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Directives of National R&D and Major projects related to Geographic Information System in Korea

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Contents

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Objectives

- ***Orientation on*** *National R&D and Major projects related to Geographic Information System in Korea.*
- ***Directives*** *to improve U-Eco city application based on GIS in Korea.*
- ***Projection of*** *the Potential applicable fields.*

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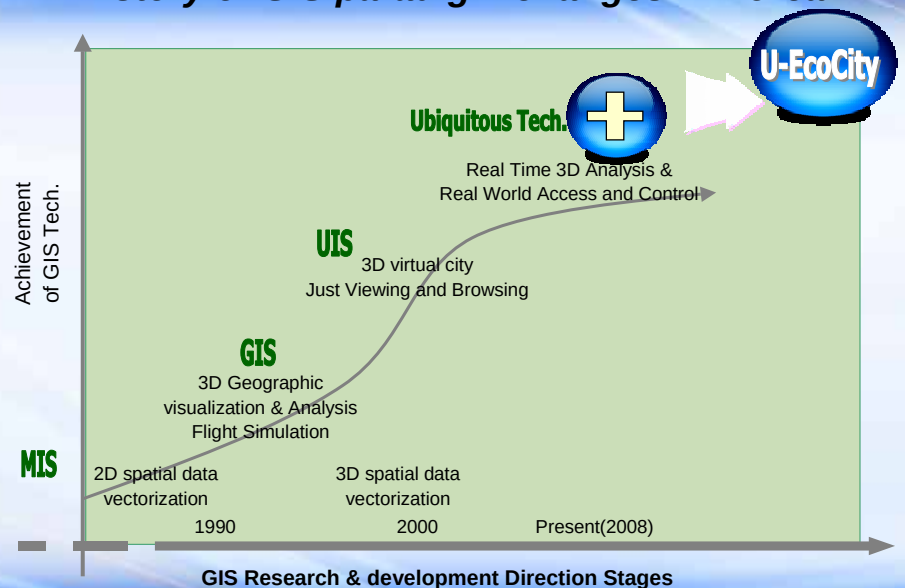
History of GIS paradigm changes in Korea



