AWARD
Guangzhou
2014

A Collection

of Shortlisted Initiatives of the 2nd Guangzhou International Award for Urban Innovation

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Foreword

The Guangzhou International Award for Urban Innovation (also known as "The Guangzhou Award") is a biennial international award created by Guangzhou city jointly with the United Cities and Local Governments (UCLG) and the World Association of the Major Metropolises (Metropolis) with the purpose of honoring cities and local governments around the world for their successful practices in innovative development, sharing their innovation experience, and jointly promoting global urban development. UCLG President Kadir Topbas has pinned great hope on the Guangzhou Award, hailing it as the "Nobel Prize of UCLG".

The 1st Guangzhou Award was successfully held in 2012. 255 initiatives from 153 cities in 56 countries and regions spanning across six continents applied for the Award. Through careful scrutiny by the technical committee and the jury, the initiatives of five cities including Turkey's Kocaeli,Malawi's Lilongwe, Korea's Seoul, Canada's Vancouver and Austria's Vienna won the 1st Guangzhou Awards.

The 2nd Guangzhou Award was held in 2014, with 259 initiatives from 177 cities in 57 countries and regions across six continents. The initiatives covered eight fields: urban planning, administration, smart city, ecological environment, housing & transportation, social service, partnership and civic engagement and capacity building.

The Guangzhou Award Technical Committee, composed of urban innovation experts and scholars from Asia, Europe, South America, North America and Africa,

selected out 15 short-listed cities based on four major criteria: innovativeness, effectiveness, replicatability and significance. These initiatives, all of which are currently being implemented or have been completed in the recent two years, represent the latest practices and trends urban innovation and development in the word today. For instance, the initiatives of Dakar, Jakarta, Christchurch and Rio de Janeiro focus on urban management and crisis response; the initiatives of Hamburg, Abu Dhabi, Melbourne and Kwangju focus on sustainable development and environmental protection; the initiatives of Eskisehir, Antioquia, Linkoping and Hangzhou focus on social-service and governance; while the initiatives of Boston, Buenos Aires and Bristol focus on civic engagement and empowerment.

As this book has collected the excellent cases in this year's Guangzhou Award and has pooled the efforts and wisdom of the cities in seeking innovative development, it can play a significant role of reference for cities worldwide. As a Chinese proverb says, "A book read, a gain in your wit." We hope this book can become a golden key to the journey of urban innovation.

Due to limited space, we cannot include all initiatives, please be understanding.

Office of Organizing Committee of Guangzhou Award

November 2014

Contents

A Brief Introduction to Guangzhou International Award for Urban Innovation

1. The Purpose and Thinking behind Setting Up Guangzhou International Award for Urban Innovation.

Guangzhou International Award for Urban Innovation, also known as Guangzhou Award, is intended to reward the successful practices of cities and local governments in advancing innovation. By promoting innovation activities of cities and local governments, the award provides examples and guidance to cities and local governments in their endeavors to achieve comprehensive, harmonious and sustainable development, thus making great contribution to global cooperation among cities. The purposes of the award can be expressed in the following four aspects: rewarding outstanding performances of cities and local governments in innovation; encouraging cities and local governments to advance innovation; improving local governance; publicizing and advocating successful cases in urban innovation.

2. Basic Facts of Guangzhou Award

(1)The Establishment of the Award and Reward Measures

Guangzhou Award is held every two years. Five awards are given

in each session, which mainly cover public services, organization and management of public departments, partnership and public participation, smart city and sustainable city. Every winner of each award will be given $ 20,000, together with a trophy and a certificate.

(2)Award Scope and Eligibility Criteria

Guangzhou Award is oriented towards cities and local governments in the entire globe, including members of the UCLG and the World Association of Major Metropolises. Every successful project, measure and policy in the realm of urban innovation can be put up for the award selection activity. These projects, measures and policies should be those that are being implemented or have been completed in the latest two years and that produce practical results or bear great importance. They should be innovative, non-profit in nature and suitable for wider application.

(3)Assessment Criteria and Eligibility Criteria

The selection of winners for Guangzhou Award is carried out by the jury of Guangzhou Award. A technical committee and an evaluation committee are set up under the jury, which are comprised of internationally-recognized experts in relevant fields. The selection of the award will be conducted under the principles of openness, fairness, independence and non-profitness. The Technical Committee undertakes eligibility assessment and preliminary evaluation of the submitted materials. After that, a list of fifteen nominated cities and thirty deserving candidates will be released and submitted to the Evaluation Committee, which will conduct an all-round review of all the programs. Under the principle of "one vote for one expert", votes will be cast anonymously and five wining initiatives will be named.

3. Previous Guangzhou Awards

The first Guangzhou Award Awarding Ceremony was held in 2012, which attracted 255 initiatives from 153 cities in 56 countries and regions from 6 continents in the world. In October 2012, the Technical Committee consisting of specialists and scholars in the field of urban innovation selected 15 Short-listed cities and 30 Deserving candidates; in November 2012, 5 Winning cities were selected among 15 short-listed cities, which were Kocaeli (Turkey), Lilongwe (Malawi) , Seoul (Korea) , Vancouver (Canada),and Vienna (Austria).

Selection of the 2nd Guangzhou Award kicked off in 2014. The event attracted great attention and was registered by 259 initiatives from 177 cities in 57 countries and regions from 6 continents. Among these initiatives, 209 from 159 cities in 55 countries and regions submitted the valid materials for review and evaluation. The proposers covered such key areas as ecological environment, urban planning, smart city, housing and traffic, social service, administrative management, capacity building, partnership and civic engagement and other fields receiving attention from the international community. On September 25-27, the Technical Committee Meeting of the 2nd Guangzhou Award (Preliminary Evaluation Meeting of Guangzhou Award) was held in Guangzhou. In the principle of openness, fairness and independence, the Technical Committee selected 15 Short-listed cities and 30 Deserving candidates. In Novenber 2014, the Jury Meeting will select 5 Winning Cities and held the Awarding Ceremony.

To improve the public participation in the selection of Guangzhou Award, we encourage more people to give attention to and participate in the urban innovation. The Organizing Committee of Guangzhou Award has decided that, based on the original 5 Winning cities, we will add 3 Public-selected winning cities, namely, Online-popular city, Media-focused city and Public-recommended city.

Report of the Technical Committee(TC)

2014 Guangzhou International Award for Urban Innovation
（Guangzhou, China, 25－27 September,2014）

1. Introduction

The TC met in Guangzhou from 25 to 27 September 2014 to select outstanding and deserving initiatives with a view to enhancing the implementation of sustainable urban development through inspiration and knowledge sharing. It took into consideration the goal of the Guangzhou International Award for Urban Innovation (Guangzhou Award) to recognize innovations in improving the social, economic and environmental sustainability in cities and local governments worldwide and more specifically:

·To highlight exemplary models of innovative policies and practices;

·To motivate cities and local authorities to further promote innovation;

·To improve city governance.

The TC also took into consideration the objectives of the City of Guangzhou to promote the sharing of lessons learned from urban innovations between cities, regions, countries and thematic areas.

The TC wishes to express its appreciation to the City of Guangzhou, the United Cities and Local Governments (UCLG) and Metropolis for their vision in establishing the Guangzhou International Award for Urban Innovation.

It wishes to thank the City of Guangzhou for its generous hospitality to the TC. The TC commends the secretariat for the Guangzhou Award in the way it handled the call for submissions, the transparency in its guidelines and processes. It further commends the City of Guangzhou for its intention to invite all 15 shortlisted cities to present their initiatives to the International Seminar on Urban Innovation as was the case in 2012, and to allow the Jury to make its final decision after the seminar.

The TC reviewed all 209 initiatives submitted from 159 cities and from 55 countries and regions. Of these 209 initiatives, 45 were identified as deserving initiatives. It further selected 15 submissions of excellence from the 45. These are considered of comparable merit and constitute the shortlist of cities to be submitted to the Jury for its consideration and final selection of 5 award-winning cities (See Annexes I and II).

2. The Evaluation Process

The TC assessed each submission using the main criteria established by the Guangzhou Award for Urban Innovation, namely:

· Innovativeness: the extent to which and the use of knowledge of information has been applied in developing new policies, practices and/or business models to address major urban issues and challenges;

· Effectiveness: the extent to which the initiative has achieved or is

well on its way to achieve its stated objective(s) and other socially desirable outcomes;

· Replicability: the value of the initiative in inspiring others to adopt new ideas, policies or practices, including replication in other locations of the city, region or country for greater impact and sustainability;

· Significance: the importance of the initiative in addressing problems of public concern.

3. Selection Procedure for the Short-listed Initiatives

In its first plenary session, the TC was divided into three groups (A, B and C). Each group reviewed about one third of the submissions on a regional basis with a view to determining the qualifying initiatives. The work of the three groups resulted in a consolidated list of 77 initiatives from 71 cities and regions.

In its second plenary session, the members of the TC were re-organized into two groups (D and E) with the purpose of identifying 45 outstanding cities. Each group came up with a list. The two lists were compared in plenary. Those comments to both lists were unanimously admitted to deserving initiatives list. Those remaining were discussed in plenary until consensus of the final list of 45 cities was reached.

In its third plenary session, the members of the TC were re-organized into Groups F and G with the purpose of identifying 15 outstanding cities. The same methodology was applied and resulted in the shortlist.

The TC prepared a brief for each short-listed initiative to inform the Jury of the rationale of its selection. The TC also came up with a draft agenda for the International Seminar on Urban Innovation which

will feature the 15 shortlisted cities. The draft agenda is included in a separate report.

The TC commends the leadership of Guangzhou for organizing study tours to all of the 15 shortlisted cities of the 1st cycle of the Award and strongly recommends that it continues this practice.

4. TC Members

(1)Mr. Qiu Baoxing , Chair of TC

Deputy Director of the Population, Resources and Environment of the Chinese People's Polotical Consultative Conference(CPPCC), President of Chinese Society for urban Studies, Former Deputy Minister of Ministry of Housing and Urban-Rural Development of the People's Republic of China (MOHURD)

(2)Ms. Sue Brownill

Reader in Urban Policy and Management Department of Planning, Oxford Brookes University

(3)Mr. He Zengke

Deputy Director of National Research Center of Innovation, Peking University; Doctorate in Political Science

(4)Mr. Eric Huybrechts

Responsible for International Affairs at the Regional planning agency of Paris/Ile de France region (IAU-IDF)

(5)Ms. Fernanda Magalhaes

Senior Urban Specialist of Inter-American Development Bank

(6)Mr. Neal Peirce

Founder of Citiscope (Global news site on innovation in cities), Editor and Writer

(7)Mr. Vidhyandika Perkasa

Senior Researcher of Centre for Strategic and International Studies

List of 15 Shortlisted Initiatives
(By alphabetical order)

(CSIS)

(8)Mr. Stefan Schurig

Director Climate Energy at the World Future Council

(9)Ms. Wandia Seaforth

Former Chief of Best Practices Programme of the UN-Habitat

(10)Ms. Geci Karuri-Sebina

Executive Manager of South African Cities Network

(11)Ms. Azza Sirry

Director of UTI at Housing and Building National Research Center,

Professor of Urban Planning

City	Initiative
Abu Dhabi	Estidama
Antioquia	Educational Parks: Innovating the educational system in Antioquia
Boston	Youth Lead the Change: Participatory budgeting Boston
Bristol	Smart City Bristol
Buenos Aires	Buenos Aires City's Collaborative Roundtable for Innovation and Creativity
Christchurch	Our Ever Evolving City
Dakar	Dakar Municipal Finance Program: Accessing the Power of Capital Markets to Improve the Quality of Life for the Urban Poor
Eskisehir	Cherish the Memory of the City:Eskisehir City Memory Museum (Building Intercultural Dialogue Between Eskisehir and Den Haag Museum Project)
Gwangju	GHGs Emission Program in Household Carbon Bank in Gwangju
Hamburg	The International Building Exhibition IBA Hamburg and its Climate Protection Concept "Renewable Wilhelmsburg"
Hangzhou	Public Bicycle System
Jakarta	Climate Adaptation and Resilience in Jakarta (The Pluit Reservoir Revitalization Project:Socially-Inclusive Coastal Protection Today and for 2030)
Linköping	Carbon Neutral 2025: where ideas come to life
Melbourne	4℃ Cooler: Using green infrastructure to build a climate resilient and prosperous
Rio de Janeiro	Rio Operations Center: Integrating data and monitoring utilities in a truly intelligent system

▦ **Name of City/Community**: Abu Dhabi

📍 **Name of Province/State**: Emirate of Abu Dhabi

📍 **Name of Country/Region**: United Arab Emirates

🌐 **Geographic Region**: North Africa and Middle East

👥 **Population**: 921,000 (2013)

⚙ **Surface Area**: 972km^2

👥 **Population Density**: 947/km^2

📊 **GDP per capita**: $49,600

💬 **Title of the Initiative**: Estidama Program

🕐 **Start date of the initiative**: 2008 (Mandated 2010)

🕐 **Tentative end date of the initiative**: Ongoing

⚙ **Thematic areas**: Social, economic, environmental, governance/management, technology

C Abu Dhabi
Estidama Program

👤 **Comments from the Technical Committee**：In one of the world's most rapidly growing cities, a new government-mandated program - Estidama (Arabic for "sustainable") - aims at making all new buildings in UAE more environmentally responsible and sustainable. The program targets energy use reduction of 31 percent, water use saving of 37 percent, and 65 percent construction waste diverted from landfill. There's a mandatory audit procedure for each project. The rules ran into initial resistance from industry groups that feared increased costs and more difficult project approval. But independent analysis has confirmed that cost increases are negligible.

⬎ Background Information

The Emirate of Abu Dhabi has created a vision through its "Plan 2030" urban structure framework plan. It establishes sustainability principles as the foundation of any new development and is a reflection of the values and ideals of the nation. Estidama is a holistic framework that enables the implementation of these sustainability principles to all scales of development and promotes a new mindset for building a forward thinking global capital. Estidama is the symbol of inspired governance and community improvement.

⬂ Origins of the initiative

1．Reasons

Abu Dhabi Emirate is located in a desert environment and experiences a climate that is extremely hot, and simultaneously humid and arid, for much of the year. Temperatures range from 10-48 degrees Celsius, summer humidity levels are near 100% and average rainfall is less than 100mm/year. Water scarcity is severe – virtually all potable water is desalinated from the Arabian Gulf - and the challenge of providing human comfort, both within buildings and for pedestrians, is extensive. Lack of resource management, from individuals to businesses, resulted in the UAE having one of the largest carbon footprints internationally.

2．Goals

The ultimate goal of Estidama is to preserve and enrich Abu Dhabi's physical and cultural identity, while creating an always improving quality of life for its residents on four equal pillars of sustainability: environmental, economic, social, and cultural. This touches all aspects of life in Abu Dhabi - the way we build, the way we resource, the way we live, the choices we make - all in an effort to attain a sustainable state of living. By working closely with all stakeholders, Estidama has already improved the mind-set and implementation practices of the construction industry and will continually develop to encourage improvement for all of society.

3．Principal parties and partners

Primary stakeholders include the Executive Council of Abu Dhabi and the Urban Planning Council. Significant stakeholders include all government agencies and private industry who continually participate in the development of the program and ensure implementation is managed responsibly. Estidama has strong links with other parties committed to sustainability globally and in the MENA region including the Emirates Green Building Council and World Green Building Council.

| Global centres of recognition

4. Resources

To support and to accelerate the implementation of sustainability principals, a key component of the Estidama programme is the Pearl Rating System (PRS) which received government mandate in July 2010; adherence is therefore compulsory. Ensuring rapid uptake, implementation of the Estidama programme has been essentially free, provided by the government to ensure all new projects are included and supported. Training is actively provided, accelerating the spread of awareness through the construction industry and wider population.

The PRS is flexible, allowing it to be applied across all building typologies and scales. Trained consultants, or Pearl Qualified Professionals (PQPs), guide projects through the Rating System from early concept stage through to construction to

| Climate sensitive urban form

achieve ratings from 1 to 5 Pearls; with 1 Pearl being the minimum designation for non-government and 2 Pearls for government buildings.

⬎ Innovative aspect(s) of the initiative

1. Evolutionary and revolutionary innovations

Estidama is both evolutionary and revolutionary. There are sustainability rating systems implemented all over the globe that Estidama was able to learn from and it also evolved from Abu Dhabi's founding fathers original vision for the Emirate to be sustainable and responsible with resources to benefit not just today's society but generations to follow.

Estidama is revolutionary as it is the only sustainability program designed and implemented in the Middle East and has many unique features that other rating systems do not have. It has been mandatory for all buildings from day one that bore potential significant risks and required a significant shift in attitude by a rapidly developing and ambitious construction industry.

2. Characteristics

As a holistic sustainability program, Estidama requires innovation in government strategy and policy and also in the planning, design and implementation of all development projects. Innovation is required in the operation of buildings as Estidama will also implement an Operational Rating System that will require innovative technology and behavioral change.

The Government of Abu Dhabi is also committed to improving the management of services through its E-Governance Program that will enable improved connectivity for commerce and citizens. Estidama and the PRS is in the process of migrating to this online platform that will integrate with all other government services for improved performance and customer service that is truly innovative.

3. How the innovation is related to other experiences and parties

Estidama was inspired through the vision of Abu Dhabi's founding fathers and has required innovation during its creation and implementation. As described above, innovation has been required for multiple aspects of the program and has been shared with multiple stakeholders.

These include global stakeholders and the World Green Building Council recently awarded Estidama the Regional Leadership Award recognizing the impact it is having in the Emirate of Abu Dhabi and the MENA region.

4. Obstacles or resistance

Like any new government initiative there are obstacles and challenges to implementation. The scale of ambition of the program matches that of Abu Dhabi as an Emirate and challenges were identified during initial role out of policies

and regulation in the first 2 years of implementation. Early resistance came from industry who believed that new sustainability requirements would increase costs and make approval for developments more challenging. Estidama extensively supported new developments to facilitate compliance and demonstrated through independent empirical analysis that increased costs were negligible.

Early resistance has given way to acceptance and support for the program and benefits can be demonstrated through evidence of resource savings and improved design.

| Global knowledge sharing

↘ Desired change or outcome and how it is measured

1. Achievements

In the past 4 years Estidama has evolved from a vision to an accepted sustainability framework. The PRS provides regulatory guidance on design, construction and operational performance but sustainability principals are also

embedded in new planning documents through Estidama's continual improvement and participation in policy development.

Estidama buildings have designed energy use reduction of 31% and designed water use reduction of 37%. More impressively, 65% of construction waste has been diverted from landfill. There are unquantifiable impacts such as improved health of buildings and quality

| Centre of learning excellence

of life for residents due to mandatory reduction of unhealthy materials and the encouragement of passive design measures.

These and many other improvements occur at all scales from single homes to whole communities through the Pearl Rating Systems for Villa, Building and Communities. As Estidama becomes more recognised, it is also being implemented in other Emirates and countries in the region including Bahrain and the Seychelles.

2. Criteria for assessing the achievements

Early empirical studies were commissioned by Estidama to understand the cost implications and to support industry in early implementation of Estidama. Resource use is measured in the design process using multiple tools developed by Estidama. These include MS Excel based Energy Model Template, Water Calculator, Waste Calculator and U-value (thermal performance) Calculator. A pearl Qualified Professional is an individual who has passed official exams that test their administrative and technical knowledge of the PRS and is responsible for submitting calculations and specifications during the design process.

All design data is logged by Estidama so predictions of resource use can be determined. As Estidama requires the measuring of actual resource use in new

buildings, empirical data will be used as soon as sufficient information has been collected from buildings that will lead to even greater improvements in the design and operation of buildings.

3. Innovative tools or methods

As well as calculation tools, multiple training, support and submission documentation has been developed by Estidama for industry and all at no cost for the user or end client. Free training is provided that introduces even non-technical individuals to sustainability principals and how implementing Estidama will improve the built environment. An extensive website provides all information required and encourages communication between Estidama and design teams. As Estidama develops in line with Abu Dhabi's E-Government initiative, it will become even easier for project teams to submit projects for approval and knowledge share to facilitate continual improvement.

4. Impact of the initiative

The government of Abu Dhabi is committed to improving the life for its citizens and generations to follow. The Urban Planning Council (UPC) is facilitating the evolution for the city into a vibrant metropolis with global reach, complete with world class industry, commerce, education, healthcare, transport and tourism. Estidama has a primary focus on delivering results on the ground to safeguard the prosperity of future generations and also represents Abu Dhabi's contribution to the global sustainability agenda. Echoing the ideals of its founders' ecological and cultural principles, Abu Dhabi is well on its way to nurturing a first generation green society.

�’ Strengths of the initiative and innovation

A unique and innovative feature of Estidama is the Construction Audit Protocol,

a mandatory element of the PRS. To ensure technical compliance with original design intent during the construction stage, construction audits are carried out at five key stages.

These are:

· Site set-up and Substructure

· Superstructure and Building Envelope

· Internal Fit-out and Services

· Commissioning & Documentation

· Final site visit & sign off

The technical features of sustainable buildings are increasingly complex and the design and construction process requires verification of systems to ensure the design intent is realised during the operation of buildings. On-site audits of the construction process reduce defects and liability issues and removes instances of non-compliance. This in turn improves the efficiency of the construction process and reduces maintenance and operational costs.

The Pearl Operational Rating System (PORS) is another unique element to Estidama and the PRS. It is widely understood that resource use during a buildings operation far outweighs that during the design and construction phases. The continual efficient operation of building systems is critical to ensure the original design intent is realised and the resource savings calculated during design become empirical numbers and do not remain theoretical.

The PORS set out policies and procedures for the building owners and operators. Guidance is also provided for facilities management teams and building users to undertake tasks on a regular basis throughout the lifetime of the building. These include continual monitoring of building performance through mandatory operational maintenance protocols and procedures for remedial works. All building performance data is supplied to Estidama for monitoring purposes and is fed back into the application of the design tools to ensure continual optimization of the design, construction and operation processes.

⊞ **Name of City/Community**: Antioquia department

📍 **Name of Country/Region**: Colombia

🌐 **Geographic Region**: Latin America & Caribbean

👫 **Population**: 2.6 million

⚙ **Surface Area**: 63.612 km^2

👥 **Population Density**: 97.81 hab/km^2

📊 **GDP per capita**: 2010: US$ 6,740 (with the metropolitan area, much lower in the suburban regions)

💬 **Title of the Initiative**: A space for citizens of the 21st century: Transforming education through innovative spaces and programmes, developing local capacities and building a culture for peace and citizenship.

🕐 **Start date of the initiative**: June 2012

🕐 **Tentative end date of the initiative**: Indefinite (this government mandate ends in December 2014 but we are creating an institutional, political, social and economic framework for the program to continue as part of a departmental public policy)

⚙ **Thematic areas**: Social, Governance/Management, Technology, Educational

C Antioquia
Educational Parks for Youth

👤 **Comments from the Technical Committee**: Building on a widely-hailed experiment in Medellin, the entire surrounding province of Antioquia has set up a network of 80 educational parks designed to supplement traditional education with programs to honor young people's inherent skills and citizenship potentials. In Medellin park libraries were set up, even in some of the poorest city neighborhoods, reflecting serious government interest in the people and skills of residents of even the poorest communities. Not replacing formal school systems, the regional parks are designed to attract local talent, capacities and skills among youth, including promoting a culture for peace and civic values.

↘ Background Information

The program began as a strategy within the development plan "Antioquia, the Most Educated" and has become the main driver to transform education in Antioquia and create opportunities for regional development. Through a widespread mobilization, local authorities and communities competed to win their Park, signing commitments in their proposals. A public policy that will support the Network of 80 Educational Parks that are being built is currently being developed and municipal authorities are signing local council agreements and citizens' pacts to guarantee sustainability.

⬎ Origins of the initiative

Antioquia is the second largest contributor to Colombia's GDP, however, the gap in terms of human development and economic growth between Medellin and the rest of the department is wide. The quality of education is one of the fundamental starting points for this inequality. Tests results in the 9 sub-regions of Antioquia are well below the national average in maths, science and literacy. 1 of every 2 youths leaves school before completing, only 1 in every 10 students enters higher education. With these levels of inequality, territorial development is hindered, and migration from regions to the city is seen as the only alternative.

The governor, Sergio Fajardo, has always believed in education as the engine of social transformation. It is founded on the belief that education plays a key role in generating capacities and opportunities for a more equitable and sustainable development. Public education is understood in a broad sense, from early childhood till entrepreneurship, integrating culture, science and innovation. The 80 Educational Parks that are being built are the embodiment of this idea.

