

**ECONOMIC AND SOCIAL COUNCIL**

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**Eighteenth United Nations Regional Cartographic  
Conference for Asia and the Pacific  
Bangkok, 26-29 October 2009  
Item 7(b) of the provisional agenda  
Invited Papers**

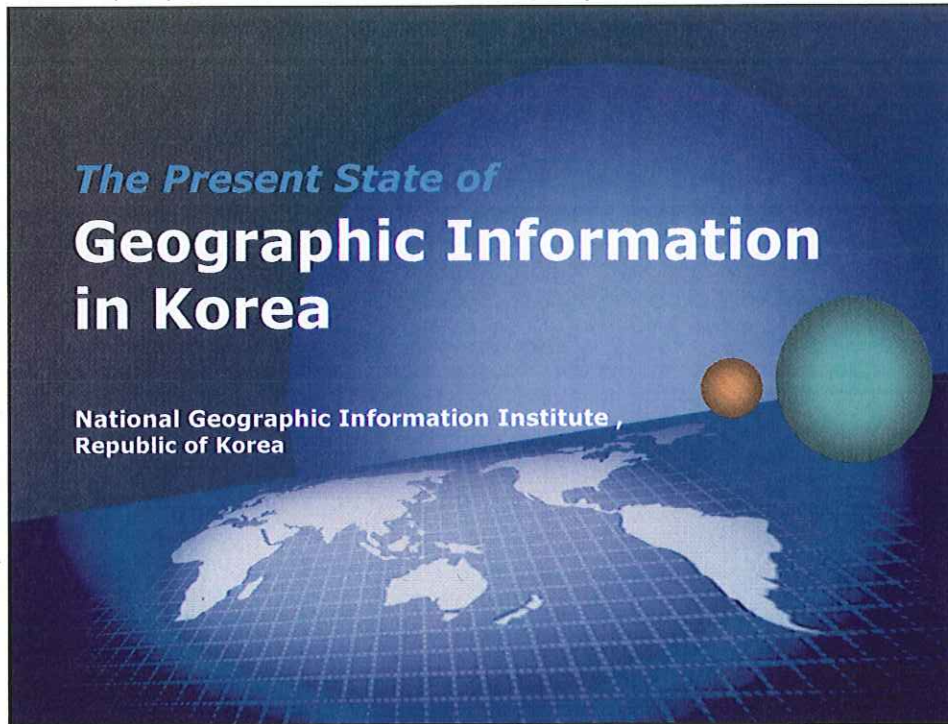
**The Present State of Geographic Information in Korea<sup>\*</sup>**

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**\* Prepared by the National Geographic Information Institute, Republic of Korea**

