

LOCAL SUSTAINABILITY 2012

SHOWCASING PROGRESS

CASE STUDIES

These case studies are part of the documents ICLEI is publishing on the occasion of the UN Conference on Sustainable Development in Rio de Janeiro 2012 (Rio+20). It is accompanied by the publication 'Local Sustainability 2012: Taking stock and moving forward. Global review'.

Both documents are published as 'ICLEI Global Reports' - a series of research and analytical reports produced by ICLEI - Local Governments for Sustainability. By featuring different themes and characters ICLEI Global Reports contribute to international discussions and policy developments. ICLEI Global Reports are available at www.iclei.org/globalreports or in print for a cover fee.

The Local Sustainability 2012 reports can be downloaded from: www.iclei.org/local2012
They are further published entirely on the international web database: www.citego.info
ICLEI Case Studies 138-151 summarized in this publication are available in full length at www.iclei.org/casestudies.



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Bonn, 2012

FOREWORDS

PATRICIA DE LILLE

Executive Mayor Alderman of Cape Town

In the context of a rapidly urbanizing world, cities and their respective local governments have an important role to play in addressing local and global environmental challenges. As facilitators and law makers, they provide the framework for actors to embark upon pioneering sustainability initiatives. They can also be the driver of local actions. In the case of Cape Town, our experience in maintaining the city's urban biodiversity shows that a variety of approaches by the local government can have positive global implications. We are delighted that Cape Town is featured in this valuable study on local sustainability initiatives.

JAMES NXUMALO

Mayor of eThekweni

This case studies series is an important contribution in the recognition of local governments as a pivotal actor in addressing global challenges. Cities in Africa are on the frontline in the battle against climate change. In the context of climate change, rising sea levels and extreme weather patterns, cities need to build resilience, reduce risk and climate proof their infrastructure and services. In eThekweni climate adaptation is an important aspect of local government policy. We believe that climate adaptation strategies need to be an integral part of the city's overall planning and institutional framework. We are delighted that our example is illustrated within this valuable study.

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JANAKBHAI KOTAK

Mayor of Rajkot Municipal Corporation

For local governments to act, they require key enabling framework conditions which often come from regional or national governments. India's urban reform strategy illustrates how a broader national institutional and statutory framework is necessary for local governments to adequately address the challenges of urban development. Its inclusion in this series is testament to the quality and diversity of the case study series which is an impressive addition to the debate on the role of local governments in dealing with our global challenges.

SUNIL POTE

Deputy City Engineer, Thane Municipal Corporation

Firstly, it is important to acknowledge the excellent and illustrative study that this publication provides. In Thane, we have long pursued solar energy utilization as an important aspect of local government action in achieving sustainable urban development while simultaneously reducing greenhouse gas emissions. Urban based policies promoting renewable technologies are now an important part of urban development, particularly in India, where energy demand is rapidly increasing. We are delighted that our local efforts are showcased in this series.

MITSURO MAKINO

Mayor of Iida

We are very proud that our innovative attempts at a bottom up approach to energy management in Iida are illustrated in this study series. This publication provides evidence that Local Agenda 21 is still alive and being pursued by local governments in cities worldwide. It is an important contribution to inform the debate in the run up to Rio+20. In Iida, we have held in high regard the important role that citizen participation has in the development of sustainable energy at the local level. We hope it can be a replicable example for other cities to follow.

TERUYUKI OHNO

**Director General, Bureau of Environment
Tokyo Metropolitan Government**

Coming from the largest city in the world, we strongly believe future actions taken by local governments, the most proximate level of governance to the world's population, can have a positive global impact. Local Sustainability 2012 case study series is a long overdue example illustrating the essential role of local governments in tackling the climate change challenge. In Tokyo, our efforts are characterized by economic based initiatives in the green building sector and increasing energy efficiency. We are happy to share our experiences through this case study series.

JEAN-MARC AYRAULT

Mayor of Nantes

As nearly 50% of world population lives in cities, these are both the problem and the key for solutions. The city's efforts in promoting urban sustainability and the role that urban areas have in meeting global challenges often goes unrecognized. Nantes' success in acquiring the European Green Capital Award is a beacon to local governments to continue their environmental initiatives as well as sharing their successes with their citizens. This case study series provides a diverse array of examples of local urban based action and is a welcome addition to the discourse on the importance of sustainable urban development as well as recognizing a city's efforts in urban sustainability.

MARIA DO CARMO LARA PERPÉTUO

Mayor of Betim

ICLEI's Local Sustainability 2012 case study series is a welcome publication which enriches the debate for the upcoming Rio+20 Conference. In Betim, we have been pursuing sustainable development but as is often the case in developing countries, social sustainability is a significant challenge. I welcome the addition of Betim's particular issues, and how through joint collaboration between the community and municipal authority, local action in Betim has achieved social, environmental and economic improvements for local citizens.

DR. JAVIER DUARTE DE OCHOA

Constitutional Governor of Veracruz de Ignacio de la Llave and President of the Executive Board of ICLEI Mexico

Climate change is a relevant issue for Veracruz citizens as we have over the past few years experienced circumstances which have affected our coexistence, integrity and heritage.

Facing this phenomenon implies big challenge, and local authorities got down to work in developing public policies capable of influencing our adaptation to climate change, promoting the use of renewable energies, moving on to a green low carbon economy, and guaranteeing the well-being of our population.

Bringing local authorities together to lead the struggle against climate change is an important challenge and a task in which ICLEI has a crucial role. Being responsible for our own actions and making our own contribution can lead to successfully becoming a competitive and sustainable nation at the global level. We know it is not an easy task, but acting together can draw the path for our local authorities to set the sound foundations of our prosperity.

SAM ADAMS

Mayor of Portland

Greening the urban economy is a fundamental feature in achieving sustainable growth. Because cities are home to vital concentrations of commerce and people, we have unique opportunities to accelerate the transition to low-carbon economies and healthy communities. This study provides an overarching review of urban sustainability, and Portland's sustainable economic development strategy offers one promising way to address current and future economic, social and environmental challenges – a triple bottom line approach.

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ROBERT DOYLE

Mayor of Melbourne

From the settlements of Brazil to the procurement practices of Reykjavik, Local Sustainability 2012 case study collection is an excellent enrichment of information regarding local based urban sustainability action. I am proud to see Melbourne showcased alongside diverse and uniquely profiled examples of cities pioneering sustainability initiatives in their respective regions. In Melbourne, pursuing a sustainable urban development strategy in the context of increasing population and economic growth is an important aspect of our urban strategy. Of course, the role of local governments is essential in achieving this, something this study has amply highlighted.



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INTRODU

The journey towards sustainability begins with a single step and a vision of where to go. Cities across the world have understood that piecemeal action and ad hoc reaction are simply not good enough. Their actions are speeding up in a friendly competition towards ever more ambitious visions and targets. They want to be among the most able to meet the environmental, social, and economic challenges of the 21st Century. Their journeys are marked by commitment, leadership, concerted and participatory processes, and continuous improvements to urban governance and management.

12 of the following case studies showcase journeys of selected successful, pioneering cities towards greater sustainability across a selection of themes and regions, and 2 case studies provide an illustration of creating enabling framework conditions through state and national governments for urban development. They show an unfaltering effort to accept and meet today's and tomorrow's urban sustainability challenges.

For an urban future in 2050, where two thirds of 9 billion people will be living in urban areas, a doubling of the current urban capacity is required in less than 40 years. The implications of this urbanization cannot be stressed enough. All these people need jobs, food and water, housing, transport, sanitation, and social services. Cities are places for capital investments in infrastructure and business, and people. Urban areas are vulnerable to risks including widening income gaps, under-delivery of social services, adverse climate impacts, disasters, energy, food and water security, and ecosystem degradation. Unmanaged urbanization is an incremental process and calls for an authoritative response to avert an urban crisis. The sustainability of the world hinges upon the sustainability of the urban future.

The sustainable development of cities and communities is paramount. Urban sustainable development requires improving individuals' living conditions whilst preserving the environment in the short, medium and, above all, long term. The objective is an urban future with economically efficient, socially fair and environmentally sustainable cities. Sustainable cities need to be built through an integrated and holistic approach to planning and decision making including strong local governance; efficient transportation and communication networks; greener buildings; efficient human settlements and service delivery systems; improved air and water quality; reduced waste; productive ecosystems and biodiversity conservation; improved disaster preparedness and response; and increased resilience.

The selected case studies were identified and collected through global consultation to illustrate how cities can become more sustainable. 14 cases from six continents were selected from the following countries: Australia, Brazil, Canada, China, France, Iceland, India, Japan, Mexico, and South Africa. The cases portray a broad mix of contemporary themes, and an active and strong involvement of local governments in pioneering greater urban sustainability. Each case focuses on a particular program, initiative, policy or measure.

These selected cities are considered as regional pioneers, who have developed their sustainability agenda over time across political terms and showed consistent ambition, creativity, and courage in stretching the traditional limits of their jurisdictional role and finding progressive new ways of dealing with urban challenges.

CTION

The following key urban sustainability sub-themes were chosen:

- Eco-city master planning and comprehensive city strategies.
- Governance and service improvements.
- Low-carbon and renewable energy development.
- Climate resilience and climate change adaptation.
- Biodiversity and ecosystem protection and management.
- Greening of the urban economy and infrastructure.

The case studies presented in this collection are summaries of the full versions available from www.iclei.org/casestudies ICLEI Case Studies 138-151. This study is complementary to *Local Sustainability 2012: Taking stock and moving forward. Global review* and provides an overview of the challenges cities responded to, their key achievements, the processes and actors involved, and selected success factors. Addressing immediate or potential environmental challenges is important to keep cities viable and attractive places to live.

The principles identified 20 years ago and formulated in Chapter 28 of the Agenda 21 namely 'Local Agenda 21' (LA21) bear great resemblance to the guiding principles underlying the presented cases. Actions are taken within horizontal and vertical governance frameworks that include participatory and stakeholder processes towards holistic instead of isolated approaches. What has become of the guiding principles? Who are the drivers, enablers and implementers? Which diversity of approaches exists 20 years after Local Agenda 21?

The role of local governments has been continuously changing over the past 20 years, and the selected cases illustrate how local governments can pioneer and, if sufficiently strong, move the sustainability agenda forward as actors, drivers, facilitators, etc. Local governments are especially effective when policies, programs and actions are coordinated and cooperated with other actors and stakeholders.

Worldwide there are tens of thousands of cities and local governments, and it is important to remember that the showcased cities are advanced regional pioneers. Many cities and local governments may be even more advanced in reducing their ecological footprint and increasing their resilience than the study showcases. However, many more, and most likely the very large majority of urban areas, are only at the very beginning of a transformation process towards sustainable urban development.

Showcasing performance of cities still proves to be a major challenge due to the complexity around measures and indicators, and linking these to particular actions. A variety of approaches are being pioneered and more is being documented than before. One example is the 'carbonn Cities Climate Registry' to measure and document greenhouse gas (GHG) emissions, as well as climate mitigation and adaptation actions. However, performance indicators for local action are still missing for most areas and even if available often are not applied due to a lack of staff or expertise. Activities and results still have to be described more often than not without concrete quantitative measures of improvement. Monitoring, evaluating, and further improving approaches to measuring performance remains an important agenda for the future for identifying, reviewing, and designing more ambitious targeted actions.

DIVERSITY OF ACTORS AND TO DRIVE PRO

In the case studies selected, progress has been pioneered through a diversity of approaches, instruments and by involving various actors to respond to urban environmental challenges at the local level. Despite this diversity there are some important commonalities and conclusions that can be drawn; driving a vision requires political support and commitment; such drive is best institutionalized through, and interwoven with, respective bodies into a broader process; enabling framework conditions have to respond to drivers or be created for effective implementation; and any action and process needs to be cemented in public and private support.

It starts with a driver of change, who start, rally, envision, and take the first step in a longer journey towards urban sustainability. In the illustrated cases these have been visionary local leaders, local councils voting for ambitious targets, forward thinking government departments and citizens', and stakeholders' initiatives. In particular, local environmental departments or bureaus have shown to play a key role in setting a new sustainability agenda. Simultaneously the role of the community, civil society, and individuals should not be understated. They have elective power and often advocate for improvements. State and national governments play a relevant role, especially when providing incentives and legal framework conditions, which encourage pioneering and far-reaching local action.

Driving sustainability will be more successful when an individual community action is anchored to an organizational, institutional, or other administrative process (eg. case example: Iida's citizen funded solar company collaboration with the local government). Institutionalization of sustainability through a department or other organizational structure, with a particular mandate, can systematize the drive towards urban sustainability. This is illustrated by the case of the Bureau of the Environment in Tokyo, the State of Veracruz's Ministry of Environment, or Durban's Environmental Planning and Climate Protection Department. By further interweaving such bodies into a broader process initiatives that may appear small in significance can build up to a larger, more gravitating journey towards urban sustainability (as illustrated in selected case studies).

Local governments are recognized for their important role in responding to and creating enabling framework conditions for civil society and other actors to act more sustainably in a city. At the same time local governments also depend upon the enabling framework conditions set through higher tiers of government. In addition local governments need to keep cities economically and socially viable and attractive places to live in. For urban sustainability action to be effectively implemented, policy, legislative and organizational change may often be necessary to keep up and address emerging and foreseen challenges and trends.

F APPROACHES, D INSTRUMENTS OGRESS

Examples for enabling institutional and legislative conditions as created by local governments include:

- The creation of new institutions and bodies (eg. Portland’s Bureau of Planning Sustainability and the Economic Cabinet to support the Economic Development Strategy).
- Amendment of existing legislation (eg. Melbourne’s Environmental Upgrade agreements) and regulation (Thane’s renewable energy building by-laws).
- The fine-tuning of existing procedures (eg. Reykjavik’s sustainable procurement criteria).
- Measuring success, documenting knowledge, monitoring improvements, and integrating such information into institutional frameworks for more effective urban management (eg. Cape Town’s Biodiversity Network Tool and Strategy on natural resources, Toronto’s innovative tool to analyze climate change risks).
- Master-planning development (eg. Rizhao’s Eco-City Building Plan) and settlement formalization (Betim’s formalization of Parque do Cedro for electricity supply).
- Long-term commitment to improving urban sustainability over political terms (eg. long-term improvements in Nantes).

Stakeholder involvement is also important for implementation, and can be gained and solidified through the provision of information, education campaigns, learning centers, and especially participation in developing public policy and action (eg. Betim’s clean energy promotion). Collaboration with the private sector is essential in terms of expertise, technological advancement and finance. Involving civil society is imperative to garner public support for sustainability initiatives and to ensure strong citizen participation in local government decision making, therefore ensuring a strong sense of citizen ownership.

The variety of actors at each stage is one of the main reasons why stakeholder involvement is necessary and a key contributing factor for successful and effective action. The cases show LA2I principles in action and their evolution to make marked progress toward local and global sustainability. The principles articulated in the LA2I movement are re-affirmed as guiding principles for decision making in a myriad of guises, in a way that it suggests the principles have been absorbed into a general approach to urban governance. The spirit of the Earth Summit 1992 is still alive today and shows a progressive evolution in cities around the world.

Targeted and effective mechanisms depend upon up to date base line information, which can include the assessment of a city’s energy situation and use (Thane, Tokyo), biodiversity hotspots and natural capital (Cape Town), climate change vulnerabilities (Toronto), greenhouse gas emissions inventories (Veracruz), economic advantages (Portland), or even on the availability of green services on the market (Reykjavik).

Through complementary and integrated policy and program packages, mechanisms can be more effective. This is illustrated with Tokyo's Cap and Trade and Green Building programs for existing and new buildings respectively. Another is the citizen-funded renewable energy company in combination with public-private partnerships and legislative change (Iida).

Supra-local governance frameworks can provide very powerful means to enable and support local actions. These can be achieved for example through: a nationally driven, locally responsive incentive linked process (India's JNNURM); amendment of higher tier governance acts and statutory reforms to enable local innovation (state laws for Melbourne to realize the Environmental Upgrade agreements); setting the super-local legislative and institutional frameworks (State of Veracruz climate change program); or simply recognizing a city's improvements through an award (Nantes' recognition by the European Commission's Green Capital Award and quality of living marketing).

International actors, shown in selected cases, can provide support by providing upfront funding (funded study in Veracruz), training and technical expertise (Thane renewables campaigns), as well as opportunities for knowledge sharing (Reykjavik's participation in sustainable procurement campaign). Organisations such as ICLEI, along with many others, have been influential in promoting local action by providing an international platform for knowledge and information sharing to encourage, provide confidence and ideas to act. Training, facilitating networking, city-to-city exchanges, research and pilot projects, as well as technical services, consultancy, software and tools all are important to capacitate and support local governments in achieving sustainable development in their cities and communities.



CONCLUSION AND LOCAL KEY MESSAG

The diversity of themes, approaches, actors and processes tangibly illustrate how progress from small individual schemes to large far reaching interventions in urban planning and development have been achieved. Approaches explored in the first study part *Local Sustainability 2012: Taking stock and moving forward. Global review* are underscored in *Local Sustainability 2012: Showcasing progress. Case studies*. Both studies portray how multiple actors can be involved at all levels in an array of ways. Urban sustainability can and must become a multi-stakeholder and multi-governance process. In the process it proves how the LA21 and sustainability principles are still alive and active today by providing policy guidance to cities in a variety of ways.

1. Drivers need to be anchored to an organizational, institutional, or other administrative process.

Drivers in pioneering cities are often committed local leaders, local councils voting for ambitious targets, forward thinking staff in the administration and higher tiered governments, and citizens. These drivers often advocate specific action or highlight particular challenges requiring urgent attention. Institutionalization of sustainability through a department or other organizational structure, with a particular mandate, is important in order to systematize the drive towards urban sustainability. Business, research or civil society linked to city decision making processes or newly created local or supra-local governmental administrative bodies can also have a crucial role. Local governments and stakeholders can then inform the design of legislative, fiscal and other frameworks that encourages and utilizes the drive of individuals, groups and organizations through a supportive and responsive process.

To accelerate action and to scale-up bottom-up initiatives towards more systematic, holistic and integrated urban sustainability processes, initiatives need to be integrated within local, state and national urban development strategies and institutions.

2. Assessing and measuring local conditions is essential for identifying the extent of challenges and setting the right priorities.

Visions and responses, such as with targeted and effective mechanisms, depend upon solid information and assessments of local conditions and challenges. Local governments play an important role in assessing the local situation and future trends by gathering relevant data and identifying whether the existing organizational conditions allow for an efficient and effective management of the local sustainability process. A baseline review can produce the necessary information upon which achievable, measurable targets and timeframes can be developed together with relevant local stakeholders. By establishing and evaluating baseline information, targets and commitments can be better aligned and competing priorities assessed towards long term sustainability. This can further facilitate a transition

NS FOR GLOBAL ACTION: ES

from individual actions towards more holistic, integrated and comprehensive urban development strategies. Targets need to be monitored and adjusted in a cyclical manner for continuous improvements. This can also ensure that local sustainability stays on the local institutional agenda.

To continuously improve local sustainability processes, the current and future local situation needs to be assessed, so that, together with relevant local stakeholders, ambitious, achievable, measurable targets and timeframes can be developed and monitored.

