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GIS and Water Supply

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GIS and Water Supply project deals with the usability and quality of GIS data and techniques related in water supply. The main objective is to find a method to produce information for developing water supply and land use planning by using GIS data and different registers. At the moment there is no reliable and comprehensive information available about the water supply network connections of single buildings in the densely built-up areas in Finland. Water supply systems of the properties at rural areas are totally unmapped.

Up-to-date GIS data facilitates both the land use planning and the planning of water supply and sewerage networks, as GIS makes it possible to visualise the data on maps. For example planning new residential areas is more rational when the information about the location of the existing infrastructure is available. In environmental research the information is useful when mapping where the non-sanitated, fragile environments are located. The information is also needed in updating the statistics and answering EU questionnaires controlling implementation of the directives.

Important GIS data concerning the water supply and sewerage are of course the networks of pipelines as well as the Finnish Building Register. The Building Register is a part of Population Information System maintained by the Finnish Population Information Centre. The information about buildings, their locations, their connections to different networks and the amount of population living in each building etc. are maintained in this register, but the information is not always valid.

A method for making the water supply connection information of the Building Register more accurate has been developed. The water supply plants have reliable information about their customers. It is possible to join the Customer Registers to the Building Register. The method has been tested in pilot areas. By the tests it seems that by joining the registers automatically approximately 80 % of the information in Building Register will be updated. With more detailed inspection the percentage can be even 90.

The Customer Registers of the water supply plants can only be used to get info from buildings situated in densely built-up areas. One of the aims is to find ways to keep up a data system about water supply in rural areas as easily and reliably as possible. A mapping concerning water supply equipment was made in one of the pilot areas. The results of the study were used to calculate the BOD and phosphorus load of the properties. This information was transferred to GIS data. When the properties were located on the map and the distance to e.g. nearest water system is known it was easy to make a proposal how the wastewater treatment should be organised in order to cover the requirements of the legislation and the nature.

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