



Water Resource Plans Part 9 guidelines

Guidelines for meeting Basin Plan (Chapter 10) requirements in relation to approaches to addressing risks to water resources

Acknowledgement of the Traditional Owners of the Murray-Darling Basin

The Murray-Darling Basin Authority (MDBA) acknowledges and pays its respect to the Traditional Owners and their Nations of the Murray-Darling Basin. The contributions of earlier generations, including the Elders, who have fought for their rights in natural resource management are also valued and respected.

The MDBA recognises and acknowledges that the Traditional Owners and their Nations in the Murray-Darling Basin have a deep cultural, social, environmental, spiritual and economic connection to their lands and waters. The MDBA understands the need for recognition of Traditional Owner knowledge and cultural values in natural resource management associated with the Basin. Further research is required to assist in understanding and providing for cultural flows. The MDBA supports the belief of the Northern Basin Aboriginal Nations and the Murray Lower Darling Rivers Indigenous Nations that cultural flows will provide beneficial outcomes for Traditional Owners.

The approach of Traditional Owners to caring for the natural landscape, including water, can be expressed in the words of the late Ngarrindjeri elder Tom Trevorrow: “our traditional management plan was don’t be greedy, don’t take any more than you need

and respect everything around you. That’s the management plan—it’s such a simple management plan, but so hard for people to carry out.”

This traditional philosophy is widely held by Traditional Owners and respected and supported by the MDBA.

Introduction

The information in this document is provided by MDBA in good faith with the intention of assisting the development of water resource plans in a manner consistent with the Basin Plan (2012). The information is provided ‘without prejudice’ and is not intended as an indication that a particular course of conduct will guarantee accreditation. The MDBAs intention is to provide assistance in a way which does not fetter either the Authority’s assessment process or the Minister’s decision.

Purpose

This guideline provides information for water planners on how to apply the Part 9 risk assessment when developing a water resource plan (WRP) under Chapter 10 of the Basin Plan. Part 9 requires Basin States to identify, rate and provide for management of risks to water resources in a WRP area.

The structure of Chapter 10 requires that risk is considered under other chapter parts. The

Part 9 risk assessment is therefore used by the MDBA to assess a WRP against a range of requirements. The purpose of this guideline is to provide Basin States with information about how MDBA will assess the Part 9 requirements, and how MDBA will use the information under Part 9 to assess other Chapter 10 parts. The guidelines are intended as information about how Basin States *may* address Chapter 10 requirements *and* strengthen risk-based water resources management. The information is provided as a supplement to MDBAs published position statements.

Document structure

The first part has guidance notes for each Part 9 section, and is set out under five sub-headings:

1. Section requirements
2. Position statement guidance on how to meet section requirements
3. Guideline recommendations/ references on how to meet section requirements
4. MDBA assessment considerations
5. Further considerations/options for better practice.

The second part of these guidelines sets out how MDBA would use the Part 9 risk assessment for wider WRP assessment, and how this can be a basis for strengthening risk-based planning and adaptive management of water resources. The section aims to provide information about how Basin States could capitalize on the investment in the risk assessment after a WRP is accredited and operational. The guideline also has background information such as key Basin Plan principles, as well as

references to relevant strategic and legislative frameworks.

The guidance in this document reflects discussions with Basin states and other stakeholders. It represents MDBAs' interpretation of these discussions in the context of the Basin Plan and Water Act (2007) (Commonwealth), as well as experience to date from assessment considerations for a limited number of WRPs.

Background

Section 10.41(1) of the Basin Plan requires that a water resource plan (WRP) must be prepared by Basin states 'having regard'¹ to risks to the condition and availability of the water resources. Part 9 of Chapter 10 sets specific requirements for risk identification, methodology (e.g. risk assessment), and strategies to address risk (e.g. mitigation and management). Other parts of Chapter 10 specify obligations to consider ('have regard to') risk, including during the development stage of a WRP. The link between risk and other parts of Chapter 10 arises from a key principle in the Basin Plan: water resource planning to be risk-based.

The MDBA recognises that States already have a risk assessment and mitigation process in place, as the basis for jurisdictional water management plans. The MDBA aims to assist States to use their existing approaches 'as-is', or with necessary modifications. While States are not required to follow a specific methodology for the risk assessment process, the MDBA supports the principles in AS/NZS ISO 31000:2009 *Risk Management—Principles and Guidelines*. The use of a well-known and standardised risk assessment would have efficiency gains, both during the preparation and assessment stages for a

¹ Position statement **1B** *Interpreting 'have regard to'* has more information

WRP. A standardised approach also enables continuity across plan and jurisdictional boundaries.

The Part 9 risk assessment is critical to many aspects of a WRP. The MDBA and Basin states have therefore emphasised timely development of the Part 9 risk assessment. As such, the risk assessments for a number of WRPs are well-progressed. As well as being critical for the WRP development process, the Part 9 risk assessment is important for MDBAs WRP assessment function. The development of a WRP is envisaged to require 12-18 months, depending on the complexity the plan area. The early preparation of a risk assessment could cause for more or new risk information to come to light before the WRP is finalised for submission. It is MDBAs view that practical considerations such as the timing of risk assessment, does not preclude new or additional risk information to be taken into the WRP during subsequent development stages.

Overarching requirements - Basin Plan (2012)

Under the Basin Plan, WRPs must deal with a range of matters, including risks to the health and uses of water resources in (or connected to) a plan area. Part 2 of Chapter 4 in the Basin Plan forms a basis for risk consideration, and sets out matters that are relevant to water resource risks and management.

Links to MDBA Position statements

These guidelines build on position statements developed by the MDBA. Position statements sets out how, in the MDBA's opinion, States are to apply WRP requirements. The position statements also explain the focus of MDBAs assessment when considering the consistency of the WRP with the Chapter 10 provisions and the

Basin Plan overall². Position statements are available from the MDBA website.

Whilst several position statements are relevant in the context of these guidelines, position statements 9A – *Risk assessment method* and 9B - *Risk assessment strategies* set out the criteria that the MDBA will use to determine that an appropriate risk assessment has been undertaken by States to satisfy the requirements of Chapter 10 Part 9.

These guidelines make some references to sections of the Basin Plan (2012) and the Commonwealth Water Act (2007). As legislation can change from time to time, when considering specific sections, it is generally advised that readers consider the most updated text. However, for a WRP the relevant version of the Basin Plan is specified in the Water Act section 56(2) and stated in each WRP. Legislative instruments are available from online legal sources (for example <http://www.austlii.edu.au/>). Hard copies of the Basin Plan and the Water Act are also available by contacting the MDBA.

WRP development to be risk-informed

Part 9 of Chapter 10 sets out a broad structure for risk based planning to *inform the development* of WRPs. The following guidance is provided to assist Basin states to apply risk information to develop other parts of the WRP. It is a key consideration for States to *demonstrate in the WRP that outcomes* of the risk assessment has informed the management and mitigation for matters under other Chapter 10 parts, in particular parts 4, 5, 7 and 14.

The provisions in Chapter 10 were developed to take account of existing Basin state water planning approaches. However, some parts of Chapter 10 *extend* the risk

² Position statement **1F Overall consistency**

based approach of jurisdictional water planning, for example requirements to consider certain *consequential risks*, building and taking account of the knowledge about *Aboriginal values and uses*, and providing for certain forms of *monitoring and reporting*.

Considerable effort is invested by States in conducting risk assessment. As such, the Part 9 risk assessment 'sets up' for WRPs to provide a risk based rationale. The Basin Plan and the Commonwealth Water Act also provides for improvement in practices to manage the Basin water resources. For example, if during the operation of an accredited WRP subsequent knowledge about a risk comes to light or a risk starts to materialize, it is open to States to provide for processes to adapt management and

mitigation accordingly. As an undertaking, the Part 9 risk assessment is therefore a potential cornerstone for States to strengthen adaptive management arrangements for water resources in their jurisdictions during the operation 'life' of an accredited WRP. This guideline therefore includes suggestions about how States may capitalise on the investment made in risk assessment for the purpose of Part 9.

A WRP is generated as a set of documents with information and supporting material (see position statement 2A Accredited WRPs and evidence). A schematic presentation of the WRP 'inputs' (documents), development process, and 'outputs' is provided in figure 1.

