Making Green Growth Operational in Urban Areas:

gg-Cloud Service for Total Management of Urban Development

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Backgrounds

➢ **Objectives of Green Growth Knowledge Platform (GGKP)**

- Enhance and expand efforts to identify and address major knowledge gaps in green growth theory and practice

- Help countries design and implement policies to move towards a green economy

➢ **Objectives of the GGKP Inaugural Conference**

- Take stock of the current understanding of the economics of green growth

- Engage researchers and practitioners in an ongoing dialogue to increase understanding of how green growth approaches can be applied in field

- <u>Identify knowledge gaps and establish priorities for knowledge-building work and implementation</u>

- Launch follow-on efforts

✓ **Objectives of this presentation**

- **to introduce lessons learned from fields (green urban regeneration projects) in Korea**

- **to provide views and suggestions of practitioners on further researches**

- **to help make green growth more operational at fields**

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A Green Urban Infra Project: CheongGye Stream

1958~1977
Covering CheongGye stream
GDP per person:
from $1,000(@1960)
to $10,459(@1978)

1950s
GDP per person:

1980~2003
GDP per person:
from $11,160(@1980)
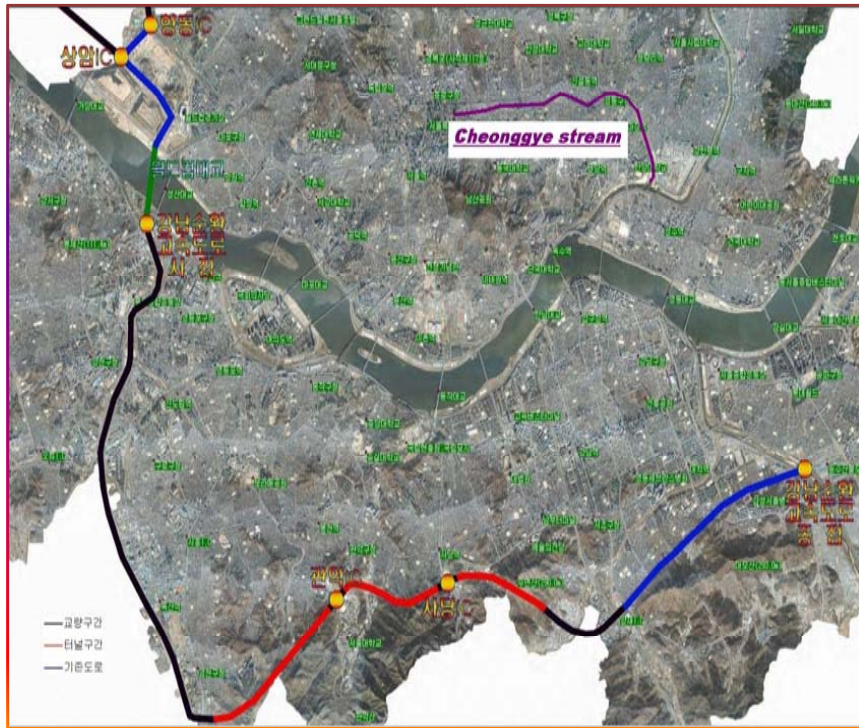**to $25,082 (@2003)**

2003~2005
Restoration of CheongGye stream
(2003~2005)
GDP per person:
from $25,082 (@2003)
to $28,306 (@2005)

Figure source: CheongGye stream website (http://www.cheonggyecheon.or.kr/)

