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Understanding the role of farm dams in the Murray-Darling Basin in Australia through hydrological analysis coupled with stakeholder interviews

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Climate predictions suggest that surface water availability in the Murray-Darling Basin (MDB) in Australia is more likely to decline than to increase in the next decades. In 2000, farm dams were first recognized as a significant risk to future flows in the MDB and have since been the subject of hydrological research. This study was conducted to provide insight into the role of farm dams in the Yass catchment, which is a subcatchment of the MDB close to Canberra, in order to indentify obstacles for integrated water management. The role of farm dams was investigated from both a hydrological and social perspective. Model prediction and data inference were used to estimate the impact of farm dams on streamflow. The density of farm dams in the catchment was estimated at 5.7 dams km-2. The impact on the Yass River was simulated to be in the order of 20 percent of mean annual streamflow. To understand why farm dams are used, semi-structured interviews were conducted to capture views and opinions of land holders. Research found that farm dams play a very important role in terms of individuals' water supply, although other systems are also used. Furthermore, land holders are responsible for their own water supply for drinking and agricultural water needs. Water rights are based on a right to rainfall or groundwater that is present on an individual's property. This means that landholders have both a need and a right to collect and store runoff. Current legislation put in place by the New South Wales government to restrict the amount of rain water to be captured does not seem to affect most people. If additional policy to minimize the impact of farm dams on streamflow were to be introduced, this has to be based on well-thought-out arguments based on a long term vision as the interview results indicate that farm dams are deeply embedded in Australian rural culture.