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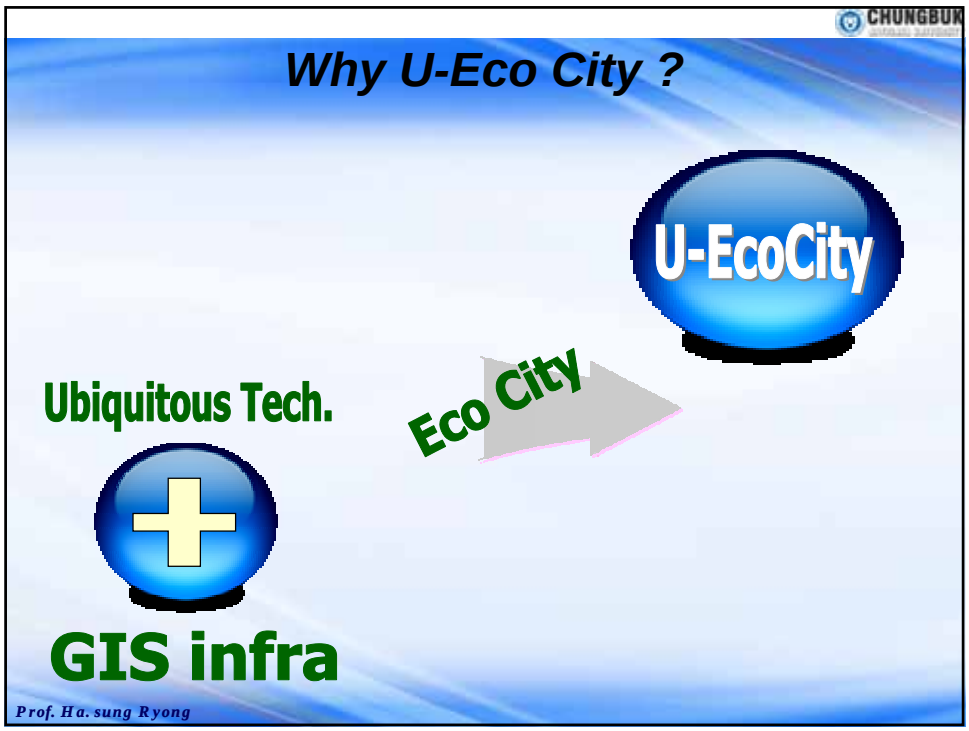
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Why U-Eco City ?
U-EcoCity
Ubiquitous Tech.
Eco City
GIS infra
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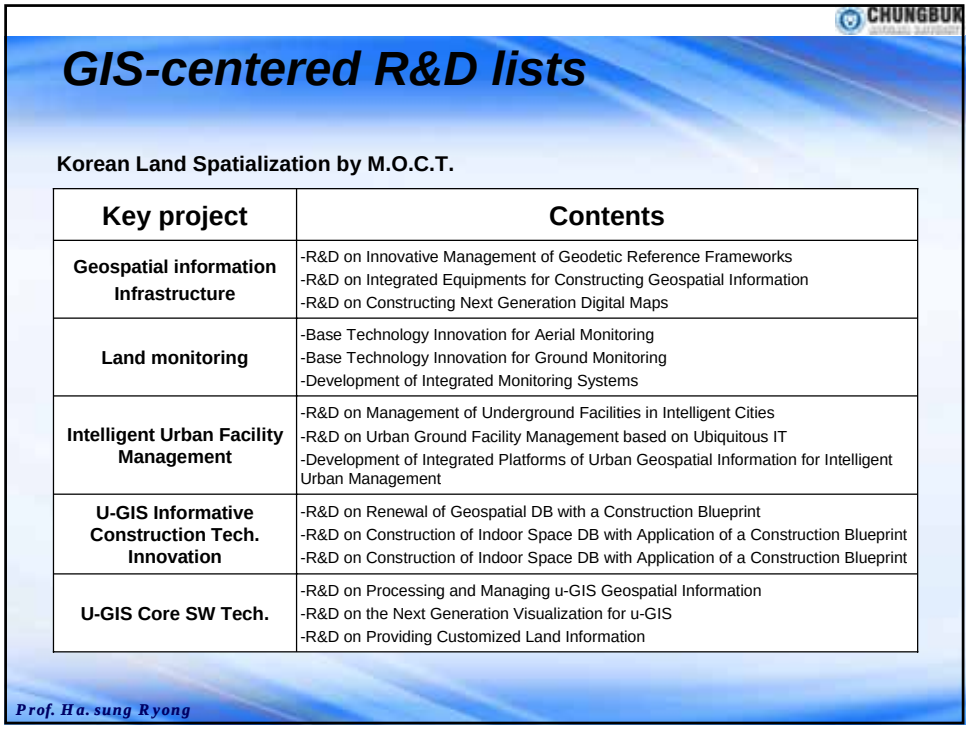
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GIS-centered R&D lists
Korean Land Spatialization by M.O.C.T.
Key project
Contents
Geospatial information Infrastructure
-R&D on Innovative Management of Geodetic Reference Frameworks
-R&D on Integrated Equipments for Constructing Geospatial Information
-R&D on Constructing Next Generation Digital Maps
Land monitoring
-Base Technology Innovation for Aerial Monitoring
-Base Technology Innovation for Ground Monitoring
-Development of Integrated Monitoring Systems
Intelligent Urban Facility Management
-R&D on Management of Underground Facilities in Intelligent Cities
-R&D on Urban Ground Facility Management based on Ubiquitous IT
-Development of Integrated Platforms of Urban Geospatial Information for Intelligent Urban Management
U-GIS Informative Construction Tech. Innovation
-R&D on Renewal of Geospatial DB with a Construction Blueprint
-R&D on Construction of Indoor Space DB with Application of a Construction Blueprint
-R&D on Construction of Indoor Space DB with Application of a Construction Blueprint
U-GIS Core SW Tech.
-R&D on Processing and Managing u-GIS Geospatial Information
-R&D on the Next Generation Visualization for u-GIS
-R&D on Providing Customized Land Information
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Issues left behind…