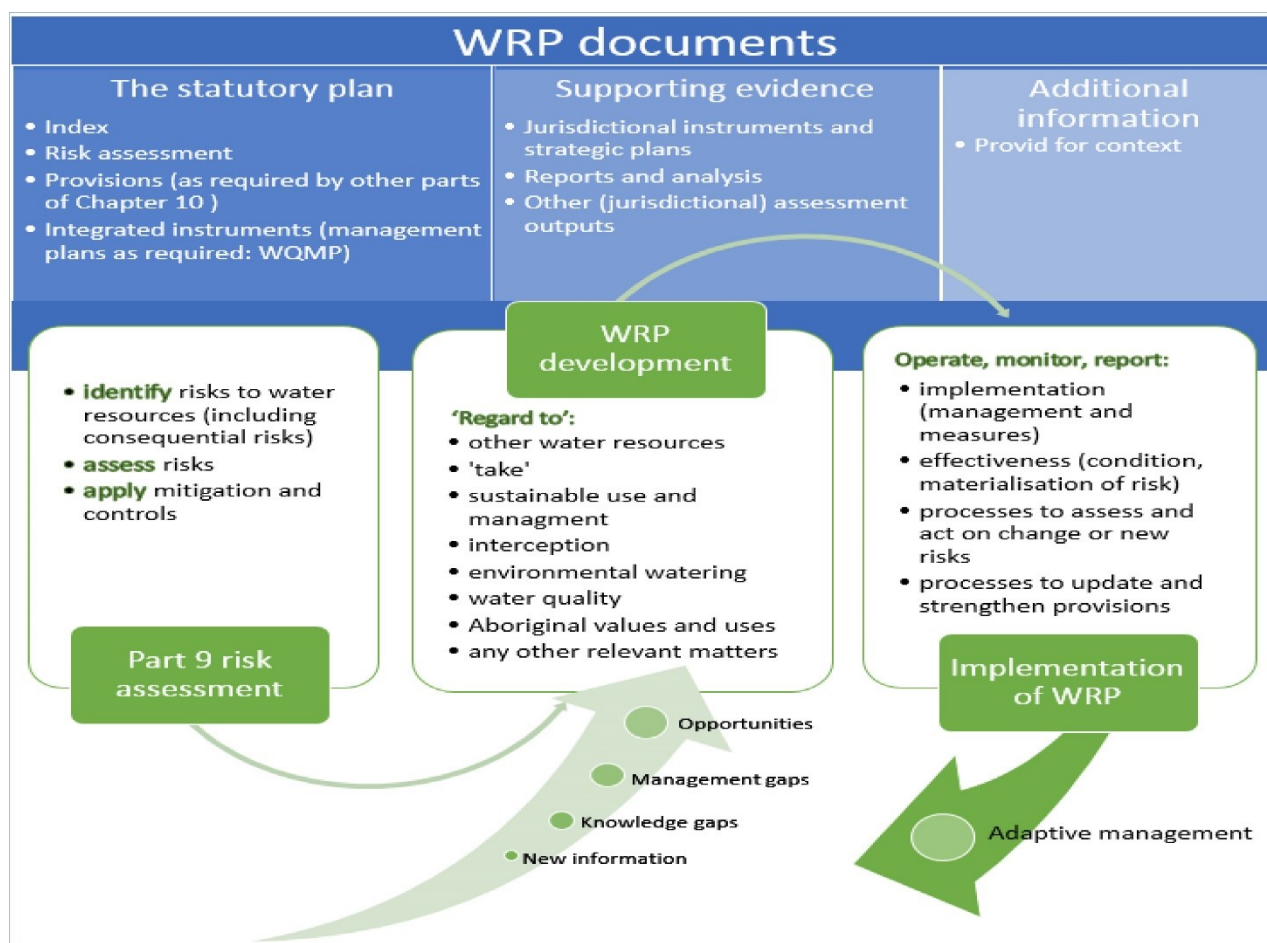


Figure 1: WRP inputs, development processes and outputs

Typically, the material in WRP documents must function in two principal ways: *Establish* a provision that is consistent with the Basin Plan (for example a management arrangement) for a matter or specific aspects of a matter, and *demonstrate* how that provision was formulated with *regard to*³ certain information (and/or processes or other provisions). While ‘management provisions’ would be familiar to most planners, provisions to demonstrate (i.e. to *validate*) how a WRP was developed are a distinctive feature of WRPs. The interplay between Part 9 and other parts of Chapter 10 requires that risk information is a consideration when formulating WRP provisions. The corresponding WRP provisions must therefore validate that the required ‘regard’ was had. An approach to validating is for the WRP to make a ‘testable’ statement (a claim). The statement would need to reference or cite the *evidence* for the claim. In other words, a statement to the effect that certain knowledge and

considerations in relation to a risk was factored into a WRP provision must be capable of being *substantiated* in the WRP material. The implication is that links between risk information, statements and evidence in the WRP material must be *navigable*. Navigability of information is fundamental to verification that the WRP complies with Chapter 10 requirements. Figure 2 illustrates functional links in the WRP material for provisions to validate plan development processes.

The risk assessment under Part 9 will in most instances precede the development of the other WRP provisions. It follows that subsequent development work may uncover *knowledge gaps* and *new information*. It is therefore important for States to also capture and demonstrate the application of all knowledge and rationale that has informed the formulation of WRP provisions, including how such information relates to the Part 9 risk assessment

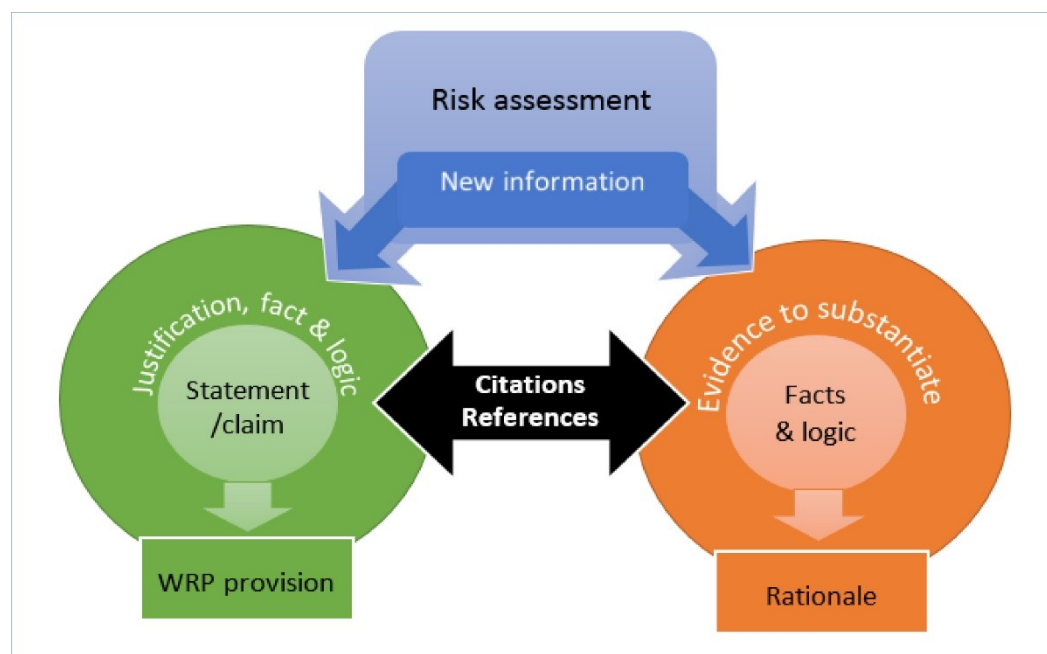


Figure 2: Functional links between WRP materials for provisions to validate development process

³ Position statement **1B** *Interpreting ‘have regard to’*

Basin Plan Chapter 10, Part 9 requirements

Specific guidance for each provision in Part 9 of The Plan is set out below.

Section 10.40 Definitions

Section 10.40 is a statement of fact, and therefore not directly assessed by the MDBA. The section defines two key terms; *risk*, and *level of risk*. While Chapter 10 does not mandate the use of AS/NZS ISO 31000:2009 *Risk management—Principles and guidelines*, some aspects of the standards are reflected in Part 9. Broadly, the MDBA takes ‘risk’ to mean *circumstances or situations that will cause, or has potential to cause harm to water resources*.

Basin states should ensure that a definition of key terms relating to risk and risk assessment is provided and consistently applied. Where terms are used with *other* than the defined meaning, the WRP should ensure that this is clear in each instance. This is a particular consideration for a streamlined assessment process.

Section 10.41 Risk identification and assessment methodology

Section 10.41 requirements:

The section sets out certain aspects of the approach to risk identification and assessment methodology which States must apply when preparing the Part 9 WRP provisions.

A range of Chapter 10 sections require a WRP to have regard to (current and future) risk to water resources. Subsection 1 requires that when preparing a WRP, a State must have regard to risks to the condition and continued availability of water resources in the plan area. This means that Basin states must give current and future risks proper, genuine and realistic consideration

when developing other provisions in the WRP.

Subsections 2 to 6 has requirements to ensure that, as a minimum, certain types of risks are identified and assessed in a consistent way. This must include the types of risks mentioned in s 4.02 (Chapter 4 of the Basin Plan).

Subsections 7 and 8 require that the WRP *describes* the data and methods used (including for quantification) to assess risks to the plan area water resources. This provides for factual information to be available about the basis for identified and assessed water resource risks in a plan area.

