

Low Carbon Development in Cities for a Sustainable and Resilient South Asia

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ICLEI Local Governments for Sustainability, South Asia

SCIENCE POLICY
DIALOGUE

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BANGKOK, THAILAND



ICLEI - Local Governments for Sustainability is the leading global network of more than 1,500 cities, towns and regions committed to building a sustainable future.



Sustainable City



Low-carbon City



Resource-efficient
and Productive City



Resilient City



BiodiverCity



Smart City



EcoMobile City



Happy, Healthy,
and Inclusive
Communities



Sustainable Local
Economy and
Procurement



Sustainable City
-Region
Cooperation

ICLEI's
Mission

“to build and serve a worldwide movement of local governments to achieve tangible improvements in global sustainability with special focus on environmental conditions through cumulative local *actions*.”



ICLEI South Asia's Initiatives

Members		 COMPACT of MAYORS		Actions related to creating sustainable communities
66	22	5	3	436

Energy

Urban-LEDS

India GHG Platform

District Energy Systems (DES)

Melaka State GHG Emission

Solar Cities



Sustainability

Strengthening Resilience - ACCRN

Urban Vulnerability Assessment

City Resilience Index

AdaptCap

Project Preparation and Financing - Adapt Asia Pacific



Water

Adopt - IUWM

IDRC "Cities and Climate Change"

Integrated Water Resources Management

The Water Campaign™



Solid Waste

Revision of the CPHEEO Manual on Municipal Solid Waste Management

Kota Holistic Waste Management

SUNYA: Towards Zero Waste in South Asia



Urban

Transport Governance initiative

Integrated Resource Management in Asian cities: the Urban Nexus

Heritage City Development and Augmentation Yojana (HRIDAY)

Urban Green Growth



ICLEI South Asia's Recent Projects Results

Cities Baseline GHG Emission Inventory in the South Asia and South East Asian Region

68

International Local Government GHG Emissions Analysis Protocol (IEAP)
Version 1.0 (October 2009)

GREENHOUSE GAS PROTOCOL
Global Protocol for Community-Scale Greenhouse Gas Emission Inventories
An Accounting and Reporting Standard for Cities



URBAN LEADS



Cities	Target GHG emission reduction (Million tCO ₂ e)	GHG emission reduction target by 2019-20 from the base year 2012-13 (%)
Rajkot	0.45	26
Thane	0.62	31
Panaji	0.02	19

Solar Cities targets **10%** reduction in conventional energy demand

Ten* Indian Solar Cities cumulative targets

Energy Saving	GHG Reduction	Renewable Energy Potential	Investment
1777 Million kWh	1.37 Million tCO ₂ e	244942 kW	864 Million USD

ICLEI South Asia prepared Panaji Smart City Plan worth **266 Million USD** focusing on Retrofitting of city core area and Solid Waste and Mobility for Pan-City.

Handholding support for SCP extended to Jaipur, Udaipur and Kakinada



*Agra, Aizwal, KDMC, Kohima, Thane, Nagpur, Gurgaon, Rajkot, Imphal, Coimbatore

Harnessing ICLEI's global network of support



United Nations
Framework Convention on
Climate Change



URBAN LEDS

Global Protocol
for Community Scale GHG Emissions



The Global Protocol for Community Scale GHG Emissions (GPC)



www.ghgprotocol.org/city-accounting

- First global standard to consistently measure city-level emissions
- Flexible accounting framework, easily used for **boroughs, wards within cities, towns, districts, counties, prefectures, provinces and states**



Endorsing Partners:



Cities Alliance Joint Work Program





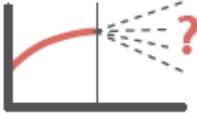

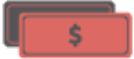



Purpose of GPC

Help cities develop a comprehensive and robust GHG inventory to support **climate action planning**