What started out as a competition for each municipality to "win" their Educational Park, turned into a large social mobilization around education in 109 different territories where local mayors were brought together with educators, youth groups, among several other representatives of the local population, to think about strategies to improve the quality of education in their municipality through the Parks. An independent panel of renowned academics, educators and businesspeople, selected the 80 winning municipalities.

The Parks do not replace formal educational institutions, but seek to articulate and complement public and private formal and informal educational programmes, catalysing innovation, creativity and change in the educational system. They aim not only at improving formal results, but also offer alternative educational opportunities to the wider community and become centres for developing community relations and citizenship, much needed in areas affected by violence

|The children in the education academy study

and social ruptures.

Although it is part of a four-year development plan, it is a long-term project that will be part of a new policy framework and be implemented in collaboration between the public, private and social/community sectors. The private sector has financed some of the construction and educational contents. Local authorities co-finance the project in cash and human resources. The majority of funding comes from the department and is guaranteed through the policy framework.

⬎ Innovative aspect(s) of the initiative

More than just buildings, the Educational Parks are conceived as public places for citizens of the 21st century, a model for building capacities and opportunities through education. The formal and alternative educational programmes that will be developed within these spaces will promote science, technology, research, innovation, connectivity, and entrepreneurship, as well as develop cultural and artistic practices as a means for enhancing citizenship, diversity and identity. Each Park, between 500-600 m^2 in size, has been designed by national architects of all ages who competed to be part of the process and give each municipality

| In the garden of children education

a unique identity. Each design was considered with various community whom "dreamt their park", building on notions of local identity and diversity.

The Educational Parks program should be considered revolutionary. Aspects of the program are based on experiences in Medellin (when Fajardo was mayor), where building urban infrastructure like Park Libraries in marginal areas of the city catalysed a number of social processes. However, the Parks model contains new elements that were not identified in other experiences. The wide social mobilization that has been an essence of the process is an innovation itself. Now, several cities in Colombia and a few in Latin America are interested in learning about the experience.

This operational model is also an innovation. The 80 Parks will function as a Network and operate through a public, private and community partnership. Despite the social, economic, ethnic and geographical differences in each municipality, the Network creates a necessary degree of standardisation in the educational programmes, operating and financing mechanisms, and decision-making processes. However, a balance is met between these unifying standards and developing the unique "character" of each Park, as a reflection of each particular context. In some, the Parks will be a place to build social cohesion, in others, a place centred on economic development (quality coffees,

ecotourism, etc.).

Some political groups resisted, claiming that it was better to invest money in the traditional system. This has been overcome by showing the local government and community support for the project and that investment in the formal schooling system has continued. Parks do not replace this. Concern for sustainability has been expressed and managed by building a public-private institutional framework, by guaranteeing public funds and co-financing, establishing long term alliances and through continual social mobilisation and appropriation of each Park.

➘ Desired change or outcome and how it is measured

Given the multifaceted nature of the programme, measurement must be made on several fronts and in stages. Although a majority of Parks are still in construction and design phases, the program has already shown results in terms of promoting community participatory processes, raising interests for educational issues, and creating local institutional capacities around education. There are 80 local Educational Parks committees where around 2000 representatives of different communities meet on a monthly basis to discuss, socialise and plan their Park. In each municipality, around 40 social mobilization activities have taken place, centred on promoting a "Parks Culture", understood as civic values and caring for the Park as a "public good". In alliance with NGOS, programmes are being implemented as "examples" of what will happen in Park when they all begin.

In terms of planning indicators, a standard educational programme has been developed, based on best practices and the needs identified by the 80 municipalities in their proposals.

The first Educational Park that began operation is in Vigia del Fuerte, a historically alienated area of Antioquia, in a conflict-ridden zone, where institutional capacities are weak. The fact that this is the first Park to operate is highly symbolic.

Basic indicators are reported weekly, such as number of people attending the

Parks and its daily programme, early results of these programmes for teachers, students and the wider population, qualitative indicators regarding people's perception and satisfaction. The way in which the whole two-year process of mobilization and setting up the Park has contributed towards positive changes such as valuing public goods is also being measured, as baseline data was collected when the project began. These measurements are currently being carried out by the local and central Parks teams to adjust strategies in a timely manner, however, this will become more robust with the Network is in place. The local Park committee also carries out their monthly evaluations.

In alliance with a public and private university, a proposal is being developed to design and implement a full monitoring and evaluation system that will evaluate results on a short (1 year), medium (3 year) and long-term (5-10 year) basis. Given the multiple elements included in this innovation, several quantitative and qualitative aspects will be measured: the institutional framework, the governance, operational and financial model, the educational outcomes of the programmes that take place in the Park, the levels of social mobilization and appropriation of the Park (Park Culture) and the Park as a model for building a citizenship culture and a culture for peace; a significant issue for a post-conflict Colombia.

⬊ Strengths of the initiative and innovation

The Educational Parks are public, inclusive, fun, dynamic and emblematic spaces, spaces for citizens to encounter and that promote innovation, education, art, culture, entrepreneurship, science, technology and citizenship. For many urban areas around the world, this is a common feature, however in municipalities in Antioquia, the Park is the most important infrastructure built, (perhaps in hundreds of years, after the church and central square) and a new social representation for these municipalities.

The main objectives of the Parks are to improve the quality of education, enrich and complement local educational and cultural programs, catalyse social and economic development on a local and regional scale, attract and develop local talent, capacities and opportunities, and promote a culture for peace and civic values. The 7 lines of the educational programme, developed with a number of organisations and universities, are: (i) teacher training to improve pedagogy and knowledge in maths, science and literature, (ii) complementing primary and secondary schooling in basic areas and improving technical and vocational training, (iii) opportunities to access higher education, (iv) access to ICTs as educational tools and a means to connect to the world, (v) fomenting a culture for entrepreneurship and fomenting local enterprises or ideas, (vi) environment, culture, art and sports for education and citizenship building, (vii) learning foreign languages in fun and applicable ways.

Each component has been developed into strategies and projects. The detailed program for each Park is developed with each local committee, given their priorities. Community participation and empowering and creating local capacities have been an essential part of the process, and a guiding principle. This is an innovation in the public sector, which often works under top-down processes between regional and local governments and communities.

Using local communications networks and social media to promote the Parks project has been an important tool, generating social appropriation in the municipalities and placing the regions of the department on the public agenda. The gap between the metropolitan area and the rest of the region is so wide that a majority of people in Medellin do not discuss regional projects or see them as a source of innovation. The 9 regions are usually associated with being backward, remote and a source of migration. This project is offering a new vision of the regions as potential poles for development. The Parks, even under construction, are starting to become tourist attractions because of their innovative architecture and social dynamics.

▣ Name of City/Community：Boston

📍 Name of Province/State：Massachusetts

📍 Name of Country/Region：United States of America

🌐 Geographic Region：North America

👥 Population：617,594

⚙ Surface Area：Land－125.41km², Water－106.73 km²

👥 Population Density：34,550/km²

💬 Title of the Initiative：Youth Lead the Change: Participatory Budgeting Boston

🕐 Start date of the initiative：December 2013

🕐 Tentative end date of the initiative：June 2014

⚙ Thematic areas：Social, Economic, Environmental, Governance/Management, Technology

C Boston

Youth lead the change: Participatory Budgeting Boston

👤 **Comments from the Technical Committee**：Boston's mayor sought a way to empower youth (age 12 to 25) to become active participants in civic affairs of their city government. His solution: a process of participatory budgeting, inviting young people to collect ideas for capital projects, distill them into concrete proposals, and then hold a city-wide youth vote to determine which proposals would be funded by $1 million set aside for the project. The goal was to teach youth about city building and budgeting process, to gain leadership and professional skills. Boston became the first American city in which youths have been empowered to decide on a portion of their city's capital budget. Over 450 ideas were generated, over 1,500 young people cast a vote, 14 projects made it to the ballot and seven were selected by the youth as winners for implementation.

↘ Background Information

The Mayor of Boston wants to empower youth to be civic leaders. To advance this, the City created Youth Lead the Change and included this program in the city's capital budget. Through this participatory budgeting program, youth had the opportunity to collect ideas for capital projects, distill those ideas into concrete proposals, hold a city-wide vote to determine which projects get funded, and - ultimately - directly determine how $1 million is spent to improve Boston for everyone.

⬊ Origins of the initiative

1．Reasons

Young people are our future leaders and the City of Boston is committed to providing young people with a voice and welcoming them to participate in government. Youth Lead the Change creates a pathway for lifelong civic engagement and participation. Best practice in Boston around youth programming and/or policy is to include young people in the decision making and planning to ensure that programming is accurate, relatable and suitable for the target population. This initiative allowed for concrete roles for youth and real youth empowerment.

|Condon community center − collect ideas

2．Goals of the initiative

The goals of Boston's Participatory Budgeting project are to:

·Help ensure the capital plan reflects the priorities, interests and energy of Boston youth.

·Teach youth about the City-building (and budgeting) process as well as provide education around the innovative use of crowdsourcing platforms.

·Engage future leaders in developing and planning City of Boston infrastructure to allow for community building and increased community ownership.

·Engage populations that are traditionally underserved such as homeless youth, disconnected youth, those from low income families or with socio-economic barriers.

·Foster increased partnerships between the City of Boston and Youth Serving agencies.

|12−25 residents vote

3．Principal parties and partners to the initiative

·City of Boston Mayor's Office, Government - Sanctioned the initiative and supported Youth Lead the change.

·Department of Youth Engagement and Employment, Government - Provided day-to-day support, oversight, project management, and outreach agendas for the initiative

·Office of Budget Management, Government - provided expertise around project eligibility and coordinated city department support

·Office of New Urban Mechanics, Government - provided technical support

·Participatory Budgeting Project, Non-profit - consultant organization that provided project management support, content and training materials, and outreach support

·Mayor's Youth Council, Government Youth Organization - co-chair of the steering committee

·Youth on Board & The City School, Non-profit - co-chair of the steering committee

·Harvard Kennedy School, Private University - guided data collection, measures

| Refine the idea

for outcomes, and categories for evaluation

· Northeastern University, Private University - sponsored community events and meetings

· Citizinvestor.org, Private - hosted online idea collection and commenting mechanism

· Boston Centers for Youth and Families, Government - hosted community meetings and voting locations

· Mobile Commons, Private - mobile & text messaging platform

↘ Innovative aspect(s) of the initiative

1．Revolutionary innovation

This revolutionary innovation is being applied through policy, design and implementation. Never before have young people (ages 12-25) been empowered to directly decide how a portion of an entire city's capital budget would be spent.

2．Characteristics

In designing Youth Lead the Change, all materials had to be adapted for

the population with special consideration around the use of social media, web interfaces, and mediums that young people use. The goal was to meet participants using platforms that they are comfortable with and frequent. Voting locations and outreach strategies encompassed local schools, public transit stations, community centers, and youth programs across the city, including events for homeless and disconnected youth.

Through collaboration with Mobile Commons, interested parties at any phase of the project could connect with the initiative by sending text messages to a designated number and would be able to voice opinions, learn about upcoming events and receive updates on the process.

The design of the project steering committee was focused on diverse youth serving organizations. This ensured that decision makers who were writing the rules for this process were young people and allowed them to take ownership of various aspects of the design of the process.

3．How the innovation is related to other experiences and parties

This initiative allowed for distinct and broad youth engagement in government and provided an opportunity for visible "open government" in order to increase trust and collaboration with community members and community organizations. While participatory budgeting has been done in several US cities in the past few years, Boston is the first city to focus exclusively on youth, and other cities and municipalities across the nation are considering youth participatory budgeting processes.

4．Obstacles or resistance to the innovation

One obstacle that was faced during this initiative was community trust in government. As the project began, some community members questioned whether they would truly have an opportunity to decide how funds would be spent. Composing a steering committee of youth serving organizations provided

many community liaisons and created an avenue of trust between community members and local government. As the project progressed, members of the community became more invested as they participated in idea collection assemblies, project development and eventually voting.

↘ Desired change or outcome and how it is measured

1．Achievements

· Civic Engagement and Open Government: Over 1,500 young people cast a vote. For many it was their first time engaging in a voting process.

· Community Process, Economic Development and Contribution to City Planning: Education regarding the city budget process and capital planning took place at all idea collection assemblies. Throughout the process we saw over 450 ideas generated to improve Boston. Ideas not feasible for execution through this process were forwarded to various city departments to take under consideration for future projects and planning.

· Youth Investment in Environment and City Infrastructure: YLC encouraged residents to review their communities and consider projects based on need, feasibility, and sustainability. Projects were designed to improve communities, public safety, outside environments and school environments.

· Reduce Barriers for Participation: Material was translated into different languages as often as possible and idea collection assemblies were held in accessible venues. Target areas included populations that are traditionally underserved. Text messaging and online idea gathering was used to reach those that were unable to attend assemblies.

· Participants cited a broader awareness of needs in other neighborhoods throughout the City and a better understanding of government processes and democracy in general. Many participants reported gaining specific skills including leadership, teamwork, networking, communication and professionalism. Many

| Voters can learn about different project reading materials

participants also expressed feelings of power or control or reported that their voices had truly been heard.

2．Criteria for assessing the achievements

Researchers from the Harvard Kennedy School evaluated Youth Lead the Change by conducting in-depth qualitative interviews with 30 participants. Quantitative data is derived from Boston census data and from surveys of YLC participants. Interviews were open-ended but organized around key themes: motivations for participating, participation outcomes, impact on participants themselves, decision processes and suggestions for improvement. Researchers also observed many of the in-person gatherings.

3．Impact of the initiative

This initiative did contribute to an evolving reputation in Boston that provides an image of a city that definitively invests in youth through an open and trustworthy branch of local government. This image allows for our future leaders to take an active role in contributing to city infrastructure and youth empowerment.

⬈ Strengths of the initiative and innovation

Youth Lead the Change has created an innovative pathway for young people to get involved with City Government here in Boston. From the launch of the project to the end of year one, young people were the driving force behind not only the project's success, but they were also the generators of the movement. Through surveys and focus groups with the Mayor's Youth Council, city leadership was able to understand the desire for young people to contribute to the decisions that are being made around them and also understand the benefit and strength of having young people participate in real decision making.

The project began with the assembly of a steering committee composed of young people connected to youth serving organizations. It was important to make sure that young people on the steering committee were supported by adults to allow for youth development moments and intentional relationships between youth and adults. This cohort of young people and supporting adults created the rules that would govern the process with a focus on the voices of young people.

Once the rules were written, the steering committee members began community outreach and facilitated idea collection assemblies. Locations for idea collections assemblies had a focus on traditionally underserved neighborhoods. As ideas were collected in person and though an online platform, young people and residents had the opportunity to interact with local government in a positive and empowering way that promotes real change and ownership in communities.

Change agents applied to serve to transform ideas into capital projects based on community need, project feasibility and project impact in the community. Change Agents worked with city departments to vet ideas and approve proposals. Throughout this process, young change agents had an opportunity to collaborate and learn with adults in city leadership.

Once projects made it to ballot, only young people could decide how funds would be spent. 14 projects made it to the first ever Youth Lead the Change Ballot and 7 projects were selected by young people as winners. Those projects will be implemented. This sort of real and tangible process empowered youth to get engaged in their communities and indicated that they can affect real change in their communities. The goal is that this initiative promotes civic engagement, changes social behaviors, increases trust and communication between youth and local government and promotes education about budgetary and democratic processes.

- Name of City/Community: Bristol
- Name of Country/Region: South West England
- Geographic Region: Western Europe
- Population: 432,500
- Surface Area: 110 km^2
- GDP per capita: £25,202 GVA (2009)
- Title of the Initiative: Smart City Bristol
- Start date of the initiative: 2011
- Tentative end date of the initiative: Ongoing
- Thematic areas: Social, Economic, Environmental, Technology

C Bristol
Smart City Bristol

👤 **Comments from the Technical Committee：** An historic city beset by problems of congestion, an aging population, climate change and energy resilience, Bristol is making itself a place set apart by new initiatives. It voted to become one of the few cities in England to adopt a mayoral form of government. Bristol's innovative approach to becoming a smart city is based on people and not on technology: a Public-Private-People approach. It has two primary aims: first, to contribute to the reduction of Bristol's CO$_2$ emissions of 40% by 2020 from a 2005 baseline; second, to use projects to ensure sustainability is placed at the heart of community concerns and ensure that sustainability becomes an integral way of improving individual's lives. Bristol is a signatory to the Covenant of Mayors, the mainstream European movement involving local authorities committed to reducing energy use and emissions. The City was awarded European "Green Capital" status for 2015.

↘ Background Information

Although not a policy framework as such, Smart City Bristol is delivered under the auspices of the "Covenant of Mayors":

In 2012, Bristol became a signatory of the "Covenant of Mayors". As defined on their website: "The Covenant of Mayors is the mainstream European movement involving local and regional authorities, voluntarily committing to increasing energy efficiency and use of renewable energy sources on their territories." Covenant signatories aim to meet and exceed the European Union 20% CO$_2$ reduction objective by 2020.

The smart city programme has therefore been formalized under this covenant, although its objectives exceed the basic 20% CO2 reduction target.

|Mayor Ferguson tree planting with school children

⬎ Origins of the initiative

1. Reasons

Like all large cities, Bristol faces challenges of climate change, energy resilience, congestion, health and well-being of a diverse, ageing population and the transition to a low carbon economy. As the seventh largest city in England, Bristol faces additional challenges around a "super diverse" population and increasing inequality in socio-economic deprivation between areas of the city.

Bristol's smart city programme therefore aims to utilise innovative solutions to help tackle some of these major issues. The novelty of our approach is our focus on public-private-people partnerships, championing innovative solutions through the smart deployment of ICT and digital connectivity.

There have been a number of significant socio-political changes in Bristol in the last two years which have served as a spring-board for further action. For example, having recently been awarded "Green Capital" status for 2015, we are about to embark on an ambitious programme of showcasing Bristol's achievements as a 'smart city', as well as using this as an opportunity to attract further inward investment.

In 2012, the city voted for its first directly-elected mayor, therefore providing greater leadership and opportunity to drive the smart city agenda forward.

Finally - and crucially - the individual projects being delivered under the smart city agenda and the Green Capital programme have been brought together under the overarching objective of increasing the city's resilience to challenges posed by a large urban area. We believe that a major flood and infrastructure failure (energy, ICT, transport & water) pose the most significant risks for Bristol in the short-term, whilst over time city systems will become increasingly stressed due to energy security, disrupted food systems, public health risks and economic vulnerability. Population growth and increased demographic diversity will present many other challenges to the city's resilience. We see "resilience" as more than a quick return to the status quo, it's an opportunity to transform our social and economic systems in the long-term to achieve social justice and wellbeing within environmental limits. Building the resilience of Bristol is central to the Mayor's plans for the city, which has strong engagement, cooperation and input from a wide spectrum of stakeholders. As above, the strength of our approach is in our ability to combine expertise and deliver activity in connection with a variety of public, private and 'third sector' organisations. To-date, we have delivered activity with over 50 partners to secure positive outcomes for each of Bristol's citizens.

2. Goals

Smart City Bristol is a collaborative programme between the public sector, business and community. The main aim is to use smart technologies to help meet

|Mayor George Ferguson demonstrates one of Bristol's new electric-vehicle charging points, installed as part of the smart city "ICT 4 EVEU" project

our ambitious city target to reduce CO_2 emissions by 40% by 2020 from a 2005 baseline, as well as our social and economic objectives. It was launched in 2011 and builds upon the Smart City Bristol Report commissioned by Bristol City Council in 2011 and funded by the UK Department of Energy and Climate Change.

The European Green Capital 2015 programme will also contribute to these targets, promoting Bristol as a centre for innovation in Green technology. Whilst difficult to measure, the city's resilience to identified challenges will be monitored via a series of qualitative measures as well as quantifiable targets, such as the Mayor's annual 'state of the city' report, "quality of life survey" and other public consultation.

3．Principal parties and partners

Smart City Bristol is led by Bristol City Council working with other organisations outside of Bristol and other Cities to deliver projects. These include University of Bristol, University of the West of England, IBM, Toshiba, HP, Knowle West Media Centre, Arup, Watershed, IP Performance, Western Power Distribution, SetSquared, Siemens and University of Bath.

Knowle West Media Centre (KWMC) works with the community to develop the creative, educational and social potential of people within the surrounding area. Mission/objectives of the KWest living lab at Knowle West Media Centre:

· To establish an independent, sustainable, effective, environmentally and socially conscious living lab based in the south Bristol community of Knowle West.

· To deliver the benefits of real-world testing, appraisal, development and design of products and services by a range of clearly defined sets of genuine consumers.

· To deliver community development through (i) individual indirect learning and skills development through participation, (ii) individual skills development through specific training to meet the needs of individual projects, (iii) community cohesion through joint participation and collective action, (iv) by developing new links, connections and networks for the community and participants into organisations locally, nationally and internationally.

· To produce economic development (i) through establishing new roles to manage and develop the living lab, (ii) increasing the demand for services to support the living lab, (iii) promoting the benefits of product and service development to businesses and service providers.

· To stimulate the development of new business ideas through the activities of the lab and support economic growth in South Bristol.

· To provide a model for other developing Living Labs.

Knowle West Media Centre have collaborated/continue to work with Bristol City Council on a number of smart city initiatives projects including 'DEHEMS', '3E Houses' and 'So La' Bristol.

4．Resources

Programme coordination is financed by Bristol City Council within existing staff budgets. During project development other organizations also provide their time freely. Individual pilot projects are funded by European and UK funding sources such as the European Commission, Ofgem, TSB, UK Government etc. and some ongoing initiatives financed by the City Council e.g. Traffic Control Centre.

Leading up to 2015, Bristol will receive £7 million of additional funding to support it as European Green Capital. Chief Secretary to the Treasury, Danny Alexander,

announced this during a recent visit to the city. The funding will deliver a range of projects which will help Bristol remain at the centre of green investment and urban sustainability.

In 2013, Bristol was successful in its attempts to be one of "100 resilient cities" identified by the Rockefeller foundation in the USA. In addition to membership of the newly formed 100 Resilient Cities Network, Bristol has received financial support from the Rockefeller Foundation to create and implement a resilience plan and to hire a Chief Resilience Officer.

The project is still in its early stages but will complement the existing teams already committed to this work area. Over 50 members of staff across a wide range of teams are collaborating in the delivery of the Programme, combining our Sustainable City, City Innovation and Energy Service teams.

⬎ Innovative aspect(s) of the initiative

1．Evolutionary and revolutionary innovations

Smart City Bristol is remarkable in that it combines evolutionary and revolutionary aspects.

It is revolutionary in that the projects we deliver are innovative and are applied within a Bristol context using our own approach to smart cities. Putting people at the heart of a smart city, rather than technology led. For example, our So La Bristol "smart grid" project is the first in the world to use bespoke technology in residents' homes to connect solar pv generation to battery storage units. The smart city approach places people and communities at the centre of technological innovation; as we believe that it is how people interact with technology that helps inform behaviour change and helping the City to achieve its aims. To that end, the So La Bristol project works with a local community based charity with the specific aim of stakeholder engagement. Furthermore, Bristol's Green Capital status will allow the city to revolutionise its approach by raising the profile of Bristol on a

|STEEP project stakeholders participate in a 'systems thinking' workshop by Dr Yearworth at the University of Bristol

wider international scale and attracting investment in innovative technologies within the city.

Smart city Bristol is evolutionary, in that it builds upon the lessons learned from previous projects. A good example of this is the "smart metering" suite of projects that has been deployed in Bristol, beginning with a project called "DEHEMs" (2008-2011) and further developed in "3e Houses" (2011-2014). Both projects were funded under European Commission funding initiatives, with DEHEMs trialling the use of smart meters in council-owned properties. The lessons from this project were used to inform the 3e houses work, which used smart metering in combination with a user "interface" to enrich the user experience and increase levels of participation and engagement. Again, the learning from this project has been used to develop a bid for a further smart metering project which aims to develop smart metering "apps". It is hoped that this project will be funded under the new Horizon 20:20 programme.

2．Characteristics

Smart City Bristol was launched in 2011 focusing on Smart Energy, Smart Transport and Smart Data. It includes pilot projects e.g. smart metering, smart

grid, electric vehicles, open data alongside permanent initiatives e.g. Traffic Control Centre and Freight Consolidation Centre. Having a distinctive strength is what makes a Smart City and in Bristol our strength is the collaboration of our micro-electronic, environmental technology and creative/digital companies who are working with communities to make them smart e.g. through Bristol's Living Lab in Knowle West - a group of people who are actively involved in the creation and evaluation of technologies which they will ultimately use.