Position statement guidance on how to meet section requirements:

There are several position statements that provide guidance for States when addressing section 10.41. These are:

- 1B – *Interpreting ‘have regard to’*
- 2A – *Accredited WRP and evidence*
- 9A – *Risk assessment method*
- 9B – *Risk assessment strategies*
- 12A – *Best available information*

Guidelines recommendations/references on how to meet section requirements:

A comprehensive, consistent, and systematic method of risk assessment would be a key factor when MDBA considers a State’s claim that a WRP has been prepared ‘having regard to the current and future risks to’ water resources in (or connected to) the plan area.

Basin states should address s 10.41 in the WRP with a view to:

- Demonstrate that *during the preparation of the WRP*, regard was had to current and future risk (this is assessed by MDBA under Part 9).

- Identify *where and how* (in the WRP) regard was had to the risks, as this applies to specific matters under other parts of the WRP (this is assessed by MDBA under other parts).

For the purpose of s 10.41, the risk related information must be verifiable on the following points:

1. the WRP was prepared 'having regard to' the risk assessment (requires a statement of fact or claim for subsection 1, and a manifestation or demonstration in the other relevant parts of the WRP), and
2. certain risks have been assessed (subsection 1-3), and
3. the assessment has been made by applying the specified aspects (subsection 4-8) to the methodology.

The risk assessment process is generally conducted as a starting point for the development of a WRP. If during the WRP development, new or additional information comes to light about a risk that was not subject to the initial risk assessment, this could be noted in a statement under s 10.41. The new or additional information should be taken into account in the WRP. This could mean that there may be variations between the initial risk assessment information and the risk information provided in the final WRP. For the purpose of s 10.41(2), it rests with the Basin states to ensure that the WRP includes and takes account of all relevant risk information.

An approach that potentially could satisfy the requirements in subsections 1 to 8 is to prepare follows:

- A statement to the effect that the preparation of the WRP had regard to all current and future risk to the condition and continued availability of water resources in the WRP area (to address

subsection 1), and that this is demonstrated by inclusion of information about (reference to) *where and how* regard was had to the risks in a *consolidated risk table* (the '*WRP Streamlined Assessment – Statement of Approach*' has suggestions for how to use a consolidated risk table).

- A *consolidated risk table* could be a list (as required under subsection 4) of all relevant risks (required under subsections 1 to 3). To facilitate referencing in relation to other parts of the WRP, each risk could be assigned a unique identifier. In order to address the remaining subsections, the consolidated risk table could include:

- Assessment information (e.g. risk appraisal and considerations) for each risk (required by subsection 5).
- The defined level (e.g. rating) of each risk (required by subsection 6).
- A reference to relevant data for each risk (subsection 7).
- A reference that identifies method for assessment (subsection 7).
- If applicable, a reference to descriptions of quantified uncertainties (subsection 8).
- A State could also consider including information to facilitate compliance with s 10.43. The consolidated table could include a description of management strategies to address each risk (defined to be medium or higher), or references to relevant information. For risk that cannot be addressed in the WRP, either information directly in the table, or references to relevant information could be included.

- Further, information that helps to identify *where and how* regard was had to risk information in *other parts* of the WRP, for example references to relevant parts of the WRP. If s 10.43(b) applies, the table could include information directly, or references to information, that justifies why it is not necessary or possible for the WRP to address those risks.

NOTE: It is important for assessment verification that all references direct the reader to the specific and relevant information. In other words, references must be *navigable*. Where references take in material that requires screening out because it is unrelated to the specified requirement, States should consider how it might be possible to enable verification by MDBA for WRP assessment purposes. Position statement 2A *Accredited WRPs and evidence* has more information about the implications of presenting material as part of a WRP.

MDBA assessment considerations:

Systematic and transparent risk assessment, applied consistently across the plan area is part of the consideration being assessed under this section. If queries arise about significant variations in methodology and approach, the MDBA may need to apply assessment focus to establish if any significant uncertainties arise from those variations. While potentially compliant with Part 9, such variations could impact on the confidence MDBA may place on the risk information, including for other parts of the WRP. Position statement 1J *Cross border management* has more information.

For subsection 1, in order for MDBA to determine (for WRP assessment purposes) that *regard* to risks was had during the development of a WRP, the WRP must *demonstrate* this as a fact. An explanation of

'have regard' is provided in position statement 1B.

Section 10.41(1) emphasises the *preparation* stage of a WRP. For regard during preparation to be demonstrated, Basin states could consider providing a statement to the effect, and substantiate the statement by providing descriptions in the risk table (or references to descriptions), as to *where and how* regard was had to each risk. The descriptions could include:

- an explanation of the *way in which* current and future risks to the condition and continued availability of water resources featured and was addressed in terms of methodology (position statement 9A provides more information)
- a description of how the outcomes of the risk assessment (e.g. risk level, strategies for addressing risks etc.) was applied in the development of the WRP, and
- identification of the linkages between the identified risks and the management or controls in other parts of the WRP, and how the management/controls are informed by the risk information.

For more guidance on identifying *where and how* regard was had to the risks as it applies to specifically nominated matters under other parts of the WRP, see guidance below under 'How the MDBA uses Part 9 risk assessment to inform assessment of other WRP parts'.

Further considerations/options for better practice:

Section 10.05 of Chapter 10 requires regard to water resources in other plan areas that have significant hydrological connection. For this reason, the application of a consistent risk assessment and management approach across plan and jurisdictional boundaries would represent better risk assessment and management

practice. This could involve stronger and more established intra- and inter-jurisdictional coordination and integration. States may consider how the current practices may be strengthened, including how assistance the MDBA may contribute further.

Other material that may be relevant:

- AS/NZS ISO 31000:2009 *Risk management — Principles and guidelines*
- ISO 3101:2009 *Risk management – Risk assessment techniques*
- Supporting handbooks available from Standards Australia and others
- National Water Initiative - *Policy Guidelines for water planning and management* (particularly the risk assessment module).
- MDBA report - *Developing a Bayesian Network*

Section 10.42 Description of risks

Section 10.42 requirements:

This section requires that a WRP describes each risk rated as medium or higher (i.e. defined as per s 10.41(6)), and the *factors* that contribute to those risks.

Guidelines recommendations/references on how to meet section requirements:

The WRP must provide a description of each risk that has a defined level of 'medium' or higher. The descriptions must include the factors that contribute to those risks.

Basin states may consider assigning *consequences* and *likelihood* of each risk, as part of defining the level under s 10.41(6).

Position statement guidance on how to meet section requirements:

- 9A – *Risk assessment method*

- 9B – *Risk assessment strategies*
- 12A – *Best available information*

MDBA assessment considerations:

A key consideration for MDBAs assessment is for the *risk description* and the *contributing factors* to be identifiable *in terms of each other*. In other words, it must be possible to cross-reference each listed (medium and higher) risk with its contributing factors. If it is impractical to do in a consolidated risk table, then (navigable) references for each risk to its contributing factors are required.

Where the descriptions of medium and higher risks is separated from information about contributing factors (for example set out across multiple documents), the MDBA may need to focus effort on establishing if the risk assessment is sufficiently clear and transparent to apply when assessing other WRP parts.

Further considerations/options for better practice:

A systematic and transparent rating of risks to include consideration for consequences and likelihood of a risk materializing is highly encouraged. However, some types of risk would materialize gradually over a long period of time, with consequences that are difficult to predict, appraise and quantify. Although WRPs must consider *cumulative* effects for some types of risk (see Part 5), impacts on water resources can be gradual, incremental, and combined effects of multiple actions that individually has insignificant impacts. Basin states are encouraged to consider approaches to risk assessment that systematically takes account of cumulative effects on all significant aspects of water resources.

An emerging area of risk consideration are consequences to human health and wellbeing (physical and psychological) of environmental resource change and degradation. While strategies to address

such risks may be considered beyond the current scope of WRPs and traditional water resource management, better practice would suggest that the full range of significant (in terms of magnitude and costs) risks associated with impacts on water resources could be relevant to WRPs. The fact that information may not be available (for example for the purpose of quantifying health impacts of lost environmental amenity) does not suggest that rating of such risks should be 'low'. Rather, it is a fundamental principle in risk assessment is to consider a lack of information about a risk as a risk in itself. The information for a risk assessment could therefore be relevant to share with agencies that are tasked with wider human service development and delivery. This may be particularly poignant for Aboriginal communities, and separate guidelines have been developed for the application of Part 14 (Aboriginal values and uses) in WRPs.

Section 10.43 Strategies for addressing risks

Section 10.43 requirements:

This section sets out how strategies for addressing risks (identified under s 10.41 as medium or higher) should be identified, considered, and applied to relevant matters under other parts of Chapter 10. Typically, addressing risk would involve providing strategic action in the form of controls/mitigation and/or management to limit the likelihood and/or consequence of a risk materializing. The section requires that such strategic actions are described. The mitigation/management action should be sufficient to adequately manage the risk. Where this is not feasible in the context of the WRP, an explanation of the rationale for not including an appropriate strategy needs to be included in the WRP.

