



## Project Risk Catalogue

### Area 1: Demand

	Project Risk 1	Project Risk 2	Project Risk 3	Project Risk 4	Project Risk 5	Project Risk 6
<b>Risk</b>	Demand is lower than projected	Demand is higher than projected	High / medium priority mix is different	Loss of local demand	Loss of corporate demand	Number of clients is too low
<b>Trigger</b>	Binding water sales	Binding water sales	Binding water sales	Binding water sales	Binding water sales	Binding water sales
<b>Consequence</b>	Small difference - minimal impact Large difference – loss of funding	Risk losing some large, cornerstone customers (e.g., large water funds)	Reduction in the social impact of the scheme and negative perception of the scheme	Reduction in the social impact of the scheme and negative perception of the scheme	Loss of HP demand and customer sourced capital	If less than 40 customers, the potential loss of support for project
<b>Risk level</b>	Low (5)	High (18)	Medium (13)	Medium (13)	Medium (13)	Medium (13)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>Put in place program to recapture demand lost in Round 2</li> </ul>	<ul style="list-style-type: none"> <li>Strategic approach by Board to retaining larger customers, especially if any pro-rata scheme.</li> <li>Water Sale rules carefully framed</li> </ul>	<ul style="list-style-type: none"> <li>Provide updates to customers.</li> <li>Keep major investors informed and interested.</li> </ul>	<ul style="list-style-type: none"> <li>Business planning and mentoring to local investors.</li> <li>Consider price strategies to attract locals. Provide updates to customers.</li> </ul>	<ul style="list-style-type: none"> <li>Provide updates to customers.</li> <li>Keep major investors informed and interested.</li> <li>Strategic approach by Board to retaining larger customers.</li> </ul>	<ul style="list-style-type: none"> <li>Put in place program to recapture demand lost in Round 2.</li> <li>Provide updates to customers. Keep major investors informed and interested.</li> </ul>


**Area 2: Construction and tendering**

	Project Risk 7	Project Risk 8	Project Risk 9	Project Risk 10	Project Risk 11	Project Risk 12
<b>Risk</b>	Seasonal variations / weather	Unexpected ground conditions	Market does not have the capacity to deliver the project	P90 cost estimate is too low	Market prices are high (hot market)	Late changes in works (e.g., demand is lower than projected resulting in smaller project)
<b>Trigger</b>	Throughout construction of the project	Throughout construction of the project	Tendering process	Tendering process	Tendering process	Round 3 demand assessment
<b>Consequence</b>	Construction delays	Increased construction and delivery costs	Delays and cost increases in procurement	Insufficient funding for project construction	Delays and cost increases in procurement costs	Delays and cost increases in procurement
<b>Risk level</b>	Medium (13)	Medium (14)	High (18)	Medium (14)	High (18)	Medium (14)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Develop a strategic procurement plan that incorporates constructor into project planning</li> <li>▪ Consider alternative procurement models</li> <li>▪ Implement strategic works plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic staging of project to identify and manage risks</li> <li>▪ Provide for uncertainty in contract model</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic decision-making regarding timing of project and flexibility (i.e., the project is not time critical and can go to market at a suitable time.)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Implement procurement model that make project attractive to Tier 1 developers (such as an alliance model)</li> <li>▪ Consider strategic approach to risk and liability ownership for construction</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic decision-making regarding timing of project and flexibility (i.e., the project is not time critical and can go to market at a suitable time.)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Put in place program to recapture demand lost in Round 2 (i.e., to keep demand as high as possible).</li> </ul>


**Area 3: Construction and tendering (continued)**

	Project Risk 13	Project Risk 14	Project Risk 15	Project Risk 16
<b>Risk</b>	Bespoke items cost above estimates	Suitable materials are not available and affordable	Lack of available water for construction	Inability to secure insurance for construction
<b>Trigger</b>	Tendering	Construction	Construction	Construction
<b>Consequence</b>	Cost increases	Construction cannot proceed	Construction cannot proceed	Construction cannot proceed
<b>Risk level</b>	Medium (14)	Medium (14)	High (19)	Medium (14)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Consider strategic approach to risk and liability ownership for construction</li> <li>▪ Strategic decision-making regarding timing of project and flexibility (i.e., the project is not time critical and can go to market at a suitable time.)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic decision-making regarding timing of project and flexibility (i.e., the project is not time critical and can go to market at a suitable time.)</li> <li>▪ Consider strategic approach to risk and liability ownership for construction</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic decision-making regarding timing of project and flexibility (i.e., the project is not time critical and can go to market at a suitable time.)</li> <li>▪ Consider strategic approach to risk and liability ownership for construction</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explore risk sharing insurance strategy to secure fit-for-purpose insurance</li> </ul>


