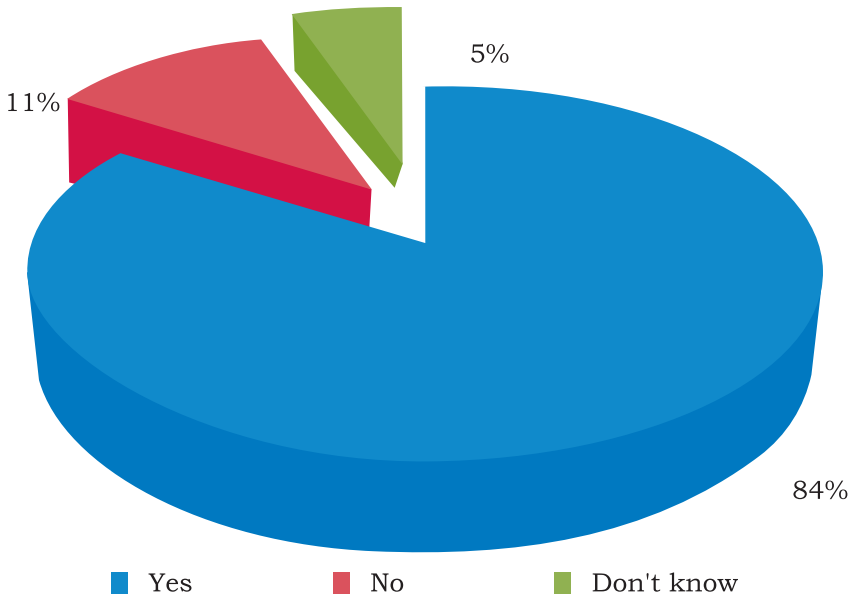
Policy Response

Do you think that a city level Climate Policy will help in implementation of the recommended suggestions?



Climate Change Negotiation Response

Do you think it is essential for local governments/cities to participate in the international negotiations process of UNFCCC?



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<http://web.archive.org/web/20040616075334/http://www.censusindia.net/results/town.php?stad=A&state5=999>
- 'Principal Cities and Agglomerations of India', Thomas Brinkoff, 2009
<http://www.citypopulation.de/India.html>
- All Urban Local Bodies of participating cities
- Indian Oil, HPCL, BPCL, regional offices, etc.

The issue of climate change is very sensitive and needs to be treated seriously. ICLEI-South Asia has done the inventory for 54 South Asian cities and this study is a positive step in the right direction.

Mr K S Raykar
Commissioner, Mysore

I am very happy to know that ICLEI-South Asia had taken up one such initiative with 54 South Asian cities. We will be able to throw up comparison between cities, which cities have larger global impact in terms of volume of CO₂ released and also analyse per capita emissions of each city.

Mr Raghav Chandra, IAS
Principal Secretary, Urban Administration
& Development Department
Government of Madhya Pradesh

We need to engage and involve the media in spreading the awareness about the issues of energy and climate change linkage and bring about changes in general public perception. Perhaps, ICLEI-South Asia can expand this beyond the Municipal Corporations. I believe, it has to be taken up at a much larger scale to bring in more stakeholders.

Dr A K Panda, IAS
Commissioner-cum-Secretary
Housing & Urban Development
Department, Government of Orissa

I am pleased to mention here that energy efficiency and clean technology helps in making the cities clean and greener. This study by ICLEI-South Asia makes cities aware of their energy and emissions profile and gives them a reason for creating low carbon and sustainable city.

Mr I P Gautam, IAS
Commissioner
Ahmedabad Municipal Corporation

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