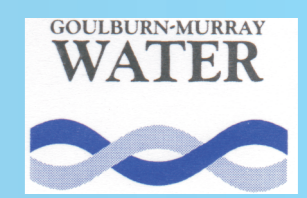


A guide to support consistent risk management planning for water storage managers

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The Safe Drinking Water Act

- The objective of the Safe Drinking Water Act 2003 (Vic) is to make provision for the supply of safe drinking water.
- Water storage managers must prepare, implement, review and revise risk management plans (RMPs) in relation to its supply of water to any water supplier (in the Victorian context these are Regional Urban Water Authorities). This is to be done by 1 July 2005.
- A water storage manager supplies water to a water supplier if the water storage manager releases water to the water supplier; or permits the water supplier to take water from the water storage or if the water supplier has a right to take water from the water storage or from any point downstream of the water storage; and the water storage manager is aware that the water supplier may exercise that right.
- The Act states that a risk management plan shall be a document:
 - that contains a detailed description of the system of supply; and
 - that identifies the risks to the quality of the water and the risks that may be posed by the quality of the water; and
 - that assesses those risks; and
 - that sets out the steps to be taken to manage those risks (including the development and implementation of preventative strategies); and
 - that contains any other matters required by the regulations; and
 - that addresses any risks specified in the regulations.
- The Act also requires Water Suppliers to prepare Risk Management Plans (separately). Figure 2.

G-MW as a Water Storage Manager

- Goulburn-Murray Water is a Victorian Rural Water Authority (G-MW) and manages the bulk water delivery and transfer for around 70% of Victoria.
- G-MW operates 17 bulk water storages and an extensive network of water distribution channels and pipelines.
- Water from G-MW's storages and supply systems is used to supply over 170 towns scattered across northern Victoria and along the River Murray as far downstream as Merbein. (Map 1)
- Water is supplied to Regional Urban Water Authorities that treat the water to drinking water standards for supply to customers. Water from G-MW systems is not supplied as drinking water.

Water Storage Manager Risks.

- Water storage managers need to consider risk management in terms of risks associated:
 - within the catchment to the storage
 - within the storage
 - with supply of water downstream of storages using natural carriers such as rivers and creeks
 - with channel supply systems to each drinking water off take point.

Developing Risk Management Plans

- Victorian Rural Water Authorities commissioned the consultants Water Futures to prepare a Guide for the preparation of risk management plans.
- Aimed to encourage a streamlined and consistent approach across Water Storage Managers to the development of the first iteration of the RMPs by different teams across Victoria.

The Guide

- The Guide is structured according to the 12 elements of the Australian Drinking Water Guidelines (ADWG) Framework for the Management of Drinking Water Quality (ADWG Framework) (Table 1). This is because of the direct relationship between the ADWG Framework and the Act.
- Most elements of the ADWG Framework are directly applicable to G-MW in its water storage manager role, but some of these need adaptation to fit the context of a raw water supplier (catchment to off take point) rather than a catchment to tap supplier of drinking water.

Element	Components
1. Commitment to drinking water quality management	Drinking water quality policy Regulatory and formal requirements Engaging stakeholders
2. Assessment of the drinking water supply system	Water supply system analysis Assessment of water quality data Hazard identification and risk assessment
3. Preventive strategies for drinking water quality management	Preventive measures and multiple barriers Critical control points
4. Operational procedures and process control	Operational procedures Operational monitoring Corrective action Equipment capability and maintenance Materials and chemicals
5. Verification of drinking water quality	Drinking water quality monitoring Consumer satisfaction Short-term evaluation of results Corrective action
6. Incident and emergency response	Communication Incident and emergency response protocols
7. Employee awareness and training	Employee awareness and involvement Employee training
8. Community involvement and awareness	Community consultation Communication
9. Research and development	Investigative studies and research monitoring Validation of processes Design of equipment
10. Documentation and reporting	Management of documentation and records Reporting
11. Evaluation and audit	Long-term evaluation of results Audit of drinking water quality management
12. Review and continual improvement	Review by senior executive Drinking water quality management improvement plan