Some of the projects which will be funded and delivered as part of the Green Capital 2015 will include:

· The Bristol Prize a new annual award for the best new clean technology. This will help deliver solutions for cities to deal with and alleviate climate change.

· A sustainable living programme in UK schools to educate up to 4.5 million children about climate change and how cities can contribute to tackling this issue.

· An international festival for Clean Technology Business, in Bristol, for a number of high profile sectors which have the greatest scope for boosting growth.

· The Grass Roots Catalyst Fund, to incubate and develop sustainable urban living initiatives which can be scaled up and applied to cities across the world.

· A series of international high profile summits on Climate Change. Attendees will include the Prime Minister, other leading politicians and top-level global climate change stakeholders.

· Expand a volunteer programme to SMEs and frontline businesses to help Bristol prepare and deal with the influx of visitors during its tenure as the European Green Capital in 2015.

3．How the innovation is related to other experiences and parties

The innovation has developed through the collaboration of private, public and community sectors in Bristol. It builds upon partnerships such as Connecting Bristol and Invest in Bristol.

Programme partners benefit and we share learning through city networks e.g.

|Bristol

http://www.greendigitalcharter.eu/signatory-cities/signatories-map/bristol and the Covenant of Mayors

http://www.youtube.com/watch?v=ZJPAj745LoM&feature=plcp&context=C364d176UDOEgs ToPDskJl25ObOAwUJcHTI6ufMJLV

Other beneficiaries include schools and educational establishments who will directly benefit from smart metring projects such as "SMART spaces" and "So La" as well the "sustainable living programme" which will be rolled-out in 2015 as above. Small & Medium Size enterprises will also benefit from the volunteer programme and increased inward investment into Bristol as a result of the successful Green Capital bid.

4．Obstacles or resistance

When deploying smart city projects we have found that one of the major obstacles

to success is ensuring good communication with the project customers. It needs to be done in a way that means something to them and so they understand the benefits and their role. One way of ensuring that project stakeholders are engaged with the goals of the programme is to ensure that we have an effective dissemination & communication strategy. By linking the smart city agenda to Bristol's status as Green Capital, the profile of the various projects has been raised significantly on a national level. At a local level, the election of a directly-elected mayor has helped distil messages about the necessity for a 'smart city' approach to carbon reduction.

When seeking to deploy innovative technological solutions, there are a number of political sensitivities to consider, especially in the context of decreasing authority budgets and the perception that smart city projects are somehow non-essential expenditure. This cynicism has been largely overcome by establishing successful links with other internal council departments, securing buy-in from senior managers as to how the technology in question can actual increase efficiency, and provide a more effective service for Bristol's citizens.

⭷ Desired change or outcome and how it is measured

1. Achievements

Ultimately, Smart City Bristol has two primary goals. Firstly, we are developing smart projects that will contribute to a reduction in Bristol's CO_2 emissions. Success is measured by "The Bristol Climate Change and Energy Framework 2012-15" which was adopted in March 2012 and sets out how the City Council will work with partners to reduce the city's CO_2 emissions by 40% by 2020 from a 2005 baseline, and how the city will adapt to climate change.

Secondly, we are using projects and the green capital status to ensure that sustainability is placed at the heart of communities, working in partnership with public and private organisations and using ICT and digital connectivity to support

this. Our aspiration is to ensure that sustainability issues become an integral way of improving individuals' lives, supporting and enriching experiences rather than being at odds with them.

Accomplishments to-date include:

· Securing an additional £7m in funding for Green Capital activity.

· Becoming one of the inaugural 100 Resilient Cities, a pioneering initiative funded by the Rockefeller Foundation.

· Achieving the 20% energy reduction target as part of 3e Houses

| The bicycle race

· Decrease in energy consumption by schools and council offices as part of the 'smart spaces' project.

· Increased awareness and engagement with climate change issues via smart city projects in general.

The city has plans to create resilient systems - more decentralized, less prone to cascade failure - and will future-proof investment decisions. Bristol is already the most energy and waste-efficient major UK city, and we plan to meet future

needs by managing resources even more efficiently. The city aims to empower individuals and communities to help themselves, support capacity building and local-decision making, and protect local amenities. Much of the building stock is old, but the city is working to enable owners to future-proof buildings to support and protect life and enable commerce. The city is using a systems-led approach to build in capacity, flexibility, safe failure, and constant learning. Being a resilient city is central to the Mayor's vision.

2．Criteria for assessing the achievements

As stated above, the main measure of success in this context is the City Council's "Climate Change & Energy Security framework", which forms Bristol's SEAP under the Covenant of Mayors and is the 3rd iteration of a climate change plan for Bristol. The framework sets out 19 broad strategic activities and these there are 65 specific actions covering emissions from buildings, transport, business and city-wide activity.
 In respect of the specific projects within the smart city programme, as most are funded via the European Commission, they have strict timescales and deadlines regarding progress. For example, for two of the smart energy projects "3e Houses" and "STEEP", a number of successes have to be evidenced. These included:
 · 20% reduction in energy consumption in pilot housing areas
 · Guidelines and best-practice documents to be produced for use by other cities
 · On-line energy consumption analysis tools including interactive GIS maps
 · Minimum number of stakeholders engaged in project and willing to participate in on-going evaluation.
For each of the smart energy projects, we are working with partners who conduct participation-questionnaires throughout the project lifecycle to gather feedback from citizens taking part.

3．Innovative tools or methods

One of the main successes of Smart City Bristol has been its ability to foster

behaviour change and promote the adoption of innovative technology. The smart data, energy and transport projects that constitute the main body of activity in Smart City Bristol have utilised a number of incentives to achieve this. For example, the smart metering project "3e houses" offered authority tenants the opportunity to reduce energy consumption and costs via use of interactive smart metering technology and computer interfaces. The "smart spaces" project uses data collected from solar PV in schools to visualise energy consumption and help identify areas for behaviour change in terms of schools' energy use.

Development of a city-level "open data platform" has been designed to facilitate information sharing between city stakeholders and citizens in a more collaborative manner. In terms of the internal dynamics of the authority, the Smart City team has forged closer working relationships with departments that would not usually engage in innovative technological solutions. For example, the council's landlord services (who own and maintain the local authority housing stock) have become key partners in several of the "smart energy" projects where "smart metering" and "smart grid" technology has been deployed.

As a result of closer integration, the Bristol Futures' division will include co-location of our emergency planning team, smart city/city innovation and new Strategic Resilience Officer.

4．Impact of the initiative

Smart City Bristol has contributed to the long-term image of Bristol as a centre for innovation and a leader in adoption of "smart" solutions to city-level problems. As an internationally recognised accolade, the European Green Capital 2015 award offers a unique communications platform for building Bristol's reputation as the "greenest" city in the UK.

Outcomes of the Smart City Bristol programme over the last 3 years have contributed to Bristol's burgeoning reputation as a centre for green and digital innovation.

⬊ Strengths of the initiative and innovation

An early signatory of the Green Digital Charter, Smart City Bristol was launched in 2011 with an initial focus on Smart Energy, Smart Transport and Smart Data. The Programme includes pilot projects e.g. smart metering, smart grid, electric vehicles, open data alongside permanent initiatives e.g. Traffic Control Centre and Freight Consolidation Centre. It builds upon Bristol strengths: working closely with our micro-electronic, environmental technology and creative/digital companies as well as local communities.

Bristol is using smart technologies to help meet its target to reduce CO_2 emissions by 40% which is a significant challenge as our population is rising at twice the UK average. Bristol has a Climate Change and Energy Security Framework and has reduced CO_2 emissions by 15% from 2005-09, against a 6% population rise. But the 2020 target is a real challenge requiring significant action and we see smart technologies as integral to making further reductions. We recognise smart technologies bring new opportunities i.e. integrating complex systems, opening up information supporting better governance and opportunities for innovation. We are leveraging local partnerships and existing and new investment to make Bristol a Low Carbon City. Including investment in digital infrastructure (Council's citywide fibre network & £11 million Government investment in Broadband & Wi-Fi), energy measures in over 500 offices and 28,000 homes owned by the Council and a £2.5 million grant from the European Investment Bank to develop a Bristol energy services company and citywide investment programme, as well as through transport schemes and business inward investment and innovation.

The European Green Capital Award was launched in 2008 by the European Commission to promote and reward the efforts of cities and their local authorities to improve the environment. All recipients of the award have a consistent record of achieving high environmental standards; are committed to on-going and ambitious goals for further environmental improvement and sustainable development; and can act as role models to inspire other cities and promote best practices to all other European cities. Past winners include Stockholm, Hamburg, Vitoria-Gasteiz, Nantes and Copenhagen (2014).

Bristol has been awarded the title of European Green Capital (EGC) for 2015 due to its ability to demonstrate rapid progress and continuing ambition, across a wide range of quality of life, environmental and green business criteria.

In addition, Bristol is developing its own energy company which will form an independent entity from the authority in January 2015.

By being selected to become a member of the 100 Resilient Cities network, Bristol has demonstrated an understanding and commitment to building urban resilience, the desire to actively engage multiple-stakeholders across the city in the process and to positively impact upon the lives of poor and vulnerable residents.

Name of City/Community: Autonomous City of Buenos Aires

Name of Country/Region: Argentina, Latin America

Geographic Region: Latin America & Caribbean X

Population: Metropolitan area: 14.5 million

Surface Area: 203.3 km^2

Population Density: 14,216 inhabitants/km^2

GDP per capita: 38,000 USD per year

Title of the Initiative: Buenos Aires City's Collaborative Roundtable for Innovation and Creativity

Start date of the initiative: 2013

Thematic areas: Governance/Management

Buenos Aires
Collaborative Roundtables for Innovation and Creativity

👤 **Comments from the Technical Committee**: Like many local government administrations Buenos Aires faced a wide range of bureaucratic barriers. These included too many meetings of doubtful usefulness and confusing lines of initiative and accountability. Buenos Aires decided to reform its governance system with a management initiative called "Collaborative Roundtables for Innovation and Creativity." The central idea of these roundtables is to engage in frank dialogue between the municipality and its citizens and to stimulate imaginative and innovative actions by senior officials. The varied initiatives which emerged include "Schools of the Future" focused on robotics and 3D printers; an "Enterprise Academy" to deepen entrepreneurial potential; a "WiFi for Inclusion" initiative to close the technology gap for less affluent citizens; and a platform to unlock the potentials of foreign market enterprises.

⬎ Background Information

Since the main challenge of the Roundtable is to transform the quality of life of citizens based on innovation, the team has set out five areas of intervention which group initiatives which are part of the Government Plan for 2014, and which are contained in the Roundtables Executive Summary:

(1) Educating for the XXI Century

(2) Entrepreneur and Creative Ecosystem

(3) Innovating for Inclusion

(4) Intelligent City

(5) International Positioning

◥ Origins of the initiative

1. Reasons

The Collaborative Roundtable for Innovation and Creativity emerged in 2013, as an answer to the challenge of transforming creativity, modernization and innovation in a government's management axis, in order to mobilize it to reach and benefit people.

The Roundtable came to respond to the lack of coordination of public policies on innovation and intended, from the beginning, to break the logic of compartmentalized structures, so in order to governmental organization charts. This enables an open dialogue between senior officials, allowing them to think beyond their daily tasks, to make room for innovation and think of topics "outside" their areas, forcing them to adopt a creative spirit.

2. Goals

The Roundtables' main goals are:

(1) To make innovation an economic engine

(2) To articulate advances in innovation with social impact

(3) To ensure that innovation and creativity to become a primary concern of the government for 2014

· Strengthen the Roundtable, in order to work more collaboratively and effectively

· Establish a plan of action unique and traceable

· Increase participation commitment among senior representatives

(4) To ensure that innovation and creativity become a priority axe in terms of communication 2014

(5) To position the City of Buenos Aires as a leader in innovation at a regional and global level.

3. Principal parties and partners

The following list corresponds to the areas of government (public actors) that participate in the Roundtable:

· Undersecretary of Creative Economy

· General Direction of Entrepreneurs

· General Direction of Science and Technology

· General Direction of Foreign Trade

· Secretariat of Habitat and Inclusion

· General Direction of Information and Open Government

· General Direction of Smart City Projects

· General Direction of Electronic Government

· General Direction of Technological Education

· General Direction of International Relations and Cooperation

· Undersecretary of Citizen Services

· Undersecretary of Transportation

· General Direction of Planning and Management Control

· General Direction for Strategic Planning

· Special Projects Unit of Civic Construction and Cultural Change

4. Resources

Initiatives arising from the Roundtable are executed by each of the Ministries, and resources needed for its realization come from the budget allocation established in the budget law enacted by the Legislature. Meanwhile, the Roundtable participants contribute with their time and specific technical and political knowledge.

◥ Innovative aspect(s) of the initiative

1. Evolutionary and revolutionary innovations

The Innovation Roundtable is a cross-cutting space that enriches ideas, accelerates their development and works collaboratively on innovative projects of public policy.

It is by nature a revolutionary initiative because it is a novel strategy for dealing with public policy. Unlike other institutions that catalyze innovation in other governments around the world, the Innovation Roundtable is transverse, not responding to any governing body, and therefore its working methods, as well as its products are innovative. The Roundtable is transforming the way the Government of the City of Buenos Aires approaches innovation.

In addition, officials are, considering their high seniority, the ones who provide experience to the Roundtable. Notably, in order to develop, innovation requires bold and counter-intuitive attitudes, and that is precisely its main strength.

2. Characteristics

Not only the methodology of the internal work of the Roundtable is itself an innovative strategy, but the initiatives arising from it turn out to be really creative:

(1) "Schools of the Future": initiative which introduces educational innovation and new technologies (robotics and 3D printers) to public schools in the city.

(2) "BA Entrepreneur Academy": training program to deepen entrepreneurial potential, taught by tutors trained by the Kauffman Foundation.

(3) "NIDO": Space for the development of the potential and productive enterprises of the residents of the Villa 1 -11 -14. It will house a kindergarten, a centre of activities aimed at social entrepreneurship and an auditorium that will incorporate technology. The functional building will have 4800 square meters and will include 80,000 beneficiaries.

(4) "WiFi for Inclusion" initiative that provides Internet access to people with fewer resources to reduce the digital gap.

(5)"Platform for the Porteño Exporter" project that facilitates the understanding of the main requirements and procedures relating to transactions in the foreign market.

3. How the innovation is related to other experiences and parties

In many parts of the world innovative public teams have been emerging and are

|Buenos Aires Collaborative Roundtable for Innovation and Creativity

increasingly thinking of innovation as an essential capability they wouldn't want to govern without.

In the City of Buenos Aires there were earlier isolated initiatives without adequate success, as collaborative and communication strategies were not articulated. However, these experiences, including one named "Modernization Roundtable" were a clear example of the good and the bad, aspects that inspired the current Innovation and Creativity Roundtable.

4. Obstacles or resistance

(1)Obstacles to the Innovation Roundtable:

The space of the weekly internal meetings of the Roundtable became increasingly crowded and it became difficult to organize a work focused on outcomes and outputs. The Roundtable was able to secure the divergence of ideas (brainstorming) but could not ensure convergence, selecting the right solution and therefore plan its implementation and management.

(2)Necessity of the Roundtable:

| Meeting with the Chief of Cabinet

Work on the follow-through of the action plan and consolidation of the lines of action and initiatives of the Roundtable should be done in another space and under another format.

(3)Proposed solution:

The Governments Laboratory, which is a management initiative coordinated by the General Direction of Information and Open Government, presented the Roundtable a Proposal of Work Integration and Methodology in three formats:

· Basic Acceleration of Projects: acceleration of initiatives from the Roundtable that need to move from being an innovative idea to becoming a project in execution counting with all the necessary means to be carried out successfully, such as: planning, identification and resolution of "bottlenecks", necessary contacts, technological support and so on.

· Treatment of parallel themes: works on issues where innovation plays a fundamental role, but do not fall within the usual working axes of the Roundtable. The purpose of these meetings, to be attended by experts and officials concerning the related area, is to put together

short reports that relieve diagnosis and transmit public policies recommendations.

· "Workshops" by axes: meetings that serve to finish consolidating and give coherence to the work plans by axes.

(4)Solution reached

The proposal presented by the Governments Laboratory created the necessary instances to develop convergent thinking. These meetings with smaller working groups that revolve around specific topics and have specific methodologies have led to the emergence of clear outcomes: results and concrete products.

⬊ Desired change or outcome and how it is measured

1．Achievements

(1) Cycle of Meetings with referents and specialists in the field, and visits to places and institutions that stand as examples of the sector. The Cycle is directed and designed exclusively for the Mayor, the Chief of Cabinet and senior officials of the Government of the City of Buenos Aires. They are successful as they nourish many senior officials with innovative subjects, while they are inspired by the innovative locations they visit.

(2) Newsletter submitted to the Mayor, the Chief of Cabinet and senior officials of the City Government. The Newsletter is beneficial not only because it includes local and international news on innovation but also because in this way it nourishes the speech of officials who receive it.

(3) Monthly meetings with the Mayor, the Chief of Cabinet and senior officials of the City Government. Results from these meetings are very favorable because, considering that the Roundtable is not institutionalized; they serve as replacement of the meetings that the Chief of Cabinet holds monthly with each Ministry.

(4) Strong articulation with the government communication team turning Innovation in one of the four pillars of government communications.

Successful initiatives resulting of the intervention of the Roundtable:

| Buenos Aires

(1) "NIDO": Contents of this initiative, which belongs to the Secretariat of Habitat and Inclusion was developed by three areas of the City government that participate in the Roundtable. These are: the General Direction of Entrepreneurship, the General Direction of Technological Education and the General Direction for Science and Technology.

(2) "Buenos Aires entrepreneur Academy": After the contribution of the Roundtable, we were able to have more spread and escalation of this initiative, since the broadcast channels of the ministries started being used (The number of entries increased, counting 3264 vacancies occupied from the 4000 available, until August 5, 2014).

Moreover, thanks to the articulation of the Roundtable, public libraries were submitted as new venues for the Academy (Library Ricardo Güiraldes, Library Martín del Barco Centenera, Library Antonio Devoto and the Casa de la Lectura) and the validation of the Instituto Superior de la Carrera (Educational Institution which trains the City Government employees), was acquired.

2. Criteria for assessing the achievements

As seen below, the Roundtable has a specific stage which requires those who submit new initiatives to introduce indicators to measure impacts.

Under the support of the General Direction of Planning and Management Control, it ensures that each initiative has scope/impact enough to be measured with the corresponding impact indicators.

Meanwhile, the Roundtable measures the impact of its own work through indicators constructed for this purpose, such as: Ministerial participation by initiative Index, Level of compliance with the steps to present a new initiative or finally, the Level of communication of Innovation. The latter is verifiable, for example, through the effective number of mentions of the issues which are part of the Roundtables agenda in speeches and /or public appearances of the Mayor, the Chief of Cabinet and Ministers.

3. Innovative tools or methods

In order to be adopted, an initiative proposed by a General Direction must:

(1) Demonstrate effectiveness: The assistance of the General Direction of Planning and Management Control, ensures that the initiative counts with an approved budget, clear goals/objectives, scheduling/GANTT, available equipment and feasibility in legal and administrative terms.

(2) Display the initiative and submit it for discussion at internal meeting: Under the assistance of the Coordination of the Innovation and Creativity Roundtable.

(3) Convene a meeting of collaborative work with the actors interested in participating, and consolidate a common agenda: Under the assistance of the Coordination of the Roundtable.

(4) Confirm the initiative and procedures with specialists of the area involved: Under the attendance of the Coordination of the Roundtable.

(5) Ensure that the initiative has the enough scope /impact: With the support of the General Direction of Planning and Management Control.

(6) Ensure that the initiative has enough potential in terms of communication: under the assistance of the Coordination of Communication of the Under secretariat of Creative Economy.

4．Impact of the initiative

The Roundtable is positioning the City of Buenos Aires in innovation issues nationally and internationally.

Nationally, there are three examples that can be cited.

On the one hand, the project "Finish Highschool" offers the possibility to go back to school to the 7 million of Argentines across the country who have not completed high school. Second, the Roundtable in partnership with the Programme of Cooperation of Innovative Public Policies of the Ministry of Government, is organizing a "Seminar on Innovation in the city of Rio Cuarto, Cordoba Province." The event seeks to share the public management initiatives of the City of Buenos Aires that were successful, in order to exchange experiences with the various jurisdictions of the country, and implement technical cooperation tools.

Finally, the "Buenos Aires Entrepreneur Academy" project is expanding its universe of application as it will be escalated to the national level not only providing training to entrepreneurs in the City of Buenos Aires, but also across the country.

In order to position the city abroad, the Roundtable coordinates various initiatives such as the relations with international press, or contact with international experts in Innovation, in order to communicate them the ongoing transformations.

Finally, the fact that Buenos Aires will host the Youth Olympic Games in 2018 and the development of the BA2030 project, both represent a significant opportunity for the Roundtable to deepen its management model. In fact, the General Direction of Strategic Planning, which coordinates BA2030 together with the Roundtable carried out the workshop "Dream higher". In this space, the members of the Roundtable worked towards proposing bold inspiring initiatives and imagining the city we want to live in 2030 .They considered as benchmarks cities that meet the following criteria: port city, cosmopolitan city, university city, a city with social challenges, innovative city and Olympic city.

⬊ Strengths of the initiative and innovation

Above all, the Roundtable was created because the Government of the City of Buenos Aires is working towards becoming an innovative, entrepreneurial, creative, sustainable and inclusive city; and in this sense, it understands that there is no innovation without risk. However, in order to mitigate it, the Roundtable works on initiatives strengthening collaboration and impact. The following list summarizes some of them:

(1) "Significant Learning": Program that leads to entrepreneurship learning, which means converting entrepreneurship into a mandatory project to be taught in every public school in the city. The pilot test developed in 2014 will feature 31 pioneering schools, training of 800 teachers, 31 school kits and a virtual classroom. By 2015, the initiative will be extended to all public schools in the city.

(2) "Program Your Future": This initiative seeks to create an ecosystem of developers through the "CodeAcademy" license, available to informatics students, students in general and free access for all residents. Between February and December 2014, 200 informatics students of 6th year will be trained, online courses will be offered to 4000 students, classroom courses will be offered in 25 middle schools and the number of citizens enrolled in online courses will be around 5000.

(3) "Accelerators and Seed Capital Fund Program": It promotes the creation of organizations that provide funding, working spaces and mentoring to some selected enterprises in order to accelerate their growth. Between January and September 2014 it is expected to create five accelerators.

(4) "Creative Territory": In 2014 it aims to leverage the existence of 4000 m² of physical spaces that promote collaborative work and provide the community with the necessary tools for the development of their professional projects, such as prototyping machines, office spaces and internet. The granting of soft loans by the City Bank, financing of the work or the operating costs and the State concessions are some of the alternatives in which the Government is working to encourage the creation of new spaces. 167 are the projects that took place in 2013 in an amount of 2450 m² available and with an availability of 501 jobs.

(5) "BA ID": It is a single digital identity for each citizen in the digital assets of the city. It aims to count with 1 million users in twelve months.

(6) "City of Ideas": Tendering platform where every citizen can voluntarily translate their ideas on how to solve different issues. The pilot test had the following results: Directly Over 5,000 taxi drivers were directly contacted, generating over 1,000 ideas (90% in an urn and 10% via the web) in order to answer the question "How can you improve mobility in Buenos Aires?". Over 300 ideas came from college students, who also participated in workshops in their schools and thought about the question "What would you do in order to turn Buenos Aires in a more modern City?". Through an online forum which lasted eight hours, 500 registered users contributed with ideas to make cities grow in sustainability.

In addition, two events were held in buffets of Communes 13 and 2, in which about 150 residents discussed the coexistence in the district with the aim of improving it.

Finally, the general public could also participate in the Night of Museums, when the Museum of Architecture offered a wall for the citizens to put more than 800 ideas that gave an answer to the question "What would you do to turn Buenos Aires into a better place to live?"

(7) "En Todo Estás Vos Card": Integrative tool for new trade benefits, subsidies, access to cultural offerings and simplification of procedures. For 2014, 400,000 cards will be issued. It is expected to incorporate new benefits and to achieve the total integration with the subway system.

(8) "Eco Bici": automatic withdrawal and return of bikes with 200 stations accessible through a mobile application and / or using the "En Todo Estás Vos" card.