3. A city vision depends upon political support and commitment to local sustainability.

Political support and commitment are essential for a city to embark upon a long term sustainable urban development strategy. Identifying and aligning objectives enable actors to come together to cement action and address current or future challenges. Visions and targets are based upon assessment and measurement of local conditions. City strategies and targets are an important means to align interests, convene actors towards a common goal, and to provide the necessary momentum to tackle key challenges in an integrated manner. This is an important step towards aligning stakeholders' interests, identifying priorities and developing a common vision for a city or national urban development.

To implement integrated and holistic measures, city visions and targets are powerful means to convene and build momentum around sustainable urban development.

4. Progress in local sustainability has resulted in ever more integrated and holistic approaches over time.

Committed and pioneering local governments have expanded their actions and responses to local challenges towards ever more integrated and holistic approaches. It underlines an increasing awareness and understanding of the multiple inter-dependencies between the human and earth system. New tools and data for analysis enable better decision making. Policy and decision makers understand that strategies which address an issue more holistically and complementarily are a more effective approach. These processes are both subject to and a consequence of local sustainability process evolving over time. It has built upon a willingness to improve upon the status quo and evolve with the demands of more complex challenges.

To achieve holistic approaches, integration and complementary strategies need to be explored and developed in both policy and institutional design at the local government level.

5. Local governments create enabling framework conditions for other actors.

Local governments have an important role to play by responding to citizens' and city actors' needs, desires, and initiatives by:

- Setting common targets.
- Building local consensus on the way forward.
- Facilitating interaction among local actors and promoting public participation.
- Providing the necessary institutional and statutory framework.
- Institutionalizing objectives, procedures, actions, etc.
- Implementing, monitoring, evaluating and reporting progress.

To design concerted efforts at city level together with a range of actors through participatory processes, local governments play a crucial role.

6. Within a multi-governance framework local governments and actors depend upon enabling framework conditions given to them.

For local governments to realize and to be innovative in providing rapid and radical solutions, they need their potential recognized, supported, and enabled. National and state governments have to be locally responsive. Higher tiers of government need to respond to local needs by amending institutional, procedural or other arrangements, and by providing the kind of legal, technical, or financial support and incentives required on the ground. Local authorities and governments need to be empowered to work more closely together with other levels of government, civil society, the private sector, as well as research institutions. Local initiatives in the process can be nationally replicated and scaled-up, and urban and national sustainable development policies can be aligned. Each government tier can be instrumental in improving, changing, or creating institutions to mainstream local sustainability in cities. Progressive local governments have in the process evolved from mere implementers of state or national law to key driver and facilitator of local sustainability processes in not just their own city and in many others.

To develop effective multi-level governance systems, state and national governments have to engage and respond to local needs and demands.

7. Partnerships among cities play a key role in sharing pioneering experiences nationally and internationally.

National and international city networks are an important way for city decision makers to be inspired by actions of other cities actions on sustainable urban development and sharing experiences. International cooperation among local governments is a quintessential component of this knowledge sharing, capacity building, and innovation processes. Facilitation and assistance from international organizations towards this aim is equally important. There is a real and meaningful role for Local Government Organizations (LGOs), which is increasingly being recognized by key international conventions and international organizations.

To strengthen city sustainability progress, a systematic exchange of experiences and knowledge has to be extended.

8. Cities inform the global debate and support reaching international agreements.

Cities in the process not only influence the global debate, they are also essential to the solution of many pressing issues. Local governments have a particularly important role in enhancing human well-being, eradicating poverty, protecting and enhancing natural resources, reducing future costs, and environmental risks. Local governments and LGOs then play a crucial role in supporting national governments in implementing multilateral environmental agreements (MEAs), transforming a city's economy to a green urban economy, as well as setting more ambitious sustainable development goals and targets. Their contribution has to be fully acknowledged and supported at the respective levels. It requires the further development and support to quantify, measure, report and verify progress in cities.

To inform and contribute to global agreements and targets, cities and their actors require the necessary capacity to be part of their design and have the capacity to report on progress.

9. Local governments can play a key role in greening the urban economy and creating green urban economies.

Local governments can create the necessary policy and regulatory conditions towards greening the urban economy by:

- Changing procurement criteria and using their purchasing power to influence the market and steer municipal investments.
- Shifting demand and supply patterns through education or behavior changing incentive patterns.
- Set framework conditions to direct investments.
- Developing new financing models for green infrastructure.
- Making better use of local natural resources etc.
- More strongly integrating economic and environmental development through institutional change.

Local governments are key actors to drive, enable and transform towards a green urban economy in conjunction with other local actors within a multi-governance framework.

To successfully transition to a Green Economy, local governments can provide the necessary framework and conditions for the manifestation of the Green Urban Economy.

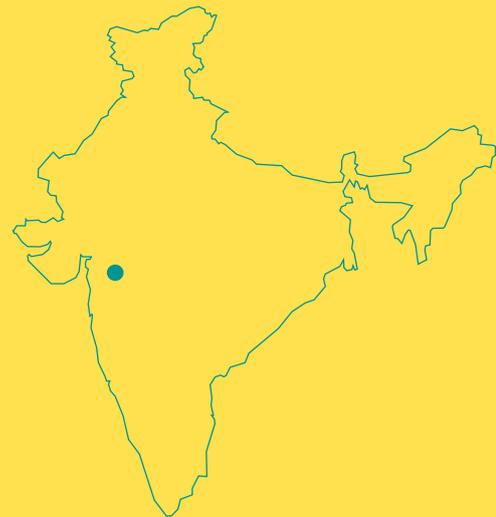
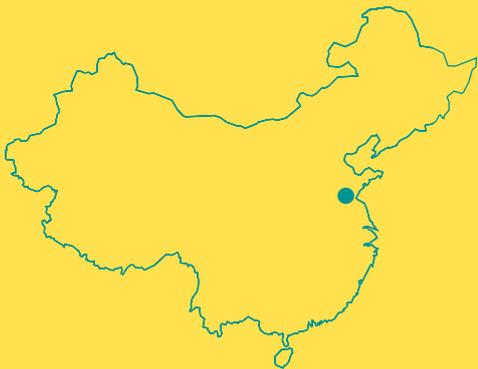
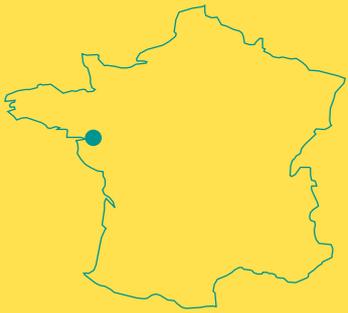
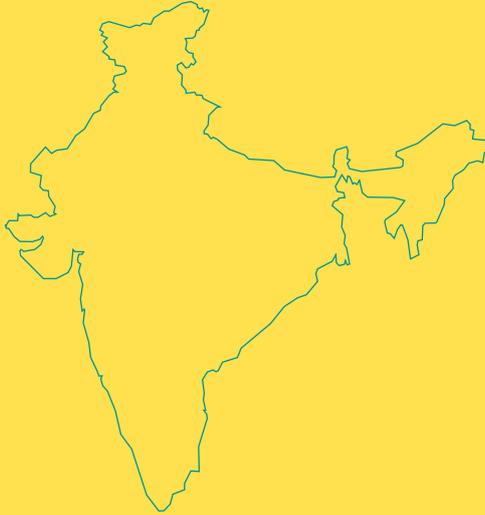
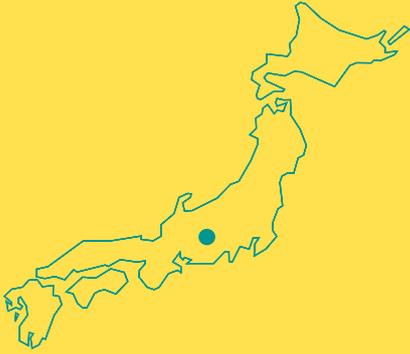
10. A stronger international enabling framework for city action is needed to respond to the challenges of a rapidly urbanizing world.

State, regional, national and international statutory and institutional frameworks and actions need to be aligned with those of local actors, their requirements, and unique situations. National urban development strategies can more strongly draw upon local government experiences and requirements. It calls for a systematic approach where cities and their actors, in particular local governments, are given greater recognition and support to realize their potential in designing a sustainable urban future.

To design “the future we want”, local governments at city level have an important role and the recognition of this role needs to be acknowledged at national and international level.

CASE STUDIES

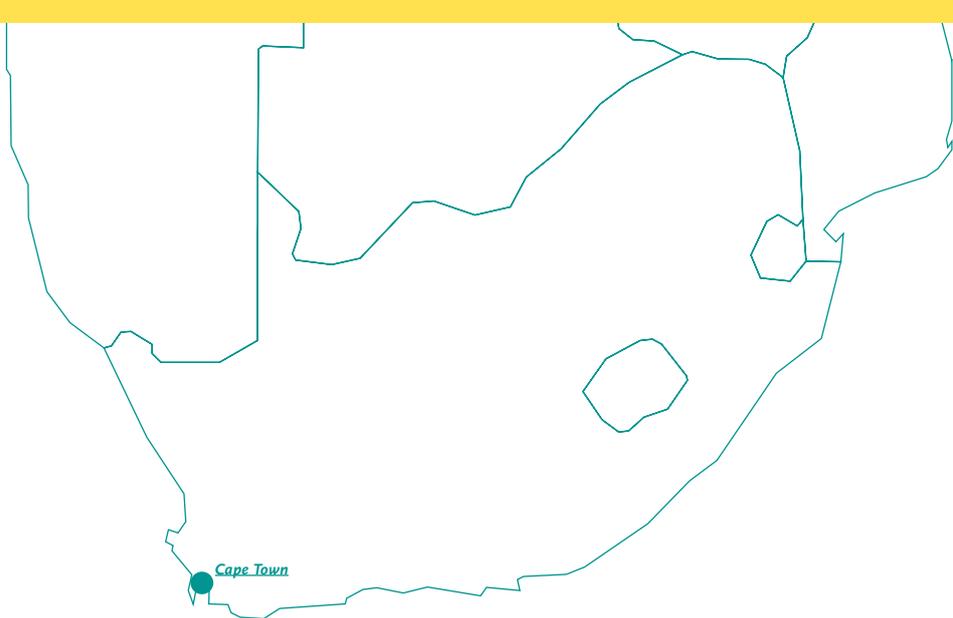
The following case studies are summaries of the full version available at www.iclei.org/casestudies in the ICLEI Case Study series 138-151. The cases are presented in alphabetical order by world region and country, but are not representative for that region. Rather the presented cases are a cross-collection of sustainability themes across the world from cities that can be considered pioneering and especially advanced within their regional culture. Also the selection attempted to feature “not the usual suspects”. They illustrate the diversity of approaches to highlight global progress in local sustainability in cities and by local governments. Each presented case showcases progress towards urban sustainability. Firstly by providing an overview of the locally identified challenge and response. Secondly, highlighting significant achievements and results. Thirdly, detailing the process and actors involved in the preparation and implementation, and finally, key factors for the city’s success.





CAPE TOWN

CAPE TOWN (SOUTH AFRICA): INTEGRATING ECOSYSTEMS AND BIODIVERSITY INTO URBAN DEVELOPMENT



The City of Cape Town showcases how biodiversity conservation can become an integral part of sustainable urban planning and development. Characterized by unique and varied vegetation habitats, Cape Town's unplanned urban expansion could put a global biodiversity hotspot at serious risk. In response, the local government established a Biodiversity Network in an effort to protect the unique landscape and biologically diverse areas.

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CITY PROFILE

Case Study # 138 Cape Town

Population: 3.7 million (2007)

City Size: 2,461 km²

Membership: Cape Town joined ICLEI in 1994.

Appr. municipal budget per capita: US\$ 600

GDP per Capita: US \$ 15,250



1. CAPE TOWN: RECOGNIZING THE IMPORTANCE OF URBAN BIODIVERSITY

Located in a global biodiversity hotspot, the city's urban expansion threatens the patterns and processes of this exceptional landscape and biodiversity. Mountain National Park, one of eight inscribed components of a UNESCO World Heritage Site (Natural), is a 'Global Biodiversity Hotspot', characterized by unique plants species. At the same time, Cape Town is a highly income-segregated city and access to well-managed, natural open space is not evenly spread across all income-groups. There is now a growing recognition of the need to defend this unique natural environment as part of Cape Town's, and South Africa's, natural and cultural heritage, and to provide access to quality open space for urban dwellers. The establishment of Biodiversity Network (BioNet) in 2009 seeks to achieve this.

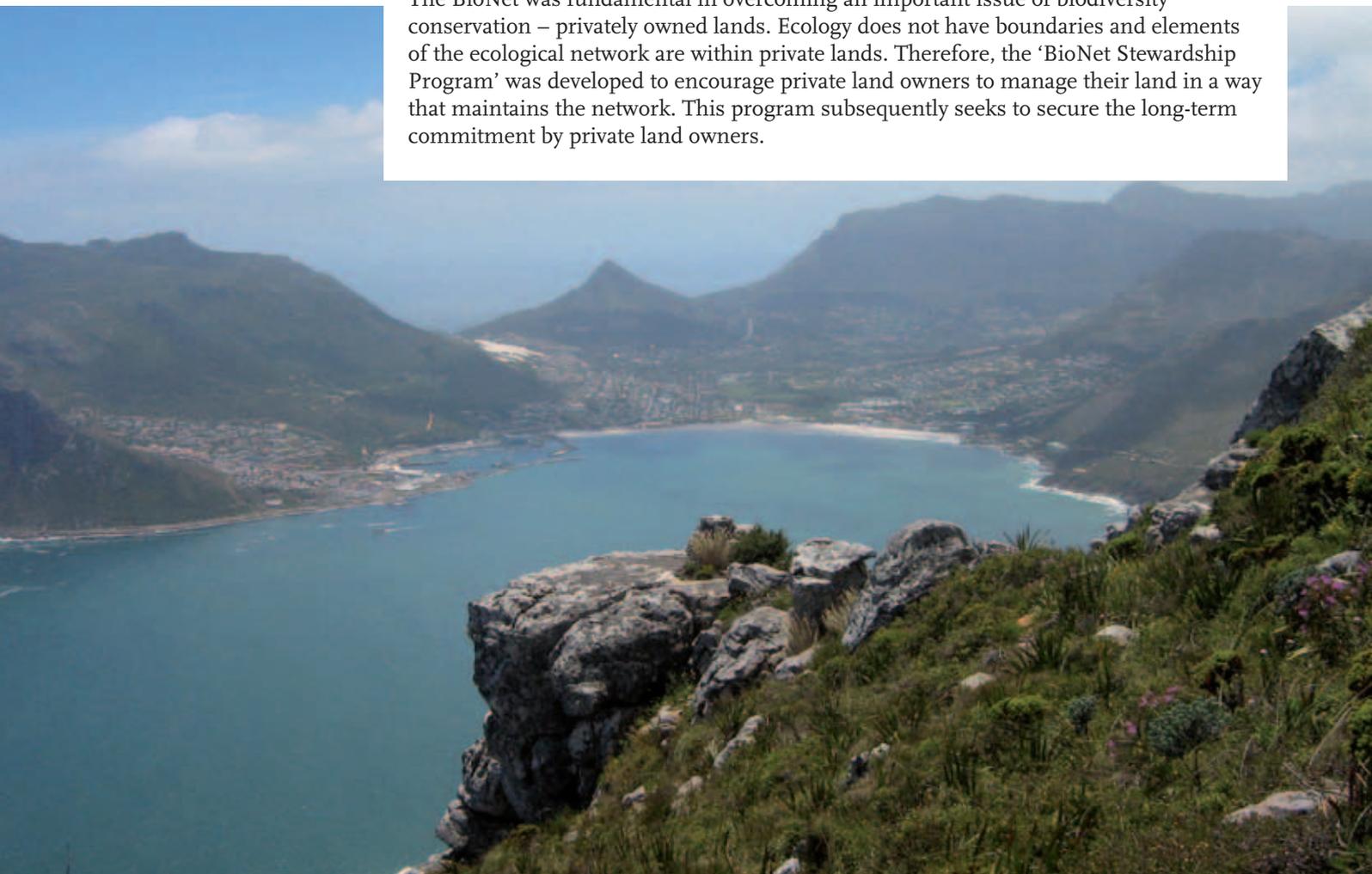
2. SIGNIFICANT BENEFITS FROM BIODIVERSITY PLANNING

The established BioNet, which can be understood as an ecological corridor, provides the basis for the conservation of a 'Global Biodiversity Hotspot'. Given the global significance of local and urban biodiversity, the long-term protection of vegetation and the conservation of biodiversity are important at the global and local level. The BioNet protects biologically diverse areas and improves access to natural open space for environmental education. Vibrant open green spaces also are a valuable part of urban wellbeing, for all income groups, especially with regard to recreation and leisure. It also brings added local economic benefits to Cape Town through ecotourism.

The establishment of the BioNet has resulted in the best possible configuration of a network that conserves the threatened habitats of the Cape Town. It represents the most feasible selection of areas to meet conservation targets, as well as protecting associated wetlands and rivers within the city's administrative boundary. The implementation of the BioNet will secure for future generations a unique set of habitats represented nowhere else on the planet.

The BioNet ensures that biodiversity conservation is mainstreamed into the broader city planning framework. The BioNet is being integrated into the 'Spatial Development Framework' for Cape Town, thus ensuring that land use is directly informed by critically important biodiversity and prioritized ecological areas. Furthermore, there is now a strong participation and stakeholder engagement framework in place which is vital for local based action, whether it be in biodiversity protection or the general urban planning and development framework.

The BioNet was fundamental in overcoming an important issue of biodiversity conservation – privately owned lands. Ecology does not have boundaries and elements of the ecological network are within private lands. Therefore, the 'BioNet Stewardship Program' was developed to encourage private land owners to manage their land in a way that maintains the network. This program subsequently seeks to secure the long-term commitment by private land owners.



3. KEY COMPONENTS IN ESTABLISHING THE BIONET

The city's Biodiversity Strategy (2002) was subsequently replaced by a 'Local Biodiversity Strategic Action Plan', which seeks to secure 60 per cent of the city's Biodiversity Network by 2014. The BioNet must "effectively conserve and protect an adequately representative sample of all the unique biodiversity in Cape Town for the benefit of current and future generations". The strategy is crucial to ensure, that appropriate, effective and efficient management plans and policies are developed and implemented at each of the primary biodiversity conservation areas, thus protecting the unique attributes of Cape Town's habitats. Conservation planning in South Africa at all levels is based on the National Spatial Biodiversity Assessment (NSBA), established in 2004. The BioNet is Cape Town's particular fine scale response and conservation plan to the NSBA.

There were a number of stages and elements in the preparation of the framework for the implementation of the Biodiversity Network Strategy. In 2002, the City of Cape Town initiated a study to assess the potential for a conservation network, which would protect important habitat remnants within Cape Town's urban boundary. This study identified and mapped vegetation via GIS, remote sensing and various other conservation planning technologies to identify manageable vegetation and for interlinking ecological corridors.

Similar methodologies were used for wetland and waterways, which complimented the terrestrial assessment. The resulting BioNet and its ancillary strategies were then integrated into the policy and planning framework. These informed the city's Spatial Development Framework ensuring cross departmental recognition of the BioNet. The BioNet will be continuously revised and updated, as new and improved information becomes available, or as scientific methodologies improve. The BioNet was finalized and approved in 2009.