**Area 3: Approvals**

	Project Risk 17	Project Risk 18	Project Risk 19	Project Risk 20
<b>Risk</b>	Failure to secure fisheries approval	Failure to secure water planning approval	Failure to secure planning approval from State and Federal Governments	Land holder refuses to sell to project
<b>Trigger</b>	Application process	Application process	Application process	Seeking binding sale of land
<b>Consequence</b>	Project cannot proceed	Project cannot proceed	Project cannot proceed	Project cannot proceed
<b>Risk level</b>	High (19)	High (19)	High (19)	High (19)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Government engagement (DAF)</li> <li>▪ Peer technical review</li> <li>▪ Engagement from Tim Marsden to advocate for the solution</li> <li>▪ Seek agreement in principle from DAF before end of DBC</li> </ul>	<ul style="list-style-type: none"> <li>▪ Close engagement with regulator</li> <li>▪ Continued advocacy for project</li> <li>▪ Develop strategic plan for seeking approval for necessary changes to regulations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Close engagement of State and Federal Government</li> <li>▪ Continued advocacy for project</li> </ul>	<ul style="list-style-type: none"> <li>▪ Information and progress sharing plan for engaging with land holder</li> <li>▪ Continued engagement with HIPCo Board</li> </ul>

**Area 4: Operational**

	<b>Project Risk 21</b>
<b>Risk</b>	Water pricing strategies are unsuitable
<b>Trigger</b>	Development of operational policies for the scheme
<b>Consequence</b>	Inefficiencies in the operation of the scheme
<b>Risk level</b>	Medium (13)
<b>Mitigation activities</b>	<ul style="list-style-type: none"><li>▪ Consider continuous sharing price strategy</li><li>▪ Consider mechanisms for trading pipe capacity</li></ul>


**Area 5: Ownership**

	Project Risk 22	Project Risk 23	Project Risk 24
<b>Risk</b>	State Government refuses to own the water infrastructure	Private operator unable to meet operational demands of running scheme	Sun water refuses to engage with project
<b>Trigger</b>	Project funding	Operation of the scheme	Project funding
<b>Consequence</b>	Project unable to proceed	Inefficiencies in the scheme	Delays in project progression
<b>Risk level</b>	High (19)	Medium (13)	Medium (14)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Consultation with Sunwater and State Government regarding project elements and dam safety</li> </ul>	<ul style="list-style-type: none"> <li>▪ Develop strong delivery model for best practice operations</li> <li>▪ Recruit highly experienced irrigation operator</li> <li>▪ Strategic approach to scheme rules to provide structure and necessary flexibility</li> </ul>	<ul style="list-style-type: none"> <li>▪ Consultation with Sunwater and State Government regarding project elements and dam safety</li> </ul>


**Area 6: Water accounting / planning / entitlements**

	Project Risk 25	Project Risk 26
<b>Risk</b>	Water planning regulator refuses request to update water planning framework	Competing projects secure water allocations ahead of project
<b>Trigger</b>	Application	Decision by State Government
<b>Consequence</b>	Project delays and potentially unable to proceed	Project unable to proceed
<b>Risk level</b>	Medium (14)	High (22)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Prepare all elements of project and application to be compliant</li> <li>▪ Strategic advanced planning and decisions on non-compliant parts of the plan on how to get changes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Continued advocacy for the project with decision makers</li> <li>▪ Develop alternative water entitlements strategy</li> <li>▪ Implement alternative water source strategy</li> </ul>