Name of City/Community: Christchurch

Name of Province/State: Canterbury

Name of Country/Region: New Zealand

Geographic Region: Asia and Pacific

Population: 366,000 people in Greater Christchurch

Surface Area: 213.4km^2 in the urban area

GDP per capita: NZD 49,447 (Canterbury region, for year ended 31 March 2014)

Title of the Initiative: Christchurch: Our Ever Evolving City

Start date of the initiative: April 2011

Tentative end date of the initiative: Ongoing

Thematic areas: Social, Economic, Environmental, Governance/Management

Christchurch
Our Ever Evolving City

Comments from the Technical Committee: From 2010, a series of earthquakes and aftershocks caused loss of life and extensive damage to Christchurch. The damage included destruction of 1,200 commercial buildings and damage of 90% of residential properties. The city is using the recovery process to rebuild the social fabric as well as to enhance resilience. Extensive engagement with citizens was launched through the "share an idea" campaigns. From the thousands of responses received, the community's vision of a livable, vibrant and prosperous city began to take shape. A transitional city programme includes support for recovery in three key areas: healing and wellbeing, sense of place and business. At the same time, the transitional programme contains elements for long-term recovery such as testing new ideas, enhancing community resilience and creating a new identity for the city. To date hundreds of community activities have been organized and vacant spaces in the city have been activated with creative projects. The private sector has contributed significant financial and in-kind support while 10,000 hours of voluntary work has been given by the community. An indication that Christchurch is firmly on the way to recovery is the fact that it is once more being listed as a tourist destination worth recommending.

↘ Background Information

Following the Canterbury earthquakes, Christchurch City Council launched the Share an Idea community engagement process, in which the public submitted over 106,000 ideas for the Christchurch rebuild. The community's vision was for a liveable, vibrant, green and prosperous city.

This public feedback formed the basis of the Christchurch Central Recovery Plan which included A Transitional City, to be led by the Christchurch City Council. Implementation was based on best practice from around the world, considered in the Life in Vacant Spaces report.

⬊ Origins of the initiative

1．Reasons

From 2010, a series of 12,000 earthquakes and aftershocks devastated large parts of Christchurch city.

The 22 February, 2011 earthquake claimed 185 lives and injured thousands more. Land, infrastructure and buildings were damaged, displacing communities, schools and businesses. For a long period, the central city was closed, while 80% of its buildings were demolished .

While rebuild plans were made, the city was confronted by large desolate areas of vacant land and low amenity. This created an 'island effect' as businesses re-established. It also disconnected the community from the heart of the city, physically and emotionally.

Healing and hope were needed while people faced large-scale loss and ongoing disruption to daily life. The Christchurch City Council needed to enable initiatives that brought people together, reconnected people to their city, supported business recovery and restored a sense of pride and identity.

2．Goals

The Transitional City Programme aims to achieve the following outcomes:

(1) Goal 1 – Support recovery of community by:

·Enhancing healing and wellbeing by creating new positive memories and personal connections.

·Fostering a culture of volunteering and enhanced community resilience.

·Testing new ideas for long-term adoption.

(2) Goal 2 – Support recovery of a 'sense of place' by:

·Creating a safer, more welcoming city for all.

·Supporting a more vibrant, liveable and green city.

·Exploring, demonstrating and creating a new identity for the city.

|Vitality and colorful, vibrant Christchurch

(3) Goal 3 – Support recovery of business, by:

·Improving foot traffic, connectivity and way-finding.

·Increasing local and international tourism.

·Fostering entrepreneurship and innovation especially for creative industries.

·Delivering value by using relocatable and adaptable materials and approaches.

Timeframe: ongoing as the recovery is expected to take 20 years.

3．Principal parties and partners

The principal parties are:

(1)Christchurch City Council (public):

·Implements and supports transitional projects on public land.

·Co-funds and enables community-led temporary projects and permanent installations.

·Coordinates support with central government, Maori, tourism and business organisations.

(2)Community partners (non-governmental):

· Gap Filler Trust – delivers and enables temporary social activation projects.

· Greening the Rubble Trust – delivers and enables temporary landscape projects.

· Life in Vacant Spaces Trust – matches projects to sites, lowering risks and barriers to participation.

The initiative would not be possible without collaborating partners in central government, the community and private sector. Their roles include:

· Coordination (Tourism sector, Maori, Canterbury Earthquake Recovery Authority).

· Fostering volunteers (Student Volunteer Army).

· Delivery of diverse projects (such as Art Beat, Festival of Transitional Architecture, Rekindle, Festival of Sonic Arts and Art Box).

· Supporting project delivery via crowd funding and non-cash support.

4．Resources

The initiative was implemented with NZD 3.42 million plus human resources. This supported Council-led and collaborative projects, new community-led organisations and new funding for temporary projects and arts recovery.
 The Christchurch City Council's key ongoing contributions are:

· Free use of Council land for temporary art, architecture, events, gardens, markets, etc.

· Transitional City Projects Fund $150,000 per year.

· Creative Industries Support Fund $200,000 per year.

· Staff time and support through the Transitional Projects Advisor and Strategic Arts Advisor positions $90,000 including overheads.

· Technical advice, facilitation and coordination

· De-risking and fast track approval for art installations and public events.

· Council-led transitional enhancements of the public realm $1,085,000 per year.

Community-led Transitional City projects generate an estimated minimum return

|Temporary Streetscapes － Colombo Street

on Council investment of 1:3.43. This includes direct contributions such as co-funding, volunteer time, professional services and resources, but excludes indirect or non-monetary aspects such as the value to the community for attending events or increased business activity due to foot-traffic or tourism.

↘ Innovative aspect(s) of the initiative

1．Revolutionary innovations

The Transitional City Programme should be considered revolutionary. Christchurch is undertaking this programme on an unprecedented scale and is taking a revolutionary holistic and longer-term view of its potential for recovery, urban regeneration and city identity.

2．Characteristics

The Transitional City Programme demonstrates innovation in the following areas:
(1)Governance: collaborative approaches used to align partners around a new concept for the city including local Maori, property owners, businesses, tourism, event organisers, the arts community and local universities; supporting the establishment of new not for profit trusts (with broad community representation) to activate vacant sites with landscaping and social activity.

|Various Street art examples

(2)Strategy: urban regeneration and recovery planning including Council and community-led transitional architecture and temporary activities for the city.

(3)Administration: de-risking the use of public and private spaces for temporary activation through the creation of a broker organisation (Life in Vacant Spaces) and by cutting red tape and relaxing planning regulations for approvals.

(4)Financing: adopting a co-funding approach for community grants (Transitional City Projects Fund) and boosting our local creative industries (Creative Industries Support Fund) at a very challenging time for our city.

(5)Community: extraordinary innovation demonstrated by the number and range of projects and events delivered by the community).

(6)Business: extraordinary innovation demonstrated by local entrepreneurs testing new goods or services in a low cost, low risk environment, embracing new transitional business opportunities and partnerships.

3．How the innovation is related to other experiences and parties

The Christchurch experience has been inspired and informed by international examples reviewed in the 2011 Life in Vacant Spaces report, including Renew Newcastle (Australia) and Letting Space (Wellington), who visited Christchurch to share their experience, a now reciprocal relationship.

Christchurch shares its experience with research students and through publications and presentations, local, national and international. Gap Filler also advise other city councils looking to implement a similar programme.

In 2014, Christchurch will host the Adaptive Metropolis Congress to further share and engage the community.

4．Obstacles or resistance

In an uncertain environment, the perception of risk and inconvenience to landowners has been an obstacle to unlocking vacant land in private as well as local and central government ownership. The broker model provides low-risk simplicity via one point of contact, a legal access agreement with short notice period, and public liability insurance.

Site availability is slowly growing as uncertainty reduces, as interest in temporary projects increases, and as owners become more aware of the broker's simple low-risk, and low paperwork approach.

◥ Desired change or outcome and how it is measured

1．Achievements

Outcomes achieved to date include:

(1)Outcomes for community recovery:

· At least 325 community events have been organised since 2010.

· Over 10,000 hours of volunteer hours have been given by the community.

· The community continues to test new ideas for the future.

· Numerous positive media articles and supportive responses have been received.

(2)Outcomes for recovery of "sense of place":

· Nearly 100 vacant sites have been activated 450 times with over 150 creative projects

· Transitional city projects are now recognised by the community and visitors as symbols of hope and recovery.

· Our Ever Evolving City connects people to spaces and businesses throughout the city.

· Numerous activities reflect our past, present and future helping to tell our story and shape our future.

(3)Outcomes for business recovery:

· 70 new businesses have established in the city.

· Increasing visitation, including 20,000 visitors attending a single event.

· Projects have been focused on supporting business clusters and community hot-spots

· High levels of corporate sponsorship and in-kind support have been received.

· Pop-up retail is now included in private tenancy agreements.

· 25 new business models, products and services have been established from pop-up spaces.

· Artists and entrepreneurs are choosing to move to Christchurch for the opportunity to participate in the creative spirit.

· International travel guide Lonely Planet in 2013, and New York Times in 2014, highlighted Christchurch as one of the best places to visit. Both specifically mentioned the transitional city projects.

2．Criteria for assessing the achievements

Christchurch is adopting a learning and sharing approach to this programme. The grant funding agreements require each project applicant to monitor and report outcomes achieved.

The trust deeds of the key community organisations involved in the programme require each to monitor and share learning to enable continual improvement, but also to support others (in Christchurch and beyond) to learn from the approaches used.

The Council monitors the media, social media and public feedback received and regularly reports to the elected representatives and the community on progress.

3．Innovative tools or methods

Key to the success of the programme are:

(1)Collaboration - across disciplines, organisations, and other recovery

| The first Gap Filler project, South of the Border site, Colombo Street, December 2010

programmes.

(2)Co-funding - tailored to applicant needs and encouraging community resourcing.

(3)De-risking use of public land - cutting red tape and enabling community management of public spaces.

(4)Property owner incentives - tax (rates) remission on land used for transitional projects.

4．Impact of the initiative

After the earthquakes, tourism industry research showed that Christchurch was no longer a preferred destination.

Now, there is a lot of interest internationally across multiple disciplines from urban design, architecture and planning, to creative placemaking, DIY urbanism, community development and tourism.

As a result of the initiative, Christchurch is promoted as a destination again. The city's new energy, creativity and innovation are consistently noted, including *in the Lonely Planet, New York Times* and *The Guardian*

⬊ Strengths of the initiative and innovation

The multi-layered and integrated framework adopted by Christchurch is replicable

to other cities. The approaches below are of particular importance.

1．Local Government Innovation

(1)Council leadership and creative use of public spaces www.futurechristchurch.co.nz
Supportive leadership is critical to adopt new ways of working, test new ideas and to take risks. The Council employs a Transitional Projects Advisor to build internal capacity for this programme and to build relationships with delivery partners.

(2)Transitional City Projects Fund www.ccc.govt.nz/recoveryfunding
This fund encourages and enables temporary projects in vacant spaces which support recovery. To lower barriers, the fund runs short cycles, enabling projects to develop quickly. Normal funding requirements were relaxed, enabling individuals and businesses to apply.

The Transitional City Projects Fund supports up to 50% of project value, which encourages partnership. To recognise volunteering, pro-bono and in-kind contributions, a budget tool was developed which values non-cash contributions in monetary equivalents.

(3)Creative Industries Support Fund www.ccc.govt.nz/recoveryfunding
This fund aims to retain and strengthen our creative talent as the city recovers. The fund supports entrepreneurship, social enterprise models, increased collaboration and financially viable partnerships across the creative industry. This approach has been recognised as an innovative arts recovery and urban regeneration tool. Creative NZ (www.creativenz.govt.nz) recently adopted this model to deliver the new Community Arts Development Fund across New Zealand.

2．Community Innovation

(1)Life in Vacant Spaces www.livs.org.nz (Established and co-funded by the Council)
A not for profit trust delivers vacant space brokerage services that provides a single point of contact for anyone wanting to lead a temporary project, test an enterprise idea, or offer space rent-free while it's not needed. LiVS lowers risks, matching projects to suitable spaces. LiVS can umbrella others in its public liability insurance policy, and offers simple legal access agreements. Purpose-built for Christchurch, LiVS is supported by local government, utility and pro bono partners, and a cross-sector advisory group. LiVS aims to become a permanent part of the urban fabric of the new city.

(2)Gap Filler www.gapfiller.org.nz (co-funded by the Council)
A not for profit trust delivers temporary community-initiated installations, art and creative/social activity on vacant spaces. Gap Filler aims to encourage a wide range of positive community interactions, making the city more vibrant and fun.

(3)Greening the Rubble www.greeningtherubble.org.nz (co-funded by the Council)
A not for profit trust delivers temporary community-initiated landscaping and ecology projects in vacant sites, with native plants, pocket parks, green roofs, and food-producing community gardens. Greening the Rubble aims to increase biodiversity and voluntary participation in local initiatives.

3．Business Innovation

(1)Re:START Mall www.restart.org.nz (temporary retail supported by Council and CERA)
The Re:START temporary container mall was established by the Central City Property and Building Owners to breathe new life into Christchurch's central city. Re:START now hosts 50 businesses and includes regular market stalls, street performers and buskers.

(2)EPIC www.epicinnovation.co.nz (temporary office development on Council land)
EPIC (Enterprise Precinct and Innovation Campus) is a two-stage development to create a world class innovation campus and hub for local technology companies. Stage 1, called Sanctuary, is a temporary building housing 20 companies and 300 staff which opened in September 2012.

🔲 **Name of City/Community:** City of Dakar

📍 **Name of Province/State:** Dakar

📍 **Name of Country/Region:** Senegal

🌐 **Geographic Region:** Africa (Sub−Saharan)

👥 **Population:** 1,256,000 (as of 2013 census)

⚙ **Surface Area:** 82.38 km^2

👥 **Population Density:** 15,246 inhabitants/square kilometre

📊 **GDP per capita:** USD 1,900

💬 **Title of the Initiative:** Dakar Municipal Finance Program: Accessing the Power of Capital Markets to Improve the Quality of Life for the Urban Poor

🕐 **Start date of the initiative:** October 2011

🕐 **Tentative end date of the initiative:** Major Milestone − Summer 2014; End of the program : December 2016

⚙ **Thematic areas:** Social, Economic, Governance/Management

C Dakar
Accessing Capital Markets

👤 **Comments from the Technical Committee:** With rapid growth in its urban population, a large portion of Dakar's population works in the informal sector. There was a pressing need for a central market place to accommodate its street vendors so as to improve their social and economic situation and to provide more convenient and hygienic conditions for consumers. To finance the project, Dakar decided to access capital markets. Not only is it the first city to do so in sub-Saharan Africa (outside South Africa), it is also one of the few cities in a developing country to do so without the benefit of full guarantees from central government. It enlisted financial and technical support from a wide range of organizations including the Bill and Melinda Gates Foundation, the World Bank, the United States Agency for International Development and Cities Alliance. A total of $4 million was raised for the project; equally important the city now has access to a new financing mechanism to achieve its development goals. With this breakthrough, there is now a precedent for other cities across Africa to benefit from lower transaction costs and lower credit terms as well as less skepticism from investors as they seek mainstream sources of finance for their respective capital projects.

↘ Background Information

At the onset of the Dakar Municipal Finance Program (DMFP), the Municipal Council, led by Mayor Khalifa Sail, passed a resolution empowering the DMFP to explore the most cost-effective option to deliver funds for capital investment projects to improve the quality of life for the urban poor. Following a comprehensive scoping assessment, and with the full input of the Mayor and his legal advisors, the DMFP recommended the issuance of a municipal bond, a pioneering tool in sub-Saharan Africa.

⬂ Origins of the initiative

1．Reasons

Due to rapidly increasing urbanization (greater than 3% per year), a growing deficit in infrastructure and urban facilities, and a limited annual budget (of approximately USD 75 million annually), the City of Dakar's leadership recognized the need to seek alternative financing to meet its long-term development goals. The DMFP's central project - launching a bond to build a strategically-located marketplace for relocated street vendors - will directly impact the lives of 6,000 families (or approximately 35,000 people).

2．Goals

Through alternative financing tools, the goal of the DMFP is to enable the City of Dakar to repeatedly access capital markets for investment needs. Although the initial bond issuance took approximately three years before execution, future issuances are anticipated to occur far more swiftly.

3．Principal parties and partners

The City of Dakar, as lead agency and umbrella for the DMFP, engaged other parties, both private and public, to assist at various points. These include private-sector players, such as the Bill & Melinda Gates Foundation (the primary underwriters of the DMFP and provided USD $5.5 million over 4 years), the Development Innovations Group (the city's monitoring and evaluation expert), Moody's Ratings and Bloomfield Ratings (the city's external ratings agencies), and CGF Bourse (the financial intermediaries to the local market regulators). Institutionally, parties included the Cities Alliance (to provide key technical expertise and knowledge and the task manager for the Foundation Bill et Melinda Gates), the World Bank/PPIAF (to assist in scoping of the city's financial strengths and weaknesses as well the optimization of the city's taxes), the French

| New urban market facility

Development Agency (to analyse the city's financial abilities and act as the city's first lender), the United States Agency for International Development (to act as the bond's guarantor and as a donor, subsidizing the transaction costs associated with the bond issuance by USD 1,000,000), and the CREPMF (the local market regulatory body).

4．Resources

With the financial assistance of the Bill and Melinda Gates Foundation (USD 5.5 million) and the United States Agency for International Development (USD 1 million), the DMFP's management team selected a project that would be both developmentally-focused (to meet the responsibilities of the city's leadership) and income-generating (to meet the expectations of investors) — the construction of a strategically-located marketplace. The investment project itself, of USD 40 million, will allow the city to repeatedly access capital markets for other financial needs.

|City Hall

⇘ Innovative aspect(s) of the initiative

1．Revolutionary innovations

The DMFP should be considered as a revolutionary initiative—although there is a global tradition of bond issuance to fund capital-intensive projects, this represents the first usage of bonds for a city in sub-Saharan Africa (outside of South Africa) that is executed without the full guarantee of the central government. Amongst its many risks, the DMFP faced initial risks (including selecting an appropriate project balancing investor and developmental expectations, attracting a sufficient number of investors through demonstrating creditworthiness) and ongoing operational risks (including meeting its debt service obligations to avoid default).

2．Characteristics

The innovations of the DMFP are in the sector of financing (testing a new fund-raising tool), social (constructing a new marketplace for street vendors in a strategic location in accordance with the city's long-term development strategy), planning (it is part of a long term strategic plan named 2025 vision) and governmental and administrative (building capacity in city staff to enhance creditworthiness through good governance, financial management, and public participatory processes).

3．How the innovation is related to other experiences and parties

As part of the initial scoping, the DMFP conducted study tours to the City of Johannesburg and the City of Douala to learn about their experiences in the capital markets. In addition, members of the DMFP management team have professional experience in bond issuance in more developed markets and have exchanged with other development finance experts at international conferences and forums (including the World Urban Forum, Metropolis, AfriCities, etc.). Through its partnership with the Cities Alliance, the DMFP will disseminate its experiences to other cities across sub-Saharan Africa and will develop replication tools to share with other cities.

4．Obstacles or resistance

The leadership of the City of Dakar has been extremely supportive of the DMFP, and has been instrumental in encouraging its success. A challenge that the management team faced was in selecting an appropriate investment project that met the twin goals of the social side of development/the needs of the urban poor and the economic side of project finance/the expectations of investors. After months of consideration and focus group sessions bringing together members of civil society and elected politicians, the team proposed the long-considered marketplace as an appropriate project for the municipality's consideration.

⇘ Desired change or outcome and how it is measured

1．Achievements

As a result of the DMFP, the City of Dakar now has access to a new financing mechanism that can be instrumental in helping the city to achieve its social and financial goals for capital-intensive investments. Additionally, in terms of this issuance, the DMFP plans to track the impact of the construction of the

marketplace on a cross-section of vendors through a variety of social indicators. Ultimately, although the direct benefit is to the City of Dakar and its population, this program can be easily replicated across sub-Saharan Africa and dramatically change the power of municipalities in an increasingly-decentralized world.

2．Criteria for assessing the achievements

For this particular issuance, the DMFP is conducting annual surveys of marketplace vendors using key social indicators, starting from the initial year (2014) as the baseline and progressing over a minimum of five years. These surveys will be conducted through a statistical sample of 10 vendors through a selection of the city's 16 different vendors' associations, and with the help of the city's monitoring and evaluation consultant. On a more general level, the city additionally plans to internally measure the cost-effectiveness of bond issuance relative to other available financing tools on a regular basis.

3．Innovative tools or methods

Due to the novelty of the bond issuance process, the DMFP encouraged the City of Dakar's leadership to enhance its strength in the following ways: (i) amplifying the voice of the urban poor through the institutionalization of the public participation process, (ii) Develop a long term strategic plan (iii) developing a comprehensive communications campaign to share information about the city's strategic plan and to encourage investment in the future of the city through the purchase, on a retail basis, of bonds at primary issuance, (iv) building capacity in the city through intensive training in financial management, transparency, and good governance, and (v) purchasing technology for enhanced financial tracking and budget forecasting.

4．Impact of the initiative

The DMFP helps the City of Dakar to retain its prominence in sub-Saharan Africa

as a pioneering innovator, testing new mechanisms to improve the quality of life for the urban poor and be responsiveness to the needs of the whole population.
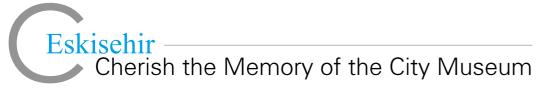
⬎ Strengths of the initiative and innovation

The Dakar Municipal Finance Program is a remarkable innovation for sub-Saharan Africa; it signifies one of the first instances that a city has seized control of its financial destiny and directly approached private investors, through the capital markets, to source funds for investment projects. The program itself was fraught with a number of risks as identified above, and many skeptics in the international development community had doubts as to its likelihood of success; these predominantly link to the pioneering nature of the program and the fact that it had not been attempted by any other city without the full faith and credit of the central government as an explicit guarantee of payment to investors.

Because of the success of the DMFP, other cities across the continent will face lower barriers to entry (including lower transaction costs, less skepticism from investors and central governments, etc.) and will be able to pursue bond finance as a means for funding capital-intensive projects. This program has created untold opportunities for other cities, and has changed the face of development finance in the global South.

- Name of City/Community：Eskisehir
- Name of Country/Region：Turkey
- Geographic Region: Asia and Pacific
- Population：799.724
- Surface Area: 13,655 km^2
- GDP per capita: $20,435
- Title of the Initiative: Eskisehir City Memory Museum: Cherish the Memory of the City
- Start date of the initiative: 27/10/2011
- Tentative end date of the initiative：28/10/2012
- Thematic areas: Social

C Eskisehir
Cherish the Memory of the City Museum

Building Intercultural Dialogue Betweens Eskisehir and Den Haag Historisch Museum Project

👤 **Comments from the Technical Committee：** Endowed with a rich history of many past civilizations, Eskishir has created a Memory Museum that builds a cultural bridge from the past to the present. It combines the best of museology with modern technology. The project focuses on enabling citizens to establish and nourish ties with their culture through digital recordings of oral histories captured through interviews with scholars and other experts about Eskisehir's history and cultural heritage. The museum features arts, ethnic culture, education, sports, economy, genetic heritage and personal experiences. The museum incorporates and curates participation through competitions, library collections and child-oriented activities, and it intends to continue as a living and continuously self-renewing museum. No less than 40 percent of museum visitors in 2013 were Eskisehir citizens, showing the extent of local interest.

↘ Background Information

The Eskisehir City Memory Museum (ECMM) was actualized as a result of a partnership agreement between Eskisehir Metropolitan Municipality and Den Haag Historisch Museum within the framework of European Community-Turkey Intercultural Dialogue Grant Program. The Project agreement with the Central Finance and Contracting Unit (CFCU) was signed on 27 October 2011. With this agreement it was decided to establish a "City Memory Museum" within the complex of Eskisehir City Museums, which will keep city memory alive and be open for improvement.

↘ Origins of the initiative

1. Reasons

It was impossible to establish a bridge between the historical culture and the

|Interior view of Eskisehir city Memory museum

modern cultural life in Eskisehir represented by theatre, concert, exhibition, opera and entertainment venues. Eskisehir citizens didn't have the possibility to keep urban culture memories.

· There was the need to establish a dialogue for sharing information and exhibition with ICOM(International Council of Museums) member museums in the world

·There was the need for enrichment of the City Museum Library with international bibliography and digitalized data.