- **Where do we have to apply the National GIS-infra ?**
  - *Selected Target is "Urban"*
  - *Good infrastructure of GIS/RS*
  - *Good market opportunity of commercial use of GIS*
- **How to maximize the utility of GIS Tech.**
  - *Confederation of telecommunication Tech. with GIS tech in Urban.*
  - *GIS incorporated with RFID tech.* ▸ *U-city*

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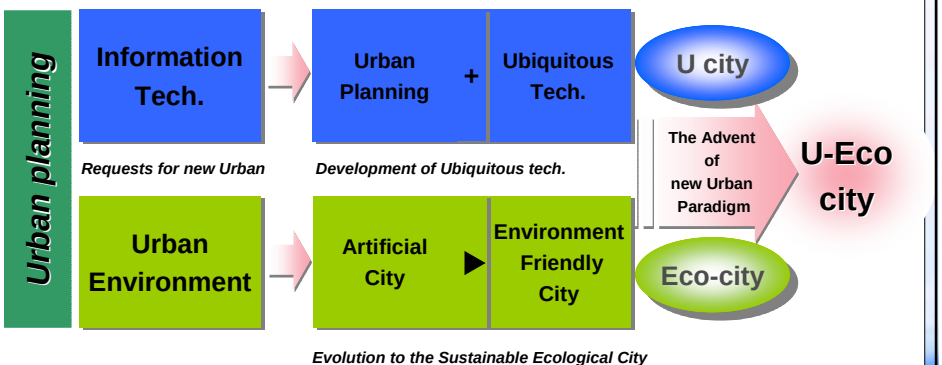
A Necessity of U-Eco City Project

Urban troubles + City Competitiveness = Paradigm shift

Increasing Requests for future Urban Concept

City paradigm shift ; Convergence between IT & Ecological city



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Government policies

National frontier policies related to U-City		National Eco-Friendly policies related to Eco-city	
Ministry of Construction & Transportation	- Legislation of a new law supporting U-city Construction - U-city Activation Master Plan - ITS project	Ministry of Construction & Transportation	- Legislation of landscape law - Development of architectural culture - Reducing Measures for building on greenhouse gas - Maintenance plans for Environment Friendly liver system
Korea Communications Commission	- U-Korea Strategies - BcN Prj. - U-IT839 strategies	Ministry of Environment	- Comprehensive water management plans - Introduction of S.E.A. - Natural landscape influence system - Development of next generation essential environmental tech. (Eco technopia 21)
Ministry of Public Administration & Security	- NGcN Prj. - Local Informatization - Improvement of administration services		
Ministry of Science & Technology	- Fostering new industry - Developing high tech. on Key industry - Fostering service industry	Ministry of Science & Technology	- Fostering new industry - Developing high tech. on Key industry - Fostering service industry
Ministry of Culture & Tourism	- 5y. plan on culture industry development - culture industry vision 21 - Standardization of Digital Contents	Ministry of Knowledge economy	- Using & developing New & recycled energy