4. FACTORS FOR SUCCESS

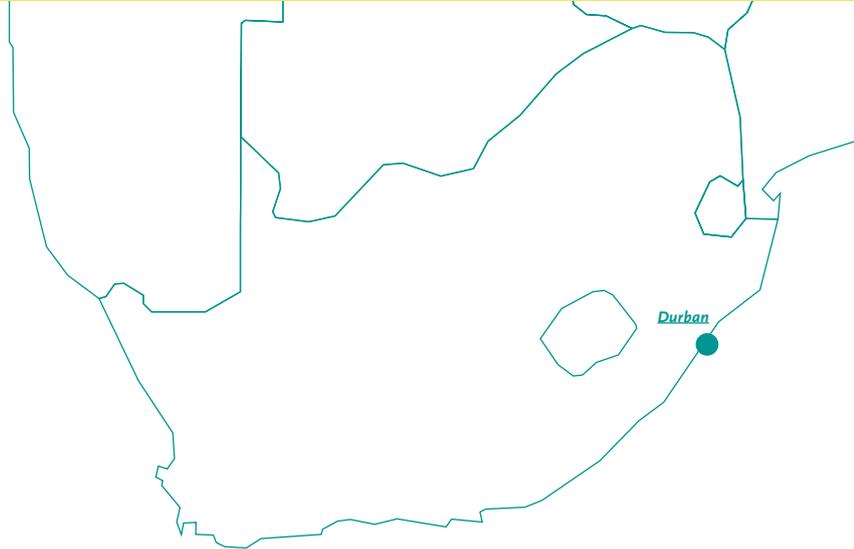
Integrated long-term planning for biodiversity within the broader city planning framework is essential for achieving successful implementation. Communication between all departments, line functions, and with all stakeholders was a critical component in crafting a plan that is broadly supported by the city administration.

Making the case for biodiversity through political endorsement and a receptive political and institutional environment is crucial. In the context of competing needs for land and municipal resources, communication with and support by local politicians are among the most important ingredients for the BioNet. The value of biodiversity areas and ecosystem services needs to be properly expressed, such as its value for tourism, water management and ecosystem-based adaptation in the context of climate change.

Management of all conservation areas must be adequately funded for the sustainable management of biologically diverse and sensitive areas. Adequate funding and various mechanisms including private sector support are required to ensure the project gains momentum.

ETHEKWINI (DURBAN)





ETHEKWINI (SOUTH AFRICA): MAINSTREAMING CLIMATE CHANGE ADAPTATION

eThekweni Municipality, also known as Durban, is a pioneering African example of how adaptation planning can be integrated into general planning and development frameworks. Risk and disaster management frameworks have been developed and are being implemented as part of the phased Municipal Climate Protection Program (MCP). This provides the institutional basis for the city to build resilience, reduce risk of vulnerable groups, and to prepare for the negative impacts of climate change on the municipality.

CITY PROFILE

Case Study # 139 Durban

Population: 3.5 million (2010)

City Size: 2,297 km²

Membership: eThekweni joined ICLEI in 1994

Appr. municipal budget per capita: US\$ 775

GDP per capita: US\$ 6,059



1. ETHEKWINI: A MUNICIPALITY'S CLIMATE ADAPTATION STRATEGY

African cities are rapidly urbanizing at a current annual growth rate of 3.3 per cent and are some of the most vulnerable urban centers in the world to climate change. For eThekweni this means an increase in extreme weather events leading to more frequent and intense floods and droughts, as well as rising sea levels. The impacts affect economic activities, human well-being and infrastructure. Physical infrastructure and ecosystems are already stressed by rapid urban growth. The urban poor, particularly those who live in informal settlements, are especially vulnerable. eThekweni, in an effort to meet these challenges, has been at the forefront of developing a robust local response to climate change. This response is the MCP, introduced in 2004. It is a phased program, which focuses on climate change adaptation and enhances the city's ability to cope with climate change impacts.



2. KEY INSTITUTIONAL IMPROVEMENTS IN CLIMATE PROOFING

Climate adaptation strategies are now part of the municipality's planning and institutional framework, namely through the 'Integrated Development Plan'. Approval of the 'Disaster Management Framework' by council in 2009 provided a critical first step in the reconfiguration of the disaster management functions. This has been followed by the establishment of a Municipal Disaster Management Committee. This ensures that concerns regarding risk and issues relating to resilience building have been and can be fully assessed and subsequently addressed through the implementation of various policy initiatives. Furthermore, there now exists a robust institutional partnership between the Disaster Management Unit and Environmental Planning and Climate Protection Department (EPCPD).

Various initiatives are now underway. An audited institutional risk assessment process is being undertaken across all municipal structures to ensure risks are identified, assessed, treated, monitored and reported on. An impact assessment of the local impact of climate change was undertaken as well as a carbon storage and sequestration analysis. There has been a focus on tool development to assist in evaluating plans and policies within the costs associate with potential negative climate impacts. The first of these is an integrated assessment tool, which employs a stand-alone GIS platform that allows visualizing and overlaying the impacts of climate change in key sectors to help identify high risk areas. Climate change concerns could subsequently be integrated with the adaptation and disaster-linked citywide risk assessment process.

Municipal and community adaptation plans were drawn up, as well as other initiatives such as green roofs, event greening, and sea-level rise modeling. Initiatives and projects that have resulted from the MCPP include:

- Community Based Adaptation Plans (CAPs).
- The Durban Climate Change Partnership (DCCP) which involves public and private partnerships aimed at raising awareness.
- The Green Roof Pilot Project.
- Low Carbon Durban Research Project.
- Sea-level rise assessment.
- Municipal Adaptation Plans Cost-Benefit Analysis.
- Municipal Adaptation Plan for Climate Change.
- Luganda School Water Harvesting and Micro Agricultural Water Management Technology.
- Paradise Valley Reforestation Project.
- Durban Botanic Gardens: A Climate Change and Biodiversity Awareness Centre of Excellence.

3. THE PREPARATION OF ETHEKWINI'S CLIMATE ADAPTATION PLANS

South Africa, and eThekweni in particular, has a long history of climate action and is a prominent signatory to various international agreements. The MCPP which was initiated in 2004, is the culmination of a long history of climate action, and has three main components:

- Ensuring the municipal adaptation is integrated into key activities and relevant departmental line functions.
- Community-based adaptation focusing on building capacity.
- A series of interventions focusing on challenges such as hydrological processes and sea-level rise.

This is a phased program, which has focused on climate change adaptation and enhancing the city's ability to cope with climate change impacts. For eThekweni to achieve this aim, the MCPP was divided into four key phases:

Impact Assessment. Between 2004 and 2006, the MCPP undertook an initial assessment of local climate change impacts which culminated in the 'Climatic Future for Durban Report' (2006) which also proposed possible adaptation and mitigation responses.

Adaptation Planning. The next step was the development of the municipal and community adaptation plans in 2005. It included the Headline Climate Change Adaptation Strategy (HCCAS) published in 2006. This highlighted key interventions required by the municipality to adapt to climate change. This has been, and is being, extended through various adaptation initiatives including reforestation projects, potential sea level rise modeling, community adaptation plans and the development and implementation of municipal adaptation plans for the water, health and disaster management sectors. Since 2008 sector specific municipal adaptation plans were piloted in three high risk sectors: water, health and disaster management.

Developing the toolkit. Between 2007 and 2010, the development of an integrated assessment tool to evaluate and compare long-term city plans and policies against the impacts of climate change was conducted.

Mainstreaming. Initiatives have included the integration of climate change considerations into city planning and development by the creation of a Climate Protection Branch within the Environmental Planning and Climate Protection Department (EPCPD) and the establishment of an Energy Office in 2009. Other interventions have included hosting a carbon neutral 2010 FIFA World Cup™ and COP17-CMP7 in Durban.

In addition, in 2008/2009 the first Energy Office in South Africa was created. Strategic environmental assessment of the spatial development plans has also been undertaken, where ecosystem services are given particular attention. For example, Ecosystem Based Adaptation (EBA) programs, which ensure that protecting ecosystem services is intrinsic in the approach to the design and management of the Durban Metropolitan Open Space System. These areas are being united in the pioneering concept of Community-Ecosystem Based Adaptation (CEBA).

4. FACTORS FOR SUCCESS

Political Endorsement. An important aspect in the implementation of the policies was political endorsement. Political support for adaptation planning and developing sector specific adaptation plans is essential; this ensures that new adaptation strategies are fully aligned with existing business plans and development objectives. It also ensures that available funding and skills are available.

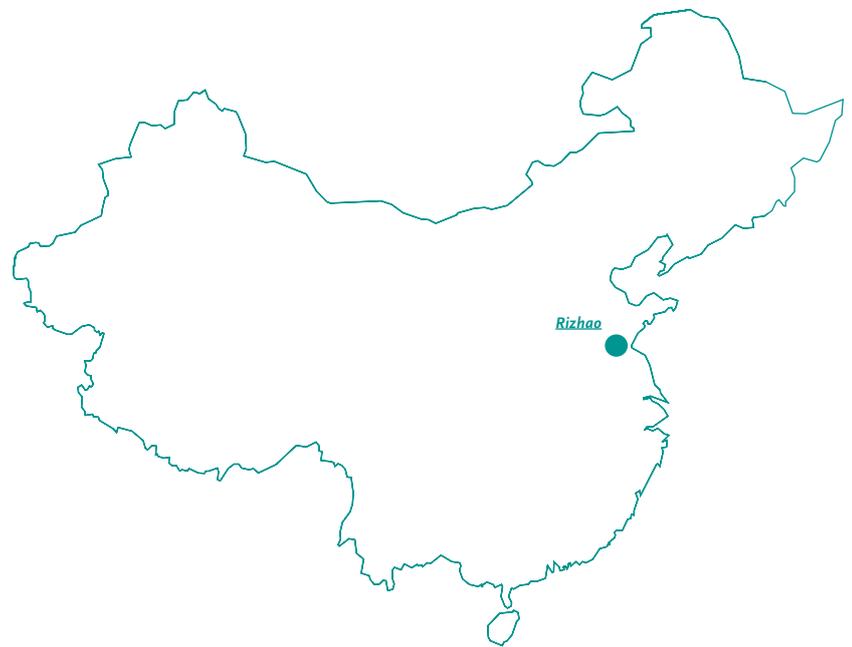
Research Input. Robust monitoring and evaluation which is supported by research is imperative to a successful technical implementation of the project. Research partnerships are essential so that evidence-based learning informs the roll-out of pilot tested adaptation strategies.

Learning by doing. The 'learning by doing' principle adopted by the eThekweni Municipality is a robust approach for the development of local urban adaptation strategies.



RIZHAO

RIZHAO (CHINA): AN 'ECO-CITY' FOR SUSTAINABLE GROWTH AND SOCIAL HARMONY



Since the Rizhao Municipal Government began its transformation process towards an 'Eco-City' by implementing the Eco-City Building Plan, the ecological environment and extended urban development area of Rizhao has improved substantially. The city has benefited economically and the quality of life of its residents has increased significantly. Rizhao's efforts have been nationally and internationally (UN-Habitat Scroll of Honour Award) recognized.

CITY PROFILE Case Study #140 Rizhao

Population: 2.9 million
City size: 5310 km²
Appr. municipal budget per capita: US\$ 570
GDP per capita: US\$ 3,540



1. ECO-CITY TRANSFORMATION FOR SUSTAINABLE URBAN DEVELOPMENT

The city of Rizhao was under-performing in comparison to most other neighboring cities in China. Characterized by low per capita incomes and poor living conditions, the city lacked planning capacity and sufficient infrastructure and services. For example, in the entire city (5,310 km² area), there existed only 49 km of road, public green space per person was less than 3 m², and waste and sewage treatment plants and other pollution controls were almost non-existent. With accelerating urbanization, population growth, and industrialization, the pressures on the local natural environment increased. To stay economically and socially attractive and viable, the city required effective planning and investment. To achieve this, the Rizhao Municipal Government began the implementation of the 'Eco-City Building Plan' in 2003.

2. ENVIRONMENTAL IMPROVEMENTS AND ECONOMIC BENEFITS OF AN ECO-CITY

The objective of the Eco-City Building Plan was to develop a new city model that promotes economic development, while securing ecological quality and social harmony. The implementation has yielded impressive results. Rizhao has received dozens of national awards as well as the highly prestigious international 'UN-Habitat Scroll of Honour Award' in 2009 and first 'World Clean Energy Award' in 2007.

In achieving such success, Rizhao has undertaken various initiatives. Solar energy is now widely used as well as urban central heating systems which now heat up to 1 million m³. The current utilization rate has reached 65 per cent in the city and solar lighting systems are now widely used in parks and public squares. In total the city saves 3.8 billion kWh of electricity annually, reducing 3.25 million tons of CO₂, 2.2 million tons of SO₂ and 20,000 tons of dust. The current utility rate of clean energy use increased from 70 per cent in 2000 to 99 per cent in 2010. In addition, there are 25 industrial enterprises passing the ISO14001 environmental management system certification with a further 63 companies currently carrying out the audit.

After building 8 water management plants in Rizhao from 2003 to 2011, the water supply capacity which comes from the nearby reservoirs increased to approximately 322,000 tons per day or 114 liters per capita per day. The supply rate of urban water coverage including drinking water and city surface water has remained at 100 per cent. Quality of urban surface water and coastal waters are meeting or exceeding the currently required national and provincial environmental standards.

To protect and restore beaches, reefs, wetlands and other ecological habitats, the 'Integrated Coastal Restoration Project' was implemented. Rizhao Municipal Government invested US\$ 290 million to re-design the nearly 10 km Wanpingkou beachfront and establish it as a prime center for tourism, water sports, leisure and recreational activities. Furthermore, various initiatives were introduced to improve the 120 km of waterways in the city. Primarily based on flood prevention, aesthetic quality, ecological sustainability and recreational functionality, improvements to the natural and physical environment were made. This included broadening the width of rivers, improving rainwater and sewage systems and building water storage infrastructure.

Since the implementation of the Eco-City vision, urban noise pollution has decreased considerably due to a ban on night construction, honking prohibition measures and improvements in public transport. The quality of air, drinking water and sea water have reached the national Standard Class I level. The air quality in Rizhao ranks top among the 113 cities for environmental protection at national level and the city has been the top ranked city for eight consecutive years for urban environmental rehabilitation efforts as a result of its water pollution control and waste management policies. Green open space has reached 2,160 hectares, an increase to 42.2 per cent of the total urban area in 2010. The public green area per person increased from 10.5 m² in 2000 to 19 m² in 2010.

At the same time, the economy has maintained significant economic growth reaching a GDP in 2008 of US\$ 9.66 billion. By improving ecofriendly policies in the tourism and services sectors, Rizhao has also been successful in attracting more visitors to the city. In fact more than 17 million tourists have visited Rizhao since 2008.

3. “FUNCTIONAL, ECOLOGICAL, ATTRACTIVE AND DYNAMIC” - A LIVABLE WATERFRONT CITY

After 1989, Rizhao Municipal Government adopted a series of plans, including the Rizhao Sustainable Development Plan, the General Plan for Developing Circular Economy in Rizhao, the City Master Plan and most recently, it introduced the Eco-City Building Plan of Rizhao in 2003.

A key institutional framework had to be created in order for the Eco-City plan to be developed. In September 2000, at the request of the City Mayor, Rizhao Municipal Government commissioned the Research Center for Eco-Environmental Sciences of the Chinese Academy of Science to prepare the ‘Eco-City Building Plan of Rizhao’. The plan was evaluated by the Provincial Environmental Protection Agency (part of central government) in January 2002. In November 2002, the plan was approved by the municipal government and officially inaugurated in August 2003. A series of incentives, policies and regulations, as well as monitoring mechanisms were introduced.

The plan has been mainly driven by the Eco-City Planning Team or ‘task force’ located within the Municipal Environmental Protection Bureau, which provides key input into the plan and strategy. The team also played a key role involving citizen and stakeholders in the process including around 20 relevant implementing departments of the municipality. The time line of the plan was then divided into 3 stages:

The kick-off period (2001-2005). This phase aimed at establishing the institutional framework for the plan. Pilot projects were introduced which dealt with environmental pollution control and green infrastructure projects. This included more public transport, improved sewage systems, renewable energy and innovative ICT networks.

The development period (2006-2010). The local government supported the creation of eco-industries, small to medium sized businesses, such as those based on solar, renewable energy technologies, eco-logistics and marine resources.

The enhancement period (2011-2020). This phase ensures a comprehensive improvement in the living quality of Rizhao’s residents by establishing an eco-community, by green urban economic activities and increasing environmental awareness.

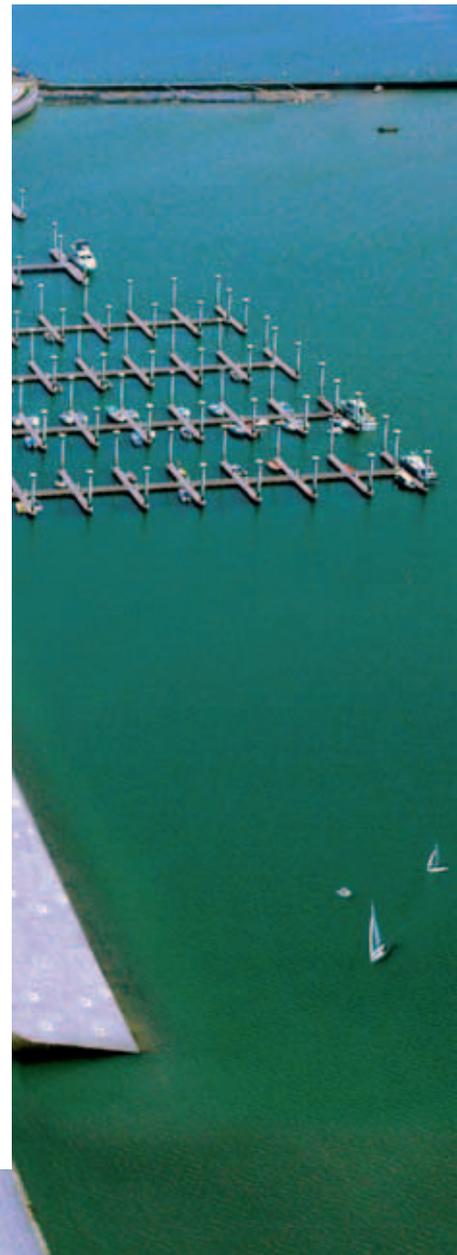
Following these phases, an ecological spatial plan under the banner ‘Establishing an Ecological City and Building a Livable Home’ was presented known as: “Green belt - Two areas and Three corridors - Four landscapes”.

4. FACTORS FOR SUCCESS

The statutory framework. A guiding legislative framework was established via amendments and variations to the relevant laws. This was imperative for the master plan and its policies to be implemented.

Active stakeholder engagement was essential when drafting plans or designating protected areas. It allowed cooperation with other departments and stakeholders for multi-financing opportunities and allowed for awareness raising, through advertising mechanisms in order for the public to become more aware of the envisioned eco-culture.