· There was the need for a modernized museum equipped with visual and audio technologies for children and hearing disabled persons.

Target Group:

· Museum staff

· Eskisehir citizens

· Domestic and foreign tourists to Eskisehir

· Art historians, archeologists, researchers, artists and university student

2．Goals

The historical development and cultural history of Eskisehir is exhibited by a technological platform. There are 9 different themes determined as History,

Cultural History, Culture and Arts, Ethnic Culture, Education, Sports, Economy, Genetic Heritage and my Eskisehir as oral history Works.

(1)"Eskisehir in You" Art Competition. 13 artworks, selected from 114 artworks which applied to this competition, were exhibited in Holland for one month. 13 artists and the Project team participated in the exhibition opening in Holland and found the possibility to learn about the culture there. These 13 artworks were then decided to be exhibited permanently in the exhibition hall of the Museum.

(2)"Origin and Destination" Exhibition organized in Eskisehir. 13 artworks by Dutch artists, which won in the competition in Holland were exhibited in Eskisehir City Museum for 15 days. The artists participated in the exhibition opening and found the possibility to learn about Turkish culture.

(3)The ECMM Library. The library comprises sources related to the history of Eskisehir, attracts great attention of academicians, researchers and students.

(4)The children play ground in the Museum. It ensures that children have great time with educational tales, plays and coloring books bearing the theme Eskisehir, while their parents are visiting the museum.

3．Principal parties and partners

Project Partner: Holland Den Haag Historisch Museum

· Before the establishment of ECMM, the experiences and knowledge of Den Haag Historisch Museum, which has a long history, were benefited from.

· The head curator of Den Haag Historisch Museum, Mr.Marco van Baalen, served as technical supporter and curator in the decision and establishment stages of the museum concept.

· The "Origin and Destination" exhibition, including artworks of the competition in Holland, was exhibited both in Eskisehir and Den Haag by our partner museum.

4．Resources

The amount of the grant by EC-Turkey Intercultural Dialogue-Museums Grant

Program (ICD-MUSE) is 104,732 EU.

Fund by Eskisehir Metropolitan Municipality is 27,000 EU.

◥ Innovative aspect(s) of the initiative

1．Evolutionary innovations

Wheras there isn't any museum in many cities of Turkey and Europe, which present city memories, the ECMM is the first in Turkey, also with regard to its technological infrastructure. The City Museum establishes a cultural bridge between the past and the present.

2．Characteristics

The innovation in our Project is applied in the area of museology complying with technology. A new museum, the first in Turkey with its concept, is established in our city enriched with the accumulation of human history on the junction of the Silk Road on a geography that was the cradle of civilizations. The ECMM is a technological museum, where oral history interviews of important persons with regard to the history and culture of the city are presented on touch screens.

3．How the innovation is related to other experiences and parties

In the field of Museology:

· There is the first and unique Glass Arts Museum of Turkey, established in 2007, in the ground floor of the ECMM, located within the City Museums Complex.

In the field of International Projects:

· The Es-Kids Home Project is another Project funded with European Commission Grant.

The experiences gained during the implementation of Es-Kids Home Project were benefited from. At the end of the Project, Es-Kids Home which is a preschool education institution rendering service to 40 economically disadvantaged children was established. This institution is still operating.

|The exhibition hall of Eskisehir city memory museum

4．Obstacles or resistance

In order to determine the concept of the museum to be established by Museums Grant Program, some researches were done. Ultimately, instead of exhibiting ethnographical or historical objects, it was decided to design a museum, which would adopt the idea of recording elements in a digital environment, which are specific to Eskisehir and have played a role in its development from the past to the present and displaying them through oral history studies on touch screens.

Interviews to be displayed on touch screens in the museum are listed under 9 different themes: history, cultural heritage, culture and arts, ethnical culture, education, sports, economy, genetic heritage and my Eskisehir. Reaching persons who are experts in their subjects and communicating with them and their institutions objectively was the most faced obstacle. 100 persons were determined and each of them was visited by the Project team. Interviews with these persons were realized within a limited time.

◥ Desired change or outcome and how it is measured

1．Achievements

The ECMM is designed with a quite new concept by which elements that are

| Children play area in the city memory museum

specific to our city and have played a role in its development from the past to the present were recorded in a digital environment, rather than exhibiting artistic or historical objects.

This concept is the first in Eskisehir.

Visitors are able to view any subject or person on touch-screens which include an archive of oral history studies collected under 9 categories.

There are 2 digital books which cover Eskisehir's history from the year 1900 until present. There is also a library which occurs more than 1300 documents on Eskisehir.

In the scope of the Project, artworks which are worth exhibiting were determined through art competitions organized both in Eskisehir and Den Haag and open to all individuals. These artworks were exhibited on different dates in both cities under "Eskisehir in You" and "Origin and Destination" titles.

The City Memory Museum has become member of ICOM, an international association on museology.

Following the realization of the Project as a result of partnership between Eskisehir and Den Haag, a new museum in Eskisehir was established, which has become

a cultural bridge between these both cities.

2．Criteria for assessing the achievements

The City Memory Museum has been recording the number of its visitors since it was established in 2012. 140,460 visitors visited the Museum in 2013. Visitor count is made by ticket sale data. Increase and decrease of the number of visitors according to months are determined and influence of seasons on visitor number is reported. 60% of museum visitors are from other cities, whereas 40% are Eskisehir citizens.

3．Innovative tools or methods

In the next phases, the Eskisehir Metropolitan Municipality will record oral history shootings with different persons, who are thought to make new contributions to the Museum and these studies will take place in one of the nine relevant themes. Moreover, our Museum accepts contributions from everyone who have information, document or experience related to Eskisehir. Thus, our Museum becomes a living and continuously self-renewing museum.

4．Impact of the initiative

Competitions organized within the Project scope, exhibition exchanges and the Museum established as a result of the Project have promoted our city both nationally and internationally.

News about the Museum which appeared in the press, contributed to the promotion of Eskisehir in Turkey. Moreover, exhibitions which were held in both cities, have both contributed to the cultural Exchange between two cities and to the reputation of Eskisehir in an international level.

↘ Strengths of the initiative and innovation

In recent years Eskisehir developed both culturally and touristic, its population

reached 799,724 in the year 2013. According to data of the Provincial Tourism Directorate, number of domestic tourists and foreign tourists who made excursion to Eskisehir in the year 2012 is 184,549 and 10.025 respectively. Number of tourists who stayed more than one night is 84,229.

Eskisehir, which hosted a lot of civilizations in the history and was a continuous settlement area, is a city that has a rich culture, a strong economy and industry and accommodates a lot of communities from different cultures and ethnical origins. This ensures a vast city memory.

Eskisehir is a well known city with regard to its modern daily life. The idea of this Project is blending traditional life with modern life, which is also the current duty of active cities, especially of city museums of "Living Cities". The ECMM, the first in Turkey with its concept, has become a model for other cities to keep their city memories alive. Moreover, through the ECMM, which is a product of intercultural dialogue Project, a partnership with Den Haag Museum is established and a cultural connection between two countries is founded by exhibition and artist exchanges.
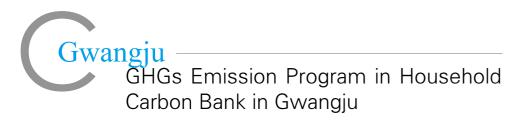
City Memory Museums are indicators of civilizations. They are very important centers which introduce the most significant cultural, economic and civil information, a city has accumulated throughout the years, to the city people. For this reason, the need for a technological museum equipped with documents about Eskisehir comprising of visuals and narrations of persons who have knowledge of the history and events which brought Eskisehir to present day arose. This fact makes our museum a living museum.

The Odunpazari region, where the museum building is located, is the oldest settlement center of Eskisehir. Following the restoration and reconstruction works by the Metropolitan Municipality, this region has gained a touristic feature. The Eskisehir City Museums Complex is located in this region where registered buildings are found. The ECMM, included in this complex, attracts dense interest of both domestic and foreign tourists.
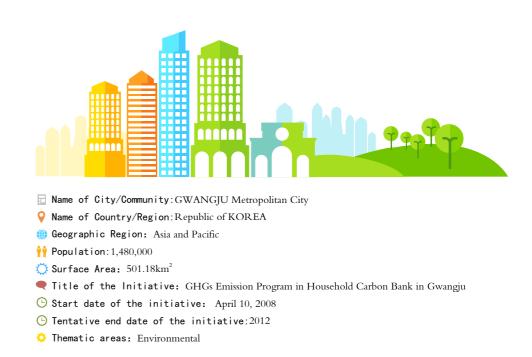
Apart from ECMM, there are also the Eskisehir Modern Glass Arts Museum, which was established in 2007 and is a first in Turkey and The Yılmaz Büyükersen Wax Sculptures Museum opened in 2013 in the Eskisehir City Museums Complex. Thus, visitors are able to visit three museums the same day. As long as Eskisehir City Museums Complex exists, also the ECMM will continue its existence.

Name of City/Community：GWANGJU Metropolitan City
Name of Country/Region：Republic of KOREA
Geographic Region: Asia and Pacific
Population：1,480,000
Surface Area: 501.18km^2
Title of the Initiative: GHGs Emission Program in Household Carbon Bank in Gwangju
Start date of the initiative: April 10, 2008
Tentative end date of the initiative：2012
Thematic areas: Environmental

Gwangju

GHGs Emission Program in Household Carbon Bank in Gwangju

Comments from the Technical Committee： Can a government-initiated program to spark voluntary carbon-saving steps by citizens actually generate significant returns? Gwangju's Carbon Bank system indicates a strong "yes." Initiated five years ago, it has expanded participation by some 330,000 households, representing 1.5 million Gwangju citizens or 62 percent of the city's population. While the city paid for educational and operating costs, a Green Star Network was responsible for implementing the education and promotion activities. Greenhouse gas emissions have decreased each year, most recently by 135,000 tons.

Background Information

In order to improve the awareness of citizens and guide them to take an active part in GHGs emission reduction activities, on April 10th, 2008, the city signed the Agreement on Model City of Climate Change with the Ministry of Environment, with the view of reducing the GHGs emission to 661 tons, 10% of that in 2005 (6,615 tons) as of 2015. Besides, it also introduced in the "Carbon Bank System". In the "Carbon Bank System", the carbon dioxide reduced by families through saving energies (power, gas, and water-supply line) is converted to points and paid to the involved families. With this system, families can also gain points and save the earth while reducing charges for water, electricity and gas. This low-carbon policy achieves three goals at one stroke. n the "Carbon Bank System", the reduction of energy consumption in this year in comparison with that of last year is converted to points, and annually paid to holders of carbon green card by Kwangju Bank.

⭘ Origins of the initiative

1．Reasons

Over 47% of greenhouse gas emissions produced in Gwangju were attributed to the non-industrial sector including households and commercial sector. There was an urgent need for reducing greenhouse gas

| Door to door detection power propaganda to join family carbon bank system

emissions produced by households. In addition, the fact that the non-industrial sector was more cost-effective than the industrial sector in terms of reducing greenhouse gases also pointed to a need for introducing an efficient greenhouse gas reduction program. Thus, Gwangju introduced the Carbon Bank system to encourage 1.5 million Gwangju citizens to improve their awareness of climate change and greenhouse gas emissions and induce them to help reduce the emissions.

2．Goals

To create a model city for adapting to climate change, Gwangju strategically adopted the Carbon Bank system to reduce greenhouse gas emissions by 10% (661 tons) until 2015 compared to 6,615 tons in 2005.

The system calculates reduced amounts of carbon dioxide through voluntary energy-saving efforts by household (regarding electricity, city gas, and waterworks) and turns them into points. Then it provides those points to participating households. This helps households save money. Kwangju Bank issues participating households the Carbon Green Card through which households receive points. In these ways, the initiative is a creative policy that

protects the Earth as well.

Through the system, the city can analyze and evaluate reduced amounts of greenhouse gas emissions each year and expand the system through continual monitoring in the years ahead.

3．Principal parties and partners

Gwangju City is in charge of the Carbon Bank system. Currently, 62% of households in the city participate in the system. Kwangju Bank provides points to participating households. And data are supplied by three agencies (Korea Electric Power Corporation, Gwangju Metropolitan Waterworks Authority, and Hae Yang City Gas). The Green Star Network (involving 31 non-governmental organizations) is responsible for promotion and education regarding the system. In addition, local organizations including Local Community Head Group, Saemaeul Women's Association, and Carbon Coordinators also actively encourage residents to participate in the system.

4．Resources

Any financial obligations regarding points earned through the Carbon Bank system were paid for by Kwangju Bank for five years between 2008 and 2012. Gwangju City was responsible for managing and operating the system. While the city paid for education and promotion expenses, the Green Start Network was responsible for implementing education and promotion activities. Since 2012, the Ministry of Environment (50%) and Gwangju City (50%) have been responsible for financial obligations related to points.

⭘ Innovative aspect(s) of the initiative

1．Evolutionary and revolutionary innovations

The Carbon Bank system is both evolutionary and revolutionary as a policy.

|Use the bus advertising family carbon bank system

Through evaluation of implementation every year, the system has continued to improve. In 2008, the number of participating households was approximately 20,000, but in five years, that number has increased to approximately 330,000 households (62% of entire households in the city), drastically changing the degree of civic participation.

Among participating households, 60% of them have succeeded in reducing targeted greenhouse gas emissions. In turn, the amount of emitted greenhouse gases has decreased each year, currently reducing 135,000 tons of gases.

The initiative is also revolutionary. It was made possible by systemic cooperation among data-providing agencies regarding greenhouse gases emitted from households.

The most important issue, obtaining financial resources, was resolved by the participation of the local bank, Kwangju Bank, which focused on being a "green bank." Carbon points were issued through the Carbon Green Card. This kind of governance system has been unprecedented in the world, making the initiative very unique.

2．Characteristics

The Carbon Bank system has been governed by the unique government system in which citizens voluntarily participate in an effort to adapt to climate change.

In implementing the system, it was critical to partner with the "green bank" for ensuring financial resources. Each year, the system continues to be evaluated for improvement.

3．How the innovation is related to other experiences and parties

While there were many existing programs to reduce greenhouse gases emitted from households, they suffered from lack of effectiveness, leading to lack of voluntary participation by local residents. As such, it was difficult to consider them "clean development mechanisms (CDMs)." Thus, the city came up with the Carbon Bank system, a unique policy based on points generated from systemic, reliable, and credible data.

The initiative securing financial resources through the "green bank" was very innovative and unprecedented in the world. Kwangju Bank, a top local bank in the city, was accorded the name of "green bank." In addition, the system laid the foundation for the Ministry of Environment introducing the Carbon Point system nationwide. In fact, the Ministry of Environment began to implement the system across the country in 2009.

4．Obstacles or resistance

The initiative is premised on voluntary participation of local residents. Initially, many local residents were not aware of the need to adapt to climate change and it was difficult to induce participation from local residents. In addition, ensuring systemic, reliable data was critical, and this required personal information of local residents, making them hesitant

|To passers-by propaganda family carbon bank system

| For school students propaganda family carbon bank system

to participate in the initiative.

To resolve these issues, the city made strenuous efforts to promote the initiative through TV/radio advertisements, city bulletin boards, subway/bus signs, advertisement through public utility bills, stickers attached to elevators in multi-unit housings, and pamphlets. These diverse, active promotional efforts led to an increase in the number of local residents participating in the Carbon Bank system. Another difficulty was to ensure that the system leads to actual reduction of greenhouse gas emissions. But, based on the analysis of the data one year after the implementation of the system, it turned out be effective in reducing greenhouse gas emissions.

⬎ Desired change or outcome and how it is measured

1．Achievements

The initiative as an efficient way to reduce greenhouse gases emitted from households has been introduced to local governments around the world. Nationally, the system laid the foundation for introducing the Carbon Point system

across Korea.

Locally, the system prepared for Gwangju to become a "carbon neutral city" adapting to climate change, which is a general trend worldwide for environment-friendly local governments. It helped Gwangju citizens strengthen their capacity to deal with climate change. The "good governance" surrounding the system has also contributed to cementing cooperation among various groups forming the city. Lastly, the circulation of points across the city has no doubt stimulated local economy.

2．Criteria for assessing the achievements

The data for the initiative have been provided by Korea Electric Power Corporation, Gwangju Metropolitan Waterworks Authority, and Hae Yang City Gas based on households usage. Based on the data provided, Gwangju City calculates the reduction amount of greenhouse gas emissions and turns the amount into points following certain standards. The city, then, notifies Kwangju Bank of the calculation which issues points to the Carbon Green Card. This method continued to 2012.

Currently, each self-governing district of the city inputs household usage of electricity, water, and gas into the Carbon Point system. Then, based on certain standards, the Korea Environment Corporation calculates points. Then BC Card identifies green card information and sends it to the Korea Environment Corporation. Once points to be issued are finalized, each district offers points to individuals through BC Card. In this way, each district can measure the amount of

| Family carbon bank system project promotion

reduced greenhouse gas emissions.

3．Innovative tools or methods

Through MOU agreements with relevant agencies, systemic and credible data could be secured and, based on standards for reduction amount, participating households are given points as incentives.

The city also implements the initiative with the Low Carbon Green Apartment Project. In this way, the city helps build green communities through participation and cooperation of local residents, contributing to reducing greenhouse gas emissions. The city also nurtures "carbon coordinators" and assign them to households, performing diverse, coordinating roles to reduce greenhouse gas emissions.

4．Impact of the initiative

Participating households in the Carbon Bank system can be provided reduced bills regarding electricity, gas, and water as well as Carbon points. A local bank participating in the Carbon Bank system can rebrand its image and promote itself as a "green bank." Gwangju City has become a model city for Korean local governments as a city positively adapting to climate change. The initiative has also transformed Gwangju into a liveable city and strengthened the city's capacity to adapt to climate change.

The initiative was introduced as an excellent practice in the area of low carbon policy during the 2011 Gwangju Summit of the Urban Environmental Accords and RIO + 20- United Nations Conference on Sustainable Development, helping improve the city's reputation as a leading green city. And many local governments around the world have tried to emulate the initiative.

In addition, to expand the initiative, Gwangju City aims to include 315 schools, 36,855 commercial facilities, and 4,280 manufacturing facilities in the Carbon Bank system. The targeted reach covers all areas except for transportation. As a first step to achieve the goal, the city began to implement a pilot program this year.

◥ Strengths of the initiative and innovation

Cities play critical roles in adapting to climate change. But there have been few city programs to reduce greenhouse gas emissions effectively. The initiative introduced by Gwangju has been effective public policy by inducing voluntary citizen participation to reduce greenhouse gas emissions.

A greenhouse gas emission reduction program in the non-industrial sector is critical as part of CDMs in a city. Premised upon systemic, credible data, the initiative by Gwangju can expand to an emission trading system in the non-industrial sector. Operated by collaborative governance, the initiative helps stimulate cooperation among local communities for their revitalization.

Involvement of a local bank can also lead to accomplishing "green bank," stimulating local economy, and reducing greenhouse gas emissions.

The effective combination of voluntary citizen participation and local resources is the most critical factor for the success of the initiative. Once that condition is met, the initiative can be an important institution for city innovation.

- Name of City/Community: Hamburg
- Name of Country/Region: Germany
- Geographic Region: Western Europe
- Population: 1,753,380 inhabitants / 5,088,745 inhabitants in Metropolitan Area
- Surface Area: 755.26 km^2
- Population Density: 2,319 inhabitants /km^2
- GDP per capita: 55,772 EURO
- Title of the Initiative: The International Building Exhibition IBA Hamburg and its "Climate Protection Concept Renewable Wilhelmsburg"
- Start date of the initiative: 1st September 2006
- Tentative end date of the initiative: 3rd November 2013
- Thematic areas: Environmental

C Hamburg
Socially Inclusive Zero Carbon Neighborhood Transformation

👤 **Comments from the Technical Committee:** In 2005 Hamburg decided to support the redevelopment of the Wilhelmsburg neighborhood of the City through hosting the International Building and the International Garden Show (IBA). An "IBA Partnership" was established which brought together 150 private companies and the local community. As a result over 70 projects were developed around 3 themes including cities and climate change. Wilhemsburg has 55,000 inhabitants living in an Island on the Elbe vulnerable to flooding. It is also an ethnically diverse and low income community with an environment affected by industrial and transport infrastructure. The projects are based on maximizing the use of local energy resources such as energy savings and energy efficiency thereby strengthening the local economy as a result. The aim is 100% local renewal supply by 2025 and 100% renewable heat by 2050, making the Elbe islands carbon neutral. The IBA provided an opportunity and structure to further the scheme. Already scheduled projects will ensure that 54% of heat production and 14% of the overall energy demand will be renewably produced by the end of 2015. The IBA Hamburg Model and the Climate Protection Renewable Wilhemsburg's strategy are already being used in other parts of the City. Additionally the IBA is sharing the knowledge generated with other partner Cities.

↘ Background Information

To support the new urban development program of the City of Hamburg, called "Leap over River Elbe", and to connect the city centre with the southern city districts, the Hamburg Senate decided in 2005 to present the International Buildings Exhibition IBA and the International Garden Show igs in the district of Wilhelmsburg.

To organize both "shows", the IBA and the parallel igs, the Hamburg government founded two city own companies in 2006 linked in terms of structure and management.

| "Energy Hill", the transformation of a toxic landfill into a location of wind turbines

⬊ Origins of the initiative

1. Reasons

To develop the more than 70 projects being presented in Wilhelmsburg in 2013, IBA chose three "key themes". One of these was "Cities and Climate Change" because of the high general political relevance of the issue and because of the fact, that the 55.000 inhabitants of Wilhelmsburg are living on an island in the middle of River Elbe and were afflicted by a huge flood in 1962.

2. Goals

The foundation for making the IBA area a more energy efficient environment is the "Climate Protection Concept Renewable Wilhelmsburg", which was developed by an international committee of experts in collaboration with IBA in the years 2008

to 2010. The idea behind the resulting "Energy Atlas", is that we need to utilize the city's (or district's) local energy resources to supply renewable energy and at the same time to considerably increase the efficiency of local energy consumption. Undertaking several researches and studies, the results demonstrate that it is possible to supply the Elbe Islands by local renewable energy sources by 2050 even if the population will grow from 55,000 up to 73,000. In detail, a 100% supply by renewable power is possible until 2025, a supply of 85% renewable heat until 2050, to make the Elbe Islands nearly carbon neutral until 2050.

3. Principal parties and partners

It is a typical feature of an IBA that it is structurally separated from "normal" administrative units and is usually incorporated as a limited liability company.

It thus has a certain amount of independence from classic administrative hierarchies and can act more like a private enterprise. Because of the lack of sovereign rights and administrative tasks, IBA has to work with several official administrations of the city and the municipal government and city owned companies.

Additionally, IBA organised an official "IBA-partnership" with about 150 companies and institutions being members and included the inhabitants by numerous workshops and forums.

| Hamburg city hall

| Citizens Participation

4．Resources

To implement the IBA projects of all three key themes, the Hamburg government spent 90 Million Euros on the development of the projects, the coordination of the elements and the implementation of the final event in 2013. Additionally, about 700 Million Euros were spent by private investors to realize the projects it selves.

◥ Innovative aspect(s) of the initiative

1．Evolutionary innovations

After the realization of the IBA exhibition in 2013, a follow-up organization will use the existing competence and network to develop and market several new development areas, both within the borders of the exhibition area (central Wilhelmsburg area, "Haulander Weg") as well as areas outside the former area ("Elbmosaik", former barrack area "Röttiger-Kaserne").

Combined with the evaluation and monitoring concept, the lessons learned will be used to upgrade and adjust the "Climate Protection Concept Renewable Wilhelmsburg" to reach the goals in 2050.

2．Characteristics

The IBA Hamburg examines ways in which maximum use can be made of local renewable energy sources "intra muros" ("within the border of the city or districts"), such as energy savings and energy efficiency, and how local economies can be strengthened as a result.

The working group undertaking the study "Energy Optimisation of the IBA Hamburg Model Region" (University of Applied Sciences Nordhausen) used a scenario analyses to compare future energy demand and the potentials for savings, increased efficiency, and the use of renewable energy in the various types of urban building environment on the Elbe Islands, and the develop strategic measures for the optimisation of energy supplies.

3．How the innovation is related to other experiences and parties

IBA and the "Climate Protection Concept Renewable Wilhelmsburg" are named as

| Massive Wooden Construction "Woodcube" without any nails, screws, foils, or additionally plastic covering

| "Energy Bunker", the conversion of a former World War II aircraft shelter into a power station

prototypes for further urban developments with the Hamburg area.