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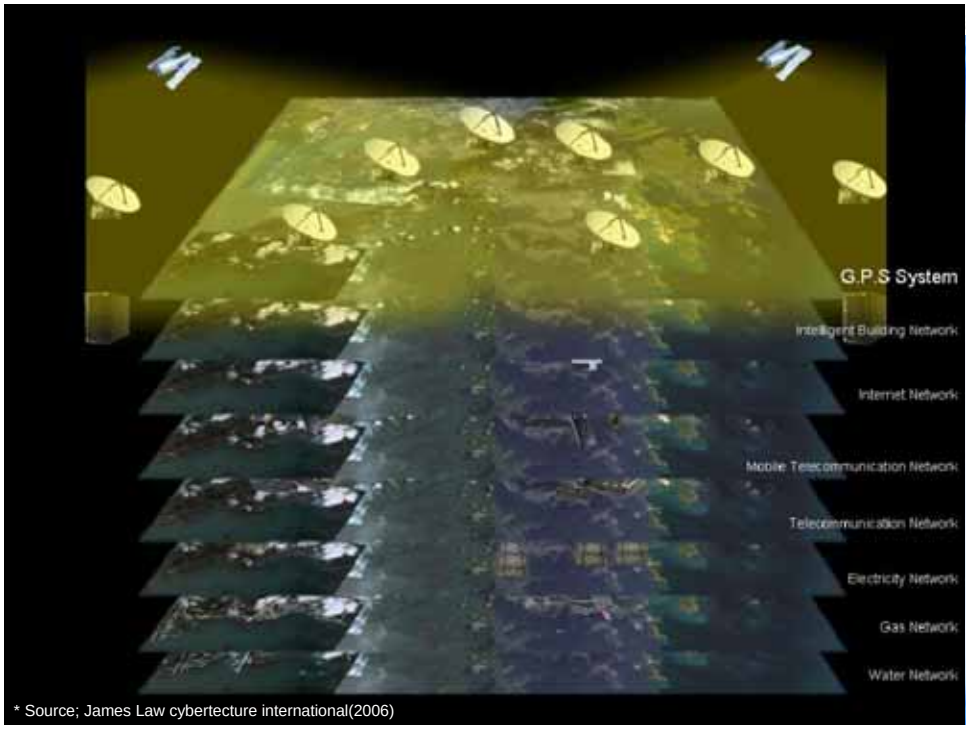
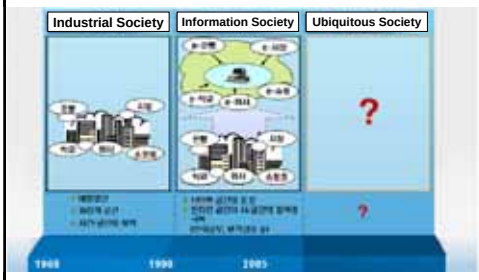
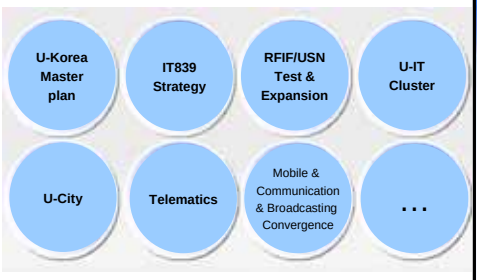


* Source; James Law cybertecture international(2006)

