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BOOK OF ABSTRACTS

Social network analysis and environmental management: the case of groundwater contamination in the Lombardy plain

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Abstract

Groundwater supplies nearly half the world's drinking water and around 43 % of all water consumed in irrigation. Despite the advances in scientific knowledge and the increasing regulations for its protection, in some areas groundwater contamination still represents a major environmental concern. Therefore, sustainable groundwater management requires a shift towards a more holistic approach that could permit to consider the social implications of environmental investigations. To test the effectiveness of Social Network Analysis in integrating the social dimension in groundwater-related investigations, a socio-hydrogeological assessment was performed in the Lombardy plain (Italy). Groundwater in the region is extensively exploited to sustain human activities, and increasing trends in contamination have been observed over the years. The investigation was conducted in the framework of the INTEGRON project, funded by the CARIPLO Foundation (Grant number: 2015-0263), targeted to evaluate the role of groundwater in contaminants removal and storage. The stakeholder analysis was performed to identify which group of actors is likely to support the correct implementation of new groundwater management practices resulting from INTEGRON. To this end, a Stakeholder Network Analysis was carried out using the Net-Map toolbox, involving different groups of key-informants: authorities, farmers, researchers and trade unions. Each group was asked to draw an Influence Network Map, showing their perception of the relationships (technical information exchange, control and authorization, advice, money flow, conflicts), the influence level and the economic or environmental priorities of the involved stakeholders. Network centralization measures were hence computed and the differences in perception between the groups were assessed. The complexity of the networks and the emerging multiple perceptions, confirm the need to enforce a holistic approach in groundwater investigations. Social network results a powerful tool to evaluate the interface between environment and society and to reach a more comprehensive representation of the links between groundwater and human systems.