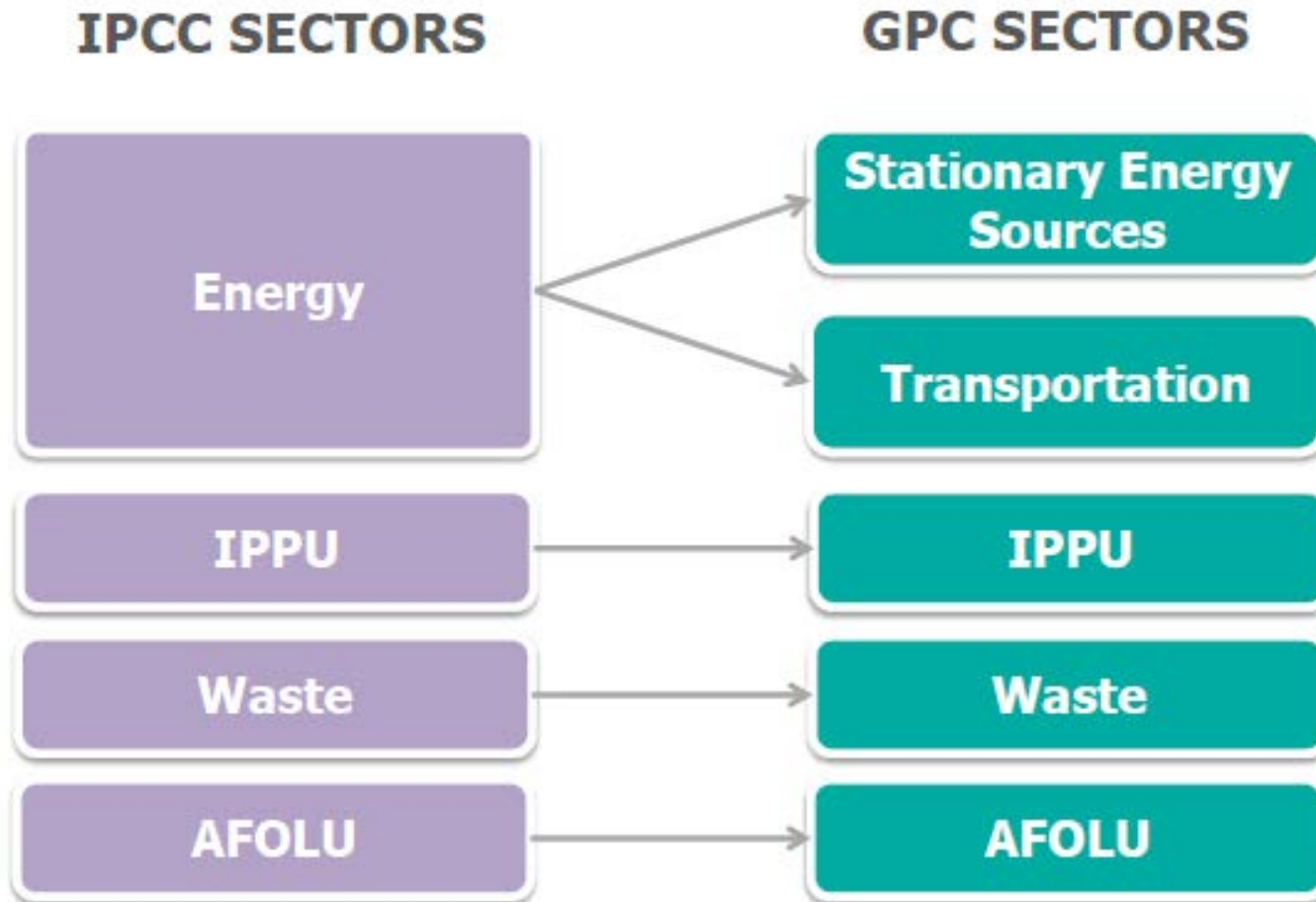
Ensure **consistent** and **transparent measurement and reporting** of GHG emissions between cities