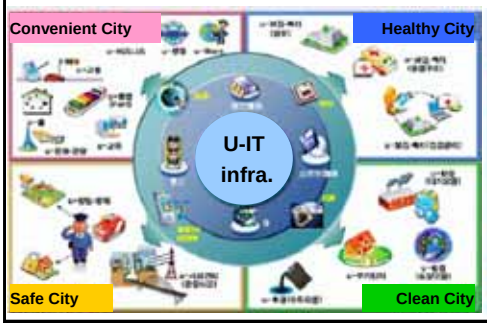
The advent of Ubiquitous society



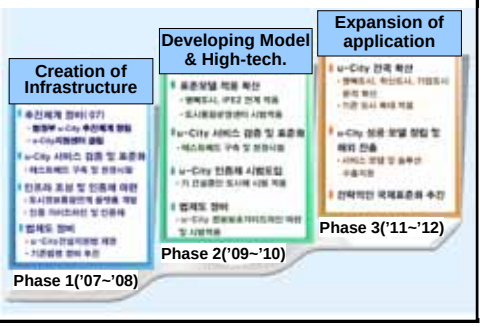
Policies to acquire Ubiquitous society



Concept of the U-City



Application Schedule for U-City project

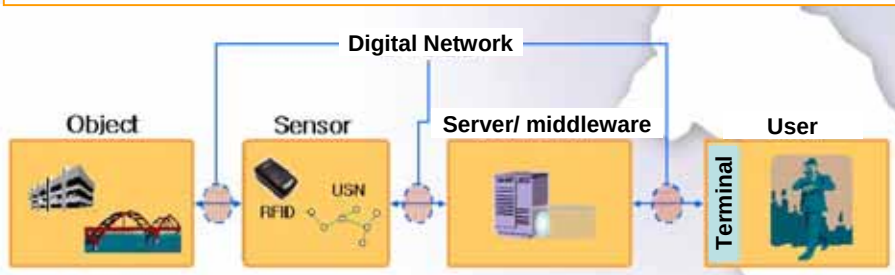


Concepts of Technological Development

U-City Service Components

- ***U-City Service*** compose of *Object, Sensor Network, Digital Network, Middleware/Platform and User* largely.

① Object : A Target for Collecting
② Sensor Network : Unit sensor or sensor network for collecting data
③ Digital Network : cable/wireless communication network for data transfer
④ Middle ware/Platform : data-processing, management, service integration
⑤ User : Acquiring data or searching for through a terminal



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Applied Technologies - GIS /Sensor

U-city taskforce composition

U-city governance
(U-city forum, U-city committee)

Korea Communications Commission

- Standardization of U-service /tech. & Creation of IT-Infra.
- Regulation maintenance related to u-IT

(Ubiquitous)

U-City Taskforce

M. of Construction & Transportation

- Regional Balanced development & Urban development policies
- Regulation maintenance related to urban development

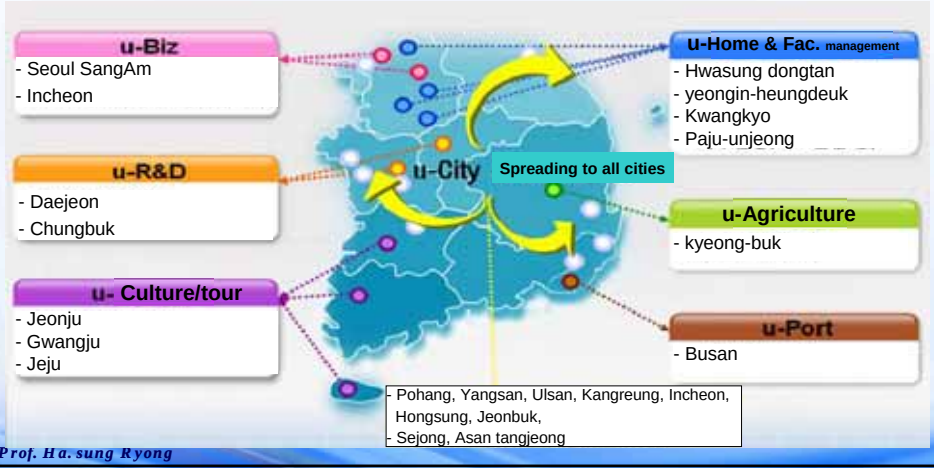
(City)

Local government

- Activating Regional Economy through developing specified service
- Improving the local citizen's Quality of Life

Case studies of U-city in Korea

U –city project has been implemented in 14 existing city (seoul, busan and etc.) **and 8 new town** (sejeong city, hwa-sung and dong-tan).



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Issues & Considerations

Issues		Considerations
Service Design	- Feasibility - Deficient procedural plan - A Need for specified plan	Customer Satisfaction-oriented
Service Provider	- Network infra, Control center centred plan - A need for Advanced tech of Existing info. system	Sustainable Biz model
Implementation Plan	- Deficiency of Existing resource use - Deficient consideration for User contentment - A need for Regulation improvement	Feasible service for Present
Invest / cost	- Similarity to Privious plan"digital city" - A need for countermeasures for Financial trouble	Possible tech. solution base

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Principle issues

Troubles	Contents
Overestimated U-City	- U-city offered by Urban supplier is "Public service " - User expect SF level private service by misconception.
Deficient Financial resource of local gov.	- Decrease of population in local society cause financial difficulties - U-city has been selected as a Future city model but financial trouble prohibit continuous implementation.
Limitations by regulation	- Enormous budget is need to set up and operate. - Revenue-making business is needed for sustainable operation - Various regulations hinder business.
Deficient Professional workforce & Organization	- Insufficient professional workforce (administration + urban planning + Information & communication + consulting) - Operating Organization for U-city is not prepared in local gov.