Additionally, IBA is involved in several national and international projects and will share the experiences with the involved partners and cities like Copenhagen, Amsterdam, Vienna, Lyon, Genova, Stockholm, Barcelona and Munich (EU Framework Project TRANSFORM, Interreg IVC Project CLUE,...).

4．Obstacles or resistance

One relevant barrier is the financial situation of house owners which prevents even high economic efficient refurbishments or technical installations. IBA delivered information and consultancy to make the implementation of the measures easier.

Another barrier is the risks of investments in district heating grids in existing areas with high number of several house owners. IBA organized round table discussions

and joint and integrated planning workshops to achieve best results for all stakeholders.

⬊ Desired change or outcome and how it is measured

1．Achievements

Until now, the already realized or already scheduled projects will generate a renewable power production of 54% and a renewable heat production of 14% of the overall demand by the end 2015.

After the realization of the IBA projects, a new "Implementation Plan" will be the second Action Plan until 2020 or 2025. It will:

· continue already started IBA projects

· start the realization of already planned projects

· transfer existing IBA structures, concepts and networks into a "post IBA period".

· develop totally new projects and

· attend the general German and Hamburg development.

It has to react on the different situation of a development phase without the timeframe, the power and the framework without an IBA.

2．Criteria for assessing the achievements

The monitoring of the overall results of the single projects compared to the targets of the concept started in Dec. 2011 in the frame of the project "EnEff:Stadt – IBA Hamburg" of the national program "Energy Efficient City" ("EnEff:Stadt"), conducted by the Technical University Braunschweig, Energy Research Centre Lower Saxony (Energie-Forschungszentrum Niedersachsen, EFZN) and the Hafencity University Hamburg.

3．Innovative tools or methods

The named universities worked together with a high number of energy supply

and distribution companies as well as housing companies and house owner associations to verify the results of the monitoring and to motivate them to cooperate to implement the elements of the climate protection concept.

4．Impact of the initiative

Already being European Green Capital 2011, IBA and the "Climate Protection Concept Renewable Wilhelmsburg" made the city one of the frontrunners when it comes to urban interventions to save the environment. Accordingly several thousands of national and international delegations visited IBA and Wilhelmsburg in 2013 and spread the knowledge and the experiences around the globe.

↘ Strengths of the initiative and innovation

Main aspect of the "Climate Protection Concept Renewable Wilhelmsburg" is to tackle the challenges of the global climate change by the development and the implementation of measures "intra muros" ("within the border of the city or districts"), by energy savings and energy efficiency, the use of local renewable energy sources and how local economies can be strengthened as a result.

Therefore the working group undertaking the relevant studies were working on a district level and used a scenario analyses to compare future energy demand and the potentials for savings, increased efficiency, and the use of renewable energy in the various types of urban building environment on the Elbe Islands, and the develop strategic measures for the optimization of energy supplies.

The study undertook a concrete examination of two different reference scenarios illustration developments in 2013/2020/2050, applying Germany-wide trends in renovation, efficiency and the introduction of renewable energy to the Elbe Islands.

Two so-called excellence scenarios were developed as alternative to the reference scenarios to incorporate concrete IBA projects and also to examine

different areas of emphasis in renewable energy supplies. The two scenarios share the fact that they are local and decentralised solutions adapted to the special local ability to achieve autonomy in renewable energy.

The results of the study, undertaken in close cooperation with the IBA's specialist Energy and Climate Advisory Board, form the most important basis for the "Energy-Atlas" of the Elbe Islands, and represent the strategic instruments and projects of the Elbe Islands' future energy supply systems. The aim is the presentation of a spatial energy model for the IBA's demonstration region.

In fact, the results of the study demonstrate that it is possible to supply the Elbe Islands by local renewable energy sources by 2050 even if the population will grow from 55,000 up to 73,000. In detail, a 100% supply by renewable power is possible until 2025, a supply of 85% renewable heat until 2050, to make the Elbe Islands nearly carbon neutral until 2050.

The first projects like the "Energy Bunker", the conversion of a former World War II aircraft shelter into a power station and heat storage and the "Energy Hill", the transformation of a toxic landfill into a location of wind turbines and PV as well as a public park , have been realized in close cooperation with local people and will be continued.

C Hangzhou
Public Bike Sharing

⊞ **Name of City/Community:** Hangzhou

📍 **Name of Province/State:** Zhejiang

📍 **Name of Country/Region:** People's Republic of China

🌐 **Geographic Region:** Asia and Pacific

👫 **Population:** 7.9695 million residents with 5.4186 million for the municipal districts (2012)

⚙ **Surface Area:** 16,645 km^2 in Hangzhou; the municipal districts area is 3,117 km^2

👥 **Population Density:** 479 people / km^2 in Hangzhou; 1,738 persons / km^2 in municipal districts (2012)

📊 **GDP per capita:** ¥41,528 (2013)

💬 **Title of the Initiative:** The city public bike sharing project

🕐 **Start date of the initiative:** March, 2008

🕐 **Tentative end date of the initiative:** sustainable construction, continuous improvement

⚙ **Thematic areas:** Social

👤 **Comments from the Technical Committee:** With 80 percent of residents and commuters identifying a serious traffic problem in the city, Hangzhou launched China's first public bicycle project. Serving some 280,000 passengers daily, the system (free for the first hour) complements the city's extensive bus system. Run by the newly-formed Hangzhou Public Bicycle Development Company, it represents a model of government-led enterprise, claimed to be the world's largest bike-sharing program that doesn't require government funding beyond initial capital. Beyond fees on bike use (imposed after an hour of use), the company raises significant private funds through selling advertising space on the bike docking station kiosks. A key feature is partnerships, with inter alia, universities, to monitor trends and issues in the use of the bikes and a unique management system designed to overcome the most frequent problem areas of bike sharing systems: service points, getting bikes to where they are needed when they are needed, responsive hot-line support, repairs and implementing users' recommendations for the continuous improvement of the system.

↘ Background Information

The urban traffic development strategy of "Public Transport Priority" was established in Dec. 2006 according to Opinions on Economic Policies for Preferential Development of Urban Public Transport jointly issued by four ministries and commissions including Ministry of Housing and Urban-Rural Development(MOHURD). In consideration of the local condition in development and implementation of policies and measures for preferential development of urban public transport, Hangzhou Municipality put forward the "Five-in-One" (A public transport system combining bus, taxi, public bike, aquabus and subway) Urban Public Transport Service System with characteristics of Hangzhou and the "public bicycle" was absorbed into the public transport service system for the first time.

Hangzhou public bicycle service pavilion advertising, body advertising, kiosks and other resources development

⬎ Origins of the initiative

1．Reasons

In the wake of the rapid social and economic development and acceleration of the steps of Chinese urbanization, the increasing urban population has resulted in a rising demand for outdoor trips year by year. In spite of the higher investment of local governments the urban construction still lags remarkably behind the public demand for urban traffic resources. The pressure of urban traffic keeps growing to give rise to the problem of "Two Difficulties" in urban traffic ("difficulty to drive" and "difficulty to park").

In order to relieve the traffic congestion and reduce the public travel costs, Hangzhou Municipality has given strong policy support to bus companies and financed them on the basis of their service quality. After years of efforts public transport in Hangzhou has made great progress in facilities such as vehicles as well as service quality, taking a leading position in public transport

in China. The passenger share ratio of Hangzhou's public transport increased to 22.2% in 2007 from 7.8% in 1987, making great contribution to the social and economic development of Hangzhou. Nevertheless, a survey conducted by local organizations indicated that 80% of the interviewees were still unsatisfied with the current traffic situation of Hangzhou and 84.74% of them thought the traffic congestion lowered the life quality. Such public opinions thus make a new way of convenient, economic, and safe public transportation extremely urgent. Hangzhou Municipality started to plan a public bicycle program in Mar. 2008, which was for the first time in China, so as to alleviate the "Two Difficulties" in urban traffic.

2．Goals

(1)The Founding of Hangzhou Public Bicycle Service Development Company (in 2008)
Coordinated by Hangzhou Public Transport Group Co., Ltd., the CPC Hangzhou Municipal Committee and Hangzhou Government established Hangzhou Public Bicycle Service Development Co., Ltd. (abbreviated as "Hangzhou Public Bicycle Service") in Apr. 2008. The company is responsible for the total construction, operation and service management of Hangzhou's public bicycle system, introducing the practice of free rent within one hour and staged rent in excess of one hour. The first row of 61 public bicycle service outlets was open to the public in May 2008 and a total of 2800 public bicycles were put on trial operation.
(2)Making Long-term Public Bicycle Development Plans (2008 to 2010)
CPC Hangzhou Municipal Committee and Hangzhou Government issued Opinions on Strengthening Construction and Management of Public Bicycle System in 2008and Opinions on Further Practice of Preferential Development Strategy of Public Transport and Building of "Quality Public Transport" in early 2010. According to the Opinions, the 1st-stage of the construction program shall be completed at the end of 2009 with up to 1,000 renting outlets in main urban districts that housed 50,000 bicycles. By 2010 the public bicycle system should be extended to Hangzhou Economic & Technological Development Area (Xiasha District), Hangzhou Hi-tech Development Zone (Binjiang District), Xiaoshan

District and Yuhang District. By 2012 the system should cover all five counties with a total of 60,000 public bicycles from 2,400 renting outlets, of which the central area of these five counties should be offering 200 to 400 public bicycles from 10 to 20 outlets. By 2015 the number of public bicycles in Hangzhou should total up to 90,000 and the outlets reach 3,500, of which the central area of these five counties should be home to 500 public bicycles from 25 outlets. It is planned that there will be 175,000 public bicycles at least in Hangzhou and the sum is expected to be 200,000 if possible.

（3）Exploring the Sustainable Development of Public Bicycle (in 2009)

To ensure the sustainable development of public bicycle, the government has put forward a plan of financial support to infrastructure construction of the system at the very beginning and the rest of the costs should be covered by enterprises themselves so as to reduce the financial pressure of the government. However, the government will give preferential policy in trial operations, including commercialization and the development of service outlets. The model of "public financing and corporate management" lays a sound foundation for the sustainable development of Hangzhou public bicycle system.

3．Principal parties and partners

(1)The governing authorities of all levels, including Hangzhou Urban and Rural Construction Commission, Hangzhou Urban Planning Bureau and Hangzhou Municipal Commission of City Administration and Law Enforcement, provide great support to the development of service outlets

Hangzhou Urban Planning Bureau laid out the planning of service outlets and developed the plan connecting the public metro system. And as for those places where public bicycle service outlets are to be placed, according to the urban planning, Hangzhou Construction Committee requests the designers to specify the land for public bicycle in the engineering designing and pre-empt the space for the development of public bicycle system when examining projects such as

stations, large recreational areas, large residential quarters, scenic spots and sports venues. While Hangzhou Municipal Bureau of City Administration and Law Enforcement is responsible for the coordination of departments such as traffic police, civil affairs and sub-district administrations, the collection of public opinions on site location and the coordination work of site location, providing its support to early construction of the public bicycle system.

(2)Hangzhou Public Bicycle Company, a subordinate to Hangzhou Public Transport Group, is in full charge of project

Since its establishment, Hangzhou Public Bicycle Company has been engaged in continuous innovation in service, management and operation under the great support from the local governing authorities of all levels. Based on high technology it has been continuously improving the quality of the system by developing general planning, giving standards, creating new models, optimizing services and exploring potentials. At the early stage there were only 61 outlets with 2,800 public bicycles and the highest daily rent totaled some 5,000. After six years of development, the system boasts 3,111 outlets with 78,000 public bicycles by July 2014, making the plan of the distance of 300 meters for every single outlet. The highest daily rent of bicycles reached 411,400 and the accumulated quantity for the past six years up to 410 million. The ratio of public free use is 96% and the survey shows 95.09% of the public are satisfied with it.

4．Resources

(1)Financial Source: Stable Financing Through Municipal Supporting Funds

At the time of the establishment of Hangzhou Public Bicycle Company in 2008, CPC Hangzhou Municipal Committee and Hangzhou Government thought that the government would support the infrastructure construction of public bicycle system while public investment and all other resources, including advertisement and service outlets, should be developed on a free basis and the income should be used for operation of the system. Meanwhile the central and local governments

| The train station service point

also arranged great financial supports for all green energy characteristic of the public bicycle system, and Hangzhou Municipal Bureau of City Administration and Law Enforcement also exempted and reduced the cost of road occupancy for the renting outlets, which greatly reduces the operating costs.

(2)Technical Support: Cooperating with Colleges & Universities to Improve Intelligent Management

Through cooperation with colleges & universities such as Hangzhou Dianzi University and Zhejiang University of Technology, and by means of data analysis, we have developed systems for smart bicycle scheduling, rent management and system to identify possible mechanical failure to achieve intelligent management of public bicycle system and provide technical support for the challenge of "difficulty to drop off and to repair".

(3)Human Resources: Colleges &Universities, Communities and Social Elites Participate in Volunteer Service Activities

According to the agreement jointly signed by Zhejiang Gongshang University and other six colleges & universities,and Hangzhou Public Bicycle Company, the Collegiate Volunteer Service Center for Public Bicycle System will be set up

with volunteers participating in cleaning and maintenance of public bicycles, promoting green travel concept, and guiding and encouraging green travel. With the promotion of volunteer services and scale expansion of public bicycles, all kinds of communities, middle schools and primary schools are now active in volunteer service.

⬆ Innovative aspect(s) of the initiative

1．Revolutionary innovations

The Program, to some extent, is revolutionarily innovative. Though the idea was borrowed from Paris, Hangzhou Public Bicycle Company didn't make any field visit to France or had any email exchanges with it at the early stage. The company merely downloaded pictures of Paris' public bicycles from the Internet and then independently developed "YAO Guofang" lock device with many national patents and Hangzhou Public Bicycle Intelligent System changed the means of travel of many Hangzhou citizens. Ten riding routes, including those of the West Late and the Ten Ancient Gates, are promoted to provide a more leisurely tours for visitors from home and aborad. Meanwhile, the development scale, service modes and results achieved in the later period go beyond those of many cities in the world. According to the "Activity Time", an American Professional Outdoor Activity Website, analysis and contrast have been made on public bicycle programs of 553 places around the world in Oct. 2013, and the comprehensive scores based on six criteria made Hangzhou the top one among the 16 places.

2．Characteristics

The innovation program has formed its own unique characteristics and Hangzhou is characteristic in target, system, construction, management, operation, technology, policy, etc.. Playing a leading role in the program, the government sets up professional team based on the public transport and guarantees the non-

profitable service by means of commercialized operation of resources, laying a foundation for sound operation and sustainable development of public bicycle service system. This system is recognized as "Hangzhou Model" by the peers and media at home and abroad and has a broad influence.

3．How the innovation is related to other experiences and parties

More than 100 cities in China successively invited Hangzhou Public Bicycle Company to assist them in local construction of public bicycle system; Hangzhou Public Bicycle Company has assisted 76 cities of 21 provinces (autonomous regions, municipalities) in China such as Heilongjiang, Shanxi, Guizhou and Gansu to complete the construction and operation of public bicycle system so far. In 2014, Hangzhou Public Bicycle Company also exported their service to Huangdao District of Qingdao, Pukou District of Nanjing and Dandong.

As mentioned above, Hangzhou public bicycle innovation program originated from Paris. The program only borrows the concept of "Public bicycles" for the local people and makes complete improvements in specific management, service and operations. The program is promoted in Chinese cities on the basis of local conditions, achieving good responses and benefits. Take the public bicycle system of Taiyuan City, Shanxi Province as an example. Its construction, service concept and technical support are all from "Hangzhou Model" and thus have avoided a number of senseless tryouts in development. On the basis of Hangzhou Public Bicycle System, Taiyuan Public Bicycle System enjoys the highest daily rent of more than 500,000 bicycles, far higher than Hangzhou's. The system and hardware, including the performance of the bicycles provided by Taiyuan Public Bicycle System, are all far better than in Hangzhou, which also promotes the exchanges on public bicycle system between Hangzhou and Taiyuan for joint progress.

4．Obstacles or resistance

In the process of practice we have come across five major problems, namely

| Citizens and tourists ride in the picturesque west lake

"difficulty to distribute", "difficulty to return", "difficulty to react", "difficulty to repair" and " difficulty to manage".

(1)"Difficuly to distribute": The outlets of public bicycles in Hangzhou are all on sidewalks. Due to the limited urban road resources the outlet distribution gradually became a problem. To find a solution the local government adopted a method of planning in advance and had put into consideration the public bicycle space in the early years of urban rail transit and the newly-built community planning.

(2)"Difficulty to return": As the public bicycle project becomes widely recognized, more and more people are dedicated to low carbon travel and therefore the riding time has been concentrated on the peak hours in the morning and evening. Because of the systematically unattended operation and renting at one place and returning at another and the peak "tide" in the morning and evening, a problem of "difficulty to return" takes place. To solve this problem we have assigned people to the manual service in more than 100 service outlets to help customers rent and return bicycles and at the same time applied information technology to establish a real-time dynamic scheduling management mechanism to strengthen the vehicle scheduling, and a mobile phone APP was developed to guide people to return bicycles to the nearest place.

(3)"Difficulty to react": Of the 3000 plus outlets only some 100 have been staffed

with people on duty, so customers who have problems in bicycle rental cannot get direct and quick response. What they can do is merely to consult the hotline for help and such a way of reaction has negative effect on efficiency. To improve it the company has opened an official website, upgraded the hotline platform and opened SMS and Wechat platform to strengthen the communication with citizens to improve the reaction.

(4) "Difficulty to repair": Along with the increasing dependence on public bicycles, as well as the rising frequency of use that causes continuous damage of these bicycles, "difficulty to repair" has become a major problem in operation. To find solution to this problem, the company appoints maintenance staff at the service outlets appealing to crowd to repair and maintain bicycles, resets the bicycle after being dismantled that has reached a certain fixed number of years, and makes industrial improvement as well as improves the quality of the bicycles.

(5) "Difficulty to manage": Most of the public bicycle projects in other cities are supported by the long-term fiscal subsidies from the government. It brings a great burden to the government when the system is fully dependent on the fiscal subsidies. The system in Hangzhou adopts a model of "government calls and companies manage". After the government completes the disposable investment of construction funds the company through the marketing operation meets the public welfare services. That is the major innovation for the public bicycle system in Hangzhou, but how to maximize the use of existing resources becomes a difficult problem confronting the company. For this problem, in 2010 Hangzhou Public Bicycle Service allowed, through public bidding, the 1035 booths, tents and the 50000 bicycles to be coated with advertisement at a price of 28 million RMB per year (an average annual increase of 10%). Meanwhile, the service pavilion increases a construction of commercial service such as tourism consulting, selling beverages and packaged foods, lottery ticket sale and registration Sites for car training, achieving a goal of "one pavilion with multi-purpose", and uses the media advertising put on the service pavilion to raise more funds. In 2011, the

financial report of the public bicycle system showed the basic balance and thus laid a foundation for sound operation and sustainable development of this system. On this basis the company continues to be innovative in management in 2014 by developing Yinting in cooperation with banks and export their service to other domestic cities to increase revenue.

⬂ Desired change or outcome and how it is measured

1. Achievements

Since the traffic service system of public bicycles in Hangzhou was put into operation, analysis of the public reaction reveals that the results are far better than what was originally intended at solving the problems of "the last kilometre after bus travel" and relieving the two problems of "the urban traffic". Certain results have been achieved, such as in promoting energy conservation and emissions reduction, constructing low carbon cities, advocating green travel, improving the urban grade, advancing the city image and improving the physical quality of the citizens.

(1) Integration with the public transport system of the city basically solves "the last kilometre after bus travel". Through the positioning of public welfare of bicycle transport system along with technology, the autonomous service of renting public bike at one place and returning at another have been realized, which is combined with the existing public traffic system. At present, analyzing from the situation of public bicycle rental, the lease area has been transferred from scenic areas to urban areas and renting period also begins to focus on travel peak in the morning and evening (accounting for about 45% of daily rents), suggesting that public bicycle rental has transferred from the initial visit to scenic spots to normal travel. It can prove from this change that traffic system of public bicycle can solve the problem of the last kilometre after "bus trip".

(2)To further improve the share rate of the bus trip and alleviate the "two difficulties" of urban traffic. Combine the favorable terms of public bicycle rental

with bus trip to attract more people to choose buses and improve the share rate of bus trip. At present, the highest day rent amount of public bicycle is up to 411400, with a accumulative total rent amount of more than 410 million in six years. The share rate of bus trip is increased further, which plays a certain role in reducing the pressure of urban road traffic, improving road traffic conditions and easing the "two difficulties" of urban traffic.

(3)To advocate green travel and promote the development of urban low-carbon economy. According to statistics in 2013, the annual average daily rent amount was 282,800, the average rent time 33.6 minutes and the average trip distance about 3.0-5.0 km, which could save 12,600 tons of standard coal and reduce 34,200 tons of carbon dioxide emissions compared with bus trip; and save 50,900 tons of standard coal and reduce137,400 tons of carbon dioxide emissions compared with sedan cars. If each car carries two persons on average it means that 141,400 cars are decreased every day. And the fuel charge saved in a year is equivalent to all the investment of government for public bicycles and it is incalculable for the demonstration of city ecological construction and guidance effect.

(4)Public travel becomes more convenient and its costs get reduced. The traffic service system construction of public bicycles in Hangzhou through scientific and technological innovation has effectively reduced the system running cost to reduce the trip cost of hirers and carried out a policy that citizens can rent public bicycle for free within one hour after getting off the bus. Statistics shows that more than 96% of the public bicycle rental has been free since this system was released. At the same time the company also associated the favorable terms of free rent for public bicycles with conventional public bus trips and formulated a measure that the free time transferred from regular bus to public bicycle is extended to one and a half hours so as to attract more and more people to choose bus trip.

2．Criteria for assessing the achievements

Every year the municipal government continues to put new requirements on the construction of public bicycles according to the demand for urban development and social opinions. The public bicycle service set up plans and put them into practice according to these requirements, and the media and citizens play the role as supervisors. For example, "12345" the mayor hotline and FM89 hotline provide a communication channel for the citizens. Their satisfaction and the frequency of using public bicycles are the standard for project quality and the increasing communication channels provide a guarantee for them to use this standard.

3．Innovative tools or methods

(1)The choosing principle of "Four Combinations and One Notice". At the beginning of the project implementation, the construction of public bicycle tends to be where it is empty without consulting the opinions of the surrounding residents or investigating the nearby passenger flow or the demand. After the completion of the foundation sometimes electricity is beyond reach of use, otherwise after the construction is put into use it's of no worth or opposed by the nearby residents; therefore, after what they have learned, the government adopted a principle of "Four Combinations and One Notice", i.e. the city management committee, the traffic police, the municipal administration and the bus group choose the site location jointly and then put the notice open for seven days on condition of the suitability of this location and no objection from any citizen.

(2)The first industrial service standards. The compiled management service specification of city public bicycle gives details of the service standard of public bicycles, standardizes the service content and was issued after seven modifications spanning for eight months as the provincial specification to encourage the province's development and popularization of the public bicycle system.

4．Impact of the initiative

The implementation of public bicycle transportation system conforms to this

city positioning of leisure and tourism for Hangzhou, a dynamic integration with slow canal system, slow channel system, visiting around the West Lake and shopping at malls, complement each other and more adds atmosphere of leisure and tourism. Moreover, through the design on the service facilities of the shape, colour, etc, this transport system is naturally integrated into the city tune, showing a harmonious picture between human and nature, which beautifies the city and puts on a colourful stroke for constructing a leisure and international tourist city and building a " city of life quality ". At present, this green travel mode of public bicycle has become a new bright spot for Hangzhou, a city of life quality.

Since the project was implemented it has gained favour from citizens as well as the leading officials at all levels, experts and scholars and media at home and abroad. The program also has attracted domestic governments at all levels to pay field visits to the project in Hangzhou. In 2011, during the International Union of Public Transport (UITP Asian) held in Hangzhou, the expert group examined the bicycle service system and spoke highly of the green environmental protection idea of public bicycle and the leading technical support.

Because of the implementation of the public bicycle project in Hangzhou, Hangzhou is even praised as the origin of the project of "the world's largest public bicycle" by foreign experts and media and one of the eight cities providing the best public bicycle service by the BBC.