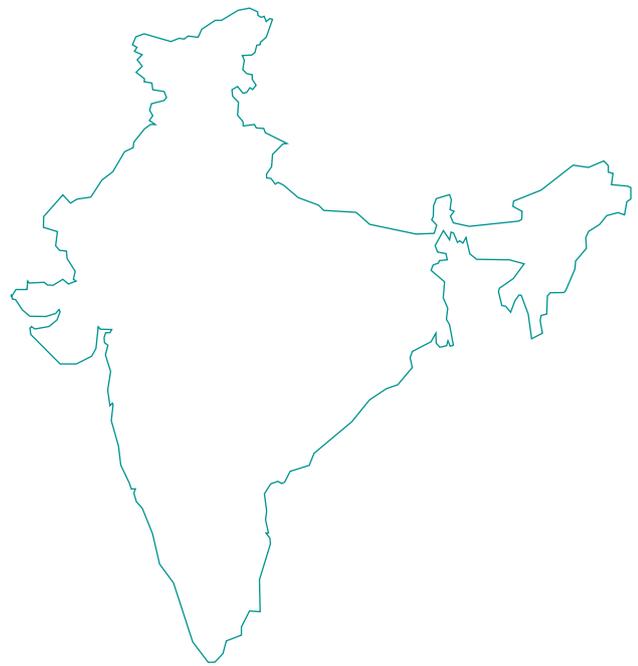
Innovation and technology. Sustainable design in construction and renewable technology utilization was extremely important when developing the Eco-City vision. The promotion of new and innovative approaches to eco-efficient solutions is essential.





JNNURM

JNNURM (INDIA): A TOP-DOWN AND BOTTOM-UP APPROACH TO URBAN DEVELOPMENT AND RENEWAL



The government of India has begun an innovative and ambitious urban reform program: the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). It is an incentive linked reform scheme created to devolve more powers to local governments and enhance their role and capacity in fostering more sustainable urban systems at the local decision-making level. It is an excellent and transformative example of effective multi-level governance for urban sustainability, urban renewal and reform.

CASE PROFILE

Case Study #141 JNNURM, India

Population: 1.21 billion

Country Area: 3,287,263 km²

Membership: ICLEI has 42 members
(33 full members) in India.



1. RAPID URBANIZATION OUTPACES ABILITY TO PROVIDE BASIC SERVICES AND INFRASTRUCTURE

Urbanization poses serious challenges for urban local governments in India. Over the last decade India's urban population increased by more than 76 million people. In 2001, 27.8 per cent of India was urban, by 2011 it was 31.2 per cent, and by 2030 it is expected to be 40 per cent. This rate of urbanization has outpaced the competence of most of the Urban Local Bodies (ULBs) to provide even the most basic services, such as water and waste management. This is primarily due to their limited financial, technical and institutional capacities. Urban areas have to improve their capacity in order to capture capital and foster economic growth while at the same time improving the quality of life of urban citizens and ensuring that urban development does not further degrade a city's natural environment. In response to these challenges and to instill a paradigm change in how urban development is viewed in India, the Government of India introduced the JNNURM in 2005.

2. AN INCENTIVE LINKED REFORM SCHEME FOR BETTER URBAN DEVELOPMENT

The purpose of JNNURM is to instigate reform in urban governance and to improve infrastructure and basic services. As of July 2010, there have been considerable improvements as a result of the realigned focus on urban renewal. JNNURM has been instrumental in renewing the focus on urban development by increasing the flow of investments for improved basic services, raising the aspirations of ULB's, expanding the concept of city improvement beyond piecemeal projects to addressing fundamental needs of the under-served poor, and promoting better urban governance.

Key law reform successes include the repeal of planning bottlenecks such as the Urban Land (Ceiling and Regulation) Repeal Act, 1999, which is essential to reviving the stagnant housing industry. The implementation of the 74th Constitutional Amendment Act has enabled the decentralization and devolution of power to local authorities. 10 states have now transferred functions to ULBs. Most of the reforms under JNNURM incorporate the principles of sustainable development and the principles of Local Agenda 21. Public participation and accountability have been improved as a result of the enactment of the Community Participation Law and the Public Disclosure Law, which have been vital in boosting transparency and accountability in the governance of Indian cities.

The mission has encouraged ULBs to improve infrastructure on a large scale. Since the launch of JNNURM 530 projects with a financial value of US\$ 13.4 billion have been approved. Successful urban infrastructure projects include:

- Nagpur's series of initiatives towards an integrated development of its water framework, including a continuous water supply project for 10 per cent of its population.
- Rajkot's revamping of solid waste management system, which helped to make Rajkot one of the cleanest cities in the country.
- Ahmedabad's Bus Rapid Transit System, the first in India.

Progress is monitored through state level nodal agencies as well as through a Performance Monitoring and Evaluation System, both set up by the Ministry of Urban Development. These instruments are in place to review the projects at different stages of implementation enabling a thorough analysis of the initiatives and projects.

3. KEY COMPONENTS OF JNNURM

The programs and guidelines for implementation were formulated by the Ministry of Urban Development (MoUD) with the help of urban renewal experts. The MoUD was also supported by various other institutions such as the Planning Commission, the National Institute of Urban Affairs (NIUA) and the National Institute of Public Finance and Policy (NIPFP).

JNNURM envisages an investment of more than US\$ 26 billion, whereby between 35-50 per cent will come from the central government over a seven-year period. The relative contributions of each actor (Government of India, State Government, and ULB) are largely determined by the size of the city. Such city based incentives seek to stimulate institutional, structural, and fiscal reforms necessary to improve service delivery and to ultimately create economically productive, equitable and responsive cities.

Access of cities to JNNURM funds for infrastructure development is linked to commitments by the states (provinces) and ULBs to implement mandatory and optional reforms. The JNNURM Directorate, under the MoUD has the authority to release funding to states and cities. The funding of the project is subject to a systematic review of the project by the authorities at state and national level.

4. FACTORS FOR SUCCESS

By a top-down and bottom-up approach JNNURM adopts a mixed governance approach. Guidelines, reforms and release of funds are formulated at the top, while the ULBs undertake the urban reform required and implement the project at the local level. The implementation activities at the bottom also informed changes at the top where necessary. JNNURM has succeeded in getting both strong state and city government commitment.

Demand-driven approach has been successful in more progressive states, where some governance reforms have been implemented and supplementary funds have been provided by the state and local government. The mission has helped some ULBs to take up projects on a scale they had not previously attempted.

Addressing core components for better urban governance, such as legal reforms lead to increased accountability and transparency, while democratic decentralization improves development performance and is more responsive to citizens' desires and service delivery. Monitoring also leads to improvement suggestions for urban governance.

The Peer Learning and Knowledge Sharing Network (PEARL) is an initiative under JNNURM which enables networking among participating cities to share experiences, progress of projects and various initiatives.





THANE

THANE (INDIA): INCREASING SOLAR ENERGY UTILIZATION



Thane, a city which has a long history in solar energy promotion, has committed to a 10 per cent citywide energy reduction over five years. Innovative energy initiatives reduced the city's overall carbon footprint and have resulted in significant cost savings. Thane's experience with solar technologies provides an example for renewable energy promotion and generation. Thane's participation in India's Solar Cities Program is a practical example of how cities can become a place of energy generation, not just energy consumption, reduce GHG emissions, and achieve considerable financial savings.

CITY PROFILE

Case Study #142 Thane,

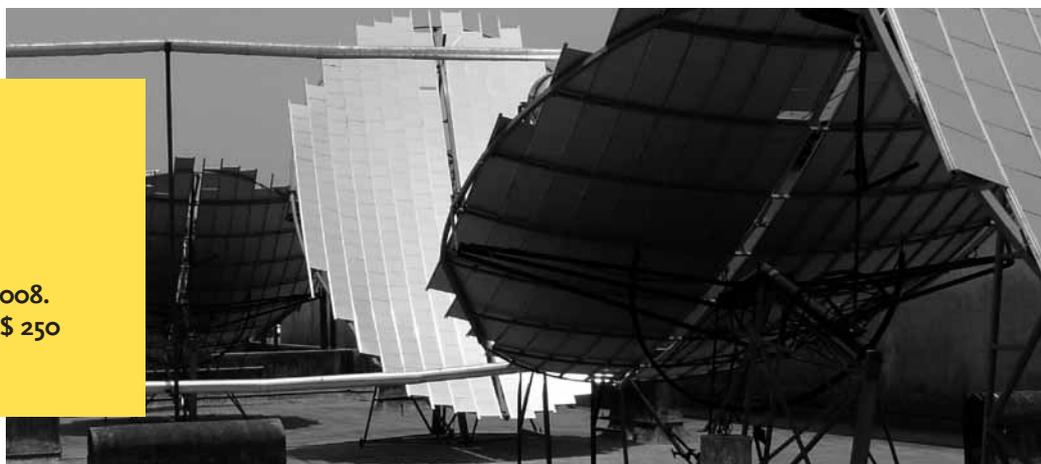
Population: 2 million (2010)

Country Area: 147 km²

Membership: Thane joined ICLEI in 2008.

Appr. municipal budget per capita: US\$ 250

GDP per capita: US\$ 2,000 (NIUA)



1. LOCAL SOLAR POWER SUPPLY TO MEET INDIAN CITIES ENERGY REQUIREMENTS

Energy is a key concern for Indian cities. Energy generation and consumption is one of the main drivers that contribute to climate change, and in rapidly urbanizing countries like India, increasing energy demand in the context of limited supply is a pressing issue. To meet these challenges, India's Ministry of New and Renewable Energy (MNRE) launched the 'Solar Cities Program'. If the current GDP annual growth rate continues, it is envisaged that a six fold electricity capacity will be required in India. It is within this context that the Solar Cities Program was established as a driving force for local energy innovation and investment. Within the framework of the Solar Cities Program, the city of Thane, Maharashtra, aims to become one of India's first solar cities. Thane hopes to achieve this by promoting energy efficiency and using solar power - alongside other renewables - to achieve a 10 per cent reduction in electricity consumption over 5 years, with a strong emphasis on local energy generation.

2. DECREASING ENERGY CONSUMPTION WHILE INCREASING RENEWABLE ENERGY UTILIZATION

The Solar Cities Program, developed by India's MNRE, aims to empower local governments to address energy challenges and provide a framework that enables an assessment of each city's energy situation. It improves energy security and results in reduced GHG emissions. Thane's master plan, prepared within the context of the Solar Cities Program, and building on the city's innovative energy initiatives developed by the city over recent years, has resulted in an integrated understanding of energy dynamics. The energy master plan has become the foundation for the city's broader strategic agenda on energy and climate change mitigation.

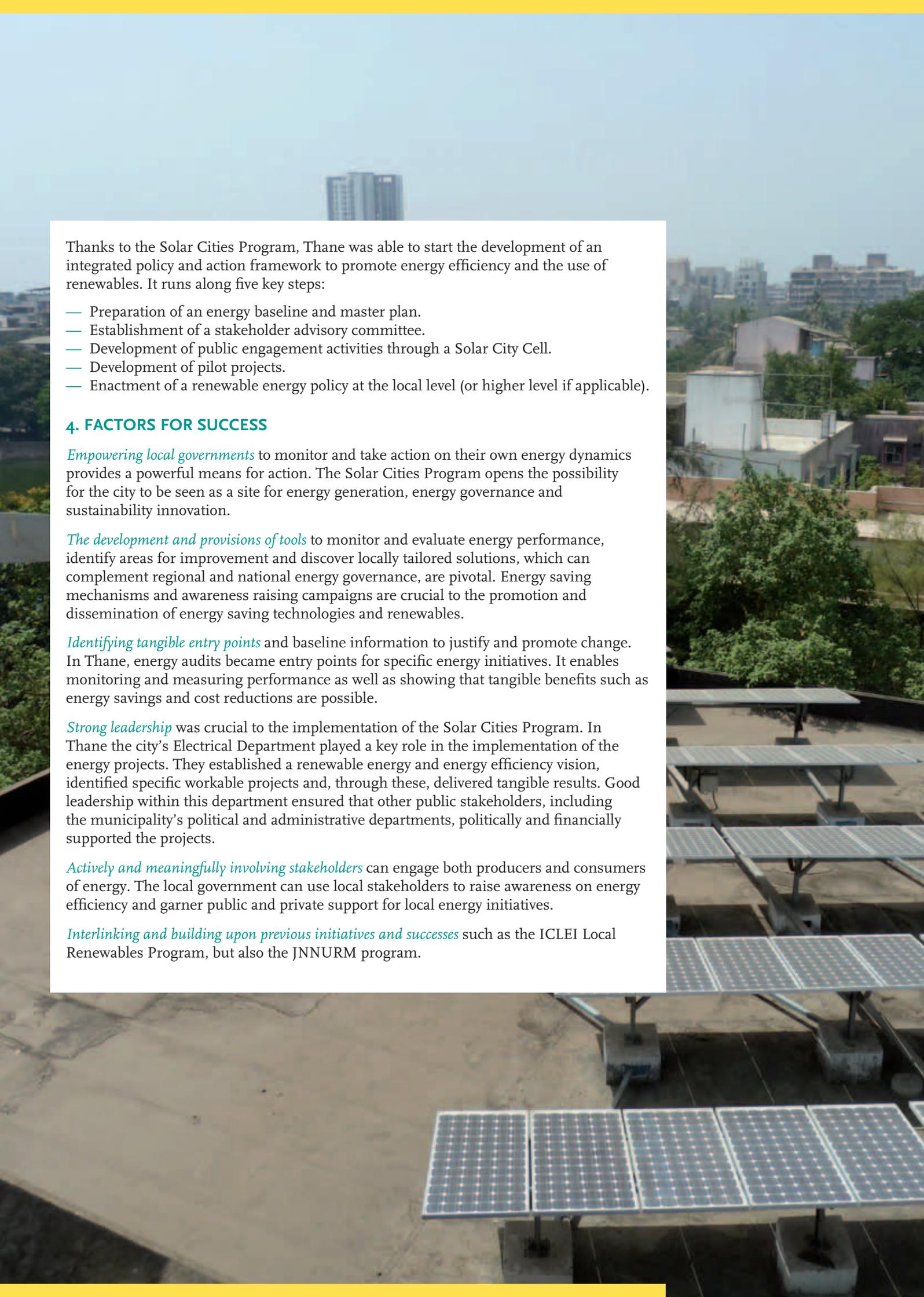
Thane's local energy initiatives have saved over 42.8 gigawatt over the last 9 years. A 2005 by-law was introduced which makes the use of solar hot water systems mandatory in new constructions. The appropriate enforcement by the city's town planning department, whereby building owners do not get the final occupancy permits unless the solar hot water system has been installed, played a key role in its success. This has resulted in an installed capacity of 715,000 liters per day of hot water, mostly in private households. In the past three years, Thane has implemented changes in street lighting resulting in 33 per cent energy savings; has installed a solar air conditioning system in the city's main public hospital; installed energy efficiency technologies in the city's water pumping stations as well as a 50 kW photovoltaic system for the municipality's offices. All these energy initiatives have resulted in significant financial savings for the city. For example, solar hot water systems at public hospitals are saving up to 500 MW per year or Rs 2 million in energy bills (US\$ 40,000).

Thane's multiple results based on these early initiatives provided a solid foundation for the Solar Cities program. The Solar City Program provided additional momentum, funds and expertise to continue many of these initiatives. A 'Solar City Stakeholder Committee' was established to provide additional avenues for expert involvement. The Solar Cities Stakeholder Committee has included the participation of local and regional players such as the Maharashtra Chamber of Housing Industry, Solar Manufacturers, state level energy bodies, local energy-related businesses and educational institutions. In addition, a 'Solar City Cell' is also being created to engage the general public on energy issues and develop learning opportunities on renewable energy and energy efficiency for businesses and households.

3. KEY COMPONENTS FOR SOLAR ENERGY PROMOTION, GENERATION AND UTILIZATION

Thane has experimented with renewable energy and energy efficiency since the early 2000s. As part of these activities, the city has prepared a carbon emissions inventory; enacted energy related building by laws; and implemented a variety of demonstration projects. A series of energy audits were undertaken in municipal services such as water and street lighting between 2005 and 2010. This provided baseline information regarding energy consumption levels in municipal services. In conjunction with the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), Thane has also made significant investments in urban infrastructure.

The Solar Cities Program, established in 2009, was a natural continuation in the portfolio of local energy initiatives. Over the following two years, in conjunction with a range of public and private stakeholders, the city prepared a citywide renewable energy strategy. ICLEI South Asia was appointed as the energy master planner, and was tasked with the preparation of Thane's Solar City Masterplan.



Thanks to the Solar Cities Program, Thane was able to start the development of an integrated policy and action framework to promote energy efficiency and the use of renewables. It runs along five key steps:

- Preparation of an energy baseline and master plan.
- Establishment of a stakeholder advisory committee.
- Development of public engagement activities through a Solar City Cell.
- Development of pilot projects.
- Enactment of a renewable energy policy at the local level (or higher level if applicable).

4. FACTORS FOR SUCCESS

Empowering local governments to monitor and take action on their own energy dynamics provides a powerful means for action. The Solar Cities Program opens the possibility for the city to be seen as a site for energy generation, energy governance and sustainability innovation.

The development and provisions of tools to monitor and evaluate energy performance, identify areas for improvement and discover locally tailored solutions, which can complement regional and national energy governance, are pivotal. Energy saving mechanisms and awareness raising campaigns are crucial to the promotion and dissemination of energy saving technologies and renewables.

Identifying tangible entry points and baseline information to justify and promote change. In Thane, energy audits became entry points for specific energy initiatives. It enables monitoring and measuring performance as well as showing that tangible benefits such as energy savings and cost reductions are possible.

Strong leadership was crucial to the implementation of the Solar Cities Program. In Thane the city's Electrical Department played a key role in the implementation of the energy projects. They established a renewable energy and energy efficiency vision, identified specific workable projects and, through these, delivered tangible results. Good leadership within this department ensured that other public stakeholders, including the municipality's political and administrative departments, politically and financially supported the projects.

Actively and meaningfully involving stakeholders can engage both producers and consumers of energy. The local government can use local stakeholders to raise awareness on energy efficiency and garner public and private support for local energy initiatives.

Interlinking and building upon previous initiatives and successes such as the ICLEI Local Renewables Program, but also the JNNURM program.

An aerial photograph of a town with a dense residential area in the foreground, featuring many houses with dark roofs. In the background, a range of mountains is visible, with the highest peaks covered in snow. The sky is clear and light-colored. The overall scene is presented in a grayscale or desaturated style, except for the text and a yellow bar at the bottom.

IIDA

IIDA (JAPAN): FINANCING ECO-ENERGY WITH A CITIZEN FUNDED ENERGY COMPANY



Iida City is an extremely progressive city in terms of renewable energy innovation. A strategic collaboration between the local government and a social business funded by local citizens, Ohisama shinpo Energy Co. Ltd, promoted the installation of 'citizens' solar panels with the Ohisama Zero-Yen Program, whereby citizens become investors in the solar installation program. This is an excellent example of citizen participation in the development of sustainable energy at the local level.

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CITY PROFILE

Case Study #143 Iida

Population: 105,000 (2010)

City size: 648 km²

Membership: Iida joined ICLEI in 2009.

Appr. municipal budget per capita: US\$ 4,800

GDP per capita: US\$ 34,000 (Tageo.com)



1. COLLABORATION WITH CITIZENS FOR RENEWABLE ENERGY UTILIZATION

Energy security is a serious concern in Japan while energy production and consumption is a major contributor to GHG emissions. While renewable energy technologies are crucial for a clean energy strategy, they can be difficult to implement. The electricity market in Japan is dominated by a small number of companies, even though since 1995 the electricity business market has been partially liberalized. There has been subsequently a strong focus on local governments to formulate long term, sustainable energy policies. With this in mind, the local government of Iida City established a partnership with a local citizen funded energy company – Ohisama shinpo Energy Co. Ltd. This resulted in the development of the 'Ohisama Zero-Yen Program'.

