

## Geographic Database 2 - Database Application

### Study on 2-Tier Database Application Linked with Geographic Database on Nuclear Site Image Information

, , , , ,

150

가

(Geospatial Information System, GIS)

가

GIS

geographic database

2-

#### Abstract

More than half of the information relevant to the nuclear control is considered to be spatially related. Therefore the need for building a geospatial information system (GIS) is increased. High resolution commercial satellite images with positional information covering wide areas such as nuclear sites are regarded as one of the fundamental information for building a GIS. This paper discusses a 2-tier database application linked with geographic databases which manage heads-up digitized image files of commercial satellite images on nuclear sites and associated tables.

1.

(IAEA)

30

Protocol for Additional to Safeguards Agreement' ( ' 가 ' )

1999 6 가

가 가

(Geospatial Information System, GIS)

가 [1, 2].

2.

(Technology Center for Nuclear Control, TCNC)

GIS

TCNC가 (Korea Aerospace

Research Institute, KARI) KOMPSAT(Korea Multi-Purpose Satellite, )  
(pan-chromatic) e-hd.com IKONOS-2 4-band (blue, green,  
red, near-infrared) [3].

heads-up digitizing

feature class( 4 )

(attribute) geographic database( GDB )  
3 ). GIS

feature attribute

(object-relational database)

GDB GDB personal  
GDB multi-user GDB Personal GDB 1-tier  
application( 2 ) , multi-user GDB two-tier  
multi-tier application personal GDB

Microsoft (MS) Access database MDB

2 - 1 . (Web Application)

MS Access

Data Access Page (DAP) 1가, , ,

2 - 1 - 1 . 1 -

가 ' 2가'

1 -

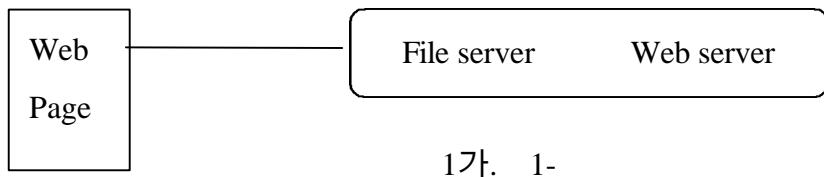
가

1

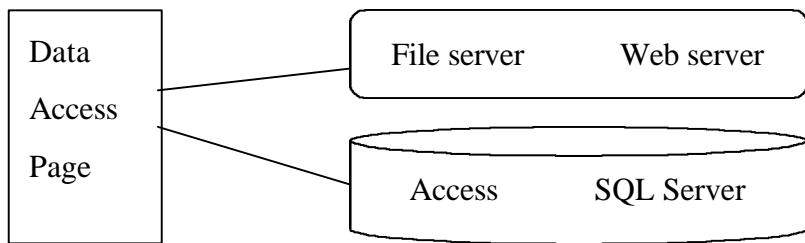
## TCNC

hyperlink

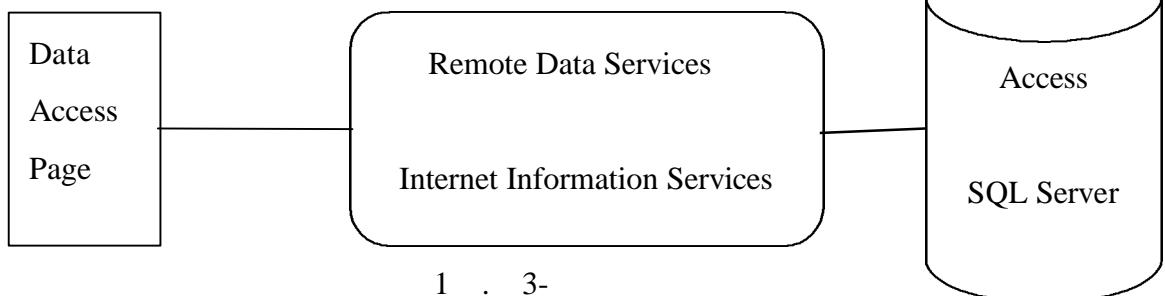
[4].