*The Present State of*  
**Geographic Information  
in Korea**

National Geographic Information Institute  
Republic of Korea



**Geographic Information System**

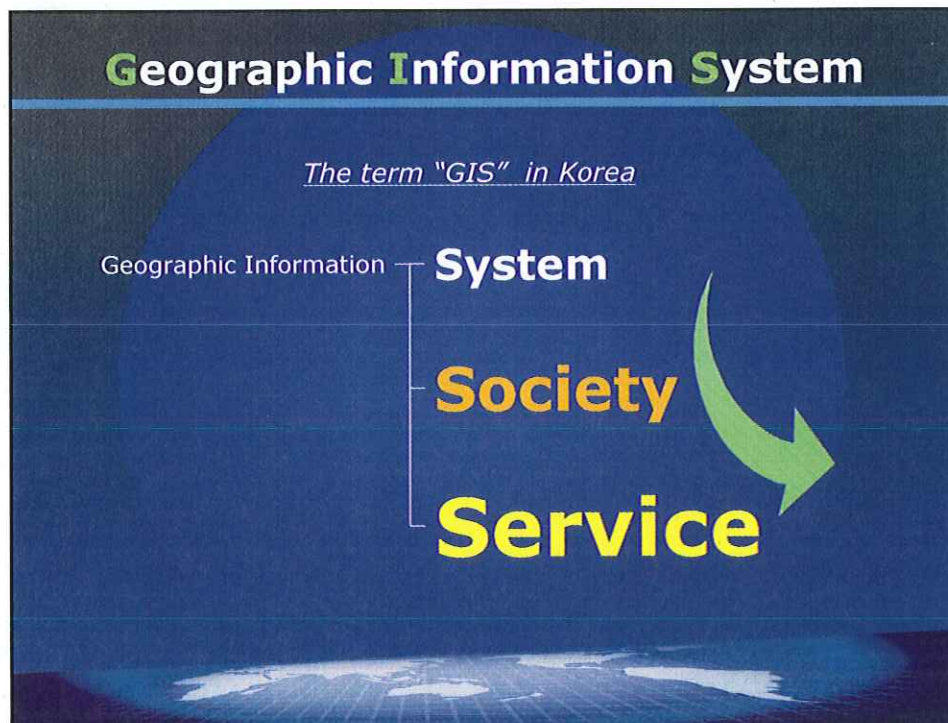
*The term "GIS" in Korea*

Geographic Information

**System**

**Society**

**Service**



Toward Geographic Information Society

# GOVERNMENT INITIATED GIS BUILD-UP

## 1<sup>st</sup> National GIS Build-Up

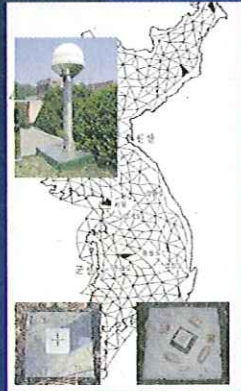
❖ Period : 1995~2000

### Policy Direction

Building Foundation for GIS

- Due to insufficient capability of the private sector, **the government sector led investments and policy measures.**
- Then it focused on creating the initial demand for GIS by **constructing some digital basic maps** like topographic maps, cadastral maps, and so on.

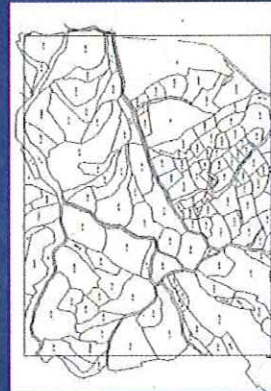
## 1<sup>st</sup> National GIS Build-Up



Conforming Geodetic  
Foundation for Mapping and  
GIS



Digital Topographic Maps  
(1:1000, 1:5000, 1:25000)



Digitizing National Cadastral  
Maps

## 2<sup>nd</sup> National GIS Build-Up

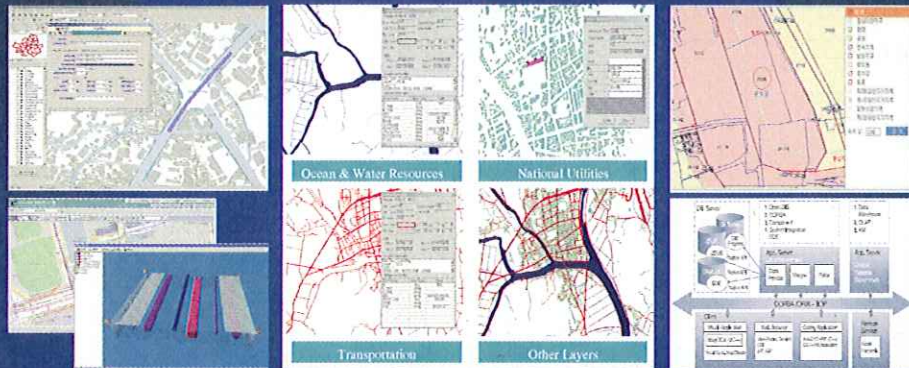
❖ Period : 2001~2005

### Policy Direction

#### GIS Data Utilization

- To utilize GIS, government promoted the development of **management system for some national primary facilities,**
- and built up **national spatial data infrastructure.**
- Also, **National Geographic Information Clearinghouse(NGIC)** was constructed.

## 2nd National GIS Build-Up



Management System for National Primary Utilities

National Spatial Data Infrastructure

LMIS (Land Management Information System)

## National Geographic Information Clearinghouse (NGIC)

- Online Service on the geographic information to users via internet
- An integrated GIS portal site, NGIC provides the search and distribution services on geographic information to the public and private sides



# 3<sup>rd</sup> National GIS Building Up

❖ Period : 2006~2010

## Policy Direction

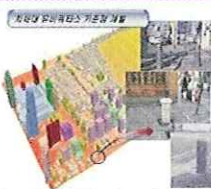
### Embodiment of GIS Based E-Government

- To embody GIS based e-government NGII is promoting some policies like below.
  - Construct the expansion of GIS application system and **promote the connection-unification among other systems**
  - Develop the **next-generation core technology** to lead u-GIS and GIS technologies for considering practical use
  - Ensure the **interoperability of national spatial information** and establish the **NGIS standards** by 2010

# Core Technology Development

## Geospatial Information Infrastructure

### Multi-purpose Ubiquitous Reference Point



RFID tag based reference point for surveying, location service, ...