**Area 7: Dam safety**

	Project Risk 27	Project Risk 28	Project Risk 29	Project Risk 30
<b>Risk</b>	Failure to get approval for design	Sunwater refuse to accept configuration	Gates to not operate effectively	Dam is not operated safely and effectively
<b>Trigger</b>	Project funding	Project funding	Operation of the dam	Operation of the dam
<b>Consequence</b>	Delays in project progression	Delays in project progression	Loss of water product (waste)	Loss of project benefits and increased costs
<b>Risk level</b>	High (18)	High (18)	Medium (9)	Medium (13)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Consultation with dam safety regulatory, Sunwater and State Government regarding project elements and dam safety</li> </ul>	<ul style="list-style-type: none"> <li>▪ Consultation with Sunwater and State Government regarding dam configuration</li> </ul>	<ul style="list-style-type: none"> <li>▪ Transfer risk to owner / operator</li> <li>▪ Implement best practice processes, controls, and redundant systems</li> </ul>	<ul style="list-style-type: none"> <li>▪ Implement best practice processes, controls, and redundant systems</li> <li>▪ Recruit highly experienced operator</li> </ul>




**Area 8: Funding / political**

	Project Risk 31	Project Risk 32	Project Risk 33	Project Risk 34
<b>Risk</b>	Protest group opposes the project	Too much emphasis is put on cattle	Funding refusal due to high level risk of construction	Substantive difference between P90 and design cost
<b>Trigger</b>	Public announcement of project progression	Public pronouncements of the project	Project funding stage	Final project design and costing
<b>Consequence</b>	Loss of political support	Loss of political support due to concerns regarding carbon footprint of cattle	Project unable to proceed	Unable to fill gap in funding
<b>Risk level</b>	Medium (13)	Medium (13)	High (17)	Medium (14)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Implement a sustainability strategy for the project</li> <li>▪ Seek our green credentials for the project</li> </ul>	<ul style="list-style-type: none"> <li>▪ Advocacy plan focusing on value added products and vegetables</li> <li>▪ Implement a sustainability strategy for the project</li> <li>▪ Seek our green credentials and net zero rating for the project</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explore strategic procurement models to minimize project risk</li> </ul>	<ul style="list-style-type: none"> <li>▪ Independent technical review of P90 cost estimate</li> <li>▪ Commence design process early to allow additional time for solutions to identified and implemented</li> </ul>

**Area 9: Power**

	<b>Project Risk 35</b>
<b>Risk</b>	Unable to access sufficient power during construction
<b>Trigger</b>	Construction planning
<b>Consequence</b>	Delay to construction
<b>Risk level</b>	Medium (13)
<b>Mitigation activities</b>	<ul style="list-style-type: none"><li>▪ Include power supply as part of the tender and procurement process and procurement contract</li></ul>


**Area 10: Economics (including margins and crop selection)**

	Project Risk 36	Project Risk 37	Project Risk 38	Project Risk 39	Project Risk 40
<b>Risk</b>	BCR lower than 1	Operating costs are too high	Capital costs are too high	BCR is too high (above 1.3)	Independent review finds fault with benefit assumptions
<b>Trigger</b>	Final economic calculations	Final economic calculations	Final economic calculations	Final economic calculations	Review of DBC following being published
<b>Consequence</b>	Project may not be approved	Lack of investment in round 3	Lack of investment in round 3	Lack of credibility	Lack of credibility Lower chances of government support
<b>Risk level</b>	Low (5)	High (18)	High (18)	Low (5)	Low (6)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>Consultation with decision makers regarding other project benefits</li> </ul>	<ul style="list-style-type: none"> <li>Strategic contracting approach to improve efficiency and reduce operating costs</li> </ul>	<ul style="list-style-type: none"> <li>Consider strategic approach to timing of delivery and construction</li> <li>Strategic tendering model and delivery model strategy</li> </ul>	<ul style="list-style-type: none"> <li>Consultation with decision makers regarding other project benefits</li> <li>Advocate for the reasons for the BCR and detail behind</li> </ul>	<ul style="list-style-type: none"> <li>Engagement with reviewers</li> <li>Briefing to State Government following development of final DBC</li> </ul>


**Area 10: Economics (including margins and crop selection) (continued)**

	Project Risk 41	Project Risk 42	Project Risk 43
<b>Risk</b>	Market price for crops is materially different to model	Yield for crops is materially different to model	Infrastructure is insufficiently flexible to accommodate to different crops
<b>Trigger</b>	Operation of the scheme	Operation of the scheme	Operation of the scheme
<b>Consequence</b>	The benefits of the project are not realized	The benefits of the project are not realized	The benefits of the project are not realized
<b>Risk level</b>	Medium (13)	Medium (13)	Medium (13)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Flexibility in scheme design to allow customers to change to match market forces.</li> <li>▪ Provide for diversity in crops in the scheme</li> </ul>	<ul style="list-style-type: none"> <li>▪ Flexibility for irrigators to change crops.</li> <li>▪ Design to allow flexibility.</li> <li>▪ Provide for diversity in crops in the scheme</li> <li>▪ Layout of the farming needs to be strategic to provide flexibility.</li> <li>▪ Irrigation training / mentoring / processes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Flexibility for irrigators to change crops.</li> <li>▪ Design to allow flexibility.</li> <li>▪ Provide for diversity in crops in the scheme</li> <li>▪ Layout of the farming needs to be strategic to provide flexibility.</li> <li>▪ Irrigation training / mentoring / processes</li> </ul>