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- Cheonggye Stream in Seoul
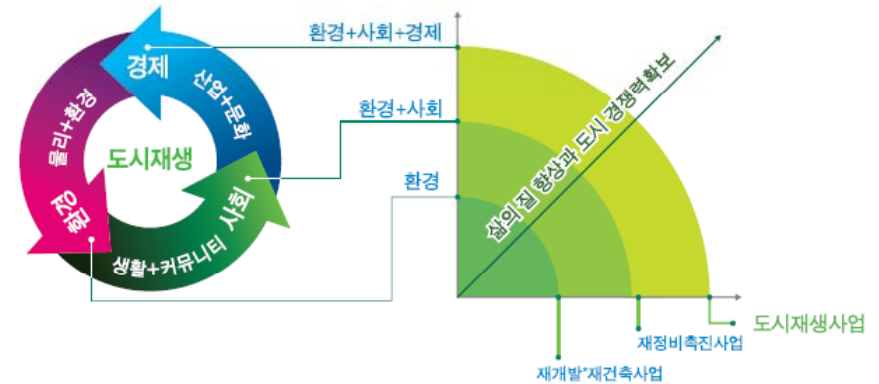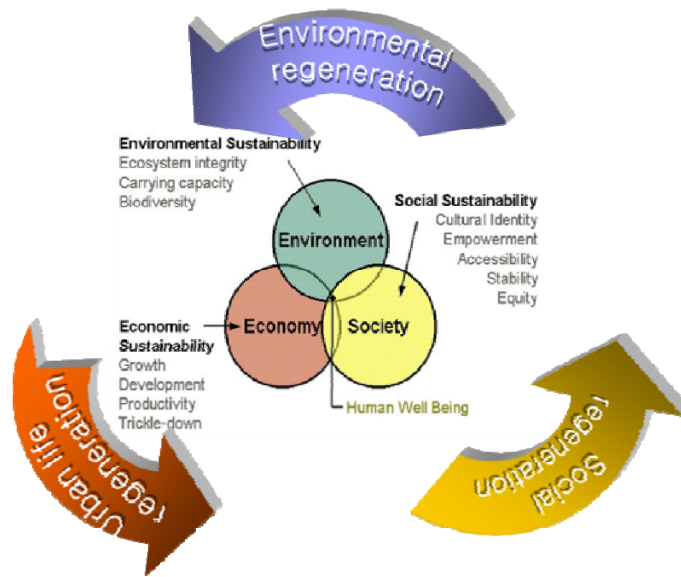
Green Urban Regeneration R&D Project

➢ Backgrounds

- ▪ The stream regeneration project becomes **globally recognized as a success.**

- ▪ **Low carbon green growth** becomes a national vision for development.

- ▪ Other cities tried **to mimic** the project with **no plan, not enough budget and tech**, and thus **no consideration of "best alternative use"** at all.

- ▪ Central gov. officials and some experts thought that

  - **Small and medium cities** do not have administrative, financial, technological and social capacity for green urban regeneration **whereas metropolitan cities may have**

  - Therefore, it is necessary **to establish legal, institutional, technological and social means to help them**

Korea Green Urban Regeneration (KRUPT) R&D Project

- Started in 2007, organized by the Korean Ministry of Land, Transport and Maritime Affairs (MLTM) with a budget of US$140M over 7 years

- *To provide legal, institutional, technical and financial means to green growth through urban regeneration (expecially for small and medidum cities)*

  - *The means should be practical in fields and can be shared by all groups of participants.*

Korea Green Urban Regeneration Project(II)

Core Technology 2
Community development for social-mix

Core Technology 1
National comprehensive strategy for regeneration

Core Technology 3
Three-dimensional mixed-space development

Core Technology 4
Urban Infrastructure Regeneration
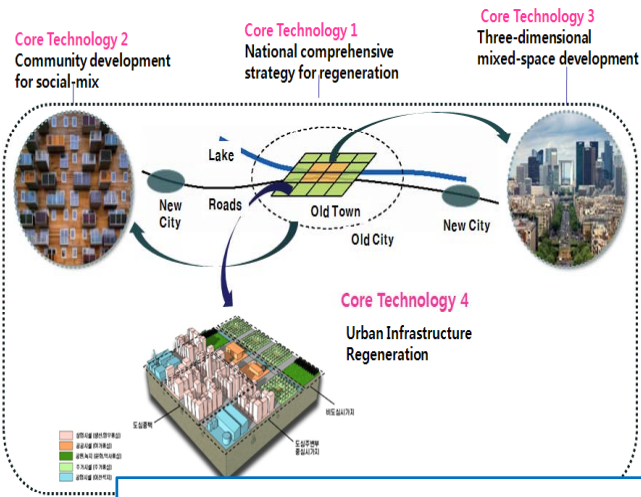
➢ Korea's green urban regeneration project is led by the **Korea Urban Renaissance Center (KURC),** composing 4 core technologies,

- **CORE 1- National comprehensive strategy for regeneration :** Developing methods to regenerate by types of old cities and developing support systems

- **CORE 2- Community Development for Social-mix :** Developing the community to elevate the quality of life to regenerate the urban areas environmentally, economically, socially.

- **CORE 3- Three-dimensional mixed-space development :** Developing methods to make the urban areas more efficient, compact and complex spaces.

- **CORE 4- Urban Infrastructure Regeneration :** Developing techniques and systems for more efficient, eco-friendly, and sustainable urban infrastructure.