### Next generation digital maps

#### Next generation national digital map

- Seamless
- Multi-scale
- Multi-dimension
- Spatiotemporal
- Object-oriented (Feature based)



### Ground 3D Laser scanner

#### Objective Spec.

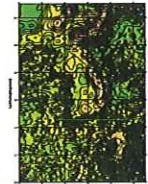
- Measurable distance : 300m@90%
- Ranging accuracy: 3mm
- Positioning accuracy: 5mm
- Horizontal FOV: 360°
- Vertical FOV: 270°



### Precise Korean New Geoid model

#### Precise Korean Geoid (cm level)

- Ground/Sea/Aerial gravity data
- Satellite gravity data
- GPS/Leveling data
- Precise topographic model



# Core Technology Development

## Intelligent Urban Facility Management

### Underground facility sensor network package



- **Facility** : gas pipeline, water & sewage, ...
- **Package** : UFSN sensor-node, gateway
- **Info.** : condition, leakage, damage, corrosion, ...

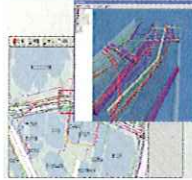
### Ground facility sensor network package



- **Facility** : guard-rail, road lamp, CCTV, ...
- **Package** : urban facility sensor-node, gateway
- **Info.** : condition, leakage, damage, corrosion, ...

### Integration SW of ground/underground sensing data

- Integration, control, reporting maintenance of ground/underground sensing system



### Urban geospatial information platform

- Urban geospatial information platform for u-City service
- Service standard
- Conceptual model
- ...



Expansion in Geographic Information Services

**PRIVATE-PUBLIC  
COOPERATIVE GIS  
SERVICE DEVELOPMENT**

# Car Navigation System



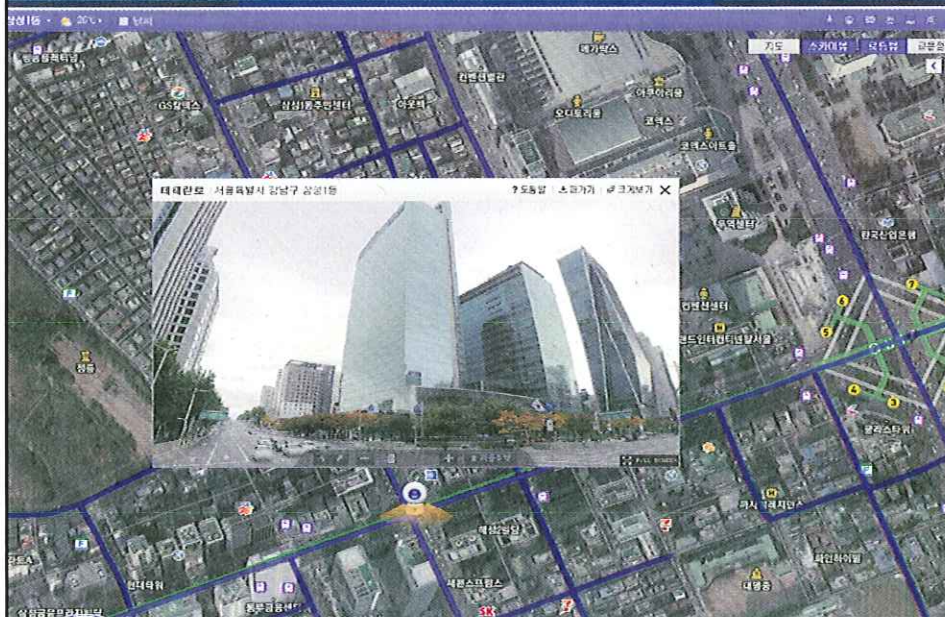
Construct specialized geographic information layers for the product of each companies

Private

Government

Construct and supply primary framework geographic information layers for car navigation system

# Street View? Road View!





C2, Glonass  
GPS, IMU, INS

Cameras

Camera Control System  
Direction & Location  
Correction System,  
Host Connect System,  
Capture Log Storage

Speed Sensor

## Road Facility Management with Street View

❖ 동영상





Closing Remarks

## **CURRENT STATE AND VISION OF GIS IN KOREA**



### **From public leading to the synergy of private-public cooperation**

- ❖ **GIS in Korea could have foundation by the help of major promotion of government**
- ❖ **Many private companies are providing creative and useful GIS services based on national GIS framework data supplied from government**
- ❖ **More effective and useful GIS services will be supplied as a result of private-public cooperation**

## Challenge for building a GIS system on real-time level

### ❖ We've found solution to apply spatial information to real world rapidly

- Research for monitoring and quick updating national spatial changes
- Research for building and modifying, updating GIS data with Vehicle MMS

### ❖ If we'll join various GIS service model to rapid GIS data update system, you can see the more revolutionary and creative, useful GIS services

**Thank You !**

[www.ngii.go.kr](http://www.ngii.go.kr)

