A Study on the National GIS (NGIS I) Project in Korea

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Abstract

GIS can be used on almost entire fields of the world, such as the national land management, environmental management, disaster management, enterprise activities, and general lives. GIS is called as an infrastructure of the knowledge information on the cultural society. For insuring the national power on the periods of the unlimited competition, it is very important to establish the national information infrastructure.

Purpose of the NGIS project I is to development on living benefits of peoplethrough an efficiency of policy and rationalism of planning. In order to achievement of this purpose, the NGIS project I has been established using the national geographic information base planning. The NGIS project I consists of the master management part, the geographic information part, the technique development part, the standardization part, and the land Information part. These five GIS project parts are operated by four governmental ministers and related institutions, such as minister of transportation and construction, minister of science and technology, minister of information and communication, minister of administrative and home affaires.

The NGIS I project is to establishment of the nation spatial information systems, such as various nationwide digital maps, GIS technique development, GIS education, GIS standardization, and GIS researches,

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I. The Master Management Part

This part will operate to support planning, manipulation, evaluation, expenditure, law, pilot project, research, and usage system development fields of the national GIS projects (table 1).

Table 1. Overview of the Master Management Part

#	Items	Description
A. Planning, Control, Assessment		
1	Main Plan Establish & Manipulation	-1st national GIS projects planning ('95-'00) -New base planning found for the 21C knowledge base hyper-info. society
2	Seminar & Workshop support	-Conference open for the GIS2000 -Conference open for the international base -Workshop for the land management info. sys.
3	Manipulation Subparts and Fields	-NGIS planning, expenditure management and manipulation for the each field and each year -Meeting open for each field committees, research ,committees and project operation committees -Out of fields, such as road management integration sys. of NGIS control meeting open
4	Mid-term evaluation & R/D	-Mid-term evaluation open for the NGIS project development ideas -GIS policy and teaching support research by KRIHS and KICT
B. Law& Enforcement Ordinance Legislation		
1	Systematic & practical law/institution system	-To make a law and system equipment for the effective NGIS project operation
C. Public GIS usage System Development Support		
1	Project Name	-Land management info. sys., soil resource info. sys., forest geog. info. sys., underwater info. management sys., geol. info. management sys.
2	Duration	1998-2001
3	Main Driver	Mistry of Construction and Transportation, sub-institutions
4	Expenditure	$10,356 million
D. Underground Facilities Digital Mapping Support		
1	Project	79 cities
2	Duration	'97-'01
3	Main Driver	Mistry of Transportation and Construction, related municipalities, and related institutions
E. Underground Facilities Digital Mapping Project (Water & Sewage)		
1	Project Name	19 Underground Facilities Digital Mapping Project
2	Duration	'98-'01
3	Main Driver	Minister of Transportation and Construction NGIS team
4	Expenditure	$23,676 million

Ⅱ. The Geographic Information Part

The National Geographic Institution controls and presents each base data digitizing, regulation and standardization (table 2).

Table 2. Overview of the Geographic Information Part

#	Items	Description
A. Topo Map Digitizing Project		
1	Projects	1/1000 (79 cities), 1/5000 (nationwide), 1.25000 (nationwide)
2	Duration	'95-'00
3	Main Driver	The National Geographic Institution
4	Expenditure	$1,395 million
B. Thematic Map Digitizing Project		
1	Project Name	Urban plan map, road network map, land use plan map, cadastral map, land use map, legislature boundary map
2	Duration	'98-'00
3	Main Driver	The National Geographic Institution
4	Expenditure	$5,112 million

Ⅲ. The Technique Development Part

Minister of science and technology will operate to obtain the independent techniques and to support the education for the experts by the core GIS base technique development support (table 3).

Table 3. Overview of the Technique Development Part

#	Items	Description
A. GIS Technique Development Project		
1	Project Name	GIS Engine, DB tools, Mapping Techniques, Sys. Integration

2	Duration	'95-'99
3	Main Driver	Minister of Science and Technology
4	Expenditure	$2,004 million
5	Results	
B. the GIS education for expert		
1	Project	
2	Duration	'96-'00
3	Main Driver	Minister of Science and Technology
4	Expenditure	$1,044 million
5	Results	700 experts per year educated

Ⅳ. The Standardization Part

The main purpose: Minister of information and communication presents a research and development of the GIS Standardization for the base data construction and circulation (table 4).

Table 4. Overview of the Standardization Part

#	Items	Description
A. GIS Standardization Projects		
1	Project Name	GIS standardization establishment for the GIS data construction, circulation, and usage
2	Duration	'95-'00
3	Main Driver	minister of Information and Communication
4	Expenditure	$600 million

Ⅴ. The Land Information Part

Minister of administrative and home affaires presents the digitize cadastral map and land information systems construction for the high GIS usage requirement (table 5).

Table 5. Overview of the Land Information Part

#	Items	Description
A. Cadastral Map Digitizing Project		
1	Project	Forest cadastral maps: 702,372 sheets
2	Duration	'98-'00
3	Main Driver	Minister of Administrative and Home Affaires
4	Expenditure	$16,932 million

Korean NGIS project has been transformated from the dispersed and mal-planed dogmatic GIS projects to the systematic planed GIS projects through the 1st NGIS project (1995-2000). Optimistic outputs of the 1st NGIS project resulted in prevention from overlapped expenditure investment and ensuring interoperability of the systems and spatial database. The invaluable result of the NGIS I project is to establishment of the nation fundamental spatial information systems, such as nationwide digital maps (topo maps, cadastral maps, thematic maps, underground facility maps), GIS technique development (GIS engine with applications, spatial database tools, spatial data integration, and mapping techniques), GIS education, GIS standardization, and GIS researches,

There were some problems occurred, however, such as work cooperation problems due to many institutions participation, work delay problems due to a scarcity of control authority holding systems, work consistence and continuity problems due to short term transfer of workers positions and shortage of the expenditure investment (expected: $62,244 million, executed: $35,904 million) due to national economic decay. These suggestive points should affect to the second NGIS planning and implementation (2001-2005).