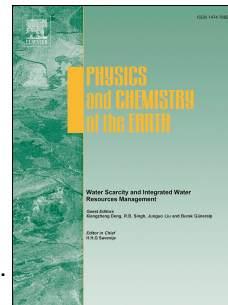


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Validation and verification of lawful water use in South Africa: An overview of the process in the KwaZulu-Natal Province.

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Abstract

South Africa is a water-stressed country which has, over the years, strived to adopt a rational, just and equitable way to manage this limited resource. The National Water Act (Act No.36 of 1998) (NWA) provides the legal framework to achieve this objective. Since 2003, the government embarked on a national process to: validate (confirm the quantum of), and; verify (establish the lawfulness of) water uses that exceed domestic requirements. The objective of the process is to determine how much water is allocated for: (1) existing lawful use in accordance with specific requirements of the NWA, and; (2) current water uses. The process identified users with or without registered use entitlements, whether claims for registered uses were correct, under-estimated, over-estimated or false; and confirmed the lawfulness of each water use in accordance with water legislation that pre-dated the NWA. The process included identifying land and non-land based water uses (industrial, mining and bulk potable water supplies, irrigation, crop types and impoundments) using remote sensing (RS) techniques for both a qualifying (defined as two years before the enactment of the NWA) and the current periods. Using this as a basis, volumetric crop irrigation requirements were then estimated using the South African Procedure for estimating irrigation WATER requirements (SAPWAT), while the Gush curves were used to quantify Stream Flow Reduction Activities (SFRAs) for commercially afforested areas. The boundaries of farm reservoirs were delineated from RS and the volumes calculated using a regression approach. Estimates of the irrigation water requirements, SFRAs and reservoir volumes formed the basis for interaction between the Department of Water and Sanitation (DWS) and water users to confirm their uses; and subsequently, to update the DWS Water Authorisation and Registration Management System (WARMS), a database of water users. While WARMS initially indicated a total of approximately 16 000 registered users in the KwaZulu-Natal Province,

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