Korea-Australia Joint Conference for Geomatics

Development of Land Compensation Management Geographic Information System based on Cadastral Data

Chang-Kyung Lee*, Jeung-Min Sim**, Eul-Taek Jung***

* Professor, School of Civil & Environmental Engineering, Kunsan National University, Korea (leeck@kunsan.ac.kr)
** Assistance Professor, Dept. of Cadastre, Jeonju Technical College, Korea (jmsim@jtc.ac.kr)
*** CEO, KGSTec. Co.Ltd, Korea (g0201001@hdec.co.kr)

1

Overview

- Background & Objectives
- Development of Compensation Information for Appropriated Land
  - Basic Design Concept
  - Test Site Selection and Project Analysis
  - Basic Conditions and Functions of the System
  - Scheme of the System
- Application and Analysis of the System
- Conclusion

2

Background & Objective

Back Ground

- When we build a dam or road, it occupies some area of land owned by private person. The government must compensate the appropriated land.
- As growing volume of the data, it is very hard to find rooms and methods for keeping them efficiently. Moreover, the staffs of the government suffered from vast data and complicating job.
- If GIS is applied to land compensation task, it is possible to collect, analyse the data related to the task with a few manpower in real time.

3

Background & Objective (continued)

Objectives

- Develop a land compensation management system which enable us to input, store, retrieve, and report the related data.
- produce of base map using cadastral and digital topographic map and data input are executed simultaneously.
- manage location data linked to parcel number and parcel category should be developed.

4

Development of Compensation Information for Appropriated Land

✖ Basic Design Concept

- The system consists of functions for each branch of the compensation task.
- We used ZEUS developed by Korea Telecom Inc. as GIS engine and DB. it is operated on a Windows 2000 server-based operating system.
- The system has been developed based on Korean GUI Environment.
- Visual C++& Visual Basic was used for application programs.

5

Development of Compensation Information for Appropriated Land (continued)

✖ Test Site Selection and Project Analysis

- Tamjin Dam area, Jangheung, Jeonnam, Korea was selected as test site.
- Category of Tamjin Dam area can be divided into 5 divisions, as it were, submerged zone, shifted road sites, main dam site, temporary work site, water and purification plant site.
- We tried to include practical tools on site for the compensation task in the system by having personal interview.

6

Development of Compensation Information for Appropriated Land (continued)

- **Basic Conditions and Functions of the System**
  - The basic conditions of the System are digitalization of cadastral map, completing of structured vector data.
  - Project Working Plan Module is composed of functions inputing ownership registration and land cadastre interactively, and functions retrieving incompatibilities between the data.
  - Actual Condition Investigation Module contains functions to input actual condition investigation data.
  - Assessment and Compensation Module contains functions of input, rectification, and printing of data for assessment.
  - Compensation Statistics and Miscellaneous Modules contains functions to compile various thematic maps, and to view various statistics for the compensation tasks

7

Development of Compensation Information for Appropriated Land (continued)

- **Scheme of the System**
  - Common Geographic Information System for expropriated lands sets the server in the headquarter, and the client in the field.
  - Actually, changing, deletion, and adding of parcel boundary line on the cadastral map are done in the field, while the statistics are used in the headquarter.
  - Therefore, the system was designed to set the sever in the field.

8

Application and Analysis of the System

✖ Error Check for Cadastral Map

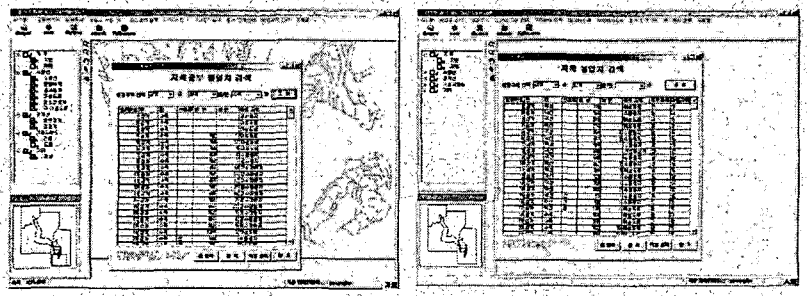

Fig 1. Searching Erroneous Area of Cadastral Map

9

Application and Analysis of the System (continued)

✖ Retrieving Function 1.

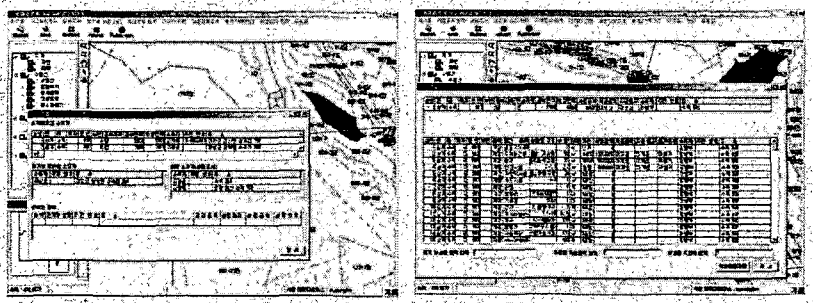

Fig. 2. Owner and Compensation Information of the Parcel

10

Application and Analysis of the System (continued)

✖ **Retrieving function 2.**

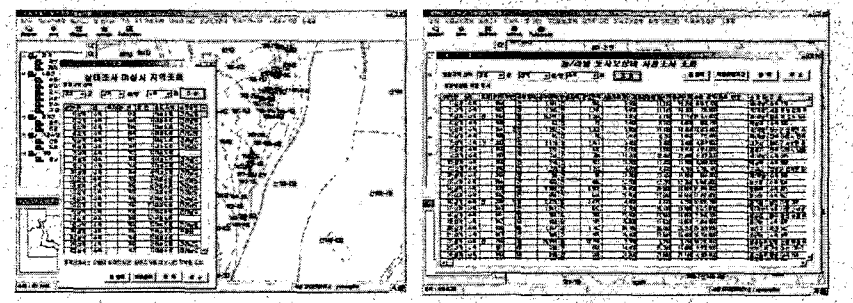

Fig. 3. Investigating Area Search & Actual Conditions and Appraised Value Search

11

Application and Analysis of the System (continued)

✖ **Map Editing & Other Functions**

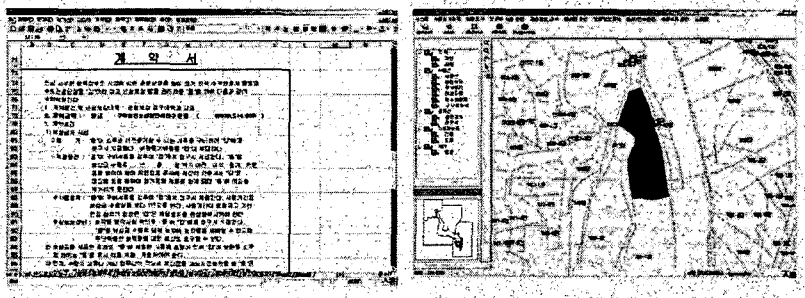

Fig 4. Drawing up a Contract and Compensation Theme Map

12

Conclusion

- A Compensation Information System for Submerged Area was developed and it helps to reduce the manpower needed for the compensation task, to retrieve data of the parcels requested for compensation status and to calculate compensation systematically.
- The system also serve civilian the information related to the compensation on the internet in real time.
- In addition to above effects of the system, It is expected to be added some functions, for example, to input/retrieve actual condition investigation data using PDA in site. It will prevent the officer from input the data after they are investigated in site. Moreover, if the system has a module collecting compensation data using aerial photograph, it can collect compensation data in office in reduced time.

13