Empower city's endeavor in reporting its mitigation performance in **national or international framework**

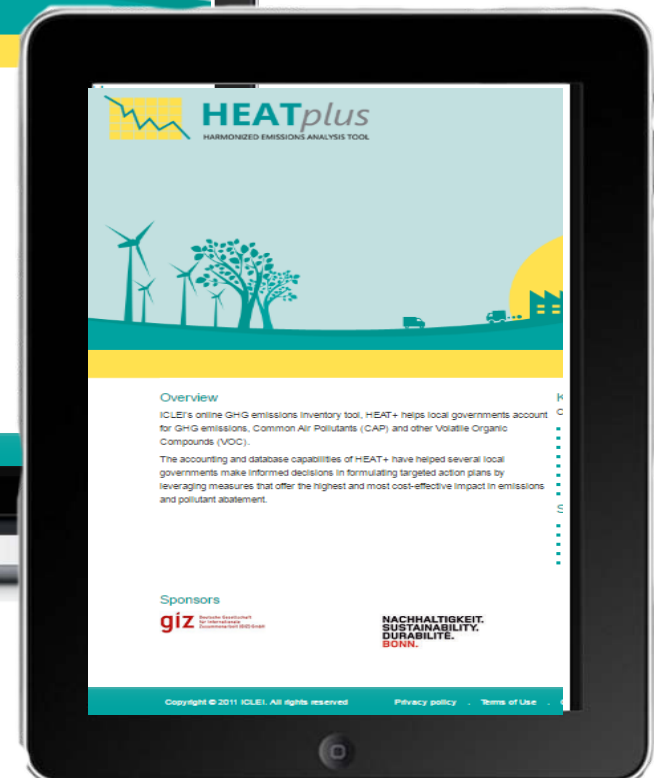
Demonstrate the importance of cities play in tackling climate change, and facilitate insight through **benchmarking**, and **aggregation**, of **comparable data**

WITHOUT GPC	WITH GPC
Different types of measurements 	One measurement 
Account for only a portion of emissions 	Consistently account for all emissions 
Unclear if climate targets will be met 	Emissions trajectory well understood 
Incomplete data limits investment 	Good data drives investment 
Unable to relate to national climate action 	Can measure city's contribution to national climate efforts 