2. INCREASED ENERGY SAVINGS, REDUCED EMISSIONS

The aim of the Ohisama Zero-Yen Program was the promotion of renewable energy through solar panel installation and distribution. There has been considerable success. The number of Iida's households with solar power panels has increased from 0.17 per cent in 1997 to 3.61 per cent in 2010, the highest among similarly sized cities in Japan. Approximately 30 per cent (estimation) of the total houses are equipped with lower-priced solar water heaters. Citizens' solar power stations owned by Ohisama shinpo energy Co. Ltd. accounted for 162 sites in 2010. The total generated output is 1,400,000 kWh in 2010 and CO₂ emission reductions have amounted to the equivalent of 777 tons.

Local government buildings were used as site for installation. In a short space of time, solar power panels were installed on almost all available rooftops of city government owned buildings, most of which were purchased and installed by Ohisama shinpo. Co. Ltd. The city government encouraged Chubu Electricity Power Co., Inc. to invest in the "Mega Solar Iida" power plant. Chubu Electricity Power Co., Inc. is one of the biggest electricity companies in Japan and the new power plant was constructed and operated by the company. It is a large-scale centralized power plant with a generation output of 1,000,000 kWh, equivalent to an estimated 400 tons of CO₂ reduction. The solar panel cells were manufactured by a factory in Iida City, therefore, also making a contribution to the local economy.

Crucial to the successful implementation the necessary finance was required. Large amounts of funds were raised and the Ohisama shinpo Energy Co. Ltd. invested in the 'Ohisama Fund' whereby ordinary citizens became social investors (people contributed to the initial financing of the project, with an intention to benefit from potential returns). Together with other large and small scale funds, sufficient funds were raised for installing the first solar power panels. The total amount raised was 758,600,000 JPY (US\$ 9.5 million).

3. KEY COMPONENTS OF A CITIZEN BASED APPROACH TO SOLAR ENERGY POLICIES

The origins of the initiative go back to its LA21 Action Plan, when Iida City government adopted the '21 Iida Environmental Plan' in 1996. After various revisions, the reduction of GHG emissions and the financing of renewable energy, particularly solar power panel installations became a strong theme. When the city government received funding from the Ministry of the Environment in 2004, it helped establish a private company modeled as a social business funded by local citizens. Ohisama shinpo Energy Co. Ltd was then formed by local citizens in 2004. Its formation lead to the implementation of the solar power panels project. Ohisama shinpo Energy Co. Ltd. is organized as a non-profit company and seeks to encourage local citizens to use solar energy. Furthermore, the central government decided to select Iida City as a one of the 'Eco Model' cities thus ensuring Iida's eco-energy city strategy gained momentum.

The city government and Ohisama shinpo Energy Co. Ltd. created a new social business program. The company financed the costs of panel installation through a social investment fund and raised the required amount of 201.5 million JPY (US\$ 2.5 million). The city authorities developed a contract to buy electricity from a private company for 20 years. By 2010, the Ohisama shinpo energy Co. Ltd. owned 162 solar power plants sites in Iida City and the surround environs.

Some citizens, however, could not afford the upfront costs of installation. Therefore, in 2009, Iida City government and Ohisama shinpo energy Co. Ltd. launched a system to install solar power generators at no initial cost on the roofs of ordinary households - the Ohisama Zero-yen Solar Electricity System. Instead of having to pay the large upfront cost for installing a solar power system, households pay a small fixed amount over a nine year period.

Ohisama shinpo energy Co. Ltd. advanced this project through public-private and private-private partnership, with loans from local credit unions and banks. The city government advertised the program and received support from neighboring community organizations, as well as the benefits associated with the electricity purchases by the Chubu Electricity Power Co., Inc.

4. FACTORS FOR SUCCESS

Policy leadership and the promotion of partnerships from the elected mayors, as well as environmental policy experts was vital to this program. This established a solid foundation for local governance in Iida, necessary for the development of the Ohisama Zero Yen Program. Government leadership was also notable when developing public-private and private-private partnerships.

Bottom up approach. Actively engaging local citizens and involving them in the development of the social company was pivotal to the success of the program. It allowed them to take ownership of the project, give them an incentive to increase solar energy utilization and to ensure the program was successful.

The private-private partnership brought a dynamic change to the program. The Ohisama shinpo Energy Co. Ltd. played a key role in the planning and implementation of this project. It succeeded in attracting investors to the funding initiative by mobilizing the national network of nonprofit organizations engaged in renewable energy production.





TOKYO

TOKYO (JAPAN): ENERGY EFFICIENCY IN BUILDINGS



Tokyo's Green Building Program and the Cap and Trade Program have been two major progressive initiatives to reduce the carbon footprint of both existing and new commercial buildings in the city through energy efficient building technologies. As Tokyo is the largest metropolitan area in the world, this case sets a powerful precedent of a climate mitigation market instrument in urban areas. The Cap and Trade and Green Building Programs are fundamental to Tokyo Metropolitan Government's policy goal to reduce CO₂ emissions by 25 per cent below 2000 levels by 2020.

CITY PROFILE

Case Study #144 Tokyo

Population: 13 million (2011)

City size: 2,187 km²

Membership: Tokyo joined ICLEI in 1997.

Appr. municipal budget per capita: US\$ 6,900

GDP per capita: US\$ 70,759

(Siemens Green cities index)



1. IMPORTANCE OF ENERGY EFFICIENT BUILDINGS IN CITIES

Energy consumption in buildings reportedly accounts for as much as 40 per cent of total global energy consumption. Although Tokyo occupies only 0.6 per cent of Japan's total land area, it is home to more than 10 per cent of the country's population and it accounts for over 4 per cent of Japan's total GHG emissions, whereby buildings account for 37 per cent in 2006. This volume is comparable to the national emissions of countries such as Denmark or Norway. In an effort to reduce the carbon footprint of buildings and support global climate change mitigation, the Tokyo Metropolitan Government (TMG) established the Cap and Trade (C&T) Program, which deals with existing buildings, and the Green Building Program, which deals with newly built buildings.

2. RESULTS OF THE CAP AND TRADE AND GREEN BUILDING PROGRAMS

Both programs provide a relevant statutory framework to establish energy efficiency in buildings. Approximately 1,340 facilities are covered by the C&T Program and a 6 to 8 per cent reduction requirement applies during the first compliance period 2010-2014 and a prospective 17 per cent reduction requirement during the second compliance period 2015-2019. If a facility exceeds its reduction requirement the excess reduction as a credit is allowed to be sold. Four types of such credit are defined by the program:

- Surplus reductions achieved by other targeted facilities.
- CO₂ reductions voluntarily achieved by small and medium scaled facilities in Tokyo.
- Surplus reductions achieved by facilities outside Tokyo.
- Environmental value generated through the use of renewable energy (renewable energy credits).

Since 2002 the Green Building Program has covered more than 1,300 buildings. The most recent version of the program, implemented in 2010, seeks to ensure that:

- Minimum energy performance standards are set higher than the national standards.
- A feasibility study is required when introducing on-site renewable energy technologies. Owners and developers are required to submit proposals to TMG and publish a report on their examination process for having solar energy facilities introduced in prospective buildings.

The exact reductions achieved by the C&T Program are yet to be calculated since the program's first compliance period ends in 2014. According to Bureau of Environment (BOE), however, approximately 59 per cent of the targeted facilities can be expected to comply with their reduction obligations. On the other hand, the Green Building Program has resulted in the number of lower performance buildings decreasing, while the number of higher grade buildings is increasing. Two-thirds of the buildings under the Green Building Program exceed the thermal performance in insulation efficiency criteria provided under Japan's Rational Use of Energy Act. Examples of such eco-energy buildings include those that have plans for a large-scale installation of solar panels, new radiation cooling/heating systems and LED lighting. Even in buildings that already have the lowest levels of CO₂ emissions equipment is being upgraded to reduce emissions further, when extension wings or annexes are being constructed.

The C&T Program is also creating new business models to stimulate economic activity. Such new businesses can include consultations on acquiring emission reduction credits for energy efficiency measures by small and medium-sized business facilities and for the validation and trading of various credits. This ultimately impacts on the market, whereby an incentive is created to produce and sell eco-efficient products.

3. KEY COMPONENTS AND INSTITUTIONAL SET-UP

Cap and Trade Program

In 2000 the Department of General Affairs and the BOE of TMG introduced the Tokyo CO₂ Emissions Reduction Program; however as the program was voluntary based, only about a quarter achieved emissions reductions which were greater than 5 per cent. The C&T Program aimed to remedy this issue.

During the C&T policy-making process TMG took a participatory approach, actively gathering opinions from businesses, industry groups, environmental NGO/NPOs, academics and engineers. However, when TMG announced the intention of introducing the C&T Program in 2002 all businesses and industry groups strongly disagreed with the plan. Some industry groups, such as the Japanese Federation of Economic Organizations (Keidanren), argued that it had the potential to restrict Tokyo's economic activities and some businesses, such as property businesses and developers, considered the proposed caps to be excessive and unfair.

A key stakeholder was the Tokyo Chamber of Commerce and Industry (TCCI). Despite its initial reluctance, TCCI came to see that there could be supportive measures in the plan and argued for offset credits from small and midsize facilities within the Tokyo area. In the end TCCI formally accepted the program, and this influenced the decision-making of the legislative branch of the Tokyo Metropolitan Assembly.

Green Building Program.

In contrast to the C&T program, there was little disagreement among the stakeholders when BOE introduced the Green Building Program in 2000 (implemented in 2002). BOE recognized that the national energy efficiency standards were not effectively implemented. They were not well tailored to Tokyo's unique regional characteristics and most of the targeted buildings in Tokyo were not given incentives to over-comply with the lowest standard. Thus, BOE established a mandatory disclosure scheme of large-scale buildings' energy performance with its own rating system.

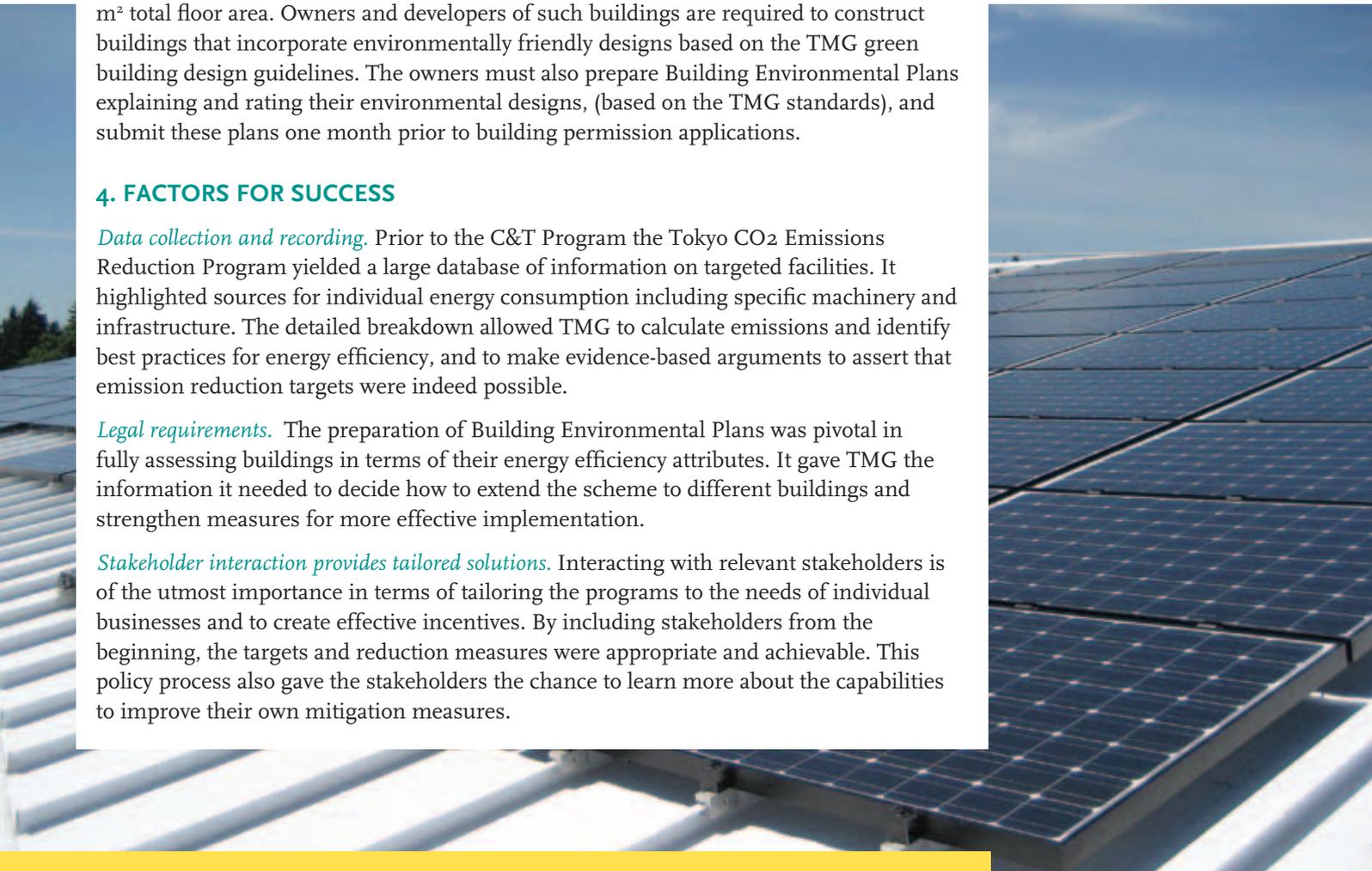
The program requirements apply to owners of newly-built buildings with over 5,000 m² total floor area. Owners and developers of such buildings are required to construct buildings that incorporate environmentally friendly designs based on the TMG green building design guidelines. The owners must also prepare Building Environmental Plans explaining and rating their environmental designs, (based on the TMG standards), and submit these plans one month prior to building permission applications.

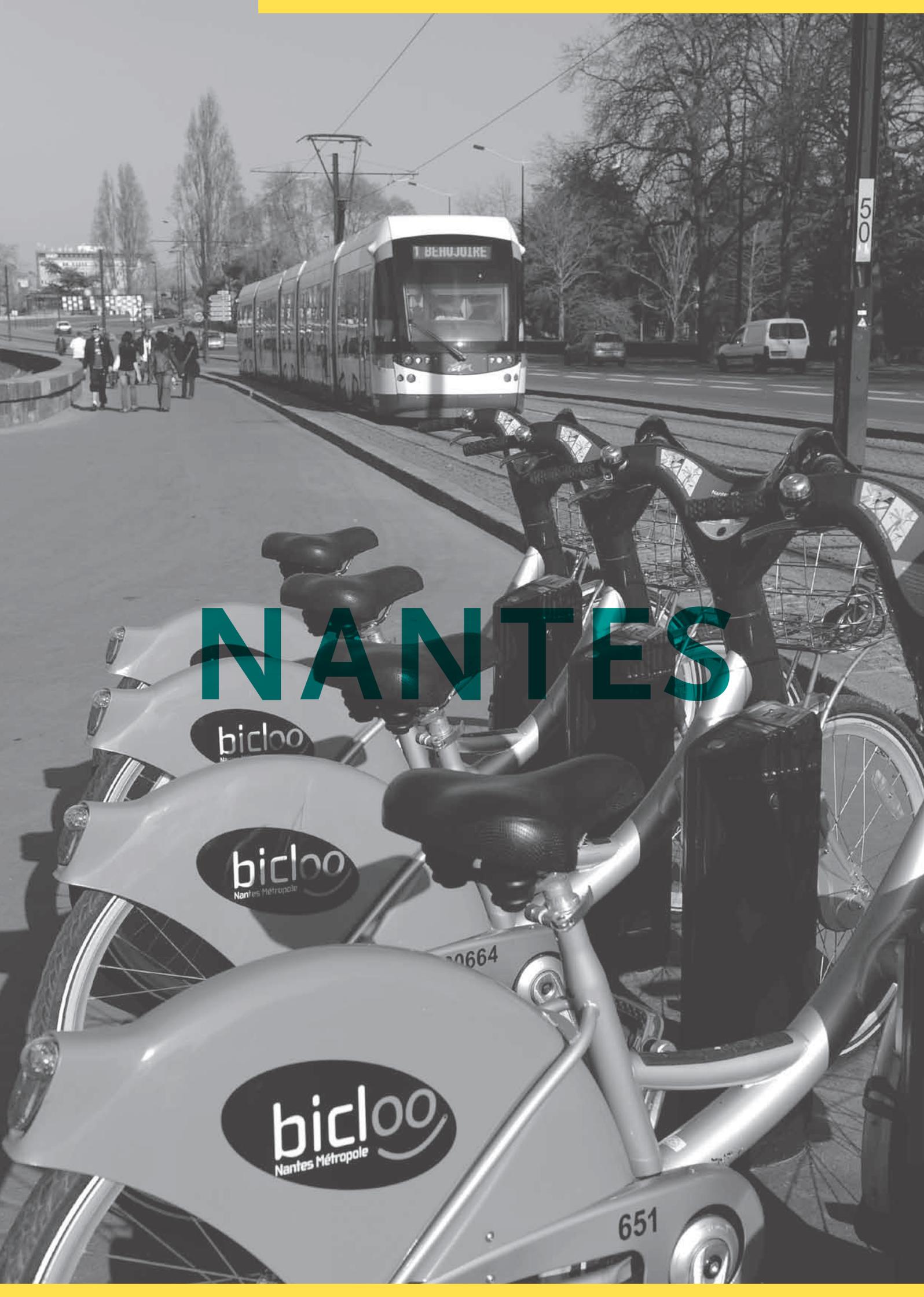
4. FACTORS FOR SUCCESS

Data collection and recording. Prior to the C&T Program the Tokyo CO₂ Emissions Reduction Program yielded a large database of information on targeted facilities. It highlighted sources for individual energy consumption including specific machinery and infrastructure. The detailed breakdown allowed TMG to calculate emissions and identify best practices for energy efficiency, and to make evidence-based arguments to assert that emission reduction targets were indeed possible.

Legal requirements. The preparation of Building Environmental Plans was pivotal in fully assessing buildings in terms of their energy efficiency attributes. It gave TMG the information it needed to decide how to extend the scheme to different buildings and strengthen measures for more effective implementation.

Stakeholder interaction provides tailored solutions. Interacting with relevant stakeholders is of the utmost importance in terms of tailoring the programs to the needs of individual businesses and to create effective incentives. By including stakeholders from the beginning, the targets and reduction measures were appropriate and achievable. This policy process also gave the stakeholders the chance to learn more about the capabilities to improve their own mitigation measures.