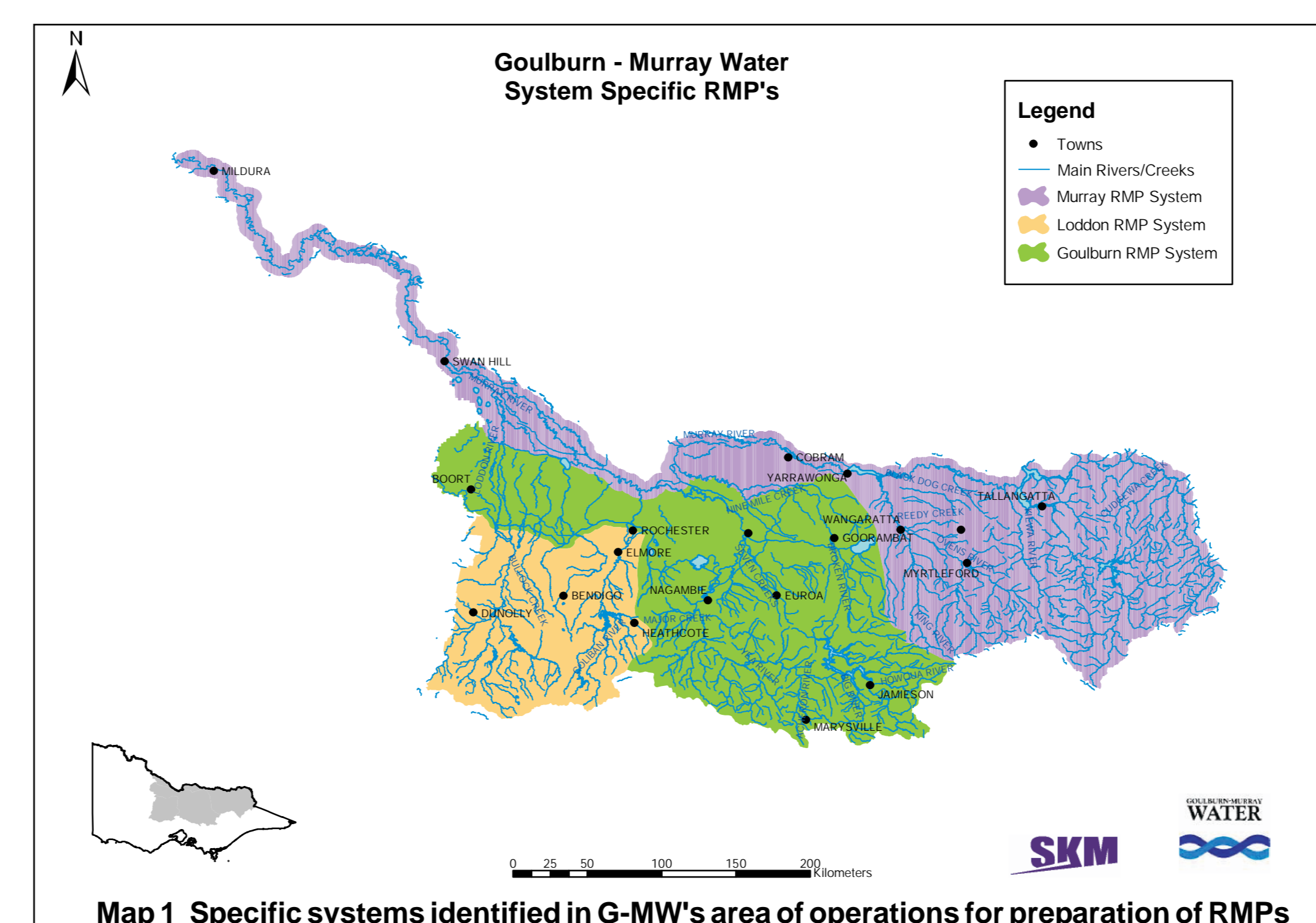
Table 1. The Elements and Components of the draft Framework (NHMRC 2002).

- The Guide works through each ADWG Framework element and provides the following information:
 - What the relevant components and actions are under that element;
 - What is to be done for the RMP; and
 - One or more methodologies including illustrative examples and pro formas.

Figure 1 outlines the process for preparing RMPs. The Guide is being implemented at two levels. A single high level risk management plan covering the elements on the left hand side of Figure 1 (blue) is being prepared to cover those elements of the risk management plans that are common to all of G-MW's area. For example, policy, stakeholder engagement, employee awareness and training and documentation and reporting.

System specific risk management plans, covering the right hand side of Figure 1 (pink) will cover specific aspects of defined systems of one or more water storages, their contributing catchment and supporting supply systems. For G-MW's region three specific systems have been identified - Murray, Goulburn and Upper Loddon (see Map 1).