Position statement guidance on how to meet section requirements:

- 9A – *Risk assessment method*
- 9B – *Risk assessment strategies*
- 12A – *Best available information*

Guidelines recommendations/references on how to meet section requirements:

This section requires the inclusion of strategies to address risks defined as the medium or higher. Other parts of Chapter 10 require that risks are considered in various ways. Where an identified risk relate to a nominated matter under another part of Chapter 10, the corresponding risk strategy will need to be taken account of for the nominated matter. Examples are:

- Regard to whether rules are necessary (or, as the case may be, an explanation of why rules are not necessary) as set out under Part 4,
- WRP provisions for interception activities, including monitoring, as set out under Part 5,
- Certain water quality objectives, as set out under Part 7.

The WRP may demonstrate compliance by providing 'navigable' references to the sections of the WRP where the nominated matters are addressed. This could form part of a consolidated risk table. It must be clear from the information which risk(s) and corresponding strategies to address relate to which nominated matter(s).

For subsection 3, the strategies provided to address risk must be stated in the WRP in way that demonstrates that regard was had to (for example by providing an explanatory statement supported by evidence) the strategies listed in s 4.03(3) of the Basin Plan. A range of strategies are listed in s 4.03(3), for example implementation of formal or semi-formal instruments,

monitoring, and more general approaches such as improving knowledge. Given the broad range of strategies that may be relevant, it is expected that most risks would be associated with some level of management and mitigation. Where any management or mitigation is considered disproportionate to the level of risk, the WRP may include an explanation as to why strategies to address are not included. Subsection 3 also requires that the WRP has regard to guidelines published by the MDBA, including for implementation of strategies to manage or address risks under s 4.02 in the Basin Plan.

MDBA assessment considerations:

In assessing compliance with s 10.43(1), the MDBA will verify that the WRP risk assessment includes descriptions of strategies for the relevant type(s) of risk. If there is uncertainty about the robustness or transparency of the risk assessment, the MDBA may need to focus effort on establishing that the information provided about strategies achieves to describe the management of the water resources. This would also apply to explanations of why a risk cannot be addressed (subsection 1, letter b).

For subsection 2, please see the guidance provided below under 'How the MDBA uses Part 9 risk assessment to inform assessment of other WRP parts'.

In assessing the WRP for compliance with subsection 3, the MDBA will seek to verify that the strategies to address risk has had regard to strategies listed in s 4.03(3) of the Basin Plan, and any guidance published by the MDBA under s 4.04 of the Basin Plan.

Further considerations/options for *better practice*:

A Basin state may choose to provide strategies for addressing all identified risks. This includes strategies that already exist as

part of a Basin state's water management arrangements that have been maintained in order to continue to manage a risk.

Basin states may also consider the value in coordinating or integrating risk control/mitigation and/or management strategies for the WRP area with strategies applied to hydrologically connected resources in other plan areas, including other jurisdictions.

A challenge in addressing risks that have distributed or disbursed effects (including risk that are cumulative, indirect, or lacking methods to quantify etc.). It would be of value for WRPs to identify the areas or sectors that *contribute to* or *has scope to address* such risks, even if there is no scope to impose obligations in the WRP.

MDBAs use of Part 9 risk assessment

Applying Part 9 to assessment of other WRP parts

MDBA assessment considerations:

Section 10.43(2) specifically requires that where identified risk relates to a matter specifically nominated under another part of Chapter 10, the strategy to address risk must take account of the requirements that apply to those nominated matters. The nominated matters are typically central to sustainable use of the Basin water resources. The MDBA therefore considers that the outcomes of the Part 9 risk assessment (e.g. risk level, strategies for addressing etc.) must be integrated, as a minimum, with the nominated matters. For this reason, the risk assessment under Part 9 is fundamental to MDBAs assessment of subsequent parts of the WRP.

Nominated matters occur in the following Chapter 10 parts:

Part 4: Section 10.22(b) requires that the WRP explain the rationale for including (or not including, as the case may be) rules for sustainable use and management of water resources related to the WRP area. The MDBA considers that the emphasis of the requirement is for the WRP to provide a rationale for the Basin state's approach to sustainable use and management of the water resources. See also position statements 4A to 4F.

Part 5: Section 10.23(1) requires that the WRP specifies interception activity that has potential to cause significant impacts on the water resources, and in doing so the WRP must demonstrate that regard was given to the risk information provided under Part 9. See also position statement 5A.

Part 7: Section 10.31 requires that the risk information provided under 10.41(2) is integrated in the water quality management plan (WQMP). This integration mechanisms takes the form of an explanation in the WQMP for why measures addressing the risk have (or have not, as the case may be) been included in the WRP. See also position statement 7A and 7B.

Part 14: Section 10.53 requires that the views of Traditional Owners is given regard where risks to Aboriginal values and uses arise from the use and management of water resources relevant to the plan area. Guidelines for Part 14 has more information about considerations for consequential risks. See also position statement 14 A, and the Part 14 guidelines (currently in development).

In order to demonstrate regard for the nominated matters, the WRP should provide 'navigable' references that enables verification that regard was had.

Further considerations/options for better practice:

It would be open for Basin states to note and vest consideration for risk information for other water resource related matters, for example in relation to the provisions under Part 13 Extreme events. While the provisions in the part do not directly link to the Part 9 risk assessment, it would be possible for the WRP to include references to provisions for critical human water needs.

Where the risk assessment process brings to light actual or potential impacts on water resource matters that are not nominated as subject to specific regard under Chapter 10, it would rest with each Basin state to include the information and provide for measures to address the risks for such impacts

Linking water resource management and mitigation, to risk

For certain matters, a WRP must have provisions for management that mitigates risk, in particular for risks rated as 'medium' or higher. The WRP material must therefore in many cases demonstrate that *regard* was given to risk in the development of the plan. Management action to mitigate could be rules to 'shore up' protection of water resources in the plan area (and some instances in adjoining or hydrologically connected areas). The term 'have regard to' means that a circumstance is given *proper, genuine and realistic consideration*⁴. The term 'consideration' implies that a process of discussion or deliberation has taken place, that key points have been weighed up, and that a rational 'call' or decision has been made based on the information. For the purpose of demonstrating that management in a WRP has considered risk, the WRP will need to provide a description (a statement or claim) of how risk considerations featured in

⁴ Position statement **1B** *Interpreting 'have regard to'* has more information

the formulation of measures for management and/or mitigation. The statement will need to link to evidence that substantiates the claim.

Management or aspects of management for a number of matters in Chapter 10 have *explicit* links to the risks identified under Part 9. Some links are established directly by way of a citation (i.e. reference to other Chapter 10/Basin Plan sections). Other links are established by way of logic, (for example the use of terms like 'risk' and 'management'). Both types of links may operate in the same Chapter 10 section. The explicit linkages between sections effectively operate as a 'path' from identified risks through to management, mitigation and reporting. In order to accredit a WRP, these linkages need to *manifest* and *be observable* in the WRP material.

This enable linkages to be *navigable*. In other words, it must be possible to identify and follow the linkages in the WRP material.

For sections that require demonstration of a *rationale*, the material must be factual and logical. Information must also be current, 'best available', and 'fit-for-purpose'.

Part 4: Sections 10.16 to 10.22

Part 4 has requirements for developing a WRP to ensure *sustainable use and management* of water resources in a WRP area. The requirements extends to also *have regard* for certain impacts on water resources outside the plan area that are significantly connected (including in other jurisdictions). Part 4 applies specifically to *management rules* for surface water, groundwater, and connectivity between water resources. The links between Part 4 and Part 9 establish a key path between the risk assessment, management and mitigation. This path is illustrated in figure 3 (includes further links to monitoring and reporting under Part 10 which combines to support adaptive management.