NANTES

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Nantes Métropole

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Nantes Métropole

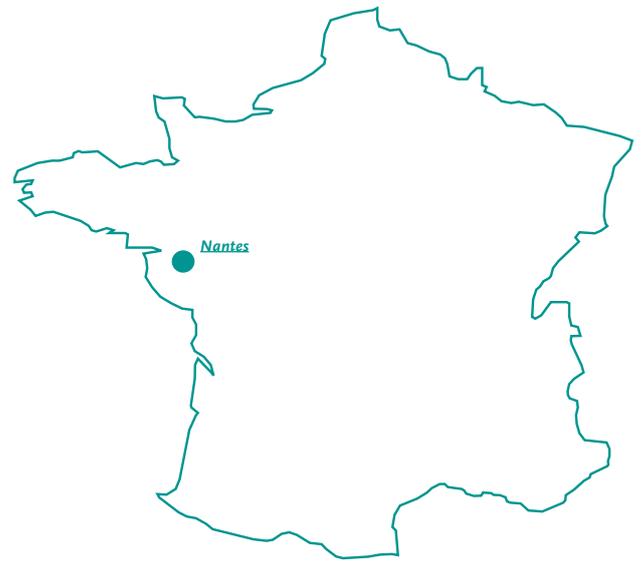
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BENJOUÏRE

NANTES (FRANCE): A SUSTAINABLE CITY WINS THE 2013 EUROPEAN GREEN CAPITAL AWARD



Nantes was awarded the European Green Capital for 2013. The award provides the city of Nantes with the opportunity to market the city's achievements, enhance its reputation, and send a strong signal to its citizens. At the same time it incentivizes cities to improve their sustainability policies and better quality of living for citizens. The award recognizes Nantes' long history in sustainable urban development initiatives in particular those relating to biodiversity, climate change, transport and water.

CITY PROFILE

Case Study # 145 Nantes

Population: 579,000

City size: 523 km²

Membership: Nantes joined ICLEI in 2008.

Apr. municipal budget per capita: US\$ 2,200



1. COMPETING FOR URBAN SUSTAINABILITY: AN URBAN ROLE MODEL

Europe is an urban society with many environmental challenges. The European Green Capital Award aims to provide an incentive for cities to share best practices and pursue sustainable urban development initiatives. Nantes, France was awarded the European Green Capital for 2013. It is recognition of the consistent, comprehensive and long term sustainable strategy of Nantes. The award has provided Nantes with the unique opportunity to have its achievements and commitments, dating back over 2 decades, recognized at European level. The award is a powerful signal to the city's citizens, whose involvement and awareness made many successes possible. The winning city takes on a role model character for other cities to emulate.

2. RECOGNITION OF A CITY'S LONG-TERM ACTION

At the beginning of 2010 Nantes took the decision, following political endorsement, to participate in the European Green Capital award competition. A full time staff member prepared the application, while all departments from Nantes and Nantes Métropole were instructed to be part of the project and provide the required support. The application was divided into three stages:

- Writing the application form.
- Addressing further detailed questions by the jury in a 200 page document.
- Review of the application by the jury.

Following the three successful stages mentioned the jury concluded and highlighted particularly Nantes's environmental achievements in four fields: biodiversity, water, transport and climate change. Key factors for success were Nantes' ability to show in figures and performance indicators consistent, comprehensive and long-term action and results.

For more than 2 decades Nantes' actions have had a high budgetary weight, for example the grant for public transportation is 85 million Euros (US\$ 113 million) annually, the consolidated cost of the 'Neptune' plans (Water & Waste Management Plans to improve fresh water quality and to reduce water pollution) is 260 million Euros (US\$ 347 million). It is difficult to separate these costs and fully assess the benefits each has had. What is important, however, is that the consistency and the integration of all actions have allowed Nantes to move coherently towards sustainable urban development. The budget is thought as an investment into the quality of living, while the return of the investment is reflected in a 10 per cent population growth during the same period and the fact that many firms are choosing to locate in Nantes. Their choice is based upon what the city can offer in terms of environmental quality, livability, and cultural dynamism.

3. HARVESTING THE SUCCESS OF A LONG-TERM COMPREHENSIVE VISION

A global strategy was designed to turn Nantes from a former industrial and port city of the 1980s into an eco-metropolis with improved quality of life, social cohesion, cultural renewal and commitment to addressing key challenges like urban sprawl, GHG emissions, and preservation of the natural environment. The strategy built upon public action in urban services, tools for sustainable development, like the Local Action 21 principles, inter-municipal management and realizing the opportunities these offered for comprehensive action to achieve sustainable urban development.

The governance model for implementation was built upon the support and the participation of local stakeholders, most notably through the Development Council, which is composed of representatives from civil society. This council provides advice through reporting and recommendations. A network of environmental NGOs, financially supported by Nantes Métropole, was also established. Sustainable management principles in form of Local Agenda 21 were adopted in 1997, as one of the earliest Agenda 21 operations in France. It was used as a basis for the newer metropolitan Agenda 21 adopted in 2006. The second generation of Agenda 21 involves more than 100 actions, including the better integration of global public policy. Nantes for example is showcasing through international participation and city networks the importance of local level action in both responding and acting on climate change at the United Nations climate negotiations. Actions on the ground include:

Climate change action. The 2006 Agenda 21, compiled in association with local players, highlights climate change as a priority. A Climate Action Plan was approved by the council in 2007. Quantitative objectives are based on a CO₂ inventory from 1990 and 2003 for the 4 main energy consuming sectors: transport, residences, services and industry, within which mitigation measures are undertaken.

Transport. A shift in public transportation started in the 1980s with the refusal of a 'city designed for cars' and the re-introduction of the tramway as mass transport system. Nantes was the first French city to do so and the idea spread to other cities. Nantes meanwhile offers a complete range of mobility options for its inhabitants, workers and visitors including rental bikes, car-sharing, high service buses etc. Through its transport investment policy, Nantes has shown commitment to improving the quality of the mobility options and urban transport. This created a sustainable transport system that is easy and efficient, and redirects the reliance away from motor cars.

Waste. A strong commitment existed to develop a waste-district heating system and coexistence of public and private management of the waste collection process.

Water. From drinking water to waste water management, a combination of four comprehensive plans called Neptune have been implemented since 1990 to improve the fresh water quality of rivers and to reduce the waste pollution into waters.

Biodiversity. The objective is to make the metropolitan area of Nantes a refuge city for biodiversity, to protect nature and its various components, for example by reducing waste and tackling urban sprawl.

4. FACTORS FOR SUCCESS

Consensus among citizens is needed for strategies and long term action. Projects and policies need to be shared with citizens.

Political consistency and a commitment to long term initiatives, throughout successive political terms or change of government are extremely important. This was essential to ensure that Nantes could compete in the European Green Capital award process by showcasing its long history of achievements in sustainability.

Mainstream indicators can be a challenge but are important to measure performance, report upon progress and raise citizen awareness.

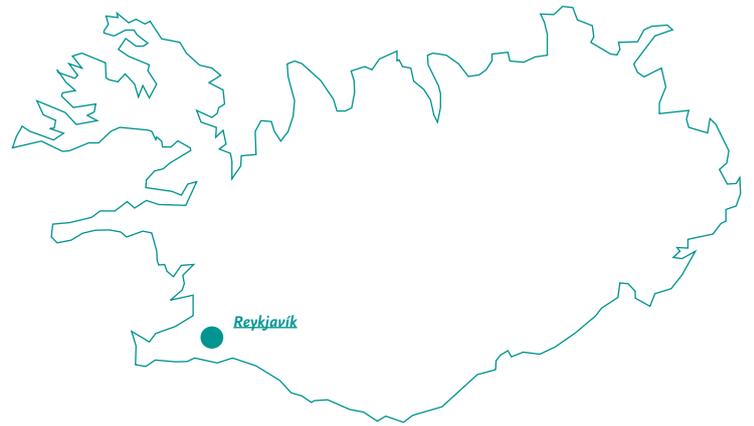
Awarding role models and setting goals for others to follow is crucial aspect of European Green Capital award. In Nantes' case it provided an incentive for the city to showcase their achievements in urban sustainability and to share best practices as well providing recognition to the city and that of its citizens.



REYKJAVÍK



REYKJAVÍK (ICELAND): GREEN CLEANING AND SUSTAINABLE PROCUREMENT



The Green Cleaning Program in Reykjavik is an outstanding example of sustainable procurement. It ensures that public cleaning contracts are fulfilled in a way which minimizes negative impacts on the environment and human health. Environmental criteria are added as a requirement in the procurement process for cleaning contracts. The results have been impressive: the cleaning costs were cut in half and the program has also incentivized the market to provide cleaning service providers who use green cleaning techniques.

CITY PROFILE

Case Study # 146 Reykjavik

Population: 120,000

City Size: 275 km²

Membership: Reykjavik joined ICLEI in 2002.

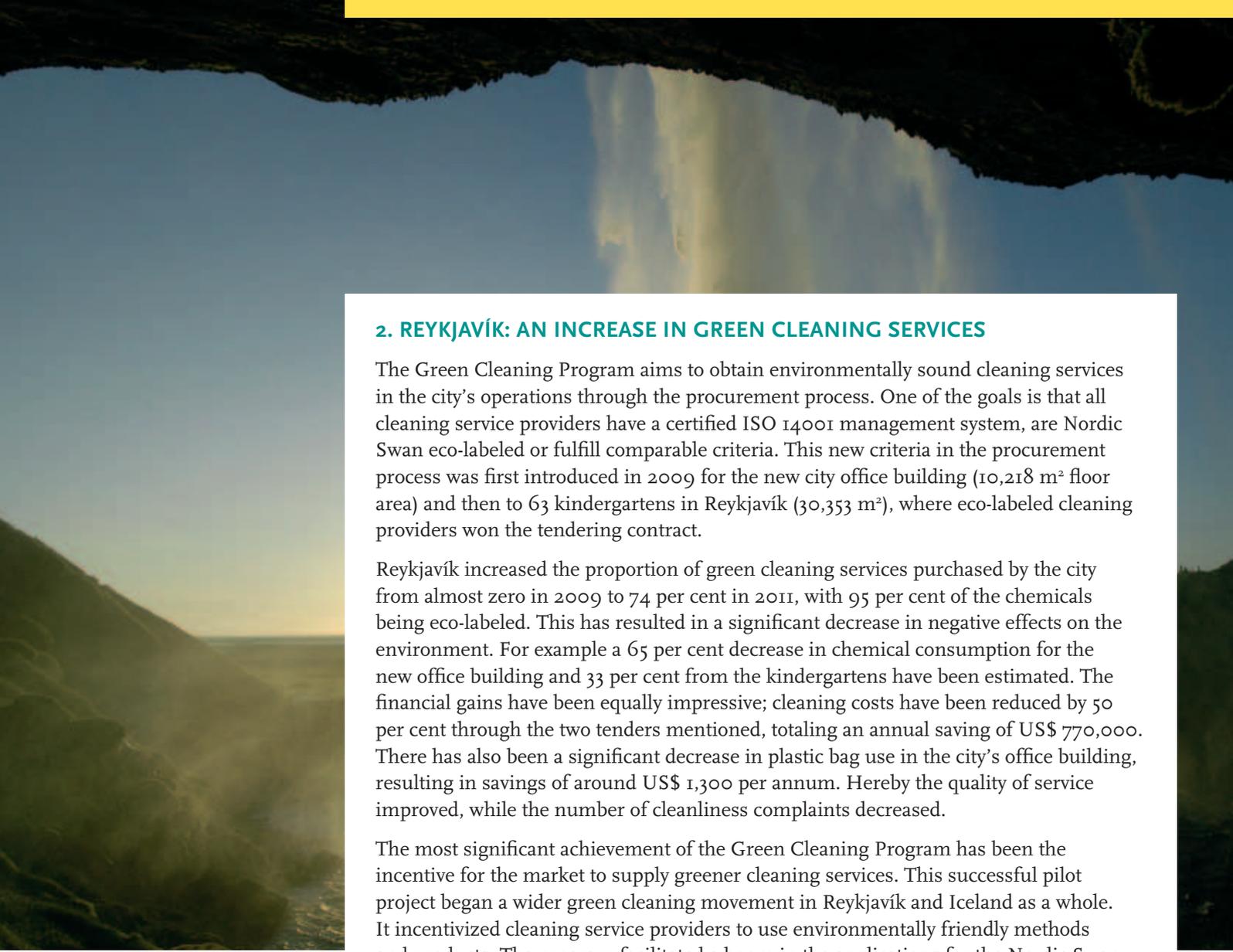
Appr. municipal budget per capita: US\$ 4,025

GDP per capita: US\$ 39,500 (Iceland)



1. GREEN PUBLIC PROCUREMENT

The Green Cleaning Program in the City of Reykjavik has been a driving force in Iceland showing the various merits of sustainable procurement. Today's challenges are not just resource exploitation to produce products and chemicals, but also the limited capacity of the environment to absorb wastes. Chemical use is commonplace as cleaning products are used to clean homes, offices, etc. These can affect human health and the natural environment. Harmful concentration of chemicals can easily be avoided through sustainable procurement criteria. While environmental awareness has been high, the market response for such green cleaning products and services was lagging. Reykjavik's Green Cleaning Program has sent a powerful signal to the market, leading to wider positive change.



2. REYKJAVÍK: AN INCREASE IN GREEN CLEANING SERVICES

The Green Cleaning Program aims to obtain environmentally sound cleaning services in the city's operations through the procurement process. One of the goals is that all cleaning service providers have a certified ISO 14001 management system, are Nordic Swan eco-labeled or fulfill comparable criteria. This new criteria in the procurement process was first introduced in 2009 for the new city office building (10,218 m² floor area) and then to 63 kindergartens in Reykjavík (30,353 m²), where eco-labeled cleaning providers won the tendering contract.

Reykjavík increased the proportion of green cleaning services purchased by the city from almost zero in 2009 to 74 per cent in 2011, with 95 per cent of the chemicals being eco-labeled. This has resulted in a significant decrease in negative effects on the environment. For example a 65 per cent decrease in chemical consumption for the new office building and 33 per cent from the kindergartens have been estimated. The financial gains have been equally impressive; cleaning costs have been reduced by 50 per cent through the two tenders mentioned, totaling an annual saving of US\$ 770,000. There has also been a significant decrease in plastic bag use in the city's office building, resulting in savings of around US\$ 1,300 per annum. Hereby the quality of service improved, while the number of cleanliness complaints decreased.

The most significant achievement of the Green Cleaning Program has been the incentive for the market to supply greener cleaning services. This successful pilot project began a wider green cleaning movement in Reykjavík and Iceland as a whole. It incentivized cleaning service providers to use environmentally friendly methods and products. The program facilitated a boom in the applications for the Nordic Swan cleaning services eco-label, resulting in a market share increase from 10 per cent to 50 per cent and an increase in the number of Nordic Swan licensed service providers.

3. HIGH QUALITY AND ENVIRONMENTALLY FRIENDLY CLEANING IN REYKJAVÍK

The city's Procurement Office, with support from the Environmental Department, developed the Green Cleaning Program in 2009, and is responsible for its implementation. The program is underscored by the city's stated environmental commitments, including the 2009 'Environmental Action Plan', which emphasized the role of the city's departments, and setting good examples in terms of environmental protection in procurement processes. It is also in line with Iceland's National Action Plan on green procurement and international strategies such as the Europe 2020 strategy.

When the main city departments were relocated to a new building a unique opportunity arose to green the city's operations. Prior to the program's implementation a market research analysis was undertaken. It discovered that only one eco-labeled cleaning service was available on the market in Iceland. The Procurement Office's implementation team stated a clear commitment that one of the goals within the program shall be that all cleaning service providers will have to be certified under ISO 14001 or are Nordic Swan eco-labeled, or fulfill comparable criteria.

To achieve this goal gradually two important pilot projects were undertaken. In March 2009, the cleaning contract for the new city office building became the first procurement process conducted under the auspices of the Green Cleaning Program. In September 2009, there was a tender process established for the cleaning contracts of 63 kindergartens in the city. A similar process was undertaken for the procurement exercise conducted for the new city office building. Both processes involved:

- The preparation of documents for the tendering process by the Procurement Office and Environmental Department.
- A needs analysis was carried out, which showed that cleaning could be reduced by 50 per cent and cleaning could be carried out during office hours.
- Criteria from Procura+, the sustainable procurement campaign, the Nordic Swan eco-label process, ISO 14001 standard were taken into consideration during the tendering process. As were the use of more environmentally friendly products, reduced cleaning times, cost effectiveness, decreased chemical consumption etc.

Following the tendering process a cleaning service provider with a Nordic Swan eco-label license won both contracts. This proved to be a major breakthrough, as it transformed the nature of cleaning procurement in Iceland, in terms of quality, environmental protection and financial gain. This successful pilot project encouraged the wider program on green cleaning in Reykjavík, and incentivized other cleaning service providers to offer green cleaning services.

4. FACTORS FOR SUCCESS

A step by step approach proved successful. Beginning with two pilot projects, it triggered a widespread response to the Green Cleaning Program, which resonated locally and nationally.

Eco-label criteria were fundamental to the program. It acted as a catalyst for not only improving the environmental quality of cleaning, but it also increased the market share for green cleaning products and services.

Local Agenda 21 and national cooperation; active engagement to involve relevant stakeholders was undertaken. This was vital to the program gaining public and private support and for developing criteria.

International support through events on sustainable procurement, such as the Procura+ campaign and the 'EcoProcura' conferences (Barcelona 2006 and Reykjavík 2009), provided an excellent institutional framework for knowledge sharing and capacity building.

Availability of alternatives, in terms of eco-friendly products, was essential to ensure that the program was viable and allowed for sustainable procurement principles to be integrated into the tendering process.

A needs analysis is a viable methodology for highlighting areas of improvement. It was pivotal in pinpointing negative environmental impacts and options for reduced cleaning times.

A black and white photograph of a hillside settlement, likely a favela. The houses are built on a steep slope, with many made of brick or concrete. A dirt road winds through the middle of the hillside. In the foreground, there are utility poles and wires. The word "BETIM" is overlaid in a large, teal, sans-serif font across the center of the image. The sky is clear and light-colored.

BETIM

BETIM (BRAZIL): LOCAL ACTION IN ACHIEVING SOCIAL INCLUSION AND IMPROVED QUALITY OF LIFE



The residents of the Parque do Cedro neighborhood in Betim, in collaboration with the Minas Gerais Energy Company, the municipal government, and the Renewable Energies and Energy Efficiency Reference Center took important steps to promote local sustainability and to acquire basic services for the local community. The community of Parque do Cedro is an example where citizen action and a grassroots level approach triggered a transformative improvement to a previously marginalized informal settlement.

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CITY PROFILE

Case Study #147 Betim

Population: 435,000

City size: 346 km²

Membership: Betim joined ICLEI in 1998.

Appr. municipal budget per capita: US\$ 1,320

GDP per capita: US\$ 26,500 (2011) (World Bank)



1. COMMUNITY ACTION TO OVERCOME THE NEGATIVE ASPECTS OF INFORMAL SETTLEMENTS

Unplanned and informal urban settlements are a challenging issue in Brazil. They are a symptom and a cause of economic, social and environmental hardship. The community of Parque do Cedro is one of these settlements; in fact its inhabitants were in breach of national law. The settlement established itself in an environmentally protected area, as a result of illegal land sales in a rapidly urbanizing city. In response to the lack of service provision, the community of Parque do Cedro approached the local government for resolution. From a community perspective, one of the most pressing issues is the lack of basic services, including water, sanitation, transport and communication infrastructure, and energy provision. Furthermore, the electricity networks are illegal and hazardous, as people illegally tap into the network to access 'free' electricity. This is not only illegal, but the economic costs are significant through the power outages they cause and the lost revenue. Incentives to use energy consumption safely and efficiently were also non-existent.

2. INCREASED SOCIAL INCLUSION, ENERGY EFFICIENCY AND IMPROVED QUALITY OF LIFE

The local community managed to gain the attention of the local government and resolve the predicament between a need for services and the existing legal framework. The collaboration that subsequently occurred resulted in significant improvements for the citizens of Parque do Cedro. Firstly, a legal institutional framework was developed by the Betim municipal government for the community of Parque do Cedro, which allowed the legal provision of basic services and infrastructure including energy. A reliable and legal electricity supply then was established by Minas Gerais Energy Company (CEMIG) for 400 houses that were previously supplied via illegal connections. By 2010 100 per cent of the families of the neighborhood had access to the electricity grid. Additionally 285 families received replacements for energy inefficient home appliances including 32 refrigerators, 25 electric shower heads and 1,200 light bulbs. These successes further motivated the efforts of the local community.

