

Quality Aspects of Cadastral GIS Data with an Environmental Insight

Hussein M. Abdulmuttalib,

With the advent of GI Science, data collectors and/ or users refuse to recognize scale ranges and data classes, and that is because of the difficulty to realize the limitations of some data usage, but Cadastral GIS data comprises a unique data type which is not used within the range of other classes or scale ranks, which is parcel Data, and thus with this factor the class can easily be identified and specifically used. Around parcels the world of cadastral GIS orbits, thus parcels with surrounding feature classes, such as buildings, pedestrian and roads, utility and irrigation, terrain features, trees and green areas, and all the other area specific features that can take a place on the large scale adopted by an organization. This poster presents some quality aspects of such type of data relating them to their neighborhood set of parcels giving an insight to environmental aspects of sustainability. The quality of cadastral data thus is not only reflecting parcel vector data cleanness such as having closed polygons, not overlapping, not containing over or under shoots or spikes, doesn't comprise duplicates, has a unique id etc., or that its positional accuracy adheres with the specified standards, its ownership information with other attributes are complete, current, secure and accurate, the coordinates representing the parcels reflect the actual reality on the field within the specified limits and allowed tolerance, terrain, transportations and utility data are complete, but also measures that provide environmental sustainability insight, such as spaces between parcels, open spaces in a neighborhood, playgrounds, greenery area and trees, kept spaces for roads, bicycles, pedestrian and factors of special needs, also factors such as the consistency of the types of structures representing the parcel borders, the cleanness of water bodies such as lakes or rivers, the closeness of industrial activities or high voltage or a highway, also temporal variations of habitat areas, and many details which can be of an interest to be environmental sustainability analysis. This means that for assisting the assessment of planning and existing sustainability measures or indicators, cadastral data should be collected and maintained with high level of quality and details considering all the environmental related factors besides scale specific conventional mapping factors, and that relating all the data to parcels and parcel types can ease the ranking process, which can be measures specified in relation to parcel types, size, location, perhaps shape and neighborhood. Parcel data can also get a factor that is inherited from the terrain characteristics within a surrounding together with geographic formations, and all this can be built in an object oriented method where some sustainability factors of a community or a sector can be inherited from parcel data factors and vice versa, while parcels inherit factors from the surrounding neighborhood using a specific automated search with factors tuned in relation to data types and perhaps specific indicators.

The poster presents the theory behind the idea and exempts the measures of quality in each particular case, and how it would affect the quality assessment considering environmental aspects.