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Essential Technologies for E-Eco City Project

Key 1. Future city strategies & U-city support policies

- U-city Future Social phases & Future Space
- Changes prediction of U-city Space structure & Sound spatial structural model
- Development & application of U-city space planning & design tech
- Mid-long term strategies for the efficient implementation of U-city
- Supporting policies for Efficient application of U-city

Key 2. U-city Infrastructure Construction Tech.

- U-city Future Infrastructure creation & Use tech.
- Development of Tech. for the integrated city operation center
- Merchandizing Essential strategic tech. for implementing U- city

Key 3. U-Space Creation Tech.

- Building standards for constructing U-city
- Development of Public service tech. for constructing U-space
- Development of private service tech. for constructing U-space

Key 4. U-based Eco-space Creation Tech.

- Development of Implementation tech. for Environmental Ecological Info.
- Development of 3D Urban environmental planning & Assessment tech.
- Development of ubiquitous water cycle system
- Development of Eco-road formation tech.

Key 5. U-Eco City Test Bed Creation

- Selecting Implementation tech. & operation method for Test Bed
- Setting Building management Process for Test Bed
- Pilot Project application & suitability Assessment.
- Model Project & monitoring for Test bed

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U-Eco city Agency Budget plan

U-Eco City Agency (6year)

Phase 1 - 3year (2007~2009) Key tech. development & application	**Phase 2 - 3year (2010~2012)** Operation & verification of Test Bed

	Key 1 prj. Government fund	Key 2 prj. Government Fund + Private Fund	Key 3 prj. Government Fund + Private Fund	Key 4 prj. Government Fund + Private Fund	Key 5 prj. Government fund
R&D Fund					
Test Bed Implementation Fund					

Detailed planning | **Team operating expenses**

Implementation fund for Test Bed supported from the project area

About 100bilion won (Gov. subsidy)

+

About 40bilion won (Matching fund)

+

Test Bed Construction cost

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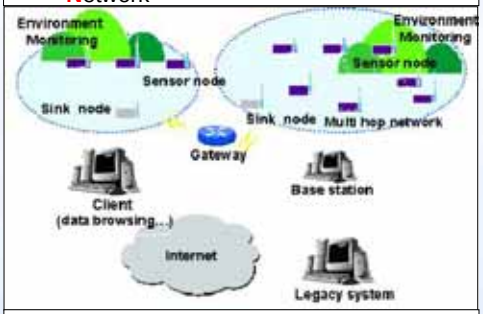
Application and concepts of USN service

USN

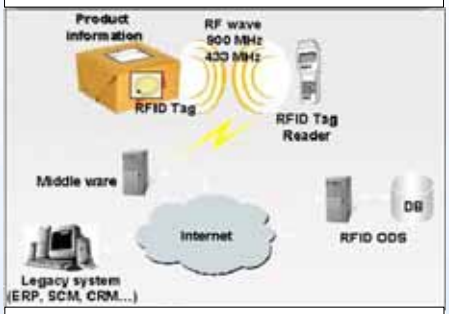
- **U**biquitous
- **S**ensor
- **N**etwork



- **Safety management** (Architecture)
- **Management of Growth** (temp., humidity)
- **Anti-disaster** (Fire alarm, Flood control)

RFID

- **R**adio **F**requency
- **ID**entification



- **Product process management**
- **Tracking of produce**
- **Product info. search**
- **Produce record management**

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Confronted obstacles for U-Eco city

- A need for streamlining heavy DB
- A Request for Implementing Ecological & sustainable U-Eco city
- Exploiting applicable fields based on end-user's demand

Applicable Fields for U-Eco City
related to Water resources

- HyGIS*(Hydro Geographic Information System)* Project in NewFrontier
- Security Management using Water quality Modeling incorporated with tele-monitoring system


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Thank you !!!
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