⬂ Strengths of the initiative and innovation

In recent years, the project of sharing public urban bicycles has been promoted in a growing number of cities and most cities have achieved excellent results in the promotion; however, most of the successful cases tend to be based on the unlimited financial investment of urban government sectors. Though it to a certain extent alleviated the urban traffic congestion and improved the urban air quality, it can be seen that with the expansion of projects and aging of facilities,

the government have to invest more and more financial input, the burden will be bigger and bigger, which will eventually restrict the quality of urban public bicycle project in the promotion.

In addition, such as the public bicycle system in Wuhan, to reduce financial stress when promoting the public bicycle project the local government fully delegated the right of management of the public bicycle project to the local private enterprises. In the absence of government leading, enterprises make benefit as their purpose blandly, once making the "Wuhan model" of public bicycle paralyze in Apr. 2014 and be reformed and thus cousing a great loss of the state-owned asset.

The business model of public bicycle in Hangzhou completely avoids the above problems. After the government makes a one-time financial input to public bicycle infrastructure, it mainly administrates from planning and regulations while enterprises positions with public welfare, that is, on the basis that free rent rate is above 96% for basic free of charge they make a market-oriented management by way of transferring the right of management of service booth and advertisement on automobile body. The enterprises expend by operation income for system maintenance, labour costs and vehicle maintenance, after realizing a basic balance in 2011 they gradually shifted to corporate earnings, really not spending a penny from taxpayers.

C Jakarta

The Pluit Reservoir Revitalization Project: Climate Adaptation and Resilience in Jakarta

👤 **Comments from the Technical Committee:** Jakarta, lying in a delta of 13 rivers with 40 percent of land below sea level, faces a huge crisis of flooding, algae and water pollution. Its Pluit Reservoir Revitalization Project represents the city's significant effort to improve water storage capacity, reduce urban flooding and improve the quality of its prime water source. The project requires improving storage capacity, relocating 3,000 squatters around the reservoir's banks, and transforming the areas into parks and quality public open space. The city's water management plan, envisioned for roll out from now to 2030, is seen as a way to address climate change in a socially conscious way. It includes government partnerships with a corporate sector that is expected to benefit along with the public in new and less threatened property development.

🖼 **Name of City/Community:** Jakarta

📍 **Name of Province/State:** DKI Jakarta

📍 **Name of Country/Region:** Indonesia

🌐 **Geographic Region:** Asia and Pacific

👫 **Population:** 9.6 Million

⚙ **Surface Area:** 66,233 km^2; Sea:69,775 km^2

👥 **Population Density:** 13,000 to 15,000/km^2, in certain areas 20,000 to 30,000/km^2

📊 **GDP per capita:** US 12,600 (126.12 million rupiahs)

💬 **Title of the Initiative:** The Pluit Reservoir Revitalization Project: (Socially-Inclusive Coastal Protection Today and for 2030)

🕐 **Start date of the initiative:** 2012

🕐 **Tentative end date of the initiative:** 2015

⚙ **Thematic areas:** Social, Environmental, Governance/Management

↘ Background Information

Lying in the delta of 13 rivers with 40% of the land below Sea Level, Jakarta, a home to 10 million people, is vulnerable to climate risks especially extreme changes of rainfall pattern and sea level rise resulting in urban floods. Considering its roles, both as the Capital City and centre for economy and business, Jakarta must be prepared with short and long term plans to improve Jakarta's resilience towards climate change impacts as Jakarta Water Management Strategy for 2030.

↘ Origins of the initiative

1. Reasons

According to the city's current projections, 80% of North Jakarta will be 5m below

| Nearly 75% of the reservoir covered by algae and thousands vulnerable inhabitants

the average sea level in 2030. In response, in Jakarta has introduced the Project, which aims to restore and improve the coastal reservoir's performance as one of the vital drainage retention basins as Jakarta Water Management Plan for 2030. Covering a catchment area of 2,083 hectares in North Jakarta, the reservoir is currently a vulnerable, underperforming piece of infrastructure during flooding with thousands of illegal houses (squatters) occupying the bank, nearly 75% of the reservoir covered by algae, poor water quality, and heavily sediment.

2．Goals

The main purpose of the project is to restore its capacity in order to be able to mitigate the current conditions of annually flooding (and a 25 year return period). The project improves the living quality of almost 15.000 households currently located on the reservoir banks and prone to repeated flooding, by providing proper subsidized apartments nearby in order that these households may maintain their social and economic activities. It seeks to rejuvenate the area through integrated blue and green infrastructure for a more sustainable living where people can enjoy and interact more closely with nature.

3．Principal parties and partners

The project heavily involved many stakeholders. Private Sectors especially those in property business and Local Government Owned Enterprises were asked to

participate in several ways. Local community leaders were approached in person and invited to talk and discuss with the Governor so that the communication could be actively in two ways direction. Citizen engagement was the key component to the successfulness of this project since the main challenge was to relocate the squatter to the legal new subsidized housing.

4．Resources

The public-private partnership (PPP) scheme has been implemented at the Pluit Reservoir revitalization project in which the private companies that hold property development permits are obliged to participate in the project under the cross-subsidy scheme, such as donating furniture and equipment for the subsidized housing under Corporate Social Responsibility scheme, and dredging the reservoir and developing parks surrounding the reservoir which can be factored in as part of their obligation to obtain a property development permit issued by the government. Several NGOs volunteered or were also asked by the government to advocate for people so the resettlement process could be ensured not to violate human rights and conducted smoothly, since the Governor wanted a humanized and participative process.

↘ Innovative aspect(s) of the initiative

1．Revolutionary innovations

The project is innovative. A strong leadership was the crucial point. Over 20 years, the main challenge to relocate the squatters without harassing their human rights so that the physical improvements could be done, had been insurmountable. The key to overcoming this barrier was that the Governor himself directly came and consoled the people, listened to their problems, listened to their aspirations and communicated frequently, and at the same time gathered participation from the private sectors to donate attractive furniture for the new housing and explaining and persuading of the importance of maintaining the reservoir area.

| Pluit Reservoir in danger overflowing with heavy sediment

2．Characteristics

It is integral that social and economic benefits are also gained through the development of this project. In the new subsidized apartments, inhabitants have better living environments as they are less vulnerable to flood risk and related health problems. The city is also looking after the employment needs of these relocated inhabitants, where city officials open-up communication with residents, considering their aspirations and relocating them to new housing located nearby so that residents can maintain their current jobs. Facilities (schools, markets, health care facilities) are also provided in the new living complex giving new amenities for an overall improved quality of life as well as new job creation.

3．How the innovation is related to other experiences and parties

The City's 2030 vision to have a safe, convenient and sustainable city is translated into integrated water resource management strategies with one being integrated blue and green infrastructure development. The project rejuvenates the living environment in which people are relocated to subsidized apartments, water quality is improved through development of off-site wastewater treatment facilities, storage capacity is improved through dredging, reservoir bank is transformed into landscaped parks and open space promoting residents interactions. Overall, the project shows best practice in how the city should handle other reservoir revitalization projects.

4．Obstacles or resistance

First, people showed significant resistance and would not cooperate with the Government. Some requested for a very high and irrational compensation while others demanded their rights to stay there as they had been living there for 20 years. By the end, the significant resistance disappeared and this project became an inspiration to other projects in the city.

❯ Desired change or outcome and how it is measured

1．Achievements

The ongoing project has relocated the squatters around 3,000 from the reservoir, improving water capacity around 6,720,000m^3, and development of Park (20 Ha) and City Forest (10,000 trees) as a recreation area and will give the contribution to mitigation for absorbing the CO_2. This process becomes a pilot for the other reservoirs and the 13 rivers. Furthermore, the projects will improve the lives of the individuals they relocate, by moving those to new subsidized apartments where they are less vulnerable to flood risk and related health problems. Jakarta hopes to reduce annual urban flooding and to limit the impacts that this flooding will have on its citizens. As such, the projects will enhance the city's resilience to the risks posed by climate change.

2．Criteria for assessing the achievements

We are using some indicators to measure the change, such the reduction of duration, depth and spots of inundated area; number of affected people prone to flood risk: number of displaced people; number of casualties; number of people living in a flood-prone area; and number of loss of lives and houses; social and economic losses from flood such as: damage to city infrastructure, inability to

| Improving water capacity, and development of City Park (20 Ha) and City Forest (10.000 trees) as a recreation area and will give the contribution to mitigation for absorbing the CO_2

conduct daily activities, disease outbreaks, diminishing number of tourists.

The measuring and measurement are doing by working together between Jakarta Environmental Management Board, Jakarta Planning Board and Research Centers.

3．Innovative tools or methods

Using the concept of vulnerability, which uses the adaptability of a system; More science works for developing scenarios/pathway – putting current actions into long-term context; Define Key indicators for monitoring and measuring the effectiveness of program implementation; improving the financing policies to support implementation of integrated the program for measuring the achievement which is measurable and verifiable; Intense communication with the project affected people (social engineering).

4．Impact of the initiative

This project contribute to water ecosystems (such as lakes, rivers, canals, estuaries and mangrove forests) that have been damaged or lost that will be restored and Increasing the capacity with a water ratio 5% (target of the city); Furthermore, the projects will improve the lives of the individuals they relocate, by moving those to new subsidized apartments where they are less vulnerable to flood risk.

⬊ Strengths of the initiative and innovation

The project is innovative in a sense of a strong leadership from the Governor was the crucial point and the involvement of multi stakeholders. Over 20 years, the main challenge to relocate the squatters without harassing their Human Rights so that the physical improvements could be done, had been insurmountable. The key to overcoming this barrier was that the Governor himself directly came and consoled the people, listened to their problems, listened to their aspirations and communicated frequently, and at the same time gathered participation from the private sectors to donate attractive furniture for the new housing, so the people would be willing to move there. In the end, the significant resistance disappeared and this project became an inspiration to other projects in the city.

The private-public partnership (PPP) scheme has been implemented at project in which the private companies that hold property development permits are obliged to participate in the project under the cross-subsidy scheme. The city is preparing several funding schemes which main concept is to minimize government spending and optimize public investment. The contributions are not in cash but, for example, in human, technical or managerial resources.

There are several environmental goals that can be obtained by this project, such as the following: Climate adaptation to make Jakarta more conscientious of and friendly towards the environment in effect allowing policy make and city planner to take steps to reduce vulnerability; reduced annual urban flooding; Enhanced city resilience against climate change, where the goals can be achieved.

The model of the project is not limited only to urban flood control or water management program, but wider than that, can be applied in other sectors. It is also possible to expand the implementation of this concept not only within Jakarta area but also to wider surrounding region (Greater Jakarta).

☐ Name of City/Community: Linköping
📍 Name of Country/Region: Sweden
🌐 Geographic Region: Western Europe
👫 Population: 150,202 (2013)
⚙ Surface Area: 1,436 km^2
👥 Population Density: 103 inhabitants/km^2
📊 GDP per capita: 54,240 USD (2011)
💬 Title of the Initiative: Linköping Carbon Neutral 2025 – Where ideas come to life
🕐 Start date of the initiative: The actions have been ongoing from early nineties
🕐 Tentative end date of the initiative: Ongoing process until 2025 to be Carbon Neutral
⚙ Thematic areas: Social, Economic, Environmental (Mainly)

C Linköping
Carbon Neutral 2025

👤 **Comments from the Technical Committee**: Linköping has a bold goal: to become an absolutely carbon neutral city by 2015. The city council's road to that goal was launched through broad-based collaboration and partnership with residents, employers, universities, other cities and national and international networks. And the municipality has sought to lead by example: it uses renewable fuels (over half its vehicles use biogas); it specifies climate criteria in its procurement processes; it regularly communicates climate and environmental issues to its employees and residents; and it works closely with Linköping University to develop methods and technologies to reduce CO_2 emissions and establish a Biogas Research Centre. Two new combined heat and power plants have been built, with 95 percent of homes already connected. Buses are fueled by biogas produced from livestock manure and food waste. The results are already emerging: CO_2 emissions are down by 25 percent since 1990, energy consumption in schools and hospitals have been reduced by 5 percent and are on a trend for further reductions.

↘ Background Information

Linköping Municipality has a long tradition of pro-active climate and environmental work. In 1993 a cross-party group was established to develop a local Agenda 21 plan, resulting in 1998 in the "Plan of Action for a Sustainable Linköping in the Long Term". Subsequent in-depth strategies for the three dimensions of sustainable development – environmental, economic and social – are based on this Agenda 21 plan. In 2011 the Municipal Council adopted its long-term climate goal to make Linköping a carbon-neutral community by 2025.

↘ Origins of the initiative

1. Reasons
The limits for the goal are defined by the municipality's borders. The basis for

| CHP plant

achieving the goal is the long-term climate and environmental strategy that has been an important part of the municipality's political ambition since the 1970s. Reflected in all policy areas, this plays a fundamental role in most municipal policy documents. The Municipal Council's most important programmes for environmental development are:

· Long term strategic plan for sustainable Linköping
· General Plan for Physical Planning including Traffic Strategy
· Climate Strategy to Reduce Greenhouse Gas Emissions
· Nature Conservation Programme to Preserve and Promote Biodiversity
· Action Programme for Improved Air Quality with Special Focus on Particulates
· Waste Management Plan based on the EU's "Waste Hierarchy".

Key to achieving the climate goal is the commitment and successful efforts of local government departments and companies, residents (at least 2,000 assisted in formulating the Agenda 21 plan) and the local business community.

2．Goals

Creating a carbon-neutral municipality is a never-ending process that combines

development with business intelligence monitoring and the courage to test revolutionary new solutions. Linköping Municipality and its companies have a leading role in formulating policies, goals and guidelines and in setting a good example by using renewable fuels in vehicles, specifying energy and climate criteria when procuring goods and services, developing green IT solutions and communicating climate and environmental issues to employees.

Most municipal companies are ISO 14001 certified. More than half of municipal vehicles use biogas; this - together with other renewable fuels, municipal water, sewerage and district heating/cooling systems, optic fibre networks and electricity production - creates optimum conditions for low climate impact.

3．Partners and resources

Municipal property companies are making existing schools, homes, care homes, offices, sports and cultural facilities more energy efficient. Since 2009 energy consumption in municipal premises has fallen by 5%; by 2029 it will have fallen by 15%. New builds use approximately 25% less energy than national guidelines prescribe.

People living and working in Linköping are given continuous information about:
· Free advice to householders and property owners about energy use
· Mobility management campaigns
· Energy mapping and energy advice for local business
· Energy and climate knowledge through competitions and campaigns for children and young people

Etc., etc.

⌄ Innovative aspect(s) of the initiative

1．Evolutionary innovations

The most important factor behind the success of Linköping's climate and

environmental work is the combination of a long-term approach, a highly innovative driving force, broad-based collaboration and a political consensus to make Linköping a leading municipality, in Sweden and abroad, in climate and environmental issues. Collaboration and partnership - with residents, trade and industry, other municipalities, universities, authorities and national and international networks - has high priority in Linköping's sustainability efforts.

2．Characteristics

We work in close cooperation with Linköping University to develop methods and technologies to reduce carbon dioxide emissions.

3．How the innovation is related to other experiences and parties

The local and regional business communities are engaged in the research-based development of environmental technology. As a direct result of Linköping's long-term commitment to biogas, Linköping University has established the Biogas Research Center, a national centre of academic excellence in biogas-related knowledge. The municipally owned utility Tekniska Verken finances a professorship in Environmental Technology at Linköping University. The municipal property company finances a lectureship conducting research into the effect that residents have on initiatives to make more efficient use of energy.

In 2007 Linköping took the initiative to establish an

| Municipal Council session in City of Linköping

| Linköping downtown

Environmental Technology Centre, whose chief aim is to transform environmental challenges into business opportunities. The centre is tasked with supporting the environmental technology industry and raising its profile both nationally and internationally. Thanks to this initiative the Linköping region has attracted more national and international study visits in the environmental technology sector over the past four to five years than anywhere else in Sweden apart from Stockholm.

To attain Linköping's ambitious environmental and sustainability goals it is crucial to take an all-round approach wherever possible and to optimise and develop existing systems. This is the most important innovative aspect.

⬊ Desired change or outcome and how it is measured

1．Achievements

Our long-term climate and environmental initiatives have had many positive effects.

· Annual per capita waste has fallen from 305 to 208 kilos since 1992

· Waste fractions sorted at source and collected from households as paper,

| The Biogas plant

plastic, metal, batteries, light bulbs and electronic equipment have increased

· Nitrogen and phosphorus emissions from treated wastewater have decreased by 60% and 35% respectively since 2001

· Nitrogen dioxide concentrations in urban environments have fallen from 29 to 8 μg/m^3 air since the late 1980s

· The number of kilometres driven per vehicle/year has decreased from 13,000 to 12,000 km over the past 10 years

· 50% increase in new "green car" registrations

· 56% of all the electricity used is produced locally from renewable sources and in a climate efficient way

· 25% reduction in CO_2 emissions between 1990 and 2010.

2．Criteria for assessing the achievements

Linköping continuously monitors environmental, economic and social sustainability targets and conducts a detailed follow-up of 136 indicators every four years. Annual follow-ups monitor specifics such as trends in CO_2 emissions, energy production, energy use, and emissions of heavy metals, phosphorus and nitrogen into lakes and waterways. Air quality is monitored continuously. Residents are informed of measured values and follow-ups via the municipality's homepage.

3．Innovative tools or methods

The most important sources of Linköping's energy supply are the two CHP plants producing electricity and district heating in a highly efficient cogeneration process. District heating was first supplied in 1954. Today 95% of homes are connected to the district-heating network. The outstanding feature of Linköping's energy supply is resource efficiency. Our energy system is one of the most resource-efficient in the world. The energy in household and commercial waste is recycled in the CHP plants and generates the majority of the heating and power produced there. All investments and development initiatives to mitigate climate change are based on a global climate and resource-efficiency perspective. In 2012 primary energy use in the district-heating system was 373 GWh compared with a figure of 1287 GWh for final energy consumption. An investment of 1 billion Swedish kronor in a new CHP plant that comes online in 2016 will further reduce the use of fossil fuels.

↘ Strengths of the initiative and innovation

In 1997 one of the world's largest facilities for producing biogas for vehicle fuels opened in Linköping. Most of the gas - produced mainly from livestock manure, industrial food waste and slaughterhouse waste - fuels the city's 70 public transport buses. Garbage trucks and approximately 1,000 other vehicles also run

on the gas.

Biogas, a renewable fuel, currently supplies 6% of Linköping's vehicle fuel needs. The infrastructure is well developed with gas pipelines and five public gas filling stations. This large-scale investment has attracted two biogas companies active in the Swedish and international markets to Linköping, now a regional hub for the development of biogas. The utility company Tekniska Verken owns production plants and filling stations in several municipalities.

In 2012 the Municipal Council introduced sorting at source for domestic food waste. Placed in a special bag that is separated from other fractions by an optical sorting process, food waste is a substrate for biogas production and agricultural biofertiliser. Most households (80%) report that they sort food waste at source.

Vallastaden: The Environmental and Quality Programme for Vallastaden was approved in 2013. Vallastaden's first 450 apartments, reflecting ambitions for resource efficiency and social sustainability, are scheduled for completion by 2017. This unique area is conceived as an eco-village; everything is within easy reach and social interaction is stimulated by making it simple to move around on foot or by cycle. Central road space is reserved for a car pool. Infrastructure for charging electric vehicles will be in place throughout. In a unique solution to the challenge of minimising the space needed for utility infrastructure, all electric cables, fibre optics, district heating, water, sewerage and vacuum waste collection systems are bundled in a single, prefabricated culvert (2.5 metre diameter). Cables and conduits are prefabricated so the infrastructure is 100% recyclable. Space-saving culverts mean plot ratio can be increased. Also, subsequent servicing of utility infrastructure will not require excavation work that disturbs the environment or consumes resources unnecessarily.

Vallastaden lays the foundations for building tomorrow's society. Throughout the entire planning process citizens' dialogues have been held with residents, builders and researchers.

Another innovative initiative is Östra Valla, a former industrial area earmarked for sustainable redevelopment. There will be residential premises here, but primarily Östra Valla will be a business incubator for small and medium-sized enterprises and serve as a platform for entrepreneurship and innovation, and a testing ground and demonstration area for sustainable solutions in environmental technology.

Melbourne

4℃ cooler: using green infrastructure to build a climate resilient and prosperous Melbourne

👤 Comments from the Technical Committee: Between 1995 and 2009, the city of Melbourne suffered extreme hot weather resulting in severe drought, water shortage and heat waves that killed several hundred people. The immediate response of the city was to plan a 90% reduction in potable water use. This included cutting irrigation support to the city's urban forests and a plan to remove 40% of the city's trees. Ironically, this solution underestimated the value of green spaces and ecosystem support which are critical to climate change mitigation. Realizing the need for a more strategic long-term strategy, in 2010 the city appointed a new Urban Landscape Team. The team produced the open space strategy and the urban forest strategy. Since 2010, forty million dollars have been invested in related initiatives including urban forests and shrubbery; green space and rain water harvesting; permeable paving and protection of waterways; and wetlands. The goal is to cool the city by 4 degrees Celsius and to lower energy use for cooling. 15,000 trees have been planted, 40 streets retrofitted to improve permeability, and an in-road storm water harvesting system started. A four year citizen's engagement programme educates and mobilizes citizens. The city of Melbourne provides the bulk of the funding while the regional and federal governments have also contributed. Other partners include the universities of Melbourne and Victoria for related research; and the media for public awareness.

🔲 **Name of City/Community:** City Of Melbourne
📍 **Name of Province/State:** Victoria
📍 **Name of Country/Region:** Australia
🌐 **Geographic Region:** Asia and Pacific
👫 **Population:** Estimated 116,447 (2013)
⚙ **Surface Area:** 37.7 km^2 (2013)
👥 **Population Density:** 3,117.2 persons/km^2 (2013)
📊 **GDP per capita:** $167,660/worker (2012)
💬 **Title of the Initiative:** 4℃ Cooler – Using green infrastructure to build a climate resilient and prosperous Melbourne
🕐 **Start date of the initiative:** 2010
🕐 **Tentative end date of the initiative:** ongoing
⚙ **Thematic areas:** Social, Environmental, Governance/Management

↘ Background Information

In 2010, the City of Melbourne developed and endorsed two key public policy documents to guide the future development of the city:

· Urban Forest Strategy
· Open Space Strategy

These strategies put forth a vision to create "a city within a forest". The successful delivery of these strategies will focus on using green infrastructure to cool Melbourne's summertime temperatures by 4°C. Key actions include :

· Doubling the municipal canopy cover from 20% to 40%
· Increasing the permeability of the city
· Expanding the stormwater harvesting network to capture 50% of required water
· Expanding the green space network by 7.6%

⬊ Origins of the initiative

1．Reasons

From 1995 to 2009 Melbourne experienced an extreme drought that caused water shortage concerns. During the drought, the City's water management focus was driven by a perspective that underestimated the values of green spaces and the importance of ecosystem service provision. At that time the city introduced a target to reduce potable water usage by 90%, this resulted in the withdrawal of irrigation support for the urban landscape and it has brought about the large-scale decline for the City's urban forest with 40% of the trees projected to be removed within the coming 15 - 18 years. In addition to the drought, Melbourne experienced an extreme heatwave that claimed the lives of 374 people across the metropolitan region.

In addition to these problems, new challenges were beginning to emerge. Climate change science was clearly showing that Melbourne would continue to experience more droughts, heatwaves and flood events into the future. In addition to this, Melbourne was becoming the fastest growing city in Australia.

It was obvious that the City needed to respond strategically with vision to ensure that Melbourne could cope with a difficult future climate and maintain its economic prosperity and liveability. In 2010 the City Council appointed a new team called the Urban Landscapes team to respond to these issues.

The Urban Landscapes team released two strategies putting forward a strong vision and plan for the City - the Open Space Strategy and the Urban Forest Strategy. Since 2010, $40 million has been invested beyond business as usual investments to create climate resilience for the City. To implement the goals and vision of the strategies, the Urban Landscapes team have developed a Green Infrastructure Program. Green infrastructure includes the assets that can directly provide ecosystem services or support the provision of ecosystem services and increase the climate resilience of our cities. Assets include:

· Urban forests: trees and vegetation

· Green spaces: parks, gardens, reserves, greenways

· Living green roofs and walls

· Stormwater and rainwater harvesting tanks, permeable paving

· Waterways and wetlands

2．Goals

The goal of the initiative is to invest in green infrastructure to create "a city within a forest" so that we can increase and enhance ecosystem service provision in the City. Our desired outcome is that we will cool Melbourne's summertime temperatures by 4°C. This will provide multiple socio-economic benefits, most importantly increasing the health and wellbeing of our community, and it will create climate resilience for Melbourne.