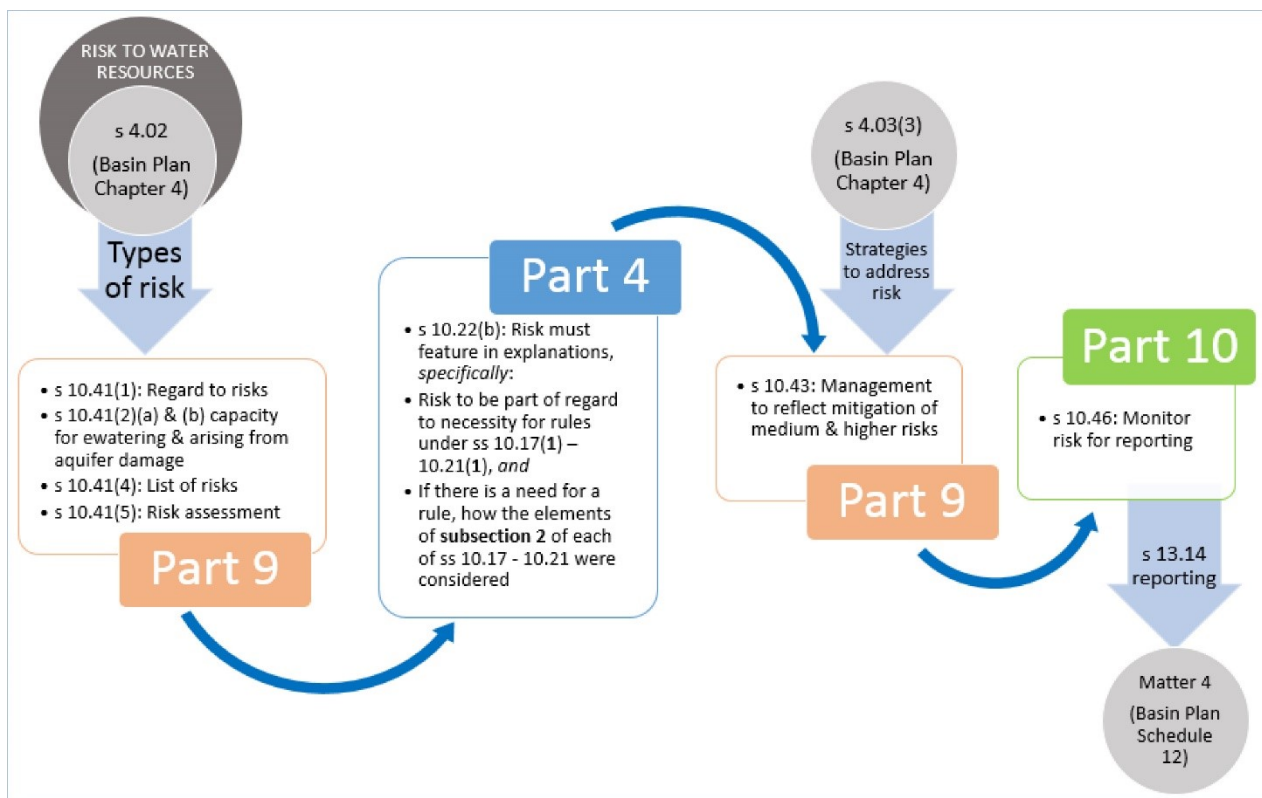


Figure 3: Interaction between the Part 9 risk assessment and Part 4, through to management, mitigation and monitoring/reporting

The implication of the integration between Part 4 and Part 9 is essentially that the WRP requires a risk based rationale to be *evident* when addressing the need for rules under each of ss 10.17 to 10.21. It should be noted that s 10.22 has explicit requirements for a risk based approach. Position statements for each section in Part 4 has further information about the interpretation of s 10.17 to 10.22⁵. In the WRP, Part 4 could typically be addressed in the form of statements, justification and supporting evidence to address each subsection under ss 10.17 to 10.21. As an option, each of ss 10.17 to 10.21 could also include information to address requirements in s 10.22. The key consideration is to ensure that the regard given to risks is observable in the WRP material. Part 4 requires for a rationale to be provided about how risk was given regard in decisions about including (or not including) management rules to ensure environmental and ecological resources are not compromised.

An example of application of risk assessment to Part 4 would be in an area where the health of an ecosystem depend on a certain flow regime at a certain time of the year. If the risk assessment identified a risk that would cause substantial changes to the flow regime, the risk to the ecosystem is 'high'. The information to address s 10.22 should make a link to the risk outcome in the risk assessment. As the risk has been identified as 'high', the information under Part 4 must state (or link to) a clear rule that ensures the flows occurs at the correct time. The rule would operate as mitigation under s 10.43.

For the linkages between Part 9 and Part 4 to operate in an accredited WRP, it is necessary for the development and drafting process to capture the rationale for the Part 4 rules. In order to verify that Part 4 was developed having regard to risk it must be

possible to navigate links between the relevant risks and outcomes in Part 9 and the *rationale* and *determination* in Part 4 (e.g. of a need for a rule to manage a risk that is 'medium' or 'high'). The rationale and determination must also consider if it is necessary for rules to prescribe the additional criteria listed in subsection 2 of each ss 10.17 to 10.21. For each of ss 10.17 to 10.21 it must be possible to navigate to the relevant information required for s 10.22. The *navigability* of risk information is in itself a key part of the *evidence* that the risk assessment has been given regard when providing for water resource management and mitigation.

Water resources in a WRP area are typically subject to specific management and operational plans and processes. In the jurisdictions these may be statutory or non-statutory. Where such management plans and processes (whether statutory or not) are relied upon for provisions in a WRP, those plans and processes should be based on risk information that is consistent with Part 9. For risks rated as 'medium' and higher, the link between provisions for sustainable use and management of water resources (Part 4) and management to reflect risk (Part 9) is cited in s 10.43 and established as a logical implication, e.g. 'describe a strategy for the management'. The implication is for the WRP to have management and mitigation (in the form of plans and processes) for the water resources that are risk based. The *presence* of the rationale as well as *navigability* between risk information and management/mitigation plans serve to demonstrate that those plans would operate based on regard to current and future risks.

Monitoring and reporting for the purpose of risk (including risk that relate to Part 4) operates via s 10.46 (Part 10). The section links to Basin Plan s 13.14 (Chapter 13). Clarity in management and mitigation at any

⁵ Position statements **4A** to **4F**

given stage during the operation of an accredited WRP provides a basis for reviewing effectiveness of the 'risk treatment' (e.g. the management). For matters in Part 4 where monitoring or new information suggest that the effects of management and mitigation have results that differ from intended outcomes, a basis for adaptive management processes exists and it would be open for States to adapt water resource management and mitigation measures accordingly.

Part 5: Sections 10.23 to 10.25

Interception activities have potential to cause *significant impacts* on water resources. Section 10.23(1) therefore has an explicit link to risk assessment under Part 9. Part 5 intends for the WRP to have provisions for unanticipated effects of interception activity⁶.

In many cases, interceptions would be a form of 'take' with limits under Part 3. Part 5⁷ provides specifically for listing, monitoring and action for activity that is not managed under Part 3. The below would be relevant to interception activity that is not subject to management under Part 3.

Interception activities may in some States be subject to management traditionally considered as outside the scope of water resource planning, e.g. land use and development regulation, and may not be addressed in land use focused impact assessment and controls. In addition, the application of land use focused regulations for the purpose of water resources may vary between jurisdictions. However, Part 5 opens for an accredited WRP to include land use based management and mitigation to

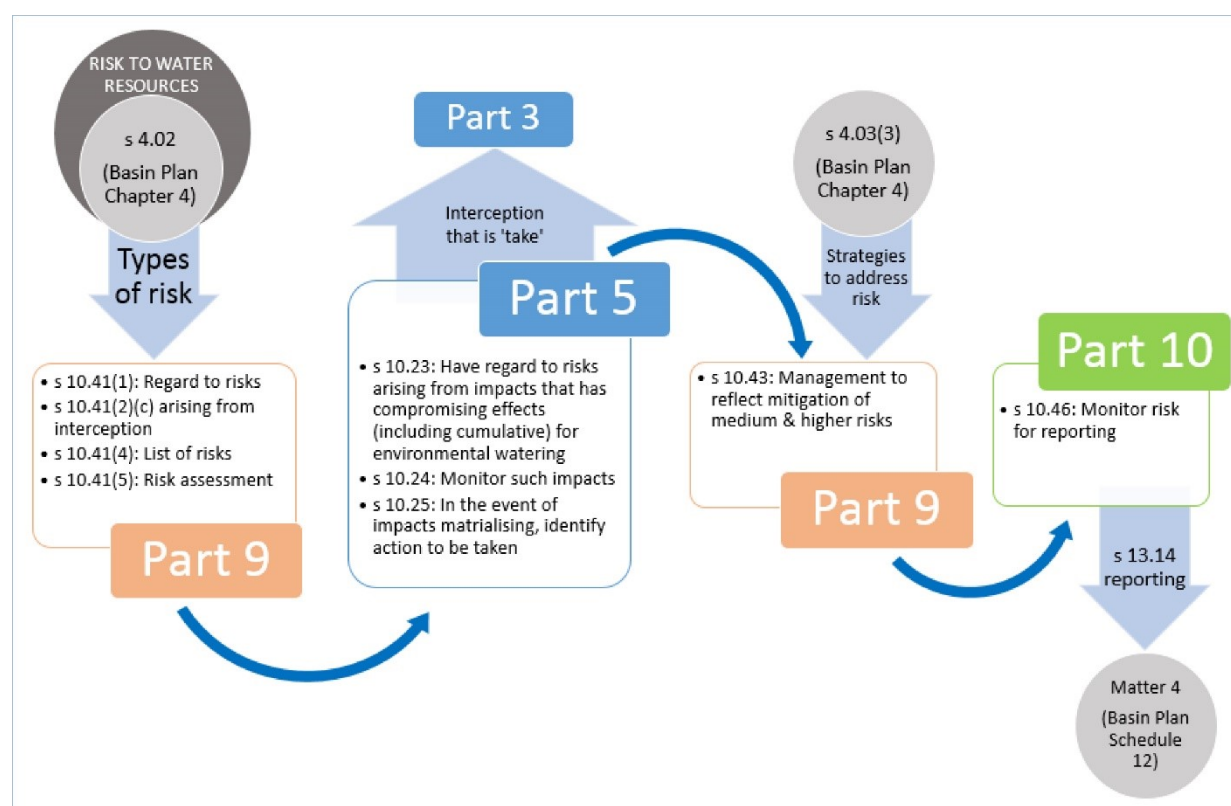


Figure 4: Interaction between the Part 9 risk assessment and Part 5, through to management, mitigation and monitoring/reporting

⁶ Position statement **3F** *Limits on certain forms of take*

⁷ Position statement **5A** *Interceptions*

address risk from interception. The key path of links is established between risk assessment, management and mitigation is illustrated in figure 4 (includes further links to Similar to Part 4, the implication of the links between Part 5 and Part 9 is that the WRP requires the risk based rationale to be evident when specifying types of interception activities for the purpose of s 10.23(1). In other words, the *regard* given to risks (of a kind that give rise to significant impacts from interception activity) must be *observable* in the WRP material. Part 5 essentially requires identification of risks and factors, a process for monitoring impacts (s 10.24), and identification of management related actions (s 10.25). Consequently, the linkage with Part 9 (s 10.43) requires for a management action rationale to reflect risk mitigation.

