

Construction of GIS of Kakegawa City Based on Individual Peaces of Land

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Key words

GIS, Kakegawa City , Database, Environments, City planning

Kakegawa City is located at 138 deg. E and 34 deg. 45 min. N, in the west of Shizuoka Prefecture. Its population is approximately eighty thousands and its area is 185.79 square kilometers as shown in Fig.1. The city government has been developing GIS for the purpose of land management and tax base calculation and is one of the most advanced local governments in Shizuoka Prefecture.

The city government has been developing the database of various kinds of physical and social environmental information, but the city government uses small parts of the database only for land management and tax base calculation. The purpose of this report is to show the database of Kakegawa City as shown in Table 1 and propose the effective usage of the database.

The database of Kakegawa City as shown in Fig.2 and Fig.3 is imported to GIS in our laboratory and reconstructed as the database retrievable from each individual land. The authors developed the retrieval system of each individual land and combined it to the reconstructed database. If our GIS is open to the public, a lot of citizens will get useful information about their environments.

Table 1. Database developed by Kakegawa City

Map title	Item title	Scale	Map area
Topographical map	Simple topographical map, Precise topographical map, Topographical modified points, Old map notes, Topographical map notes, Map symbols, Political boundaries (municipalities), Road, Major hydrology, 1/2500, 1/5000, 1/10000, 1/25000, 1/25000 images	1,000~25000	D
Reference points	Reference points, Latitude · longitude line, House investigation map : 1/500, Topographical map : 1/500 · 1/1000, Urban planning map : 1/2500, Urban planning map: 1/5000	Axis of coordinates	A
Property	Township boundaries, Township boundaries notes, House boundaries, House notes, Parcel boundaries, Parcel notes,	1,000	D
Urban planning	Occupied areas (color dividing, attentions), occupied areas (line), Fire preventive · semi fire preventive areas, Special occupied areas, Urban planning road notes, Urban planning parks, Cemeteries, Treatment factories, High development areas, Area planning, Replanning of streets, Replanning of urban areas, Sewer areas, Sewer lines	2,500	C
Aerial photograph	Jul.1997 taken, Dec.1999 taken,	10,000	B
Population	Basic boundaries, Census boundaries, Political boundaries, DID areas ('70~'90), DID areas ('95)	2,500	A
Facilities for disaster	Local points for disaster, Main roads for disaster, Important caution areas, Wireless stations for disaster, Community centers of fire, Heliports for disaster, Water for drinking and disaster, Outdoor pools, Emergency hydrants, First-aid stations, Temporary hospitals, Medicine stocks, Observatories of the Geographical Survey Institute, Reservoirs (for disaster)	5,000~10000	A
City information	Landuse information, Farm and mountains, Vegetation, Public green zone, Other green areas, Development permissions, Building agreements, Usage of buildings, Distribution of land value, Limited areas, Development areas	5,000~10000	A

Agriculture	Areas of tea plant's facilities to protect from frost, Protected areas for tea plantation, Electrical facilities for tea plantation, Modern agriculture A, Modern agriculture B, Farming areas, Feed farm areas, Irrigation drainage, Irrigation drainage of group management, Irrigation drainage of prefecture, Areas of small scale irrigation, Small scale areas of drainage, Comprehensive soil development plan of field, beneficial areas of public drainage, Developing areas of public drainage, Drainage culverts, Farm road developing areas, Environmental developing areas for community (drainage), Environmental developing areas for community (farm road), Farm ponds	10,000	A
Mountain improvement and flood control	Distribution of flood disaster, Private forests of future green planning, Maintenance forests, Sand guard designate area, Steep cliffs, Landslide guard, Landslide risk, Dangerous areas of disaster	25,000	A
River	Riverbed	10,000	A
Suitable area for industry	Suitable area for factories	2,500	A
Ecosystem	Wildlife sanctuary, Hunting prohibit areas	25,000	A
Cultural properties	Distribution of cultural properties (under construction), Distribution of cultural properties (except under the ground)	10,000	A
Ground rules	Rules and agreement areas about urban planning	5,000	A
Geology and soil	Surface geology, Distribution of soil	50,000	A
Building confirmations	Buildings, Sites, Unsuitable buildings, Permissible buildings, Flag poles, Designated positional road, Designated positional road (old), Designated roads, Road against the law, Cliffs, Waterways		A

- A . . . The whole area of Kakegawa City
- B . . . The south area of Kakegawa City
- C . . . Limited area of Kakegawa City
- D . . . Digital map area of Kakegawa City