1가. 1-



1 . 2-



1 . 3-

2 - 1 - 2. 2 -

UNC (Universal

Naming Convention)

Client

가

client

가

가

C/S (Client/Server)

가

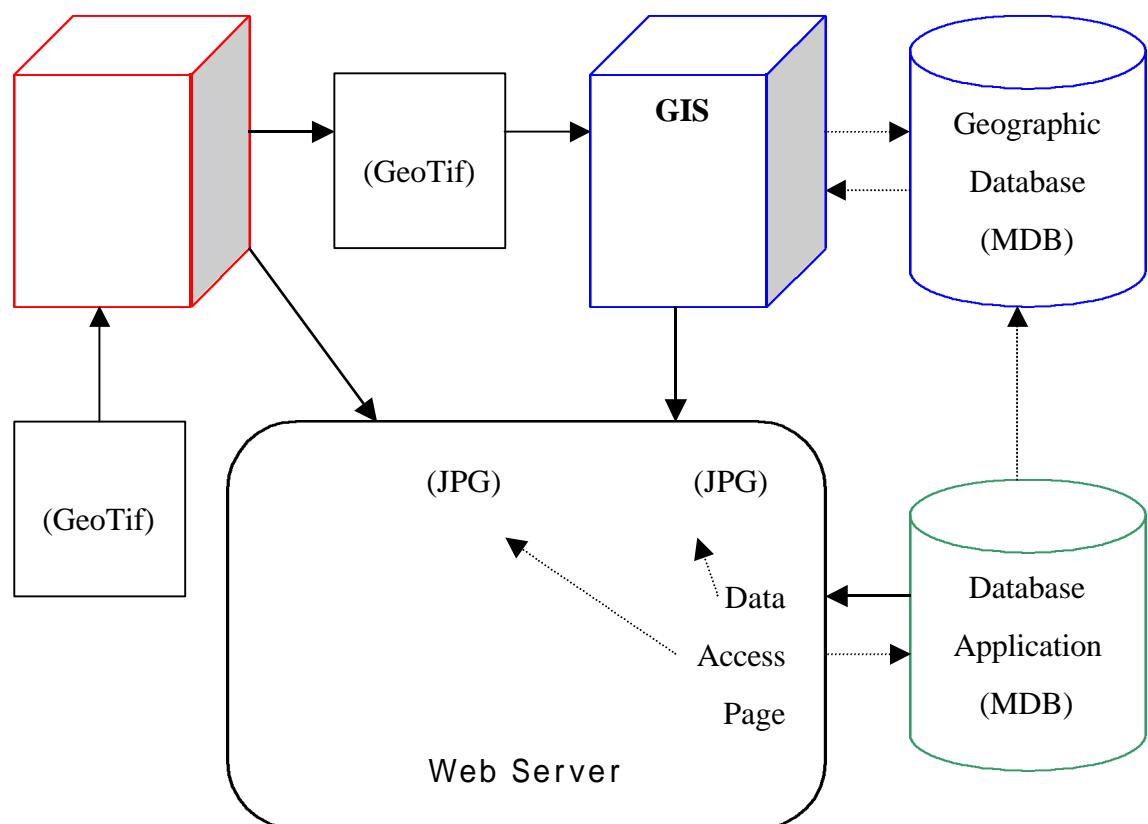
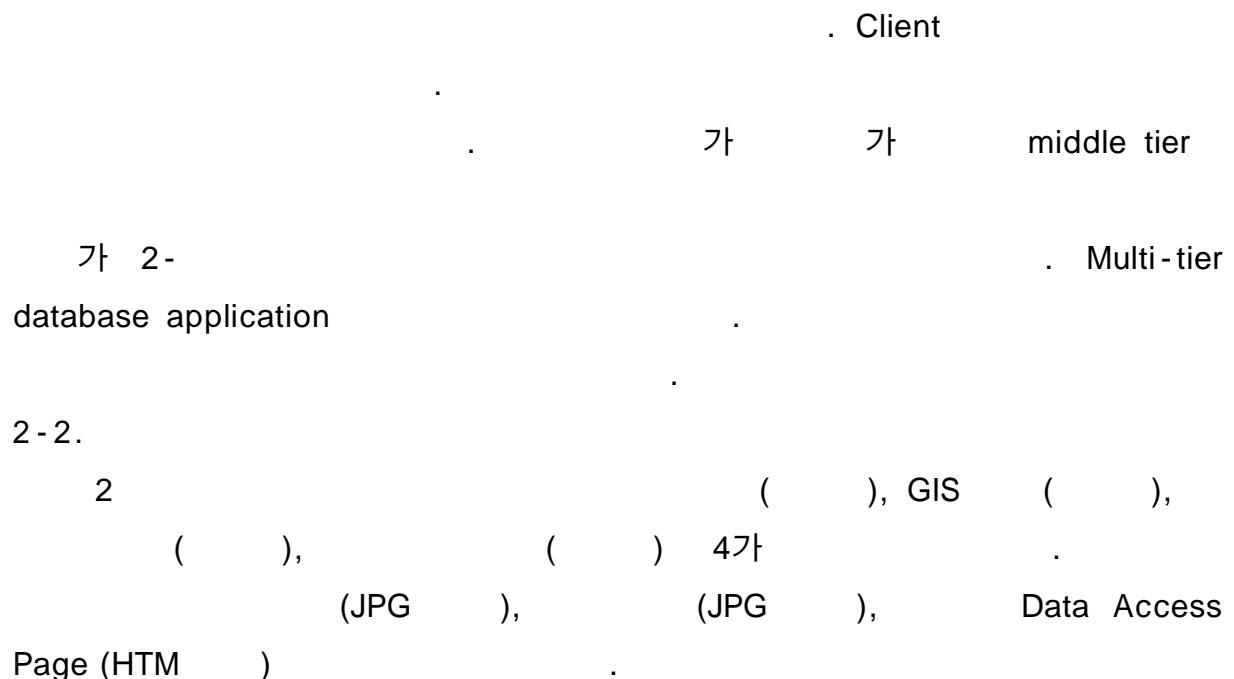
(Local Area