An example of application of risk assessment to Part 5 could be where a Murray-Darling Basin groundwater SDL resource unit (GW SDL) has a hydrological connection to a water resource that is not a Basin Plan water resource. For example take by Coal Seam gas (CSG) from the Great Artesian Basin (GAB) might impact on a MDB GW SDL. This may be as a result of changes in pressure in the GAB causing increased leakage from the MDB GW resource. The impacts could be in the form of recharge loss to the MDB aquifer. Therefore, the CSG extraction has the potential to have a significant impact on the MDB water resources. The actual impacts from this type of interception might only materialise over the long term, and the amount/size of the impacts may not be established as a fact at the time of making the WRP. Part 5 comes into effect for the purpose of identifying such an activity and monitoring the impact/s over time. In the event that monitoring or new information shows impacts on the MDB aquifer, Part 5 requires action to be taken. Where impacts are considered fact, the management

monitoring and reporting under Part 10 which combines to support adaptive management).

requirements under Part 3 would potentially become relevant.

Similar to Part 4, for the linkages between Part 9 and Part 5 to operate in an accredited WRP, it would be necessary for the development and drafting process to capture the rationale for including risks in Part 5. It must be possible to follow an identified risk, its assigned rating, its manifestation in relation to an interception activity (that is not already a form of 'take'), its manifestation in management, the reasoning for its manifestation (or otherwise) in management, and its reflection in mitigation. As for Part 4, the *navigability* of risk information is in itself a key part of the *evidence* that risk has been given regard when providing for management and mitigation of risk from interception.

The interception activities identified under 10.23(3)(c) relate to land use and development. A jurisdiction may therefore consider including land use associated management and controls in a WRP as part of measures to protect water resources. Any integration of management and controls that are not provided specifically to achieve Basin Plan outcomes and objectives should include a consideration of how effective such measures would be for managing the water resource. Gaps and uncertainties should be identified. It may be possible for a jurisdiction to capitalise on existing investment in regulation and controls, e.g. a WRP may provide the basis for building on existing measures. However, it must be clear in the WRP how the existing management and controls would operate to mitigate risks arising from impacts of interception on the water resource.

Monitoring of interception activities and potential impacts is central to providing for mitigation of risks as part of adaptive management. For the purpose of Part 5, monitoring and reporting is linked via s. 10.46 (Part 10), which cites Basin Plan s 13.14 (Chapter 13). In addition for Part 5, monitoring requirements are specified in s 10.24. For matters in Part 5 where monitoring or new information suggest that effects of management and mitigation have results that differ from outcomes and objectives, a basis for adaptive management processes exists. In a circumstance where an increase in impacts from interception is detected, s 10.25 specifies that the WRP must identify the action(s) that will be taken. In addition to management provided under s 10.25, it would also be open for States to adapt the water resource management and mitigation measures further.

Part 7: Sections 10.29 to 10.35
Function of WRP material Water quality requirements for the purpose of WRPs is set out in Part 7 of Chapter 10. The Part provides for a water quality management plan (WQMP) to be integrated with the WRP. Consequently, the WRP through the WQMP, must identify risks, causes of degradation, and measures for management in relation to water quality (WQ). Water quality (particularly surface water, but also some aspects of groundwater) is closely linked to land based processes and management practices which also interact with the prevailing climactic conditions. Part 7 emphasises these processes by directly linking to s 9.02 (Part 2 of Chapter 9) and Schedule 10. A WQMP may therefore include land management measures (s 10.33(3)) to address WQ risk. The key path of links is established between the risk

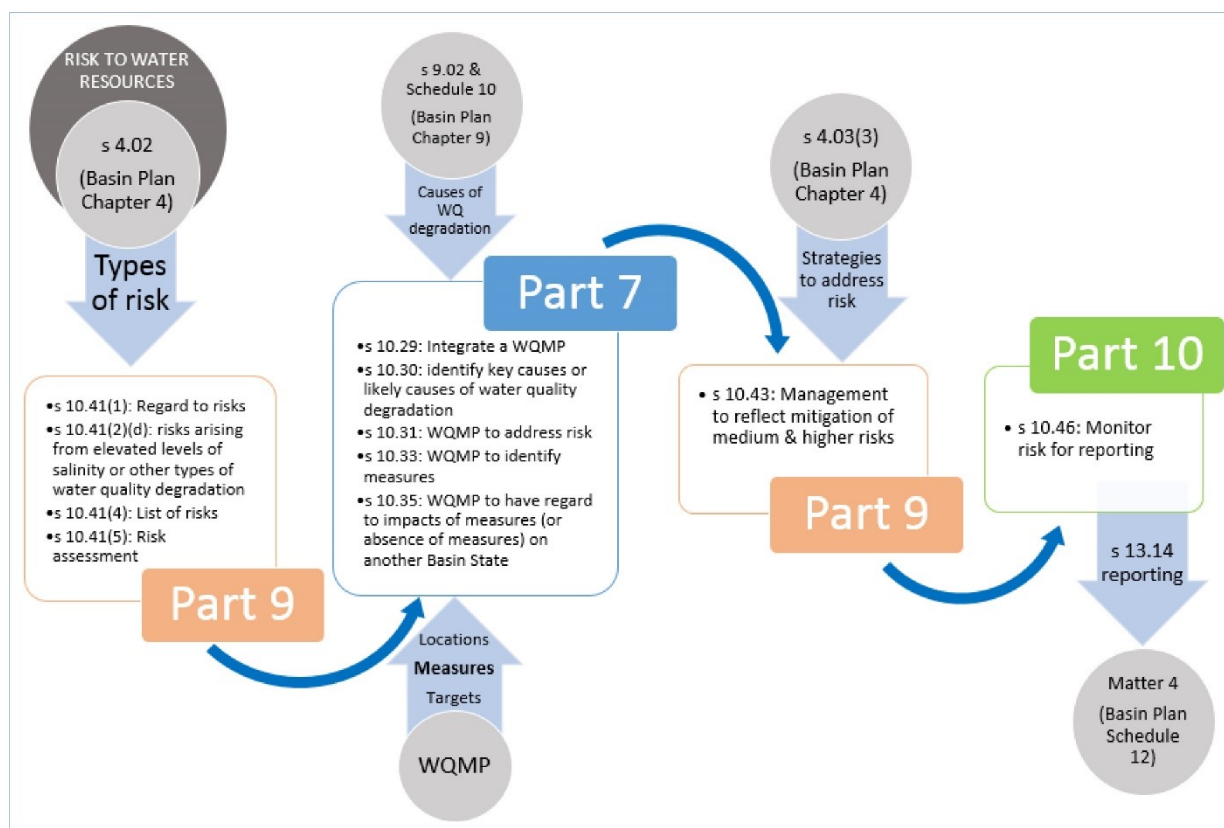


Figure 5: Interaction between the Part 9 risk assessment and Part 7, through to management, mitigation and monitoring/reporting

assessment, management and mitigation as illustrated in figure 5 (including further links to monitoring and reporting under Part 10 which combines to support adaptive management).

Similar to Part 4 and 5, the integration between Part 7 and Part 9 requires a risk based rationale to be *evident* when specifying measures for the purpose of s 10.31. In other words, the *regard* given to risks (of a kind that causes or is likely to cause WQ degradation) must be *observable* in the WRP material. For the purpose of WQ, the identified risks must reference applicable attributes listed in s 9.02, and further described in Schedule 10 of the Basin Plan. Risks identified for the purpose of s 10.41(2)(d) must reference a rationale for why measures to address the risk are (or are not) included in the WRP. The section operates to establish a direct link between WQ risks and measures to manage. Measures that address the objectives in Basin Plan ss 9.04 to 9.08 (Part 3 of Chapter 9) must be identified as such in the WRP. In other words, the WQMP must reference the relevant Chapter 9 Part 3 section it addresses. Measures must also demonstrate how regard was had to causes (or likely causes), target values, and salinity targets (as per s 10.33). This requires that proper, genuine and realistic consideration for causes and targets is evident in the information about measures. If links or references are used to identify such information in the WQMP, these must be navigable. Where a circumstance causes impacts on another Basin State or water resources in another State's jurisdiction, s 10.35 requires for a demonstration of regard to (a) the ability of the other State to meet WQ targets, and (b) adverse impacts on water resources in the other State.

