Presentation: Better urban planning through the standard geographical reference system of German municipalities

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Abstract

Urban planning serves the whole range of urban policy, most of which has an important geographical aspect and must be based on a thorough understanding of the territorial structures, geographical relations and developments. On the geographical micro-level, the situation changes quickly and ad-hoc answers are requested. They cannot be based on new surveys whenever a new question arises. Municipal registers help to provide up-to-date information and data on the changes. Periodical excerpts from these registers can be used to analyse evolutions and trends. Different questions require different geographical allocations and aggregates. Practical applications taken from planning school facilities, improvements in socially disadvantaged areas, public transport for students etc., will demonstrate the variety of these needs and how they are satisfied by the standard geographical reference system:

- distribution of schools referenced by the addresses of their location,
- catchment areas of schools referenced by the sides of building blocks,
- demand based on the population register and data on students based on the home addresses,
- accessibility of schools, distance to be covered, crossing of busy roads, public transport: referenced by elements of the road network,
- analysis of changes and projection of trends for different territorial structures, based on a combination of address data, administrative subdivisions, planning zones etc. taking account of changes of the geographical references in time.

To satisfy these different needs in all areas of responsibility, German municipal statistical offices have developed and established a geographical reference system under the name of AGK, separated from the statistical information system to facilitate handling but providing the geographical references to all its data. Management of updating the geographical data, interrelations and applications can thus be organised with a high degree of reliability, comparability in time, flexibility, and it is open to be applied in different technical environments. This standard geographical reference system comprises the following types of elements: postal address, street (name and code), sections of streets, sides of building blocks, building blocks. Aggregates are composed of these elements, some hierarchical up to the statistical sub-city district and some administrative, like constituencies, postal code areas etc. (mostly more than 20 different administrative and planning areas per city).

For each element, the system links its codes to the codes of all other relevant elements and to their geometry in the Geographical Information System. The information on the beginning and end of validity of each element supports historical comparisons maintaining the full flexibility of geographical referencing according to the user needs. In a standardised geo-database (for ArcView GIS 9.x), any geometry can be created on the basis of postal addresses and sides of building blocks from which, in principle, all other geographical aggregates can be derived. Of course, there is still a lot to be done to fulfil all user needs, e.g. the translation of geographical aggregates into the grid system and improvements in the geographical visualisation of maintenance activities.

At present almost 50 German municipalities cooperate in the maintenance and further development of AGK. The contribution of a few hundred Euro per year has encouraged more and more cities to join and help to promote developments according to their own needs and widen the scope to geographical references above the city level.

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