GHG emission sources

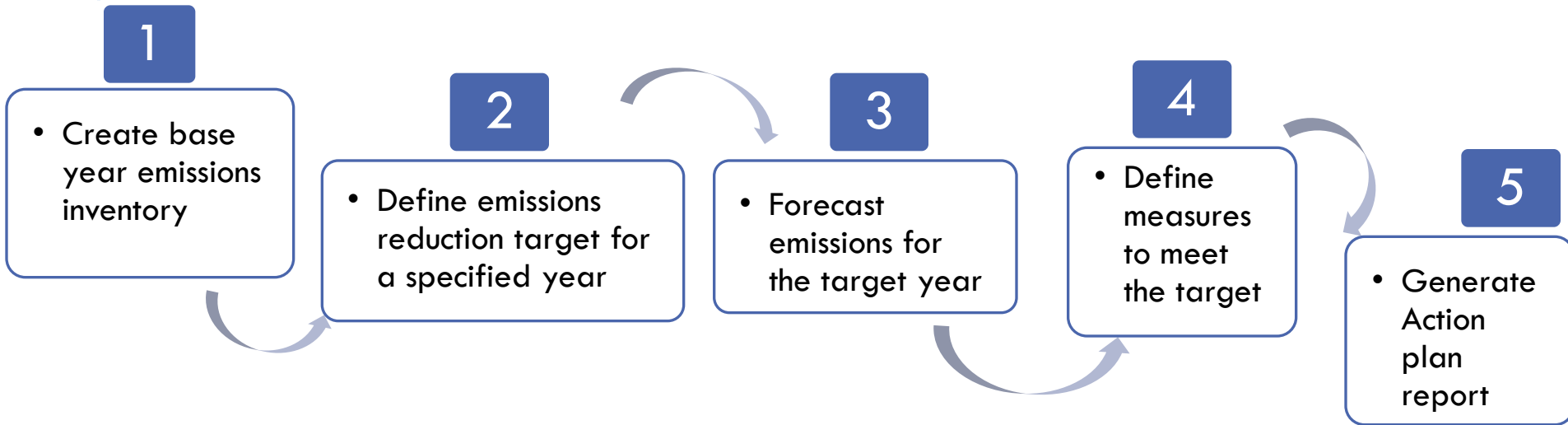


HEAT+




<http://heat.iclei.org>

HEAT+ Functionalities



- *Build inventories* – Inventory records are built with respect to modules, sectors, subsectors, emission source categories and calculators.
- *Forecast* – Emissions are forecasted for respective sector and desired year with estimated growth rate.
- *Targets* – Set according to sector and base year to desired target year and % of reduction
- *Measures* – Mitigation measures built for various sectors
- *Reports* – multiple reports for both modules, for all sectors, measures and for action plans.

HEAT+ Interface




HEATplus

HARMONIZED EMISSIONS ANALYSIS TOOL

Welcome to HEAT+: Melaka2016 | [Logout](#)

City: Melaka ([Edit](#)) | Local Authority: Melaka city council | Baseline Year: 2009



Dashboard
Inventories
Forecast
Targets
Measures
Reports
Tools ▾

City: **Melaka** Local Authority: Melaka city council ▾ Inventory Year: 2009 ▾ Generate Quick Links ▾

Community Government Print

Energy Consumption and Emission Profile
Indicators
Time Series
Action Plan
Mitigation
Chart View
Table View

Total Energy Consumption

21,272,831.61 GJ

Total GHG Emission from Energy Consumption

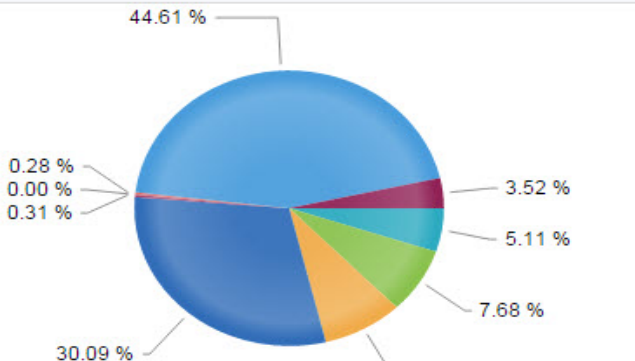
1,743,591.55 tonnes of CO_{2e}

Total GHG Emission at Community Level

2,114,423.33 tonnes of CO_{2e}

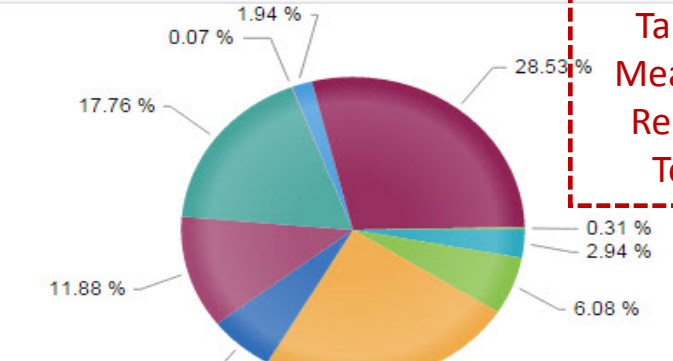
Energy Profile Emission Profile Emission Scope

Energy Consumption by Sub-sector (GigaJoule) ?



