

THE FATE OF RAINWATER IN RURAL TOWNS IN SEMIARID REGION OF WESTERN AUSTRALIA

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Rural towns (or urban satellites) located in the semiarid agricultural areas of the south west of Western Australia, known as the Wheatbelt, are at risk from rising groundwater and saline soils that impact on the infrastructure and water resources within the towns. The role of water and its management in the rural (agricultural) and urban setting is the major focus of collaborative research instigated by the Rural Towns program within the Department of Agriculture and Food, WA.

Rainfall is viewed as the major hydrological driver from a total water balance perspective, therefore its fate in rural towns warrants a closer examination. The redistribution of rainwater internally within a townsite, externally via run-on into the townsite, and the potential to manage its impact on the groundwater table and salinity development is evaluated.

A conceptual rural town water balance model is developed, which incorporates the hydrology of rural towns (including water management), as well as conventional groundwater and surface water elements. This model uses information relating to land usage, and associated water demand and loss, together with conventional hydrological characteristics of the catchment to evaluate the impact of townsite water management from a water balance perspective.

The model is used to assist in formulating improved water management and resource development strategies for rural towns. While the parameterization used is specific to semi-arid regions of Western Australia, it is likely that this approach could be applied with suitable modifications to other regions where catchment water balance is significantly impacted by rural/urban land use and water management.