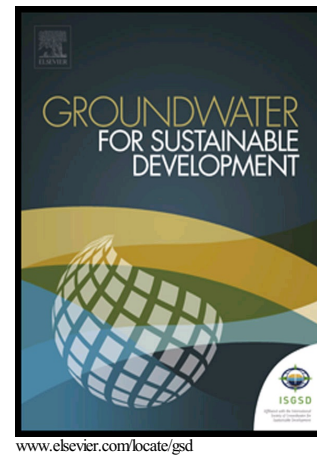


Use of electrical resistivity tomography in selection of sites for underground dams in a semiarid region in southeastern Brazil

Jorge Luiz dos Santos Gomes, Fábio Pinto Vieira, Valiya Mannathal Hamza



PII: S2352-801X(17)30186-8
DOI: <https://doi.org/10.1016/j.gsd.2018.06.001>
Reference: GSD133

To appear in: *Groundwater for Sustainable Development*

Received date: 10 November 2017

Revised date: 16 March 2018

Accepted date: 3 June 2018

Cite this article as: Jorge Luiz dos Santos Gomes, Fábio Pinto Vieira and Valiya Mannathal Hamza, Use of electrical resistivity tomography in selection of sites for underground dams in a semiarid region in southeastern Brazil, *Groundwater for Sustainable Development*, <https://doi.org/10.1016/j.gsd.2018.06.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Use of electrical resistivity tomography in selection of sites for underground dams in a semiarid region in southeastern Brazil.

Jorge Luiz dos Santos Gomes^{a,b}, Fábio Pinto Vieira^a, Valiya Mannathal Hamza^{a,*}

^aObservatório Nacional – ON/MCTI Rua Gen. José Cristino, 77 - São Cristóvão,
Rio de Janeiro – RJ. Brazil

^bUniversidade Federal dos Vales do Jequitinhonha e Mucuri – UFVJM Rua
Cruzeiro, 01 - Jardim São Paulo, Teófilo Otoni – MG. Brazil.

jorge.gomes.br@gmail.com

fabiovieira@on.br

hamza@on.br

*Corresponding Author:

Abstract

A number of geophysical investigations have been carried out over the least two years as part of a study for identifying suitable sites for underground dams in the semiarid region of south east Brazil. The results obtained in the Municipality of Jenipapo de Minas have allowed identification of basement structures beneath shallow soil cover of the intermittent stream Bolas. According to current interpretation of electrical resistivity profiles and pseudo sections obtained in inversion techniques this structure is characterized by a high-resistivity layer (more than 1200Ωm) beneath a low-resistivity surface layer (less than 500Ωm), at depths of 1 to 5 meters. The high-resistivity layer has been interpreted as the top parts of the highly impermeable metamorphic rocks of the basement rocks. The low-resistivity layer is composed mostly of sandy soil in the bed of the Bolas stream. Results of repeat resistivity surveys, carried out during dry and wet seasons, have allowed new insights into the appearances of subsurface channels. Such features are associated with episodes of subsurface flow of water infiltration into the soil layer, during periods of rainy season. It appears that geoelectric surveys may be employed in mapping spatial and temporal characteristics of subsurface water flows, associated with infiltration episodes of meteoric waters into subsoil layers

Download English Version:

<https://daneshyari.com/en/article/8870534>

Download Persian Version:

<https://daneshyari.com/article/8870534>

[Daneshyari.com](https://daneshyari.com)