Implementation of the Guide and preparation of Risk Management Plans began in October 2004. Implementation requires substantial coordination and integrating activities, most likely under the umbrella of the Catchment Management Authority Regional Catchment Strategies.



Map 1 Specific systems identified in G-MW's area of operations for preparation of RMPs

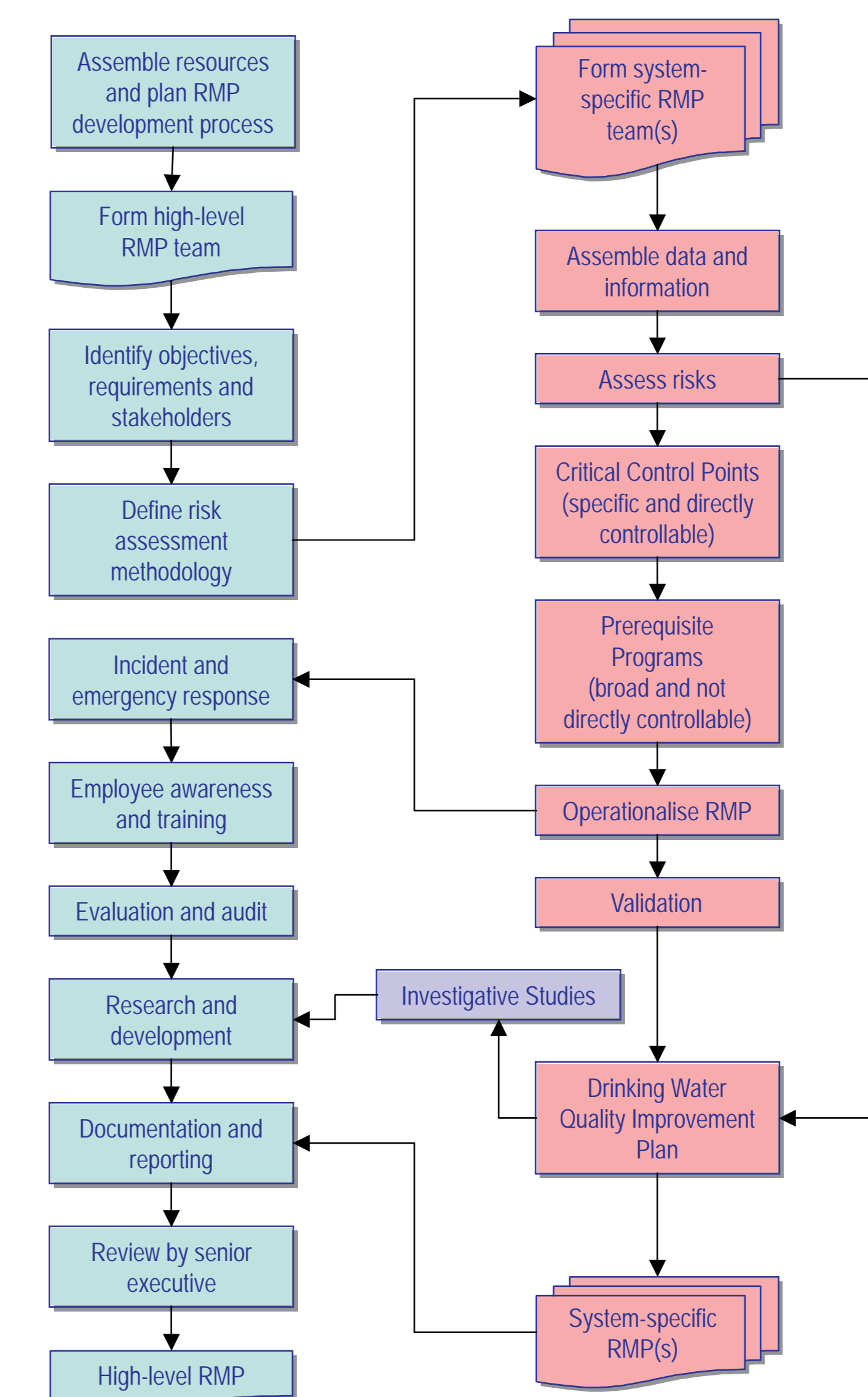


Figure 1 Overview of Risk Management Plan Development Process

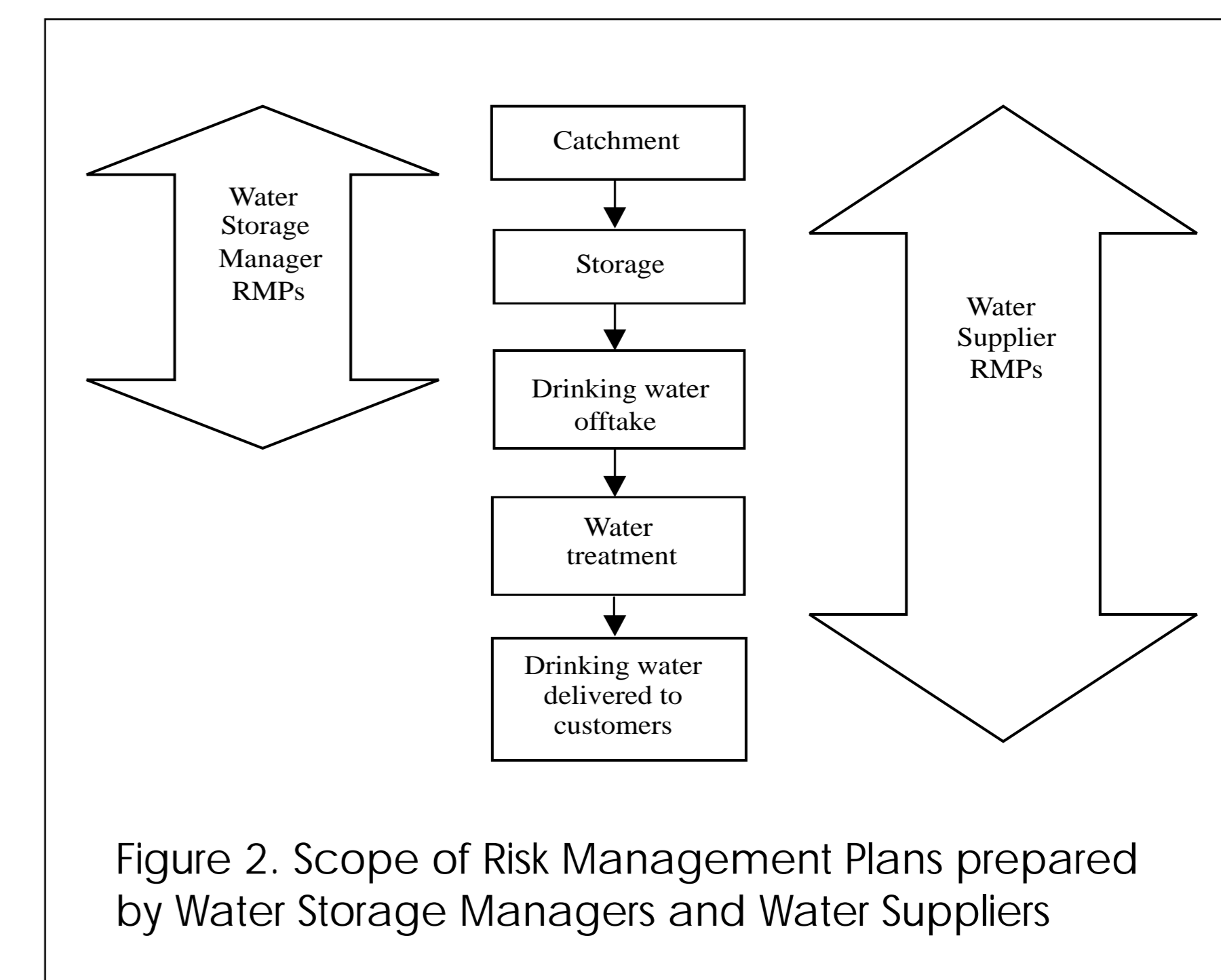


Figure 2. Scope of Risk Management Plans prepared by Water Storage Managers and Water Suppliers

Conclusion

Preparation, implementation and review of risk management plans will be a long term, complex task. A consistent approach, aided by the development of a guideline based on a sound framework, should enable water storage managers to meet legislative obligations with few concerns.

REFERENCES

- NHMRC (2002) Australian Drinking Water Guidelines: Framework for the Management of Drinking Water Quality: <http://www.health.gov.au:80/nhmrc/publications/synopses/eh19syn.htm>
- Water Futures (2004). Guide to preparing risk management plans consistent with the Safe Drinking Water Act 2003 for Water Storage Managers, first Edition. Report prepared for Goulburn-Murray Water, Southern Water and Wimmera Mallee Water. (Copies available from author)