Abstract

Ninety percent of Dutch drinking water companies have problems with the quality of their GIS data. These problems can lead to reduced efficiency and effectiveness of operational management. The aim of this research is to identify the cause of quality reduction in GIS data and give recommendations to prevent future quality reductions at Dutch drinking water companies. This research can be summarized with the following question:

> "What causes quality reduction of GIS data at Dutch drinking water companies and what are the possibilities to reduce this quality reduction, to ensure GIS data meets the future quality requirements?"

To answer this question a literature study is conducted into the aspects of quality and sustainability in relation to GIS data. By combining the various elements of quality and sustainability it is obvious what quality reduction of GIS data means.

> Quality reduction of GIS data is the reduction in the suitability of GIS data to the current and future needs of GIS users.

A structured list is used to draw up an inventory of the data problems at all Dutch drinking water companies. Inaccurate recording of location, unknown building year, illogical combination of attributes and incorrect recording of material are nationally the most commonly occurring data problems. By relating the data problems at Brabant Water to an area, time and recording process, the causes of these problems are found. The causes are then matched to the various steps in the data production process. Making a relationship between the data production process and quality management principles made it possible to make recommendations to prevent future quality reduction. Further research must clarify if these recommendations are suitable to other companies. Improving data quality by striving for quality optimization besides preventing quality reduction is also subject to further research.

> Quality reduction is caused by changes in: methods, used materials and purposes; it can be reduced by continuous collaboration of all involved parties.