3．Principal parties and partners

City of Melbourne is the leader of this initiative and will drive implementation to realise the achievement of the goal.

4．Resources

In 2010 the City Council appointed a new team called the Urban Landscapes team to lead the initiative. The initiative has cost $40 million to implement to date. City of Melbourne has supported the initiative with $30 million from 2010-2014 and has committed to on-going funding for the initiative. The Australian Federal Government provided $5 million and the Victorian State Government provided $5 million.

⬊ Innovative aspect(s) of the initiative

1．Revolutionary innovations

We consider this initiative to be revolutionary. Traditionally, cities are designed to function in a way that excludes nature. Green Infrastructure (GI) planning in many

| Melbourne districts

cities has been negatively affected by institutional failures to acknowledge the benefits that ecosystem services provide. As a result, green infrastructure is often treated one-dimensionally — that it is something nice to have instead of providing critical ecological and social functions. This type of thinking led to the withdrawal of water for Melbourne's urban forest during the drought and it triggered the unprecedented decline of the tree population.

Our new perspective is to consider green infrastructure as the city's most important and vital infrastructure. This is revolutionary for following reasons:

(1) Our holistic, ecosystem based approach accompanied by a demonstrated multi-million dollar investment beyond business as usual investment in green infrastructure is the first of its kind for a city in Australia. As opposed to implementing carbon intensive infrastructure interventions in the landscape, we focused on harnessing the benefits of nature and demonstrated the capacity of urban landscapes as green infrastructure using a broad range of projects.

(2) No other city or municipality has a goal to cool the city by 4°C

(3) We are leading and driving a policy shift, nationally and internationally, towards recognizing green infrastructure as a crucial asset that provides multiple benefits for society and the city.

2．Characteristics

This innovation is being applied in policy, strategy, research planning and implementation.

（1）Policy and strategy:

· Urban Forest Strategy - doubling the municipal canopy cover from 20% to 40% and expanding the stormwater harvesting network to capture 50% of required water

· Open Space Strategy - increasing the permeability of the city and expanding the green space network by 7.6%

(2) Planning:

· We have developed 7 Urban forest Precinct Plans to guide tree planting for the next 10 years.

· Our "Growing Green Guidelines" is Australia's first comprehensive technical reference guide for constructing green roofs, walls, and facades in a city context.

(3)Implementation:

· We have planted 15,000 new trees since 2010 and we are planting 3000 new trees each year

· Investing $250,000 for passive irrigation systems in parks

· Investing $5 million for streetscape adaptation to retrofit 40 streets to increase permeability and introduce water sensitive urban design

· Delivering the world's first in-road stormwater harvesting system at Darling Street

· Investing $20 million to build a stormwater harvesting network from 2011-2014 contributing to securing 25% of the water required for landscape irrigation annually

· A four year citizen engagement program to develop public awareness about the impacts of drought on the urban forest

· Delivering the 200m^2 green roof – "The Venny"

· Investing $5 million for Errol Street Park which involved expanding green space by converting a street into a park

（4）Research and partnership:

· Our joint research with the University of Melbourne, using dendrochronology

techniques to understand the impacts of climate change on Melbourne's trees, is the first of its kind for a city.

· Our "Integrated Climate Change Adaptation Model" will, as Australia's first city climate decision making tool, enable us to use local data and make strategic decisions about the locations of green infrastructure interventions for the municipality.

· Our "Assessing the economic value of green infrastructure" research in partnership with Victoria University, State and other local governments will enable us to develop an innovative framework to assess the true economic value of green infrastructure, including the value of ecosystem service and health benefits that have been traditionally neglected.

· Our Elm Genetic Diversity Program was the first in Australian cities to engage citizen foresters in collecting local scientific data for our future landscape management.

3．How the innovation is related to other experiences and parties

This initiative was inspired by other green initiatives across the world- we looked at the greening of Singapore and the green roof program in Chicago. Our work has now inspired many other municipalities around Australia including Brisbane, Darwin and Perth, as well as 12 Victorian Councils. We regularly share our knowledge and project experiences with multiple local governments.

4．Obstacles or resistance

(1)The obstacles we faced were multi-faceted:(1)

· Finance was challenging since the initiative is the first of its kind, requiring investment at a municipality-wide scale.

· Building community awareness and moving away from the aesthetic values of green infrastructure to ecosystem service values and other social and economic benefits was a challenge.

· We began with a knowledge gap on how we move from the holistic strategies

Fitzroy Gardens stormwater tank

to cohesive implementation.

· Traditional practices focused on grey infrastructure we had to change.

(2)To overcome the challenges, we

· Partnered intensively with State and Federal government for co-funding.

· Co-designed our key strategies with the local community in tandem with a four-year citizen engagement program to develop public awareness.

· Advocated to the wider community and the industry regularly through media, workshops, and forums to push the public agenda on green infrastructure.

· Worked closely with research bodies, gaining technical support to successfully inform and track the implementation.

↘ Desired change or outcome and how it is measured

1．Achievements

(1)We aim to achieve a 4ºC cooling of the City of Melbourne's summertime temperatures by 2040. This will provide multiple benefits for the city including:

· Climate resilience to extreme heat, increased temperatures, drought and flooding

· Increased community health and wellbeing through the provision of healthier public spaces and more green spaces for activity

| Green building in Melbourne

· Lower energy use for cooling and lower carbon emissions as a result

· Increased biodiversity

· Lower air pollution levels

(2)What we have achieved so far:

· We have built a stormwater harvesting network, this is now contributing to securing 25% of the water required for landscape irrigation annually by capturing rainfall. This network will provide us with water security in a cost effective manner, even during future droughts.

· We have planted 15,000 new trees since 2010 and we have retrofitted 40 streets to increase permeability and introduce water sensitive urban design.

· We have built the world's first in-road stormwater harvesting system at Darling Street.

· We have developed a four year citizen engagement program to develop public awareness about the impacts of drought on the urban forest.

· We have invested $5 million in Errol Street Park to expand our green space network, converting a street into a park.

2．Criteria for assessing the achievements

We have commissioned various research bodies to collect data for our urban forest adaptation measurement. We are now undertaking the following measures:

· We use thermal and satellite images to measure cooling reduction.

· We have undertaken streetscape microclimate modelling with a university to understand the canopy cooling effect.

· We use LiDAR datasets and aerial images to quantify canopy cover and change.

· We manage urban cooling for people by quantifying the shaded space in areas of vulnerable population, high pedestrian thoroughfare and high cycling activity.

· We regularly report and map our open space expansion.

· We currently use the eWater MUSIC software program for predicting water quality and tracking our progress towards the alternative water source target. In future, the metered data from these projects will complement or replace the modelled data.

3．Innovative tools or methods

(1)Program

· For the tree planting program, we used thermal image analysis to target planting in the City's hottest areas. We also analysed the distribution of the most heat-vulnerable populations to prioritize planting.

· We used participation methodologies for our four year community engagement work.

(2)Research

· Our project, "Green the Laneways", used a GIS based tool to identify the most suitable location for green roof, façade and wall innovation.

· The GIS and hydrology based "Integrated Climate Change Model" is being developed to identify best location for most cost-efficient green and grey infrastructure interventions response to both drought and flood.

(3)Advocacy

· Our "Urban Forest Visual" (http://melbourneurbanforestvisual.com.au/) website to interact with the community.

· We hosted a series of green roof forums and workshops to catalyse alternative green infrastructure projects.

4．Impact of the initiative

The initiative contributes to the City Of Melbourne's reputation as a bold, visionary and sustainable city. It also enhances Melbourne's reputation as the most liveable

city in the world. The work has been awarded the:

· United Nations Association of Australia 2013 Award for "Best Specific Environmental Initiative"

· Banksia Foundation Australia Climate Adaptation Award 2013

· Finalist for the 2014 C40 Cities International Cities Award Category for Climate Change Adaptation

The work has been written about in the local and national media and the approach is being studied by academics in Australia, South America and the USA.

↘ Strengths of the initiative and innovation

Our innovative aspect is that we are using an ecosystem based climate adaptation approach using green infrastructure to cool our city by 4°C degrees by 2040.

Despite the fact that no other city in the world has ever set up such ambitious target, we are confident this can be achieved by doubling tree canopy from 20% to 40% and maintaining the health and resilience of our urban forest.

We take an holistic approach to ensure successful delivery of this target is worth sharing with fellow cities and regions:

· To double the tree canopy, we have implemented our annual tree planting program to plant 3000 trees every year in the city. To strategically guide the tree planting, seven urban forest precinct plans have been developed, which prioritise street upgrades using thermal image of existing hotspots and the distribution of most heat-vulnerable populations.

To achieve the 4°C degree cooling effect, we need a diverse, healthy and resilient urban forest to maximize its ecosystem functions. For that, we have developed a suite of urban forest health management programs. This includes the 'Urban Forest Diversity Guidelines' utilising a scientifically-based matrix to support the selection of appropriate trees for each street typology. The selection matrix and list are also scheduled to be reviewed and updated by 2015.

· To support the urban forest canopy cover, we have built a stormwater harvesting network, this is now contributing to securing 25% of the water required for landscape irrigation annually by capturing rainfall. Even during future drought, this network will provide us with water security in a cost effective manner.

· We clearly understand that we need huge support from the community. A 4 year community engagement plan has been developed and communities have been invited to co-design our Urban Forest Precinct Plans.

· We have also trialled a range of innovative approaches (refer to additional material) to raise the public awareness around our urban forest, including:(i)The urban forest design competition which successfully raise the public awareness around urban forest in the City.(ii)The interactive "urban forest visual" website which not only map each individual tree in relation to its species and health, but also enables the community to establish/express their personal attachment to individual trees. (iii)The "Triage" whereby we commissioned two artists to turn a vandalised dead tree into a victorious street art, promoting the importance of our urban forest.

· We understand the success of the target delivery also requires long term financial commitment which usually is challenging. Since 2010, we have secured investment of $40 million from the Council and in partnerships with the State and the Federal government.

· Besides the on-going dedicated budget from the Council, we have also progressed in a planning scheme amendment introducing the 'open space contribution framework' ensuring private sector developments financially contribute to green infrastructure provision.

· We understand the need for scientific proof to drive the public and political agenda towards long term investment on green infrastructure. Hence, we are currently working with the Victoria University on developing an economic framework to assess the economic value of our green infrastructure and its ecosystem and social benefits.

Rio de Janeiro

A World Leading Emergency Control Center

🔲 **Name of City/Community**: Rio de Janeiro
📍 **Name of Province/State**: Rio de Janeiro
📍 **Name of Country/Region**: Brazil
🌐 **Geographic Region:** Latin America & Caribbean
👫 **Population**: 6,320,446
⚙ **Surface Area:** 1,224.56 km^2
👥 **Population Density:** 5,163 persons/km^2
📊 **GDP per capita:** US$ 14,823
💬 **Title of the Initiative:** Rio Operations Center: integrating data and monitoring utilities in a truly intelligent system.
🕐 **Start date of the initiative:** December 2010
⚙ **Thematic areas:** Governance/Management, Technology

👤 **Comments from the Technical Committee**：Rio de Janeiro has been hit hard by repeated Atlantic storms imperiling the city. This especially affects the mostly low income settlements that are located on the high slopes surrounding the metropolis and are prone to devastating landslides. Following a vicious storm in 2010, Rio de Janeiro decided to create a center that operates 24 hours a day, staffed by officials from 30 city departments. This center has become a global model showing the benefits that can be derived from collaboration, alignment and data sharing across city divisions. Since the facility went on-line, employing some of the latest information communication technology and weather forecasting systems, there have been no deaths caused by landslides. The model has had many other benefits for the day-to-day management of the city. Traffic emergency time response has been reduced significantly with citizens alerted about traffic snarl ups and accidents and redirected to the best routes. Data gathered for the center also enables the identification of neighborhoods with higher dengue fever infection rates. In planning the facility, Rio officials visited alert centers in Madrid, Seoul and New York, and have since forged cooperation with Johannesburg as it plans a similar system.

↘ Background Information

The Rio Operations Center (COR, in the acronym in Portuguese) was officially created by Municipal Decree 33.322, of December 23, 2010, which determined its responsibility to control the city´s daily operations, integrating several departments involved in Rio´s routine; and to manage crisis and emergency situations. The Decree also established that COR should interact with the media in disseminating and receiving information related to crises and process information from the 1746 Hot Line.

| Operation center

↘ Origins of the initiative

1. Reasons

In April 2010, the city endured heavy rains (over 304mm in 24h) and 68 people died due to landslides. Consequently, many actions and projects have been developed with the goal of increasing the city´s resilience.

22.72% of the city´s population (around 1.47 million) lives in vulnerable low-income communities, most of which located in slopes. A 2010 study conducted by GEO-Rio (Rio Institute of Geotechnical Foundation) identified 20,000 households on high geological risk areas - 2,000 of them have already been relocated through public housing programs.

Inaugurated in December 2010, COR was created primarily for risk management and prevention though it soon became clear that it was also a strategic tool for administrating urban mobility and coordinating large scale events.

COR gathers almost 30 city departments, public agencies and utility companies, as well as State Government's representatives. It enables a new administration model that provides communication and coordination between public entities, facilitates information sharing and enables prompt and efficient decision-making processes. COR not only provides, but also exchanges information with the public through the media and social networks.

The daily learning process of how to conduct the city´s dynamics with COR as a new operational management focal point has contributed to improve planning for major events such as the 2013 World Youth Day and the 2014 World Cup. This experience buildup prepares Rio to host the 2016 Olympic and Paralympic Games.

2. Goals

The promotion of greater integration - internal and external - of the municipal administration has been established as one of the city's guidelines in the city´s strategic plan.

COR was designed to improve the cooperation and the communication between government entities, and to deliver relevant information for public departments and the population. It increased the capillarity of municipal departments and their reach. Its goal is to monitor and optimize the city´s operations, as well as anticipate solutions and minimize occurrences.

COR has three areas of operation: risk prevention and management, city´s operations and large scale events.

Aiming to improve the city´s traffic, Rio City Hall is currently investing in new monitoring cameras, smart traffic lights, electronic panels and traffic meters. As to information technology, the goal is to acquire equipment, create a new data

center and implement structuring systems by 2016.

3．Principal parties and partners

(1)Public: COR is a Rio de Janeiro City Hall initiative. Its technological platform development was done by the Municipal Company of Information Technology (Iplan) and the Pereira Passos Municipal Institute of Urbanism (IPP).

(2)Private: COR was designed based on the technological expertise of partners such as: IBM, Bilfinger, Cisco, Samsung and Google. Using Google Earth technology, it was possible for Iplan to create an integrated system of georeferenced data from all municipal assets involved in Rio´s daily operational routine – the Geoportal software. The Operations Center collaborated with Oi and TIM (telecom companies), which implemented the links for data transmission.

The 60m^2 videowall in the control room (24x2.50m), is composed of 80 46-inch monitors, which rely on Bilfinger and Samsung technologies. Cisco provided the tele-presence system, and Itautec provided the computer network used by employees of the Operations Center.

4．Resources

City Hall constructed a three-story building at a total cost, including equipment, of R$ 20 million (approximately US$ 8.9 million). The Control Room - the heart of the project - where 200 controllers, in three 24/7 shifts, monitor the city in real time, receiving images from over 900 cameras, through 30 km of fiber optic cable.

⬇ Innovative aspect(s) of the initiative

1．Revolutionary innovations

The Rio Operations Center can be considered a revolutionary initiative. Similar centers in the world, such as CISEM in Madrid, coordinate police, fire and ambulance services. COR is unique in the world due to the quantity of public

| Control Room

services and concessionaries integrated.

2．Characteristics

The enormous quantity of data collected by COR and the 1746 Hot Line is also being used in other initiatives.

The 1746 Hot Line is a communication channel with City Hall, whereby citizens can report problems, requests and complaints about city services, get information about debts, fines and permits, and even tourist information. Along with the communication strategy, transparency and the digital engagement of citizens is fostered.

To process all data generated in COR, City Hall created the Big Data department "PENSA - Ideas Room" in June 2013. This new department aims to search, analyze and evaluate correlations and define impacts by crossing different databases, in order to improve service delivery to citizens.

"PENSA" possesses access to all municipal databases. Big data management enables research to look for patterns and analysis that could not be achieved

| Crisis Room

otherwise. It is possible, consequently, to plan policies based on accurate information. Now, data generated, for instance, by the daily management of traffic operations are now also used for public transportation policy and traffic planning.

3．How the innovation is related to other experiences and parties

During the COR´s conception, city officials visited similar centers in Madrid, Seoul and New York.

COR has been visited by dozens of delegations, including government officials, private companies and university students.

In a bilateral cooperation agreement signed earlier this year, Johannesburg will build an operations center modelled on COR.

4．Obstacles or resistance

COR faced several challenges such as human resources. The 400 people in the staff go through continuous training and simulation exercises.

Additionally, there is the issue of each department and concessionary´s organizational background. Through the years, each developed its standard

procedures. The decision making process used to be fractionated. In most cases, communication was done bilaterally. Departmental rivalries and information withholding had to be overcome.

By integrating all stakeholders in the same room, all departments receive information simultaneously and in contact with other agencies. This collaboration constitutes a daily learning process. COR is not vertically structured, thus these interactions are constantly improved. Protocols for coordinating actions in over 150 types of occurrences were established.

◥ Desired change or outcome and how it is measured

1．Achievements

The emergency response time was reduced by 30%. When any traffic incident is identified, traffic teams are rapidly sent to the location to solve it. The city´s map, with over 80 digital layers, shows data such as the present location of all municipal vehicles and equipment.

In the case of street maintenance, the center coordinates the municipal or concessionaries' teams responsible for the repair and traffic control.

Another example was the work developed on dengue fever, a mosquito-transmitted disease with a high incidence level on summer. The geographical analysis of cases enabled the identification of the neighborhoods with the highest infection rates. City Hall used the information to implement preventive actions.

The center improved the city´s management efficiency in many different areas - public transportation is one of them. Transportation is a major challenge in megacities like Rio de Janeiro and increased efficiency and use of public transportation are key to a sustainable urban development. Representatives of Bus, BRTs, Train, Ferry and Subway companies are present at COR.

The communication strategy is key to alert the population about these incidents and redirect them to the best alternative. Waze is one of the tools used, as well

as three daily bulletins reporting the main occurrences are released on COR's website, by SMS, Twitter and Facebook accounts as well as radio and TV stations which are present 24/7 in the COR.

2．Criteria for assessing the achievements

The first important indicative is the increased resilience provided by COR and complementary municipal policies. Since 2011, there have been no deaths caused by landslides in Rio de Janeiro.

As to mobility, COR enables the work of an efficient communication system for occurrences caused by traffic. Before COR, issues related to displacement of any character were informed to each department separately. Nowadays, information related to road problems or traffic recommendation are informed to COR, since all departments and transport concessionaries have representatives in the Control Room, and field representatives are informed automatically by that same agency. Moreover, the population is informed faster and more accurately on incidents, since the Press Room allows information dissemination through social media, radio and television.

3．Innovative tools or methods

The effort to increase the city´s resilience involved a comprehensive set of measures. COR has a team composed of four meteorologists and seven technicians that work 24/7 monitoring the weather conditions with a variety of online information mechanisms. The whole weather technological system is linked to the National Space Research Institute (INPE) computers. The municipality´s own weather radar produces updated images every 2 minutes, informing the humidity and precipitations´ localization, displacement, and intensity. The Rainfall Monitoring Network, composed by over 100 gauges, has a 250 km² operational range, and not only predicts the expected rain volume (updated every 15 minutes), but also identifies which city areas will be the most

affected as well as information about lightning discharges and wind speed.

When COR identifies a high risk of landslides, the population is informed through SMS, Twitter, Facebook, and alarm sirens, located in the most dangerous areas, that are triggered so that residents may proceed to pre-established shelters. The residences of citizens with disabilities are georeferenced for fast evacuation by community agents.

As an effort to educate the dwellers on how to prepare to risk situations, the Civil Defense created the Community Protection Program focusing on three subjects: (i) Training of Community Agents, (ii) Community Alarm and Alert System, and (iii) Simulation Exercises at Public Schools.

4．Impact of the initiative

Rio de Janeiro City Hall is committed to a paradigm shift and transformation of the city, with a long-term strategic plan to become a smart city reference, investing in innovation and efficiency for a sustainable, inclusive and resilient urban administration.

The city is undergoing a bold transformation, taking advantage of a calendar that includes major sporting events such as the Summer Olympics and Paralympics in 2016. Rio de Janeiro is on the spotlight with these events, which is the perfect opportunity to portray the city´s transformation and its potential.

↘ Strengths of the initiative and innovation

COR has three areas of operation: risk prevention and management, city´s operations and major public events.

Risk prevention and management aims to save lives. This area includes the weather forecast, rainfall volume monitoring, and general security measures. This integration of data and teams made the Operations Center the focal point for crisis situations management in a city historically suffering from heavy rains and flooding.

In routine operations, through tools of intelligent monitoring and direct contact with the field teams, the Operations Center becomes aware on any occurrence of which impact on the city's routine, responds with the necessary steps and guides the public about how to proceed to circumvent possible problems. Information about what happens in Rio and response actions to unexpected events is provided by all agencies and concessionaires of public services integrated in COR.

The communication with all media outlets is a two-way exchange of information that amplifies the communication of the municipal authorities´ messages, thus increasing its capillarity, and recommendations to the population. The media also warns the COR whenever there is an atypical event notified by their audiences.

COR facilities include a Control Room where the operators work facing a videowall. The Crisis Room is used for emergency meetings with different departments, connected to two other small crisis rooms, one at the mayor's official residence, and the other at the Civil Defense Service. The Press Room is where media representatives are constantly releasing alerts to the population.

The creation of a channel of communication improves the public policy quality, and guarantees transparency, accountability and public trust. As part of the municipal administration innovation for a high performance management, these projects are necessary tools to the future of Rio de Janeiro as a Smart City.

In an increasingly urbanized world, with local governments facing several challenges such as traffic, hampering more and more citizen´s lives and the consequences of climate change, with the proliferation of severe weather related events, an operations center is a strategic tool for smart megacities.

Annex: List of 30 Deserving Initiatives
(By alphabetical order)

City	Initiative
Bogota	Zero Waste Program: a focus in reuse with social inclusion
Bremen	Livable streets, livable city! Sustainable Mobility and Car-Sharing - key for reclaiming street space
Brussel	CLts, an innovative and participative home ownership model
Budapest	Coming Soon! - Rögtön Jövök!
Büyükçekmece	Our disabilities don't have to stop us!
Changwon	Resident-led Urban Planning "Building the Best (Eutteum) Neighborhood" Project
Dubuque	Smarter Sustainable Dubuque
Galle	"Make green & clean bio energy city in Galle"
Kisumu	Waste to wealth
Kunming	Free bus service by the rlderly in Kunming
Laiwu	Respect the Low-Income Citizens' Right of House Selection
Lisbon	Lisbon Local Development Strategy for Neighborhoods or Areas of Priority Intervention (BIP/ZIP)
Lusaka	Know Your City - A 2030 City Without Slums
Malmö	Climate smart Hyllie
Mexico City	"Calle Completa" Línea 5 de Metrobús
Ottawa	Ottawa's Innovative Spirit: Transforming an Economy through Diversification and Entrepreneurship
Petaling Jaya	Greening the Grassroots - A Journey for Sustainability Petaling Jaya
Phitsanulok	Phitsanulok: Low carbon city with integration of stakeholders by taking activities on reducing Green House Gas emission and MRV system to sustainability environment city
Porto Alegre	Datapoa-The open data project of the City of Porto Alegre
Recife	Recife pact for life-Urban Security and Violence Prevention City Plan
Rostov	In step with the time: Socially - oriented project for adaptation of elderly people to information technology
Sabadell	Sabadell smart city as a catalyst for building the city of the future
São Paulo State	State Program for Prevention of Natural Disaster and Mitigation of Geohazards
Seoul	Anti-corruption clean construction System
Surabaya	Community-Based Independent Waste Management
Sylhet	Building a water-logging resilient sylhet city
Tallin	Free public transport for the residents of Tallinn
Tel Aviv	The Tel-Aviv-Yafo municipality citizens club- "Digitel"
Vancouver	West end community plan
Vienna	wien mags wissen - Making public sector knowledge management work: Creating engagement with value based management

AWARD
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