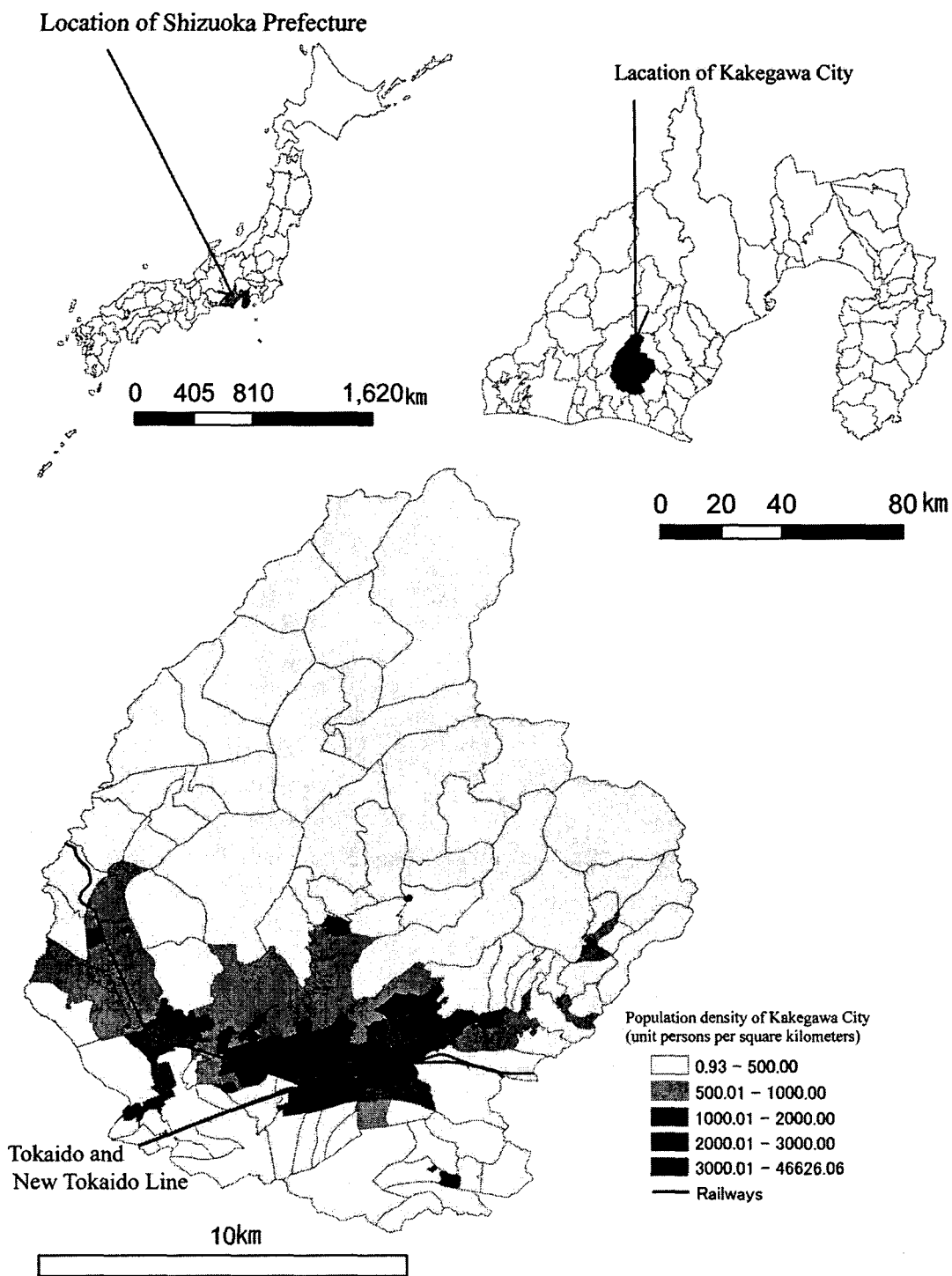


Fig.1 Location and population density of Kakegawa City

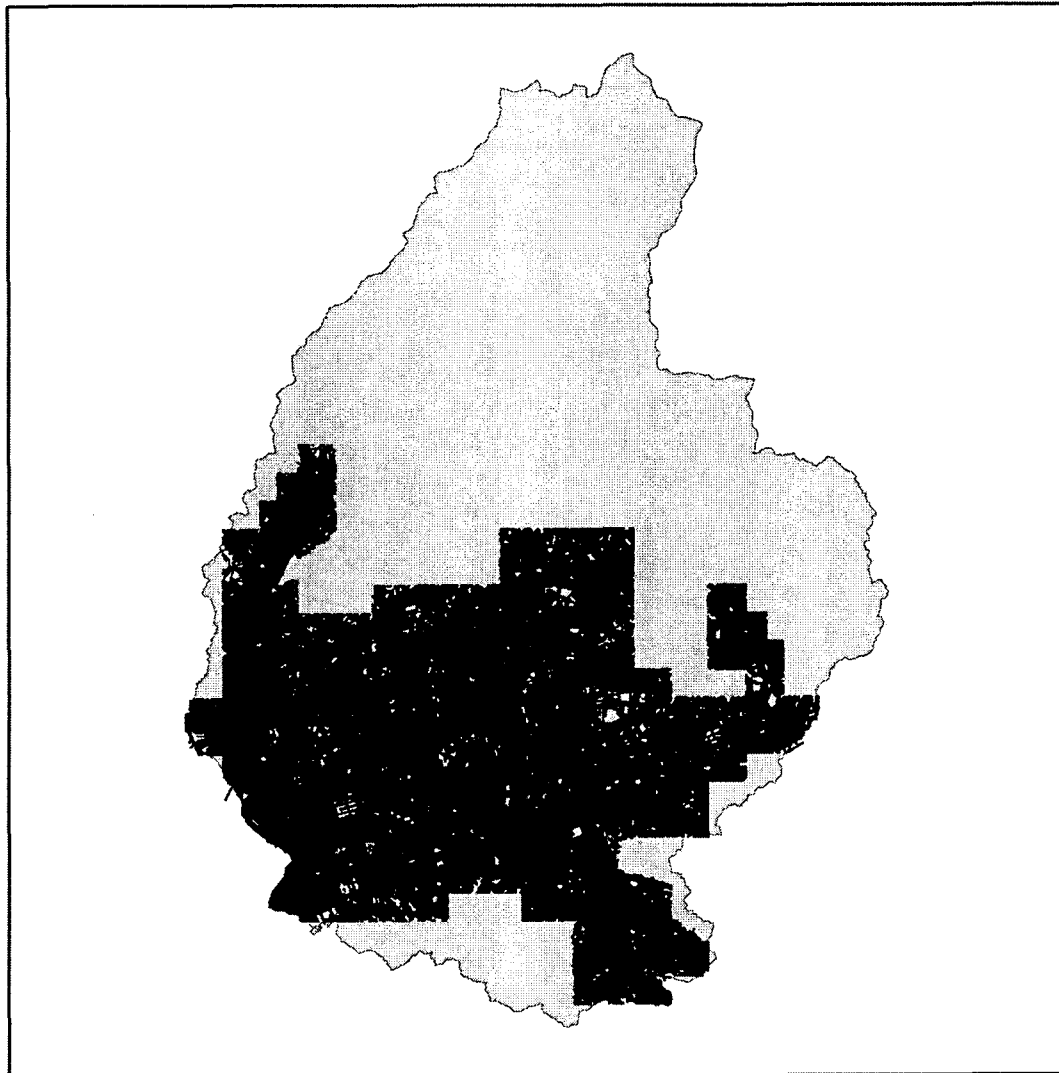
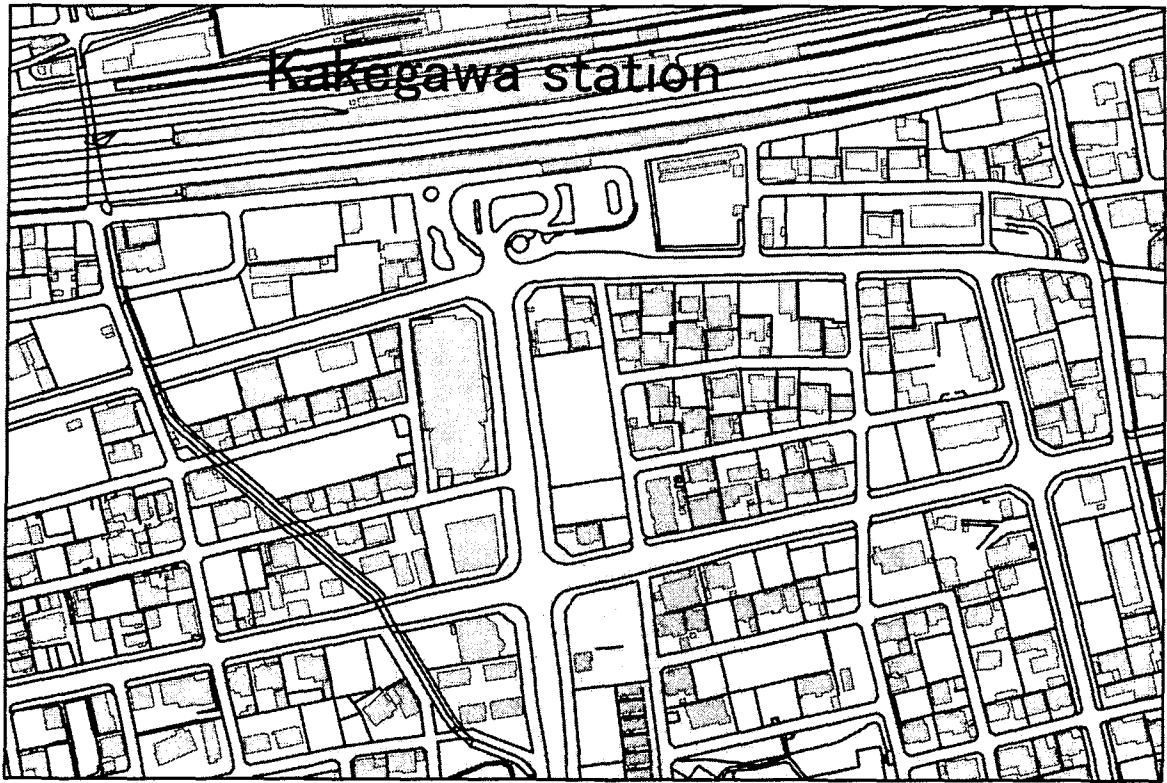


Fig.2 Digital map area of Kakegawa City and an example of precise topographical map



150 m

Fig. 3 Overlay map of precise topographical map and house and building polygons