가

Network, LAN)

[5].

2 - 1 - 3. 3 -



2. Data Access Page 2-

( , .)

2 - 2 - 1.

ER-Mapper 6.3 . GIS

가 (band)

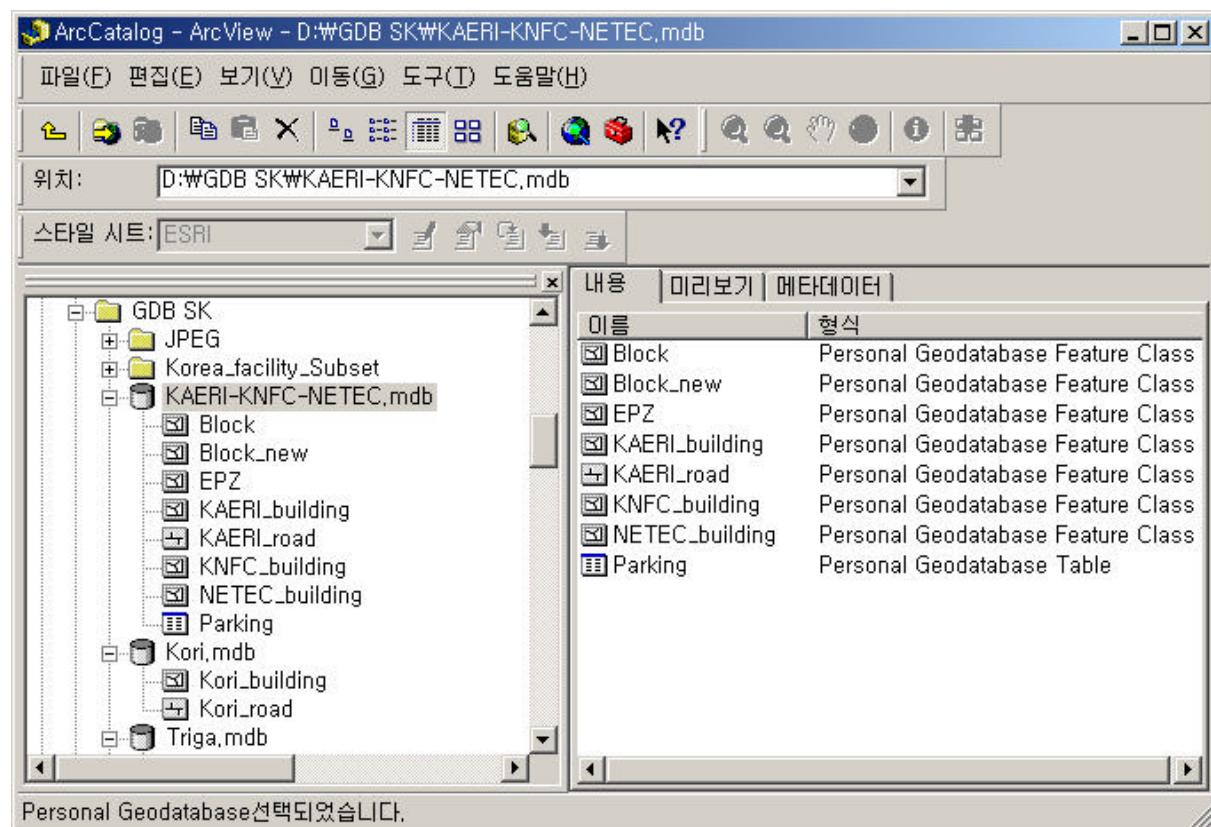
1

( 4m)				
Red	20	2047	571.2	357.5
Green	14	2047	483.7	336.0
Blue	3	2047	425.8	305.3