Key Elements of KRUGP Test Bed Projects

Community Regeneration + Physical Regeneration + Environmental Regeneration + Economic Regeneration

Community self-supporting system

Low carbon green urban infrastructure system

Business revitalization

Community Collaboration

Community business

Reuse Recycling

Renewable energy

Safety

Ubiquitous-Eco housing

Community trust Company

Green store

Re-discovery Land

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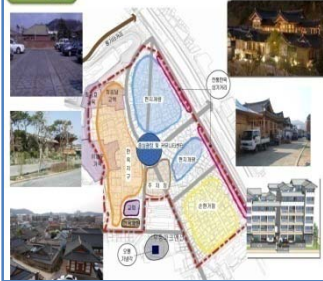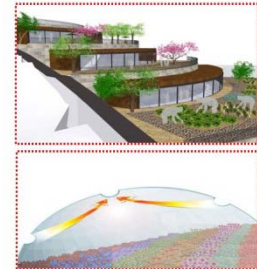
Knowledge gaps of stakeholders at Fields

Globally think, Locally act

- All stakeholders (central and local government officials, residents, experts and other interest groups) in Korean cities heard this, but not felt by heart
- So understanding on green growth and willingness to actively implement at local level are very weak

- No field manual available (administrative[1], technical[2], financial[3], social[4]…)
- So, only exhibitional projects have been pursued
- No holistic and long term plan for green growth
- Little financial resources for green growth
- So many items to change

EXAMPLES
[1] No clear policy/direction/path for urban green growth
[2] No application guidelines of currently available technologies; .
[3] Lack of connections between budget allocation and green growth strategies
[4] Different interest groups in community have different demands creating chaos where there are talks on future development.

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A framework to deal with Knowledge Gaps at fileds

REQUIREMENTS

- ✓ Sharing vision among stakeholders, building up consensus among various interest groups
- ✓ Holistic and long-term implementation plan due to block by block implementation
- ✓ Securing and managing finance
- ✓ Various demands for green growth
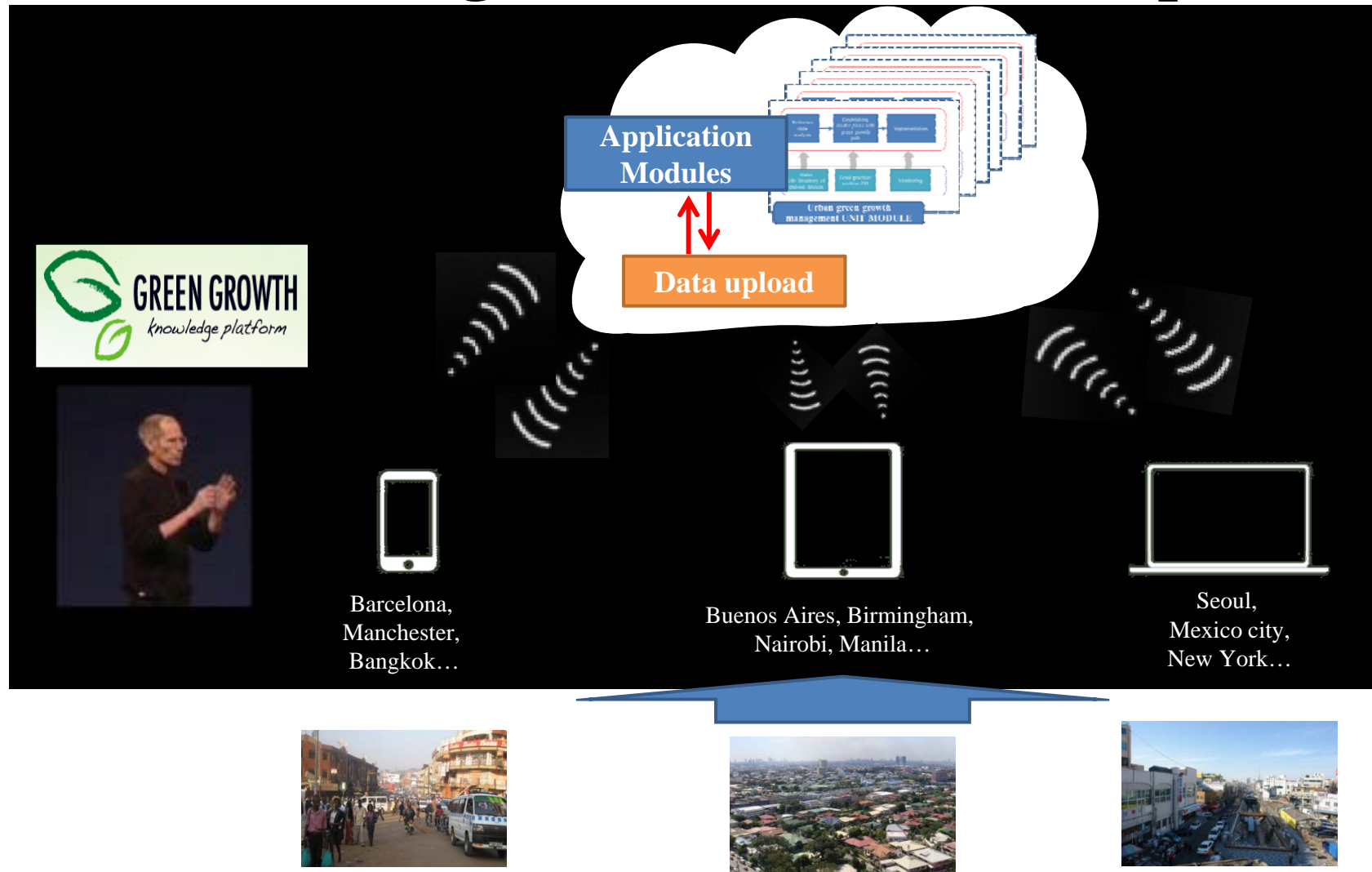- ✓ Develop Field manual