In the process the local government provided a land registry and a road network. The local community received for the first time an official postal address. This was an important step towards the social inclusion of the population and formalization of the community. The new network allowed easier access for garbage collection trucks which improved the local environment. Waste had previously been discarded near water source springs. Furthermore, the new infrastructure also allowed better access of school buses and other means of public transport, which improved the overall well-being, greater community pride and quality of living for those living in Parque do Cedro.

There have also been various other institutional and physical improvements. A municipal child day care for child education and social activity opened, which provides full-time care for over 120 children. It had depended upon the environmental license being approved. Furthermore, on the advice of the Renewable Energies and Energy Efficiency Reference Center (CRER), negotiations are under way with CEMIG for the installation of solar heaters. Negotiations with the Minas Gerais Sanitation Company (COPASA) also started to carry out similar procedures for water supply and sewage collection.

3. KEY ELEMENTS IN GALVANISING LOCAL ACTION FOR SOCIAL SUSTAINABILITY

Erasmio Carlos, the president of a local non-profit organization, began to lead the process of local transformation in 2005. Having gained the trust of the community, through democratic dialogue and meetings, a representative commission was created to approach the local government seeking improvements. Between 2007 and 2008 the re-classification of the area, from informal area to an area of social interest, provided the legal foundation and framework for the community to receive the necessary services it requires. This was achieved by law no. 4,574 that amended the Steering Plan of the Municipality of Betim in October 2007. It allowed Parque do Cedro to be defined as a legal area of 'Urban and Socio-Environmental' interest.

The enactment of this law permitted government action in the area. The electricity network could now be reformed by the energy provider - CEMIG through its Efficient Energy Program (Conviver Project). The aim of the program was to provide reliable and safe electricity, and to put an end to illegal connections. A communication channel with the population was established to explain what was being done and to educate and inform on energy consumption and energy efficiency. There was widespread support and this social

participation movement encouraged the local government to give greater priority to the needs of the neighborhood and their poor living conditions. A residential commission and the newly established regional administrative center facilitated this exchange and collaboration.

4. KEY FACTORS FOR SUCCESS

Formalizing urban services leads to more environmentally and socially equitable use, as well as economic savings.

Awareness raising and education on energy consumption is essential for energy efficiency techniques. It is a building block for sustainable energy saving measures in energy planning, provision and management.

Engaging with an energy provider committed to the increase of renewable energy utilization can bring important benefits. CRER has influenced important actors to promote energy efficiency and renewable energy in the region.

A reference center that gathers people from different areas to form an Advisory Group has shown the important role of encouraging specialists, public organizations and civil society to participate in the process of developing public policy for clean energy promotion.

A bottom up approach is key to success. When acting in an organized way a local community can achieve its goals and objectives. This enabled the community to overcome political or bureaucratic obstacles that may have prevented swift and effective change.





VERACRUZ

VERACRUZ STATE (MEXICO): PROVIDING THE INSTITUTIONAL FRAMEWORK FOR CLIMATE CHANGE MITIGATION AND ADAPTATION



Climate change is a serious challenge in Mexico. Its potential adverse effects may have serious consequences for human wellbeing and the natural environment. The State of Veracruz is the first state in Mexico to implement a climate change mitigation and adaptation program. The Veracruz Program against Climate Change and the subsequent State Law on Mitigation and Adaptation to Climate Change Effects is pivotal in promoting actions to address climate change and protecting vulnerable groups at the local level.

CITY PROFILE

Case Study #148 Veracruz

Population: 7.6 million

City size: 346 km²

Membership: Veracruz joined ICLEI in 2010.

Appr. municipal budget per capita: US\$ 750

GDP per capita: US\$ 5,417 2007 (Wiki)



1. CLIMATE CHANGE: A PRESSING ISSUE IN VERACRUZ

The State of Veracruz is one of the most vulnerable states of Mexico to the impacts of climate change. Climate change scenarios predict a 100 to 150 cm increase in sea level by 2100. The Mexican coast of the Gulf of Mexico would potentially lose half a million hectares of pasture, a quarter million hectares of farmland, and 8,000 hectares of existing tropical forest villages. Furthermore, a warming of 2 degrees Celsius and a reduction in rainfall of around 10 per cent are estimated as well as extreme rainfall events and floods in other areas. These changes will particularly affect agricultural production, but also human health and biodiversity. At the same time a preliminary inventory indicated that the state emits about 27 million tons of carbon dioxide, about 8.9 per cent of Mexico's total emissions. In response to these challenges, the State of Veracruz has developed a State Program against Climate Change, which is one of the first climate change related programs to be developed in the country.

2. INCREASED MITIGATION EFFORTS TO REDUCE VERACRUZ'S GHG EMISSIONS

The Veracruz State Government aims to reduce GHG emissions by 5 per cent by 2016. This is the equivalent to 1.4 million tons of carbon dioxide. To achieve this, Veracruz State Government prepared the Veracruz Program against Climate Change. Most importantly it has strong a statutory basis through the Mitigation and Adaptation to Climate Change Effects Law, which was enacted in November 2010. Both programs provide an institutional basis for local governments in the state in terms of adaption and mitigation to climate change. The program's strategic themes include: detection and tracking, reducing GHG emissions, biodiversity, water resources, coastal ecosystems, economy, and society. To ensure the welfare of the population and to maintain economic development, the state has identified interagency and inter-sectorial coordination as an important way forward for addressing climate related challenges. The state can now show progress in a number of areas through different approaches.

A cooperation agreement with the company 'de Mexico SA Biofuels de CV Campaign for People's Energy' was signed to promote the collection of used cooking oil for conversion into biodiesel known as the campaign 'Biodiesel: The Power of the People'. The program includes depositing oil properly, avoiding water contamination, producing biodiesel, and using it for energy in transportation or industry. Within the first four months 153 liters of used cooking oil in the city of Xalapa had been collected, and now other municipalities have joined the campaign.

In coordination with the United States Agency for International Development (USAID), 67 local authorities of the 25 municipalities have been trained in the development of business plans for electricity generation with renewable energy. Since this program has begun, 5 business plans have been developed. Cooperation with the Mexican Center for the Advancement of Copper AC to promote solar energy for water heating in the agribusiness and industrial sector has been established. Proposals to change building regulations in new constructions have been encouraged and discussed at state organized conferences.

Coordination with the local university to support the Veracruz Program against Climate Change has been established. The primary forms of collaboration include the preparation of GHG emissions inventory and providing guidance on climate change adaptation. A 'State Council for the Mitigation and Adaptation to Climate Change Effects' was established to further promote coordination between institutions. This council supports and undertakes actions that the law has set out. Further technical cooperation with development agencies was conducted including:

- Technical cooperation with USAID was established to share knowledge on renewable energy to municipalities.
- The British Embassy has provided funding for the preparation of a study on solar energy.
- The National Ecology Institute selected the City of Alvarado to pilot actions within the World Bank funded project for adaptation in coastal wetlands in the Gulf of Mexico.

3. BUILDING THE REQUIRED INSTITUTIONAL CAPACITY

The main responsibility of the State Program against Climate Change is with the Ministry of Environment of the State of Veracruz which was established in December 2010. However, the initial first steps date back to 2008, when the Center for Climate Studies in the Department of Civil Protection of the State University was founded.

The State of Veracruz established the State Board for Mitigation and Adaptation to Climate Change Effects as a framework. This board acts as the body responsible for an interagency coordination of actions. Their advice contributes to existing programs and assists in developing a statewide strategy for the next six years. It also:

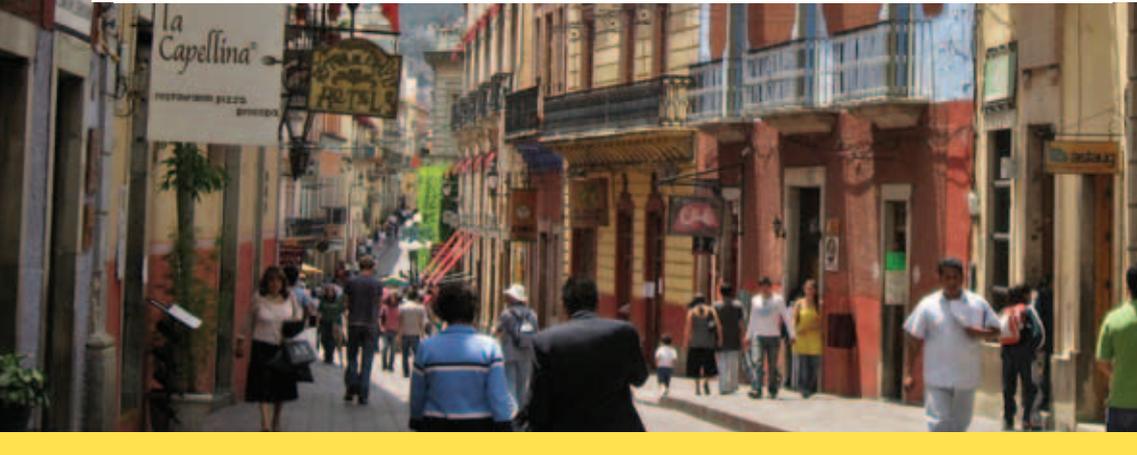
- Promotes the participation of different sectors of society in the state's climate change policy-making process through the State Council for the Mitigation and Adaptation to Climate Change Effects.
- Monitors compliance with the State Law on Mitigation and Adaptation.
- Encourages and promotes coordinated actions to reduce GHG emissions and adapt to climate change with different public, private, institutions and social actors.
- Encourages the use of renewable energy in the state and promotes programs that are conducted for the application of clean technologies.
- Establishes and promotes collaboration with research and academic institutions as well as with international aid agencies for the development of studies that underpin the design and implementation of actions to tackle climate change.
- Manages national and international resources to finance actions to reduce GHG and adaptation to climate change effects.
- At state and municipal level it trains people with the required skills to develop techniques relating to mitigation and adaptation, and promotes self-management of resources.

4. FACTORS FOR SUCCESS

Involving stakeholders and using existing information including baseline GHG inventory information and annual updates in shaping the public policy instruments were pivotal to the success of the program.

Having a legal framework and creating a body for monitoring and interagency coordination is also very important. A statutory framework is necessary for enforcement and is essential to give the program credibility.

Through commitment and embracing policies, the Veracruz State Government continues to lead the way in climate change policy, while drawing upon state budgets, federal and international funds.



An aerial photograph of a modern skyscraper in Toronto, featuring a curved facade and a large circular base. The word "TORONTO" is overlaid in large, teal, sans-serif capital letters across the center of the image. The background shows a dense urban landscape with other buildings and a clear sky.

TORONTO

TORONTO (CANADA): GETTING 'AHEAD OF THE STORM' TO AVERT ADVERSE CLIMATE CHANGE IMPACTS



Toronto's climate adaption strategy 'Ahead of the Storm' is the city's comprehensive plan to prepare the city for the adverse effects of climate change. Spurred on by unprecedented climate patterns and damage as a result of adverse climate change, the City of Toronto pioneered and developed a new tool for assessing potential risks to the city's services and infrastructure. The Climate Change Risk Assessment Tool is an essential aspect of the new adaptation strategy that contributes to a growing body of knowledge on climate change risk management and is one of the most advanced in the world.

CITY PROFILE

Case Study #149 Toronto

Population: 2.5 million

City size: 632 km²

Membership: Toronto Joined ICLEI in 1992.

Appr. municipal budget per capita: US\$ 4,040

GDP per capita: US \$47,700 (PWC)



1. CLIMATE PROOFING TORONTO

Toronto has already begun to feel the effects of climate change. During the summer of 2005 the city experienced 41 days with an average temperature of over 30° Celsius, almost three times the number of hot days experienced on average between 1961 and 1990. In the same year, the city experienced an extreme precipitation event (more than 150 mm of rain fell in a three hour period) which caused flash flooding and resulted in an estimated CAD\$ 500 million (US\$ 0.5 billion) in property damage. Conversely, in 2007, the city experienced its driest summer in 50 years with 95 consecutive days without significant rain and in 2011 experienced the hottest day on record. Events of this kind affect the ability of the city to deliver key programs and services, and impact some of the most vulnerable populations in Toronto, including at risk-groups suffering from chronic or pre-existing illnesses, the homeless and the elderly. In response the City of Toronto Environment Office developed a city wide climate adaptation strategy 'Ahead of the Storm'.

2. PROVIDING THE BASIS FOR EFFECTIVE CLIMATE CHANGE RESILIENCE

An important result of Toronto's climate adaptation strategy was the development of a comprehensive and innovative Climate Change Risk Assessment Tool. The Tool (aligned with international risk management standard ISO 31000 and ISO 14001) is a computerized program that helps service and infrastructure providers prioritize and rank risks stemming from climate change.

Transportation Services and the Shelter, Support and Housing Administration are divisions within the city which have had the opportunity to pilot the tool. Transportation Services examined more than 90 road infrastructure assets and services including roads, bridges, culverts, traffic control signals, snow plowing and salting. The Shelter Support and Housing Administration examined a large apartment building, a women's shelter and one program for the homeless known as 'Streets to Homes'. The risk assessment team from Transportation Services identified seven relevant weather phenomenon based on historical experiences, including: freeze/thaw, extreme snow, extreme heat, extreme cold, extreme freezing rain, extreme rain and extreme wind. An assessment was undertaken and three areas were identified as having priority assets (95 high priority assets and services), infrastructure and services:

- Infrastructure Asset Management and Programming.
- Infrastructure Operations.
- The Traffic Management Center.

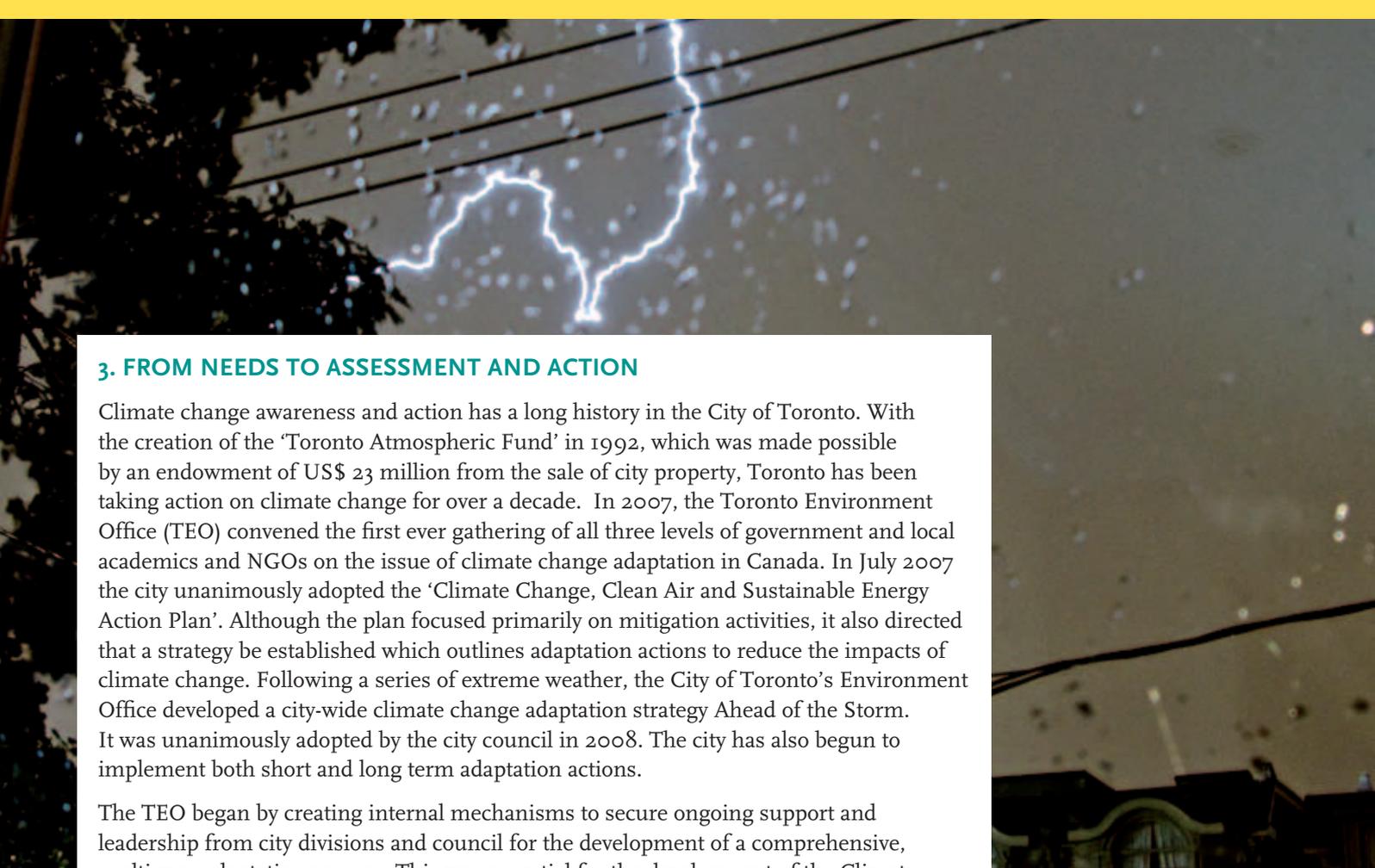
Furthermore, the assessment indicated three major areas on which to focus resources and funding for future adaptation actions. They were:

- Aging infrastructure.
- Interdependencies, particularly looking at how transportation services rely on the performance and service delivery of other city and non-city infrastructure.
- Best practice techniques.

Based on these findings the Transportation Services Division developed a series of recommendations to plan for the physical effects of climate change while maintaining core services. Recommendations focused on building an integrated environment and climate risk management program including: developing a climate risk management governance structure; implementing a communication and training program to educate staff in the risk management process; and ensuring a continuation of divisional risk assessments. The objective is to help manage costs in the present and the future, while delivering core services.

As part of the development and piloting of the tool, risk training was undertaken for city staff. One lead assessor and eight risk assessors from within the Transportation Services Division were selected and trained in the risk assessment process. Selected staff members were identified on the basis of their specific knowledge of the assets and services being assessed. Approximately 1700 risk scenarios were developed.

An important aspect of the city's adaptation initiatives, in terms of broad engagement, was the creation of the Toronto Region Action Group on Extreme Weather Resilience which has since been rebranded as the WeatherWise Partnership. The group was convened by the City of Toronto and Civic Action, a non-profit group which brings together members of the private sector to promote the prosperity of the region and initiate dialogue with the community regarding risk. It brings together members of the private sector, city staff, the non-profit community, and other levels of government to work together and identify actions to reduce risk.