1. e-HD.com

2 - 2 - 2. GIS

GIS ArcGIS 8.1 3 ArcGIS ArcCatalog  
layer



### 3. ArcCatalog

ArcCatalog layer GDB

GDB Microsoft Access database MDB

ArcCatalog GDB 2 database application

ID , GDB

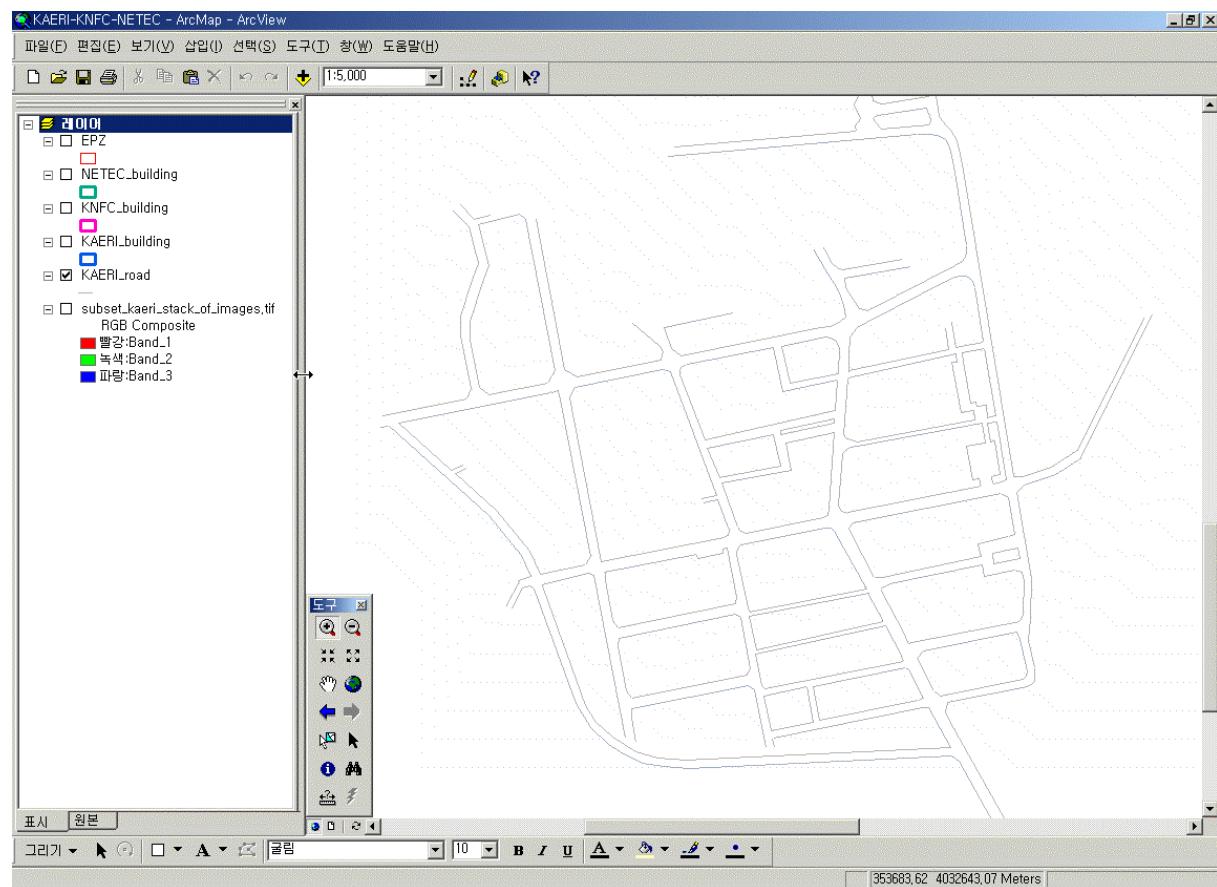
4 AcGIS 8.1 ArcMap KAERI 6

layer ( 3 ). 5 layer

KAERI heads-up digitizing vector

layer KAERI layer

KAERI



## 4. ArcMap

2 - 2 - 3.

Microsoft Access 2002

## Microsoft Office XP

. TCNC  
. DAP Microsoft Access SQL Server  
Access Form Report

가

**Location-Organization-Building-KMP**

**dapOMK dapKMP**

■ Location: KAERI-KNFC E-DI: 127 AI: 20 N-DI: 37 NI: 22  
[images/kar/kaerang/taejean\\_000111](#) [images/a-HD/kaerost/kaer-knfc-40000\\_001111](#)

■ Organization: KAERI [images/build001/KAERI-building-read\\_001111](#) [images/a-HD/ikano2/KAERI-KNFC-NET1\\_001111](#)

- Building: Radiation Application Building Number: 27 방사선응용연구동
- Building: Radioactive Treatment Building Number: 29 폐기물처리시설
- Building: Remote Equipment Test Building Number: 28 원격장치시험동
- Building: Research Building #1 Number: 02 제1연구동
- Building: Research Building #2 Number: 06 제2연구동

