

Community–groundwater compatibility assessments: An approach towards sustainable groundwater development

JA Myburgh* and A Hugo

¹AGES Eastern Cape (Pty) Ltd, East London, South Africa

Abstract

To address water availability problems in a semi-arid country like South Africa, the National Water Act (RSA, 1998) proposes that specialists adopt an approach that is strategic, deliberate and dictated by socio-political reforms and socio-economic development needs on a programmatic basis for long-term sustainability. To achieve this goal an approach is developed to determine community–groundwater compatibility as part of the initial stages of regional rural groundwater-development projects in the Eastern Cape Province, South Africa. The steps followed in the community–groundwater compatibility assessment include:

- A desktop study where available literature is collected and reviewed. From this information and history, the socio-political challenges that will have to be faced for the successful completion of the groundwater-development project in the study area can often be established. This is valuable information to assist the hydrogeological team in planning the community–groundwater compatibility assessment, taking note of pitfalls and lessons learnt from previous approaches that might not always have been successful.
- A socio-economic characterisation includes setting up a contact database for the community authorities and technical managers within the study. The contact database includes all contact details of the ward councillors/technical managers as well as any relevant information or comments made by the ward councillor/technical manager during the conversation. All identified stakeholders must also be contacted, informing them of the project and study. The data obtained from the role-players are used to develop a social-character map.
- Site surveys and sampling are based on the social-character map. The study team assesses the knowledge communities carry concerning groundwater as well as their general attitude towards the use of groundwater.
- Data processing and analyses include the statistical processing of the collected data to assess the comprehensive measure of groundwater compatibility per area, and the individual indicators of the groundwater-compatibility index are given a relative score. This enables the different indicators for groundwater compatibility per area to be combined to give a single composite score for each spatial area.

Target areas are finally characterised in terms of their ‘community–groundwater compatibility index’. Maps showing the social and basic hydrogeological character of target areas are valuable tools towards assisting local authorities in decision-making.

Keywords: community–groundwater compatibility, groundwater sustainability, community awareness