

# NOMINAL ASSET LAND VALUATION TECHNIQUE by GIS

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## OBJECTS OF VALUATION

The objects of land valuation are generally vacant or built-up plots of land. The value of either type of land is largely influenced and characterized by factual and legal conditions which may be entirely different in nature according to the land involved.

Vacant plots may be agriculturally used lands of varying yield potential, they may be areas planned for potential building use or they may be plots available for construction with considerable variation in the type and extent of buildings allowed.

All of these characteristics profoundly affect the market value of the plots involved.

## LAND VALUATION METHODS

The use of a particular property valuation technique is dependent on property type and the purpose of the valuation

### 1. Comparative Method

This method assumes that the market value is equal to the price recently paid for a similar property or interested in land. The valuer's problem is to determine what the market considers to be recent and similar.

### 2. Income Method

This method is also a comparative method and holds that the market value of an interest in land is equal to the present value of the net income that should in future come from the land. The valuer's problem is to determine the net benefits that should come from the land by comparison with similar properties;

### 3. Cost Method

This is also known as the contractor's method or the quantity survey approach. It assumes that the costs of replacement, less appropriate depreciation, are equal to the value. The problem is to assemble suitable cost data, including the cost of the site, and to estimate depreciation rates.

## NOMINAL ASSET LAND VALUATION METHOD

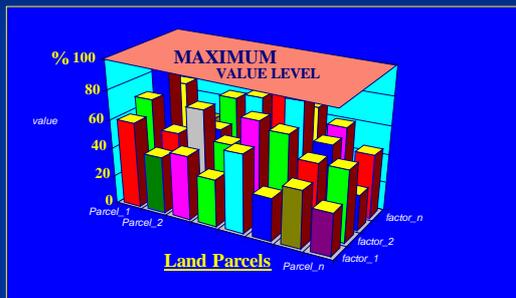
Using the comparison method of valuation, physical, legal and market factors can be compared directly but every property are spatially unique, so spatial factors requiring an alternative method of adjustment.

- The value of property reflects its capacity to fulfill a function. With regard to commercial property, functional qualities may include,
  - Location influences (accessibility to the market place, proximity to suppliers of raw materials and important nodes such as railway stations, car parks and open spaces)
  - Physical attributes (size, shape, age and condition)
  - Legal factors (lease terms and restrictive covenants)
- Planning and economic factors (planning constraints, permitted use and potential for change of use).

## NOMINAL ASSET LAND VALUATION METHOD

nominal values of property can be calculated in a parametric way instead of definite value.

Objective and subjective criteria selected for this aim are evaluated one by one. Then, doing in a unit area or volume, these evaluations are reflected to all land parcels.



### Land valuation factors which may affect a land parcel value

- |                                 |                                     |
|---------------------------------|-------------------------------------|
| 1) Supplied basic services      | 15) Distance to educational centres |
| 2) Permitted number of floors   | 16) Distance to health services     |
| 3) Permitted construction area  | 17) Access to highway               |
| 4) Landscape, view              | 18) Distance to shopping centre     |
| 5) Access to street             | 19) Available utilities             |
| 6) Environment                  | 20) Distance to recreational areas  |
| 7) Parcel location within block | 21) Topography                      |
| 8) Street frontage              | 22) Distance to religious place     |
| 9) Distance from nuisances      | 23) Distance to play garden         |
| 10) Land parcel shape           | 24) Distance to car parking area    |
| 11) Currently usable area       | 25) Distance to fire station        |
| 12) Distance to city centre     | 26) Access to waterway              |
| 13) Distance from noise         | 27) Distance to police station      |
| 14) Soil condition              | 28) Access to railway               |

$$V_i = \text{AREA}_i * \sum_{i=1}^n (P_i * W_i)$$

where:

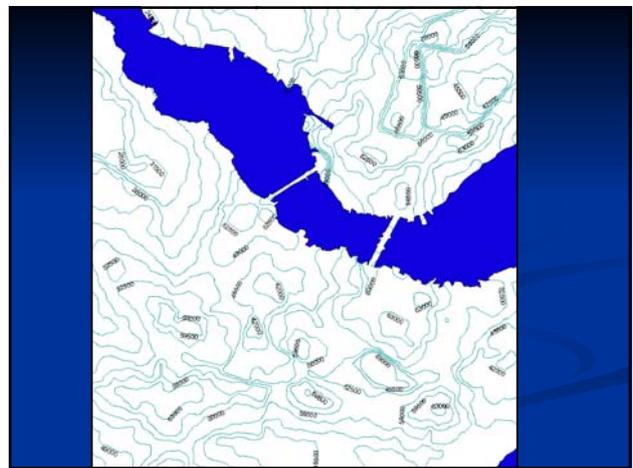
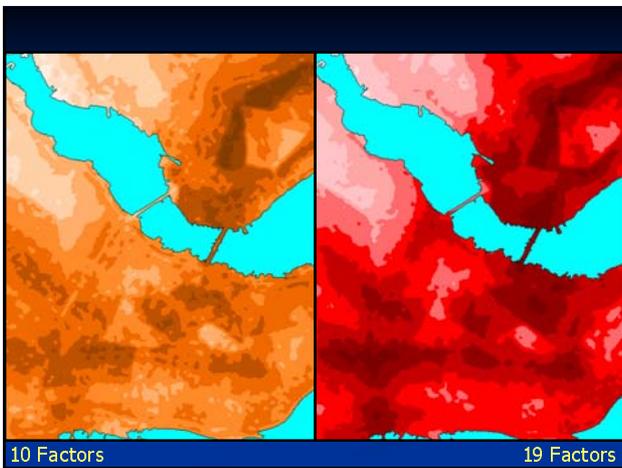
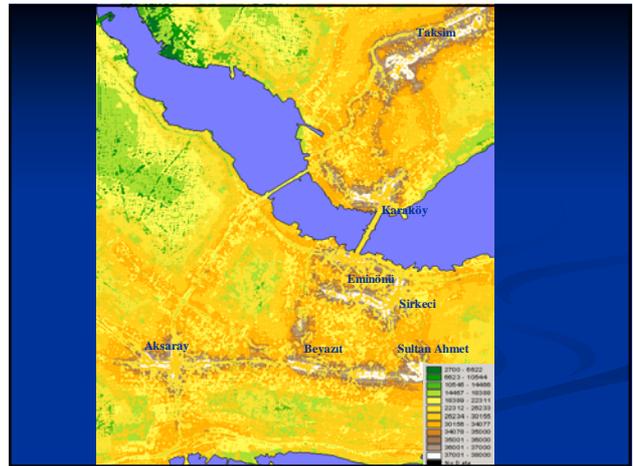
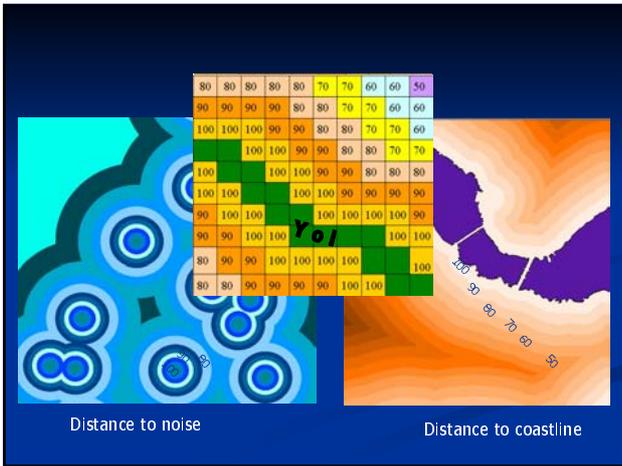
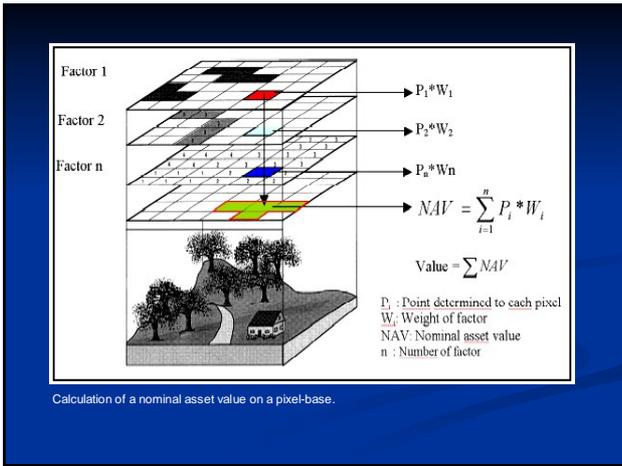
V: Total nominal asset value of a land parcel

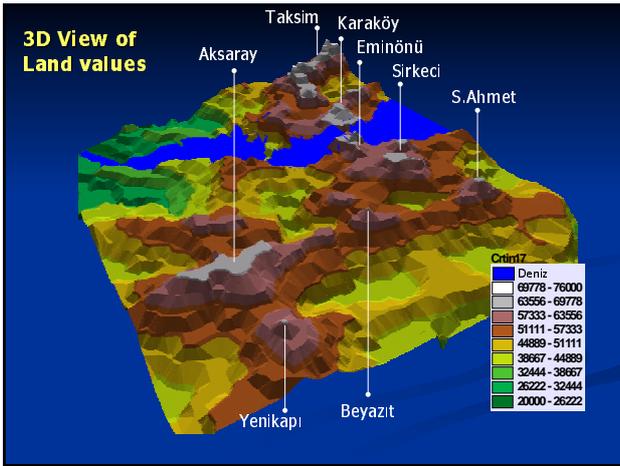
P: Factor value

n: Total number of factors

Area: Land parcel size (or pixel size)

W: Factor weight





**CONCLUSION**

The main objective in this model is to determine the asset value of a land with different land valuation factors which are formulated and spatially examined.

Using GIS in a multi-criteria land valuation analysis is also provides a value estimation mechanism in large scale spatial data applications.

In this method rather than dealing with the real-market prices, the qualitative and quantitative characteristics of individual land properties have been examined.

**Thanks...**

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