Similar as for s 10.33, information to address s 10.35 must be evident and navigable.

An example of application of risk assessment to Part 7 would be where an area associated with a wetland has an underlying groundwater lens. Prevailing climatic conditions (higher temperatures) in combination with constant recharge from irrigation of horticultural crops causing saline groundwater to rise below a lower-lying grass land. The area naturally experiences surface discharge of groundwater only on rare occasions. The agricultural practice has altered this pattern. The prolonged periods of elevated salinity is in turn causing degradation of the native vegetation, exposing the soil to erosion. Run-off from the irrigation activity is also causing elevated levels of nutrients (especially nitrogen and phosphorous), impacting on an adjoining Redgum community, particularly by promoting conditions for spread of exotic weeds. The WQMP would need to identify the risks to the ecological communities associated as part of the risk assessment. The types of degradation (salinity, elevated levels of suspended matter, and elevated nutrients) must be stated with reference to the risks. The role that the local land use practices and climatic conditions have in causing WQ degradation must be described. The measures to mitigate the risk should be referenced so it is clear which measures mitigate each risk. Examples are programs to implement best-practice in horticulture irrigation or dryland practices. In the information about such a program, references to the objectives (ss 9.04(2), 9.06, and 9.08) must be *evident*, including how it will operate to manage the degradation causes (or likely causes). The information about the program must demonstrate proper, genuine, and realistic consideration of those causes. In a circumstance where such a program is identified as a measure, but not yet implemented (absence of a measure), this

may be causing impacts on another Basin State. The information about the program should then demonstrate how its implementation (for example its extent, timing and timeframes) takes account of (proper, genuine and realistic consideration) the other State's WQ targets and water resource health.

Similar to Part 5, strategies for land use development and management may be made or applied as measures that contribute specifically to WQ objectives for water resources. Any land use measures to be included in the WRP/WQMP must demonstrate relevance to WQ objectives and consideration of the degradation causes. Integration of land use management and controls that are not provided specifically to achieve Basin Plan outcomes and objectives for water resources should include a consideration of how effective such measures would be. Gaps and uncertainties should be identified. It may be possible for a jurisdiction to capitalise on existing investment in regulation and controls, e.g. a WRP may provide the basis for building on existing measures. However, it must be clear in the WRP how the existing management and controls would operate to mitigate risks arising from WQ degradation.

For the purpose of monitoring and reporting on risk in relation to WQ, the linking via s. 10.43, 10.46 and 13.14 (matter 4) operates in relation to risks to WQ. During the operation of the WRP, the WQMP should therefore be able to have ongoing and adaptive management mechanisms that are risk based and risk informed. WQ is also associated with reporting for matters 12-14 in Schedule 12.

Part 14: Sections 10.52 to 10.55

The Water Act (2007) specifies for WRPs to be developed with input from Aboriginal people. Part 14 of Chapter 10 places an emphasis on consultation processes with

Aboriginal people to ensure their views are sought when WRPs are developed. When consulting for the purpose of Part 14, the State must obtain Aboriginal peoples' views on social, cultural and spiritual risks arising from current and proposed uses and management of the water resources in the plan area (s 10.53(1)(f)). These views must be evident in the material presented to address Part 14. How these views informed the development of the WRP must also be stated, e.g. to demonstrate that regard was had.

Typically, the consultations under Part 14 occur subsequent to the Part 9 risk assessment. In many cases, the consultations will serve to increase the knowledge and understanding about Aboriginal values and uses, including as these relate to already identified water resource risk. For many WRPs the Part 9 risk assessment may therefore not identify and reflect risks arising to Aboriginal peoples' values and uses for social, cultural and spiritual purposes. In order for regard to Aboriginal peoples' views to be demonstrated, the WRP material to address Part 14, the known (assessed) water resource risks must be included as part of consultations. Consultation outcomes should be evident in the WRP material, and referenced to consequential risks (s 4.02(2)). The material must enable navigation back to the Part 9 water resource risks assessment, so it is evident which water resource risks give rise to Aboriginal peoples' social, cultural and spiritual values and uses. Figure 6 below illustrates the Part 14 'paths' applicable to risk (revisions or development of subsequent replacement plans may apply processes with more integrated timing). Aboriginal people are likely to identify risks that arise from circumstances which may not directly arise from current or proposed management and use of the water resources. An example could be effects arising from land tenure and title.

Identification of such risks are relevant for the purpose of Part 14. Similar to Parts 5 and 7, mitigation options may be linked to land use based frameworks. Section 10.52(3) provides scope to strengthen protection of Aboriginal peoples' values and uses. MDBA has developed a more detailed guideline (currently distributed to States as a draft) on the application of each section under Part 14.

Management and risk mitigation measures may not have been developed in the initial stages of WRP drafting to take account of knowledge and understanding arising from the Part 14 consultations. At a minimum, the current protection must be applied (s 10.55). However, s 10.52(1)(b) requires for management outcomes desired by Aboriginal people to be identified, and s 10.53 requires regard be given to Aboriginal peoples' views. The material

provided to address Part 14 must therefore establish and enable navigation between the risks identified by Aboriginal people, and management that takes account of their stated objectives and outcomes social, cultural and spiritual values and uses.

The link with s 10.46 (Part 10 of Chapter 10) to monitor for the purpose of report during the operation of the WRP is established via s 13.14 and Matter 4. Requirements for the purpose of reporting are therefore an opportunity for States to develop and refine approaches gathering knowledge and understanding of broader implications of water resource management.

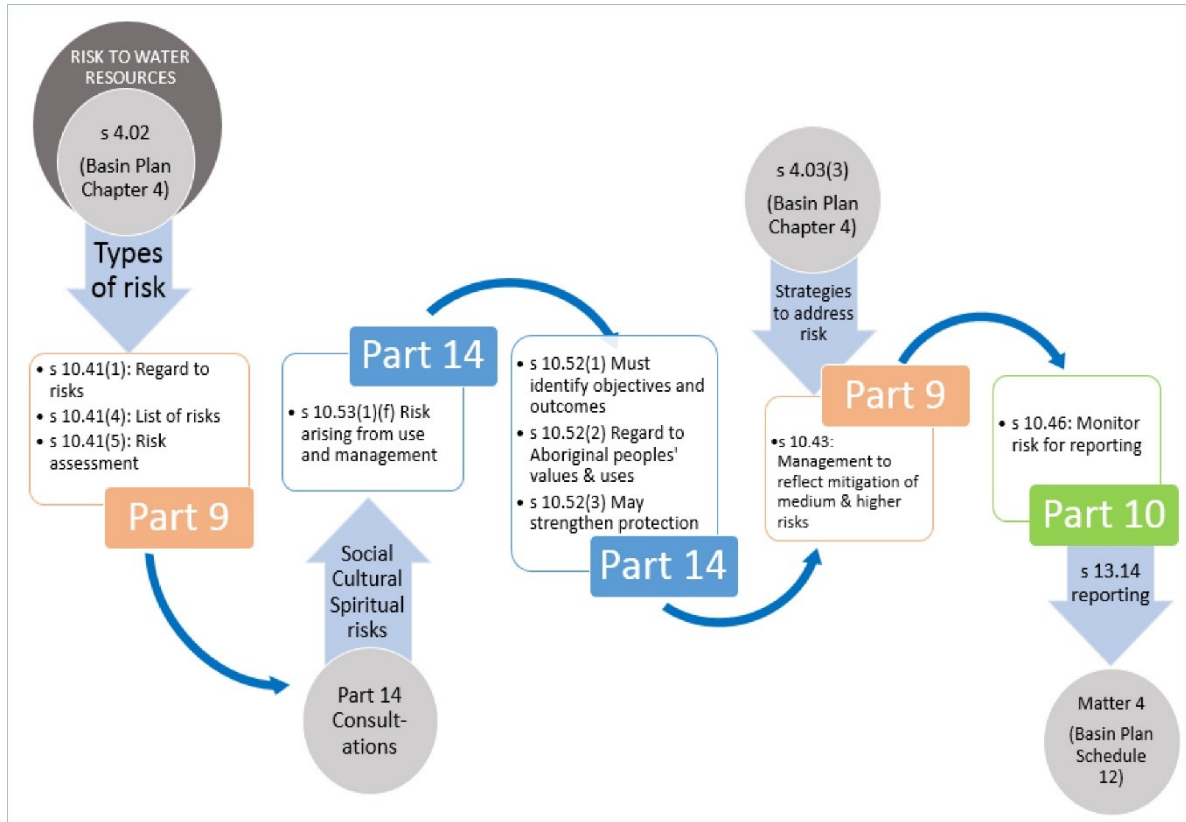


Figure 6: Interaction between the Part 9 risk assessment and Part 14, through to management, mitigation and monitoring/reporting

