

# UEA / Gwangju Metropolitan City GHG Projections·Diagnostics Program(GPD)

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# 1. Overview of Gwangju

## 1.1 Specification

- **Population** 1.48 million
- **Area** 501.18km<sup>2</sup>
- **Administrative districts** 5 autonomous districts and 94 dong(counties)
- **Annual average temperature** Annual avg. temperature : 13.7°C  
Annual precipitation : 1,624mm
- **GRDP(gross regional domestic product)** 26.580 billion US\$ (as of 2011)
- **Export** 14.13 billion US\$ \$(2012); Import: 4.74 billion. US\$(2012)
- **Budget** 3,431 billion US\$ (as of 2013)
- **Industrial structure** Service sector 63.2%, Manufacturing 29.8%, other 7%
- **Industrial complexes** A total of 12 in 29.3km<sup>2</sup>(4 complexes are being developed)

# 1. Overview of Gwangju

## 1.2 Location



# 1. Overview of Gwangju

## 1.3 Vision

By 2050, Gwangju aims to meet all the demanded energy from the natural energy sources, so as to become a carbon-neutral (fossil-fuel free) city.

## 2. GHG Projections · Diagnostics Project (GPD): A Voluntary Approach

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### 2.1 Background of GPD

- Before initiating the development of GPD, Gwangju Metropolitan City has implemented a project named carbon banking system, focusing on the reduction of electricity, gas, and drinking water which are key emission sources of household and commercial sectors. (Material on the carbon banking system is available at UEA website : [www.ueama.org](http://www.ueama.org).)
- The carbon banking system has led to a reduction of nearly 85,000 tCO<sub>2</sub> from 2008 to 2012, and projects and estimated 973,188 tCO<sub>2</sub> by 2020.
- Based on the successful outcomes of the carbon banking system in the previous years, Gwangju further improved this system so as to analyze previous energy use and project future energy consumption and GHG emissions.
- It is expected that Gwangju/UEA GPD will be spread to UEA member cities, global cities with special interest, and special organizations in collaboration.

## 2. GHG Projections · Diagnostics Project (GPD): A Voluntary Approach

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### 2.2 Development Process of GPD to Date

- Development of the Urban CDM commenced in April, 2011, as a result of memorandum of understanding between Gwangju and United Nations Environment Programme (UNEP)
- Presentation of the initial draft in the 2013 UEA San Antonio Summit
- Presentation of the Gwangju/UEA project at the World Bank City Climate Planner Certification Program Workshop
- Development of GPD expanded version in 2014 with the financial support from the Ministry of Environment, Korea
- Publication of the full version of the GPD in February, 2015

## 2. GHG Projections · Diagnostics Project (GPD): A Voluntary Approach

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### 2.3 Purpose of GPD

- The purpose of this program is to propose the developed system to the international society in order to seek for and utilize climate response funds (e.g. GCF), so that wider range of GHG reduction projects becomes available thus contributing global climate change response in an active manner.



## 2. GHG Projections · Diagnostics Project (GPD): A Voluntary Approach

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### 2.4 Objective of Developing GPD

- To help cities prepare GHG inventory at a macro and aggregated manner at the city-scale
- To help cities develop effective tools for baseline scenario through the use of statistical projection methods
- To help cities have systematic planning and quantitative data support for low-carbon city development
- To support cities to measure collective performance with systematic and credible monitoring over time; and
- To facilitate access of cities to climate finance opportunities

## 2. GHG Projections · Diagnostics Project (GPD): A Voluntary Approach

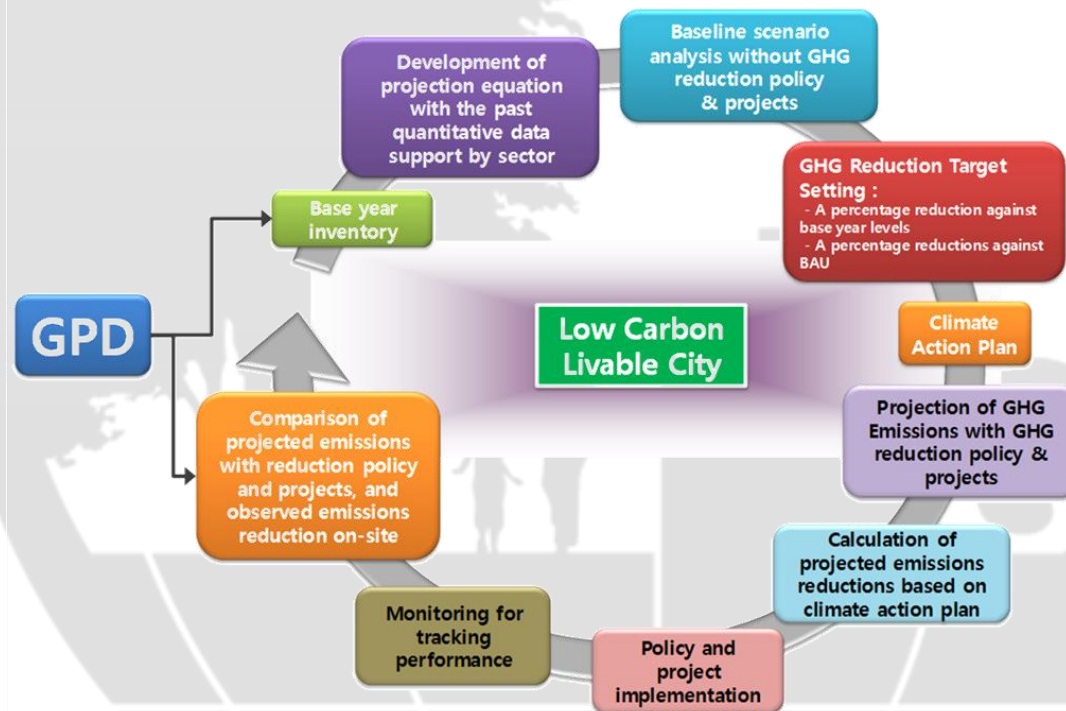
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### 2.5 Procedure of GPD for Low-Carbon Livable City Development

