

# Flow-gauging structures in South African rivers

## Part 2: Calibration

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### Abstract

Accurate hydrological information is of paramount importance in a dry country such as South Africa. Flow measurements in rivers are complicated by the high variability of flows as well as by sediment loads and debris. It has been found necessary to modify and even substitute certain internationally accepted gauging station designs to overcome practical problems and to improve accuracies.

Part 1 of this paper concentrated on the attributes of different types of gauging structures and provided guidance on the design criteria applicable for selected structures. Part 2 of this paper in 2 parts contains information required to rate or calibrate the gauging structures that are most likely to be selected in the foreseeable future:

- Crump weirs
- Sharp-crested weirs
- Sluicing flumes.

This paper and its linked predecessor reflect the lessons that have been learnt by DWAF and other South African organisations and should be of value to others who have to perform flow measurements under similar conditions. The problems associated with the use of compound weir structures to gauge discharge and techniques that may be used to overcome some of these problems are also discussed.

**Keywords:** gauging structures, Crump weir, sharp-crested weir, compound weirs, dividing walls, modular flows, sluicing flume, flow measurement, rating of structures, rivers