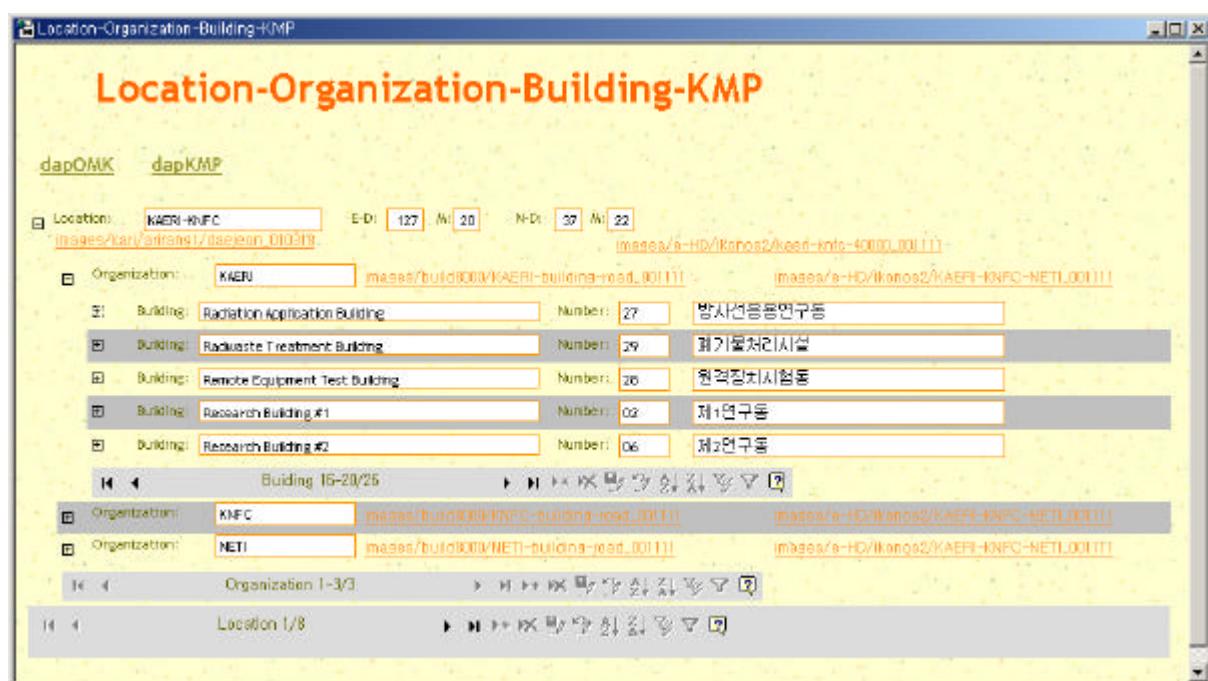
Building 16-20/25 [\[First\]](#) [\[Previous\]](#) [\[Next\]](#) [\[Last\]](#) [\[First\]](#) [\[Last\]](#)

■ Organization: KNFC [images/build001/KNFC-building-read\\_001111](#) [images/a-HD/ikano2/KAERI-KNFC-NET1\\_001111](#)

■ Organization: NET1 [images/build001/NET1-building-read\\_001111](#) [images/a-HD/ikano2/KAERI-KNFC-NET1\\_001111](#)

Organization 1-3/3 [\[First\]](#) [\[Previous\]](#) [\[Next\]](#) [\[Last\]](#) [\[First\]](#) [\[Last\]](#)

Location 1/8 [\[First\]](#) [\[Previous\]](#) [\[Next\]](#) [\[Last\]](#) [\[First\]](#) [\[Last\]](#)



## 5. Location - Organization - Building - KMP

**Operator-MBA-KMP**

**dapLOBK dapKMP**

■ Operator: KAERI Korea Atomic Energy Research Institute Phone: 042-662-2953, 2074 Fax: 042-662-9281 Email: [\[Email\]](#)

■ MBA: KO-Q Facility: KAERI R&D Type: R&D Location: KAERI-KNFC E-DI: 127 AI: 20 N-DI: 37 NI: 22

■ MBA: KO-S Facility: HANARO Type: Research Reactor Location: KAERI-KNFC E-DI: 127 AI: 20 N-DI: 37 NI: 22

- KMP A Building: HANARO Reactor Building 하니로동 Description:
- KMP B Building: HANARO Reactor Building 하니로동 Description:
- KMP C Building: HANARO Reactor Building 하니로동 Description:

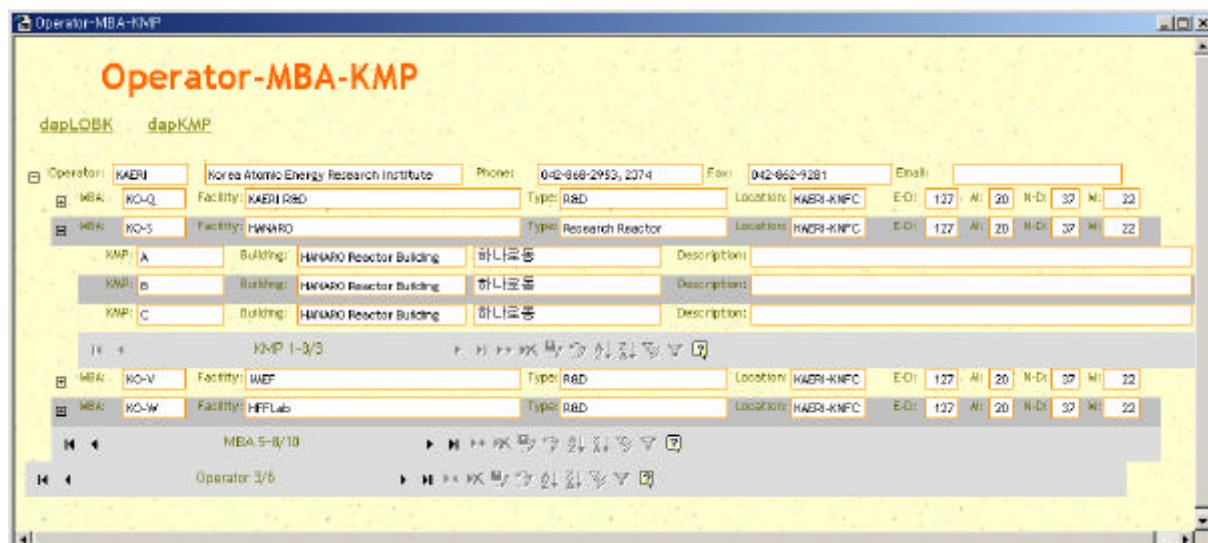
MBA 1-3/3 [\[First\]](#) [\[Previous\]](#) [\[Next\]](#) [\[Last\]](#) [\[First\]](#) [\[Last\]](#)

■ MBA: KO-W Facility: WEF Type: R&D Location: KAERI-KNFC E-DI: 127 AI: 20 N-DI: 37 NI: 22

■ MBA: KO-W Facility: HFLab Type: R&D Location: KAERI-KNFC E-DI: 127 AI: 20 N-DI: 37 NI: 22

MBA 5-8/10 [\[First\]](#) [\[Previous\]](#) [\[Next\]](#) [\[Last\]](#) [\[First\]](#) [\[Last\]](#)

Operator 3/6 [\[First\]](#) [\[Previous\]](#) [\[Next\]](#) [\[Last\]](#) [\[First\]](#) [\[Last\]](#)



## 6. Operator - MBA - KMP

5 table relationship ‘Location -> Organization -> Building -> KMP’

. INFCIRC/540 . 2 Geographic Database( )

ID' (link)

hyperlink 가

6                   table relationship      ‘Operator -> MBA -> KMP’

## INFCIRC/153(Corrected) . 2 Geographic Database( )

ID ' (link)

3.

TCNC

## 2 - tier database application

## multi-tier database application 가

1. A. Poucet, S. Contini, F. Bellezza, A GIS SUPPORT SYSTEM FOR DECLARATION AND VERIFICATION, 42<sup>ND</sup> Annual Meeting of Institute for Nuclear Materials Management, Renaissance Esmeralda Resort, Indian Wells, California. USA, July 15 - 18, 2001
  2. C. Vincent Tao and Q.S. (Bob) Truong, A WEB-BASED GEOSPATIAL INFORMATION SYSTEM FOR SAFEGUARDS DATA INTEGRATION AND MANAGEMENT, 42<sup>ND</sup> Annual Meeting of Institute for Nuclear Materials Management, Renaissance Esmeralda Resort, Indian Wells, California. USA, July 15 - 18, 2001
  3. , (Study  
on Commercial Satellite Imagery for Safeguards), 2000
  4. , (A  
Geographical Information Based Multimedia Information System Development for Nuclear Control), , 2000. 05. 26 - 27.
  5. KIM HYUN TAE, et. al., DEVELOPMENT OF TWO-TIER DATABASE APPLICATION WITH COMMERCIAL SATELLITE IMAGE UNDER SECURE FIREWALL, 43<sup>TH</sup> Annual Meeting of Institute for Nuclear Materials Management, Renaissance Orlando Resort at Seaworld, Orlando, Florida. USA, June 24, 2002