■ Residential ■ Commercial/Institutional ■ Energy generation
■ Manufacturing industry and construction
■ Agriculture, forestry, and fishing activities ■ Non-Specified sources ■ Rail
■ On-Road ■ Off-Road

Energy Consumption Mix (GigaJoule) ?



■ Charcoal ■ CNG ■ Diesel ■ Diesel Oil ■ Electricity(grid average) ■ Gasoline
■ Kerosene ■ LPG ■ Natural gas ■ Residual Fuel Oil

MENU:

- Dashboard
- Inventories
- Forecast
- Targets
- Measures
- Reports
- Tools

Rajkot City, Gujarat - Urban-LEDS pilot project results



Total investment
1,56,000 Euros

100 KLD at Jilla garden to
treat waste water of Vokhda
(open drain)

- ✓ **4000 kWh** Annual electricity savings
- ✓ **15 tCO₂e** GHG emission reductions
- ✓ **8212 m³/year*** Biogas Generation



Replacement of 291 existing
HPSV lights with LED lights on
preselected roads

- ✓ **70,000 kWh** Annual electricity savings
- ✓ **59.83 tCO₂e** GHG emission reduction



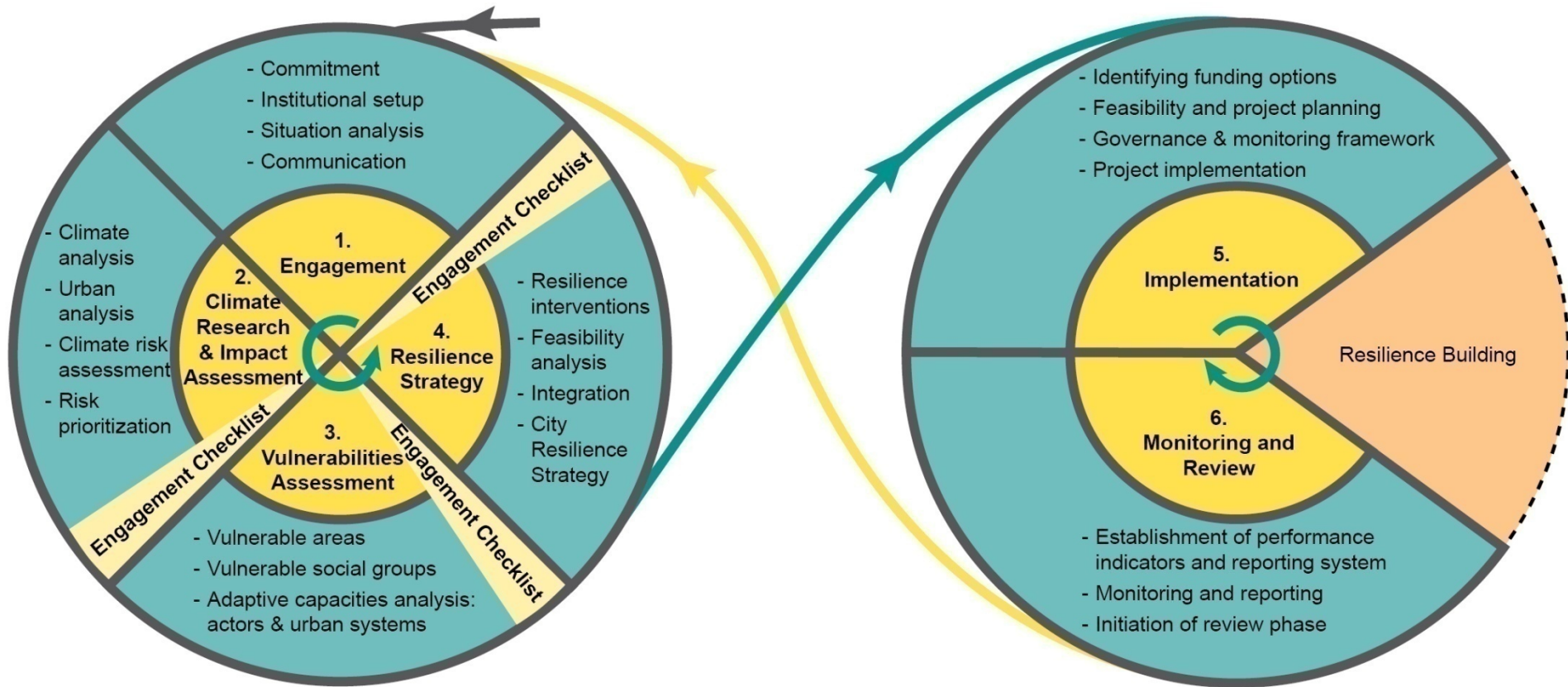
20 kWp roof top SPV on a
Sarojini Naidu Municipal High
School