Linking matters in other parts of Chapter 10 to risk

Other parts of Chapter 10 operate to address specific matters in relation to water resources:

- Part 3: Incorporation and application of long-term annual diversion limits
- Part 6: Planning for environmental watering
- Part 8: Trade of water access rights
- Part 13: Extreme events

While the sections under those parts do not explicitly cite 'risk' or links to specific Part 9 sections, s 10.41 operates to provide for identification and assessment of all risks. Where a risk relates to a matter dealt with under other parts are identified, s 10.43(2)

operates to require for those matters to be given regard when applying strategies to address risks. Consequently, when those other parts are addressed in a WRP the material is highly likely to include statements and justifications that logically relate to risk management and/or mitigation. Where there are such linkages, the WRP material to address those parts need to enable navigation between the risk information and management/ measures provided in that other part. In other words, where management and measures relate to risk under any part of Chapter 10, the linkages to risks must be evident. Figure 7 summarises the 'path' of the Part 9 risk assessment as they may arise in relation to matters and management provisions under other Chapter 10 parts: Measuring and monitoring (Part 10) and link with risk

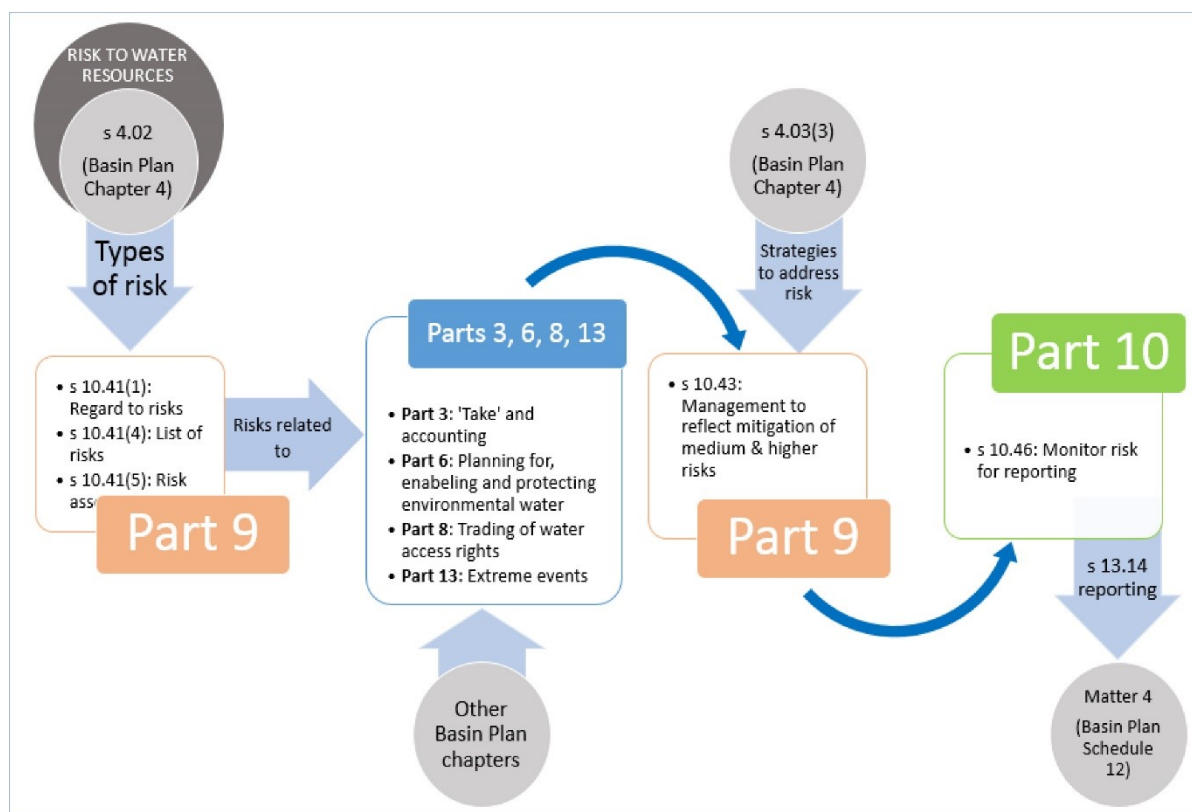


Figure 7: Interaction between the Part 9 risk assessment and other parts of Chapter 10, through to management, mitigation and monitoring/reporting

Part 9 provides a link to monitoring for the purpose of reporting in relation to risk. Basin states are required to report on the effectiveness of risk management under Matter 4 of Schedule 12 (Basin Plan, 2012). The provision serves for States to ensure monitoring of how effective measures are at mitigating risks to water resources. Part 9 provides for considering risk in terms of consequences for social, cultural and economic use (including and specifically for Aboriginal people) of declining water resources condition and availability. It is therefore open to States to establish and/or refine monitoring and reporting that also includes consequential risks as these relate to the water resources. The requirement to report is also an opportunity for States to provide for monitoring of implementation of

measures to control and mitigate risk. The monitoring is therefore a basis for reporting over time to demonstrate that management efforts and effects of those efforts ensure continued availability and condition of water resources.

Monitoring (and reporting) is also a key aspect of adaptive management, and should be risk-informed. Basin states may have existing frameworks and practices for adaptive management. It is open for a WRP to include material on how monitoring data and analysis will be reflected in priorities and adaptation of measures during the operation of an accredited WRP. Further guidance in regards to monitoring and reporting under the Basin Plan is under development.

Glossary

Adaptive management: An iterative strategy of planning, implementing, monitoring and adjusting management actions in light of new information (Basin Plan 2012 ss1.07)

Basin States: Queensland (Qld), Australian Capital Territory (ACT), New South Wales (NSW), Victoria (Vic), South Australia (SA)

Best available: Those methods or information which have been expertly judged to be the most appropriate and technically sound for the purpose. These judgements may be informed by peer review. If there is no available knowledge or analysis, it is expected that water planning agencies will either use their own expertise to reach a position or seek expert advice from reputable sources (Handbook; Position statement 12A)

Best practice: Methods which have been expertly judged to be superior to alternative methods.

Consequential risks: Risks that are consequence if risk to a water resource were to materialise (Basin Plan s 4.02(2))

Proper, genuine and realistic consideration: In a WRP this manifests as a discussion or rationale that is factual, relevant and logical

Consideration: Careful thought, discussion or deliberation of a decision using the best available knowledge and evidence

Consultation: A process to seek and exchange information with stakeholders

Critical human water needs: As defined in section 86A(2) of the Water Act (2007)

Environmental water: Water used to improve the health of rivers, floodplains and wetlands (CEWO)

Evidence: Information and supporting documentation used to determine the validity of a claim. Parts of documents required to determine if a WRP meets requirements and is 'fit-for-purpose' (Position statement 2A)

Have regard: Proper, genuine and realistic consideration (Position statement 1B)

Interception activity: As defined in Section 4 of the Water Act.

Justification: A statement based on relevant facts and logic to back up a claim

Legislative (legal) instrument: Laws, formal (statutory) plans and regulations made by an authorised person or body. Legal instruments can also be rules and determinations made under laws, statutory plans and regulations

Logic: Structured and systematic reasoning based on principles of validity and clear assumptions

Management: A set of actions to achieve goals or outcomes

Measure: A single action to accomplish a specific goal or purpose (a subset of management)

Mitigation: Action to decrease the impact or severity of an risk (a subset of management)

Objective: A goal or aim

Outcome: The result or effect of a process or series of events

MDBA position statements: Published statements that sets out how Basin states, in MDBAs view, can fulfil obligations in the Basin Plan and the Water Act in relation to WRPs. Position statements have not-statutory status.

Rationale: Reasoning for a statement based on facts, logic and evidence

Risk: Broadly, circumstances or situations that will cause, or has potential to cause harm to water resources

Risk assessment: A systematic process of identifying and appraising risks

Risk based approach: A focus in management that ensures that risk underpins and guides action and prioritisation

Significant hydrological connection: As defined in Position statement 2B

Significant impacts: A negative effect with high degree of materiality

Take: As defined in Section 4 of the Water Act

Traditional Owners: Persons or groups who have a recognised cultural authority to speak for Country

Water resources: As defined in Section 4 of the Water Act

WRP: A legislative (statutory) instrument developed under Chapter 10 of the Basin Plan. May be one or more documents, or parts of documents (Position statement 2A)

WRP accreditation: Formal acceptance by the relevant Commonwealth minister that a WRP is consistent with the Basin Plan

WRP area: A geographic area that a WRP applies to (Basin Plan section 10.02)

WRP assessment: A systematic, transparent and consistent approach to testing if a WRPs is consist with the Basin Plan

WRP provision: Text in a WRP that serves to provide for sustainable management and use of Basin water resources related to a WRP area