SOLUTIONS

- ✓ To share information and enhance communication (with ubiquitous)
- ✓ To maintain consistency, monitoring and feedback globally and over a long period of time
- ✓ Self supporting + government incentive
- ✓ To improve data gathering and to develop analysis and evaluation tools working at local and field level.
- ✓ Bottom-up approach based on end-use devises and facilities; Need to build up their inventory DB

→ **Establishment of gg-Cloud service for total management of urban development**

※ Strengths

- ➢ **Cloud service: 1)** Ubiquitous Service (anytime, anywhere), **2)** Storing all kinds of data, **3)** Improving connectivity among stakeholders and issues (sharing information and smooth communication), **4)** Efficient update (and feedback) **5)** Building up experiences and reliability
- ➢ **Total management: 1)** Continuous improvement and management of process, **2)** Set-up of objectives based on demands of stakeholders , **3)** Improvement of productivity and efficiency to reduce unnecessary efforts and time
- ➢ **All are suitable for implementation of GG at field and local level.**

A scheme of gg-Cloud service for total management of urban development

Application Modules

Data upload

GREEN GROWTH
knowledge platform

Barcelona, Manchester, Bangkok…

Buenos Aires, Birmingham, Nairobi, Manila…

Seoul, Mexico city, New York…

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gg-Cloud service for total management of urban development

➢ **Objectives**

Enhance Understanding of Stakeholders

- Knowledge base to improve communication and sharing information among stakeholders
- Making available abundant information anytime and anywhere

Maintain consistent implementation globally and over a long period of time

- Holistic approaches for long-term green growth
- Continuous monitoring and feedback

Encourage financially self-supporting process

- Strategies for community cooperation for profits and to fund green development
- Economic and business revitalization

Identify a green growth path for a city

- Provide various tools for data gathering, analysis, evaluation, monitoring, and feedack
- Identify a green growth path with an optimum mix of options for given conditions

Establish data inventory system for local and field-level management of GG

- Establish data inventory system for efficient uploading of current conditions of cities
- Create data inventory with end-use devices and facilities for local and field-level implementation and management of GG

An Example Structure of Engineering Analysis Modules of gg-Cloud service

7 functional domains

- Urban planning and Land-use management module
- Transportation management module
- Resource efficiency management module
- Urban ecology management module
- Building management module
- Energy management module
- Human development management module

Urban green growth management UNIT MODULE

- Reference state analysis
- Establishing master plans with green growth path
- Implementation
- Status DB/ Inventory of end-use devices
- Good practice/ soultion DB
- Monitoring

Spatial domains for analysis and evaluation

URBAN AREA

DISTRICT
- Urban planning and Land-Use
- Transportation

BLOCK
- Resource Efficiency
- Urban Ecology

BUILDING
- Building

INPUT
- Energy
- Water
- Material
- Energy

OUTPUT
- Side-product
- Pollutant
- GHG
- Waste
- Wastewater

PROCESS
- Human development
- Lifestyle

Total Management

(Note: Modules for any kinds of analysis and evaluation can be added to a platform)

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Conclusion

- Green growth (GG) in urban areas should proceed by overcoming unique knowledge gaps due to their characteristics such as many stakeholders, long-term implementation, lack of financial resources, and citizen's participation.

- Need to establish a framework working at fields and facilitating
  - To share information and enhance communication at fields
  - To spatially and temporally maintain consistency of green urban development
  - To monitor their progresses for feedback and global collaboration
  - To provide options (financial, technical, etc.) which can be pursued by communities
  - To provide various tools for data-gathering, analysis, evaluation, monitoring, etc.
  - To implement GG plans on long-term perspectives (with step by step approaches, and more flexibility)
  - To see (all kinds of) details (end-use devises and facilities) of operation fields
  - To establish inventory of end-use devices and facilities

- gg-Cloud service can help create such a global framework for local application.

Thank you for your attention!