- ✓ **30,000 kWh** Annual electricity savings
- ✓ **24.68 tCO₂e** GHG emission reduction



*It can replace 3942 kg of LPG

ICLEI ACCCRN Process



Pilot projects of ACCCRN through Small Grants Program (SGP)



Total of 250,000 USD available for Project Cities to Implement Scalable Resilience Building Measures



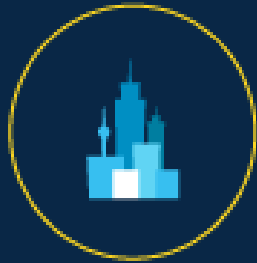
Rockefeller Foundation

Innovation for the Next 100 Years

City	Pilot Project Title	Amount
Shimla, Himachal Pradesh	Rejuvenating the Traditional Water Sources to Augment Water Security in Shimla Municipal Corporation Area, Himachal Pradesh	28,510/- USD
Mandi, Himachal Pradesh	Reclamantion of green and clean hill slopes, surface water run off and improving quality of water in Khads before merging in river Beas	47,490/- USD
Panaji, Goa	Municipal Solid Waste (MSW) management – Awareness Building on Segregation at source among School Students	26512/- USD
Nainital, Uttarakhand	Mainstreaming the role of ecosystem services in Water Supply	27,847/- USD

carbonn® Climate Registry

The world's leading reporting platform to enhance transparency



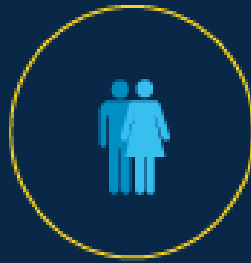
726

Number of reporting entities



67

Countries



660

Million people, represents 9% of the world population



>1

gigaton of CO_{2e} reductions by 2020



43

Adaptation and resilience commitments

The cCR is the reporting platform of:



In partnership with:



MICHAEL R. BLOOMBERG

UN Secretary-General's Special Envoy for Cities and Climate Change



Plan de Acción Climática Municipal



www.carbonn.org

Compact of Mayors



At engagement

Within 1 year

Within 2 years

Within 3 years

Mitigation

Adaptation

COMMITMENT

Commitment to reduce GHG emissions

Commitment to address climate change risks

MEASUREMENT

GPC inventory
(CO₂, 2 sectors)

Hazards reporting

TARGET

GPC inventory
(CO₂, 2 sectors, activity data, emissions factors)

GHG reduction target

Hazards reporting

Vulnerability assessment

ACTION PLAN

GPC inventory
(3 gases, 3 sectors, activity data, emissions factors)

GHG reduction target

Climate action plan

Hazards reporting

Vulnerability assessment

Adaptation plan

Reporting to:



Transition to:





Solutions Gateway

Low Carbon Solutions for Urban Development Challenges



Solutions

Processes which Local Governments can implement to enhance low emissions development in their communities



Solution Packages

A group of Solutions under a given theme, clustered to generate synergies and optimize impacts



Case Studies

Examples of the implementation of Solutions and/or Solutions Packages by cities

Solutions Gateway

www.solutions-gateway.org