3. FROM NEEDS TO ASSESSMENT AND ACTION

Climate change awareness and action has a long history in the City of Toronto. With the creation of the 'Toronto Atmospheric Fund' in 1992, which was made possible by an endowment of US\$ 23 million from the sale of city property, Toronto has been taking action on climate change for over a decade. In 2007, the Toronto Environment Office (TEO) convened the first ever gathering of all three levels of government and local academics and NGOs on the issue of climate change adaptation in Canada. In July 2007 the city unanimously adopted the 'Climate Change, Clean Air and Sustainable Energy Action Plan'. Although the plan focused primarily on mitigation activities, it also directed that a strategy be established which outlines adaptation actions to reduce the impacts of climate change. Following a series of extreme weather, the City of Toronto's Environment Office developed a city-wide climate change adaptation strategy Ahead of the Storm. It was unanimously adopted by the city council in 2008. The city has also begun to implement both short and long term adaptation actions.

The TEO began by creating internal mechanisms to secure ongoing support and leadership from city divisions and council for the development of a comprehensive, multi-year adaptation process. This was essential for the development of the Climate Change Risk Assessment Tool. It also ensured input from key stakeholders, such as the Province of Ontario, as well as a review of current urban practices and relevant literature.

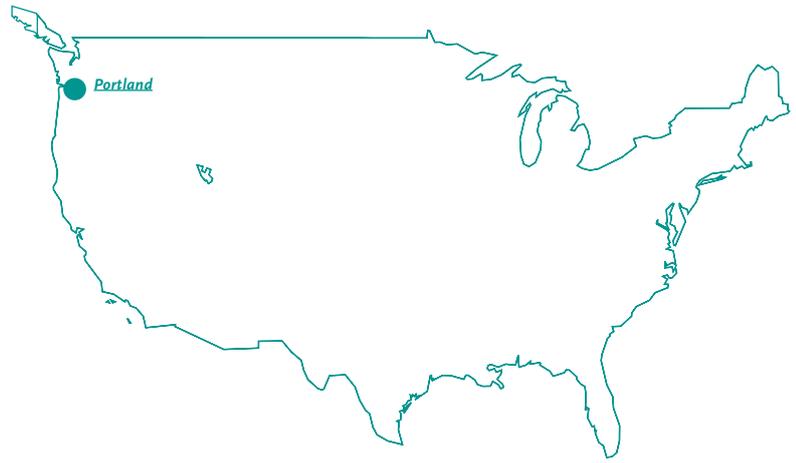
4. FACTORS FOR SUCCESS

Development and sharing of the tool has given the City of Toronto the opportunity to demonstrate leadership in addressing the very pressing and complex issue of climate change. The city now has the ability to contribute to the field of climate change adaptation research through the sharing of this tool.

Active stakeholder engagement has been essential to the city's adaptation efforts. The establishment of the WeatherWise Partnership brought on board various stakeholders in an effort to raise awareness of the risks associated with climate change and how the community as a whole can adapt to meet this challenge.

A black and white photograph of a cable car suspended from cables, overlooking a city and a snow-capped mountain. The cable car is in the foreground, and the city and mountain are in the background. The word "PORTLAND" is overlaid in large, teal, sans-serif capital letters across the middle of the image.

PORTLAND



PORTLAND (USA): SUSTAINABILITY AS AN ENGINE FOR ECONOMIC GROWTH

Portland provides a good example of how policies can be shaped to support a green urban economy in terms of green job creation and job retention especially during times of economic uncertainty. Portland's 'Economic Development Strategy' includes a focus on a sustainable growth strategy in terms of green jobs, clean tech clusters and sustainable urban planning and management. The city's focus on sustainable development policy has resulted in substantial growth in the urban sustainability sector - a manifestation of the green urban economy.

CITY PROFILE

Case Study #150 Portland

Population: 550,000

City size: 377 km²

Membership: Portland joined ICLEI in 1991.

Appr. municipal budget per capita: US\$ 4,900

GDP per capita: US\$ 47,811 (2008)

(US Bureau of Economic Analysis)



1. GREEN INVESTMENTS AS A RECOVERY PLAN

Portland is experiencing the adverse economic impacts of the recent financial crisis. In response the city created an Economic Development Strategy in 2009 designed to address poor economic performance and ensure job growth and retention. Portland's approach represents an example for other cities exploring linkages between urban sustainability and economic growth. Portland's strategy builds upon investments in sustainability (in economic development and public policy) to chart a new economic growth trajectory, building upon a solid history of innovative strategies. In doing so, the city offers an excellent example of how green urban economic policies can have positive impacts in terms of job growth, job retention and an overall increased economic productivity, in a difficult economic climate.

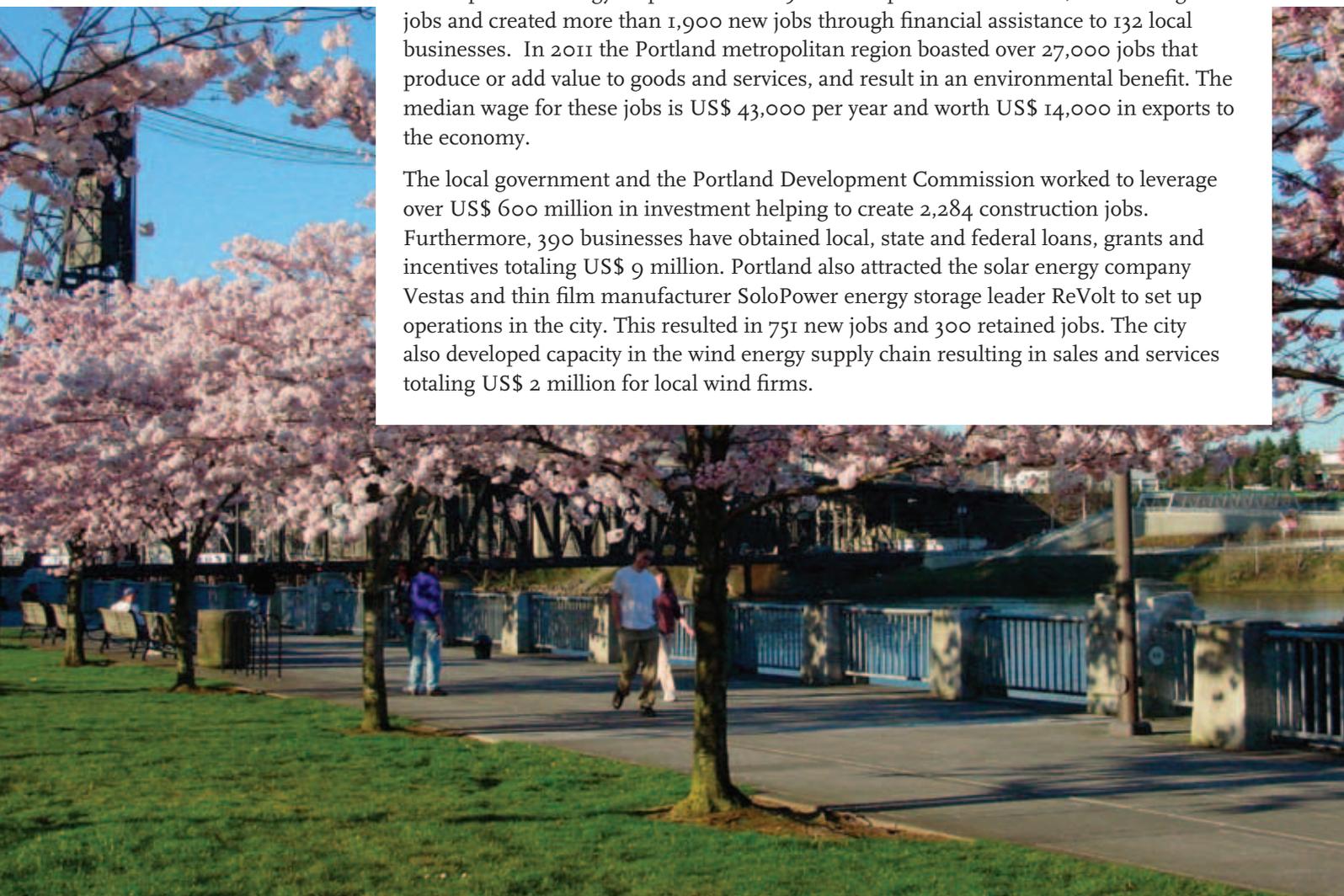
2. SUSTAINABLE POLICY MAKING LEADS TO JOB RETENTION, CREATION AND ECONOMIC PRODUCTIVITY

Portland has a long history of promoting innovative approaches to urban sustainability beginning with the 'Urban Growth Boundary' in the 1970s to pioneering of 'Eco Districts' today. Portland's quality of living has attracted a highly educated and creative workforce. Portland's accomplishments include GHG emissions reductions of 3 per cent between 1990 and 2011 (compared with an increase in the US of 7.3 per cent between 1990 and 2009) and has demonstrated improvements in transit and commuting options, bicycle friendliness, air quality, water quality, land use planning, climate action, green buildings, and waste management etc.

The creation of both the city's Economic Development Strategy and the new Bureau of Planning and Sustainability (BPS) in 2009 represents a new phase in Portland's aim to develop linkages between economic development and sustainability. The economic development effort reveals the impacts of integrating sustainability into the city's strategy. The investments in the current Economic Development Strategy are US\$ 3.2 million for 2011.

Portland's efforts have resulted in an estimated US\$ 355 to US\$ 960 million in annual wages from the green building cluster in 2008. Additionally, bicycle related industries accounted for an estimated US\$ 90 million in value and 850-1150 jobs. The Economic Development Strategy helped to attract 15 new companies and retain 1,100 existing jobs and created more than 1,900 new jobs through financial assistance to 132 local businesses. In 2011 the Portland metropolitan region boasted over 27,000 jobs that produce or add value to goods and services, and result in an environmental benefit. The median wage for these jobs is US\$ 43,000 per year and worth US\$ 14,000 in exports to the economy.

The local government and the Portland Development Commission worked to leverage over US\$ 600 million in investment helping to create 2,284 construction jobs. Furthermore, 390 businesses have obtained local, state and federal loans, grants and incentives totaling US\$ 9 million. Portland also attracted the solar energy company Vestas and thin film manufacturer SoloPower energy storage leader ReVolt to set up operations in the city. This resulted in 751 new jobs and 300 retained jobs. The city also developed capacity in the wind energy supply chain resulting in sales and services totaling US\$ 2 million for local wind firms.



3. PIONEERING THE GREEN URBAN ECONOMY

Portland's effort to create and strengthen its sustainable economy is rooted in the city's dedication to urban innovation. In 1979 the city adopted its Urban Growth Boundary, allowing for the type of density necessary for a functioning transit system and sustainable service provision. Since the early 1990s it has been an influential leader in sustainability, being the first city in the United States to adopt a carbon emissions reduction plan. In 1994 Oregon Province adopted its Sustainability Principles, which eventually culminated in today's Bureau of Planning and Sustainability that works to infuse sustainability into all aspects of the city's development.

Portland has a clear and ambitious goal: to build the most sustainable urban economy in the world. To achieve this, the city created the Economic Development Strategy in 2009, which strives to integrate sustainability into the fabric of the city's economy. The five year plan rests on three pillars that trace back to the concepts found at the first Rio Earth Summit:

- Sustainable job growth (economic sustainability),
- Sustainable innovation with Eco-Districts (environmental sustainability) and
- Inclusive prosperity (social sustainability).

To implement the Economic Development Strategy, the Mayor established an 'Economic Cabinet', made up of leaders from all facets of the local economy including the city's target clusters which include: clean tech, software, research and commercialization, athletic and outdoor industries, and advanced manufacturing. The Economic Cabinet advises the Mayor and identifies investment opportunities. The Mayor's office is responsible for strategy updates and provides oversight on the implementation of the strategy.

The Portland Development Commission (PDC), the city's economic development agency, is tasked with delivering key aspects of the Economic Development Strategy. Building on Portland's commitment to sustainability, the mission of the PDC is "to bring together resources to achieve Portland's vision of a diverse, sustainable community with healthy neighborhoods, a vibrant central city, a strong regional economy, and quality jobs and housing for all".

4. FACTORS FOR SUCCESS

By building upon the city's reputation, the city demonstrates that an environmental social integrity model and urban sustainable practice can be integrated with developing robust competitive economic development strategies.

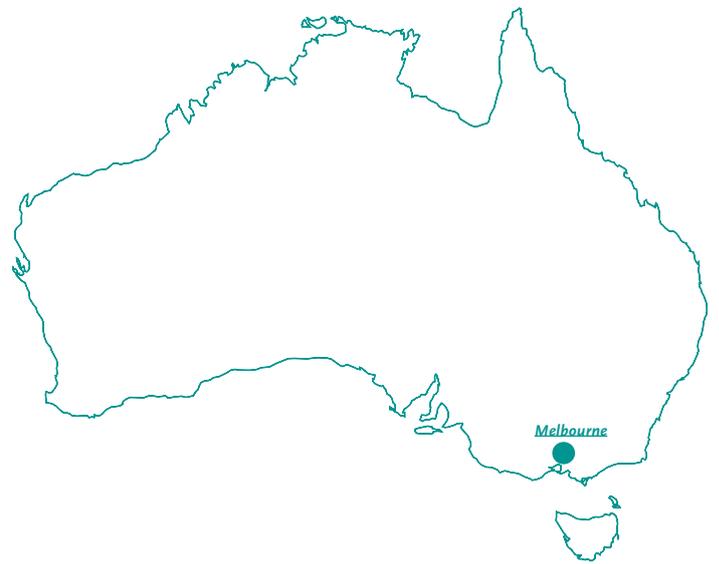
Decades of intelligent decision making and investments are needed. Other cities will need to take major course corrections in public policy and investments; however Portland shows that action based on long-term strategic thinking results in a viable return of investment.

Policies at state and local level have helped to foster Portland's achievements. Some of the city's successful policies concerning investments in mass transit systems, bicycle infrastructure, tax credits for alternative energy use, green building codes, and land use ordinances have been linked with policies and programs at the state and federal level. This is crucial for the development of a sustainable urban economy.



MELBOURNE

MELBOURNE (AUSTRALIA): A SUSTAINABLE ECO-CITY FUTURE



The City of Melbourne has undertaken progressive actions to improve the statutory and institutional ability of the local government to implement Melbourne's Eco-City vision. It has included change at different levels of government particularly in relation to new financing mechanisms. Melbourne is an illustrative case of a city pursuing a sustainable urban development strategy in the context of increasing population, higher standard of living, and economic growth while simultaneously ensuring sustainable urban development and urban living.

CITY PROFILE

Case Study #151 Melbourne

Population: 97,000

City size: 38 km²

Membership: Melbourne joined ICLEI in 1998.

Appr. municipal budget per capita: US\$ 3,700

GDP per capita: US\$ 34,000



1. BUILDING AN ECO-CITY, BUILDING A SUSTAINABLE CITY

While Melbourne is enjoying a sustained period of strong economic growth and development, there are significant challenges for today and the future. These include the effects of climate change on natural resources and ecosystems; the need for adaptation strategies; increase in oil prices; significant population growth; greater demand on existing public infrastructure, as well as maintaining social cohesion. To meet these challenges the City of Melbourne developed the Future Melbourne Plan in 2007. This plan seeks to make Melbourne one of the world's most sustainable cities by 2020. The program involves six goals: a city for people, a prosperous city, an Eco-City, a knowledge city, a creative city, a connected city.

2. KEY FACTORS IN ACHIEVING AN ECO CITY

The Eco-City component of the Future Melbourne Plan aims to achieve zero net GHG emissions, proactively adapting to climate change impacts, promoting resource efficiency, increasing urban density with a more compact urban form, while at the same time protecting the water resources and other important natural resources.

To achieve this, legislative and statutory changes have been implemented, for example the Environmental Upgrade agreements were established. This allows the council, in partnership with Australian financial institutions, to lend money to commercial building owners for environmental retrofitting works. The council recovers these funds through a special statutory charge on the property, called an Environmental Upgrade Charge. This enables building owners to access needed upfront financial capital.

Another initiative is the Sustainable Melbourne Fund which now acts as the conduit on behalf of the City of Melbourne between participating banks and the 1200 Buildings Program participants. It will also assist the council by developing, assessing and processing Environmental Upgrade finance applications on its behalf. The Sustainable Melbourne Fund was established in 2002 by the City of Melbourne with an initial investment of AUS\$ 5 million (US\$ 5.2 million). The purpose of the fund is to identify new financing opportunities to invest in local sustainability projects particularly in the areas of water, energy and waste, or business ventures and new technologies that deliver environmental and economic benefits.

Further, highlights of the Eco-City vision include the zero net emissions target for 2020. It will be achieved through improved energy efficiency and reduced energy consumption. An important aspect of this is the 1200 Buildings Program launched in 2010. The program is the catalyst for the environmental retrofitting of 1200 existing commercial buildings, or over two thirds of the municipality's nonresidential building stock with a potential of 383,000 tons GHG emissions reduction per year. Another is the City Switch, which focuses on energy use and efficiency by office building tenants, and HiRES to improve the energy performance of apartment buildings and the Energy Map. The latter was developed with the Commonwealth Scientific and Industrial Research Organization (CSIRO) and is used to inform distributed energy generation patterns in Melbourne.

In 2008 the sustainable water management strategy from 2002 was updated to include the 'Total Watermark - City as a Catchment' approach and now incorporates updated sustainable water management targets. This strategy is now fully integrated within the Eco-City Plan. The municipality has responded and is on track to achieve the water targets set for 2020: Workers reduced their water use by 48 per cent from 2000–08, residents used almost 40 per cent less, the City of Melbourne used 28 per cent less, and 4 per cent less pollution entered the waterways.

3. KEY ASPECTS OF THE ECO-CITY VISION

In 2007 the City of Melbourne initiated the process to develop the Future Melbourne Plan, which replaces the previous strategic City Plan 2010. The Future Melbourne Plan, of which the Eco-City Program is part of, was developed after an extensive stakeholder and public consultation process. A Community Reference Group was invited by the City of Melbourne to champion and guide the development of the Future Melbourne Plan and various project partners were invited to participate. The community's vision is articulated in the completed plan and outlines the management, development and direction of the City of Melbourne to 2020 and beyond.

Strategic partnerships were formed with higher governance tiers. These were important particularly as the City of Melbourne sought the assistance of the Victorian State Government to amend, through the parliamentary process, the City of Melbourne Act to allow for the integration of Environmental Upgrade agreements within planning and environmental law. This formed the statutory framework required for the overall Eco-City vision. The Green Building Council of Australia worked with the City of Melbourne to refine the council's star rating scheme for the assessment of commercial buildings environmental performance. This ensures industry standards compliance and effective energy efficiency measures.

The National Australia Bank provided the City of Melbourne with its expertise in research leading to the development of an environmental upgrade finance mechanism which now underpins the 1200 Buildings program. Low Carbon Australia Ltd is working in collaboration with the City of Melbourne to develop a cost benefit analysis toolkit to assess energy efficiency improvements in commercial buildings. Low Carbon Australia will also co-invest with the National Australia Bank to help facilitate its work on the 1200 Buildings Program.

4. KEY FACTORS FOR SUCCESS

Complementary strategic approaches, particularly with regard to the overall policy framework are essential to the proper implementation of the Eco-City vision.

Legislative support is key to ensure the uptake of the program and to entrench it within a supportive process, while based on sound economic foundations and a business model that offer incentives and support to get the program moving.

Political leadership is crucial in order to build the confidence throughout the city to embrace the approaches both for city employees and the citizens. In the case of Melbourne, the local government was influential in promoting the Eco-City vision and paved the way through a number of sustainability initiatives.

Partnership and strategic engagement is necessary to achieve the outcomes envisioned by the Eco-City vision, especially with the business sector, hierarchical levels of governance, and with local citizens.



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