- As a first step, base year inventory puts its basis on a GHG inventory developed for GPD, which is made simultaneously with the typing of input data for development of project equation in the baseline scenario analysis without GHG reduction policy & projects.
- The next step consists of a series of calculations that involve projected emissions reduction based on climate action plan and observed emissions reduction on the site.
- Then the model is divided the in to a technical or market-economic optimizing.

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Figure 1: The GPD model for low-carbon livable city development



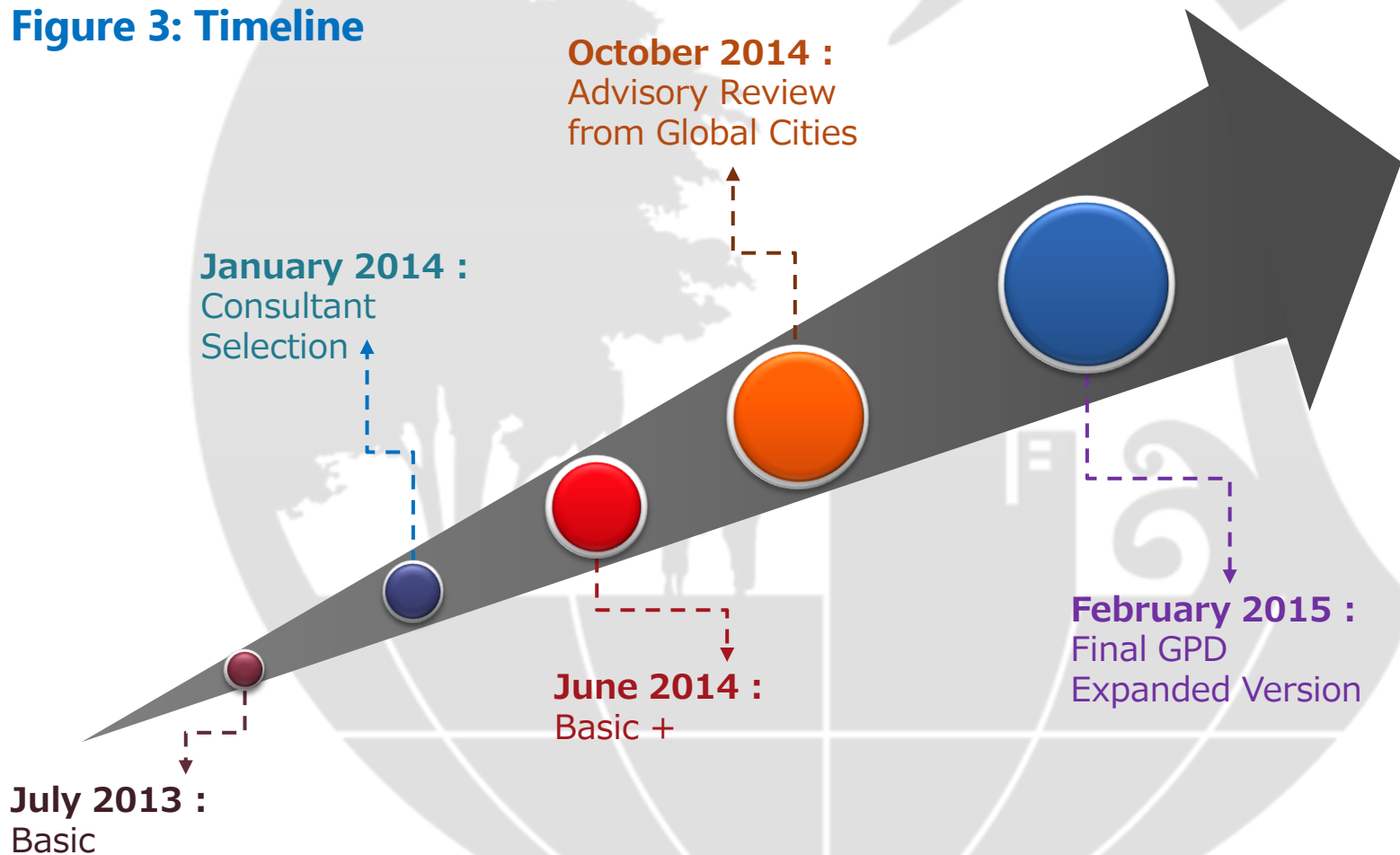
## 2. GHG Projections · Diagnostics Project (GPD): A Voluntary Approach

Figure 2: Development Plan of GPD



## 2. GHG Projections · Diagnostics Project (GPD): A Voluntary Approach

**Figure 3: Timeline**



## 2. Conclusions

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- Gwangju and UEA are seeking to establish a carbon-free city.
  - GHG Projections • Diagnostics Program (GPD) that UEA/Gwangju are currently developing will be utilized usefully not only as a tool for city carbon planning but also as for GHG accounting on different planning policy options and for economic tools.
  - Through GPD, UEA and Gwangju are making efforts to contribute to the international community by sharing accumulated technologies and experiences with cities wanting to be low-carbon livable cities.
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# Thank you!

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