**Area 12: Sustainability**

	Project Risk 44	Project Risk 45	Project Risk 46	Project Risk 47
<b>Risk</b>	Climate change impacts on the project (right crops, adaption, dam yield, crop yield)	Costs of meeting GHG targets (carbon neutral) is too high	Salinity is higher than anticipated	Failure to achieve sustainability accreditation
<b>Trigger</b>	Operation of the scheme	Operation of the scheme	Operation of the scheme	Development of the project and scheme
<b>Consequence</b>	Failure to meet financial output and targets	Failure to meet GHG targets	Loss of productivity	Loss of political support
<b>Risk level</b>	High (18)	Medium (13)	Medium (13)	Medium (13)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Investigate technology solutions</li> <li>▪ Include climate change scenarios in hydrological modelling</li> <li>▪ Build flexibility into the network</li> <li>▪ Consider large scale project solutions (floating solar)</li> <li>▪ Strategic pricing structure to accommodate future changes</li> <li>▪ Alternative water sourcing options / solutions (GAB, alluvial, etc)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic consideration / balancing of benefits and costs of carbon neutrality</li> <li>▪ Include as commentary in DBC but not the economic model</li> </ul>	<ul style="list-style-type: none"> <li>▪ Consider operational rules and policies for scheme (e.g., condition is a farm water management plan)</li> <li>▪ Effective monitoring regime within the scheme.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic consideration / balancing of benefits and costs of achieving rating</li> <li>▪ Initiatives must be included and managed throughout the life cycle of the project</li> <li>▪ Consider if ISCA is the correct / most appropriate framework</li> </ul>


**Area 13: Environment**

	Project Risk 48	Project Risk 49	Project Risk 50	Project Risk 51	Project Risk 52
<b>Risk</b>	Failure to achieve approvals	Failure to get government support for fish passage solution	Environmental perception of the project is negative	Environmental offsets are more costly than modelling	Dinosaurs are discovered
<b>Trigger</b>	Application for approval	Application for approval	Project development	Project development	Construction
<b>Consequence</b>	Project unable to proceed	Project unable to proceed	Loss of political support	Higher financial cost and funding gap	Project delays
<b>Risk level</b>	High (18)	High (22)	High (18)	Medium (13)	Medium (13)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Development of the best strategic approvals pathway and process</li> <li>▪ Engagement with Government</li> </ul>	<ul style="list-style-type: none"> <li>▪ Government engagement (DAF)</li> <li>▪ Peer technical review</li> <li>▪ Engagement from Tim Marsden to advocate for the solution</li> <li>▪ Seek agreement in principle from DAF before end of DBC</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic plan to re-engaged with Griffith University specialists</li> <li>▪ EIS consider and analyse these impacts and management strategy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Technical review of environment offset estimate</li> </ul>	<ul style="list-style-type: none"> <li>▪ Close engagement with regulator</li> <li>▪ Consider implications and response strategy as part of EIS</li> </ul>


**Area 14: Social and community**

	Project Risk 53	Project Risk 54	Project Risk 55	Project Risk 56	Project Risk 57	Project Risk 58
<b>Risk</b>	Negative reaction to water storage project on Flinders River	Insufficient housing supply / adequate housing	Insufficient government and community services	Too high reliance on FIFO	Increased social conflict arising from community change	Lack of support by community because of many past projects not proceeding
<b>Trigger</b>	Protests from Environmental groups	Project development	Project development	Construction	Construction	Project development
<b>Consequence</b>	Loss of political support	Unable to attract labor and unsafe conditions	Unable to attract labor and unsafe conditions	Negative impacts on community in Hughenden	Social divisions, economic division, and loss of local affordability	Loss of community support
<b>Risk level</b>	Medium (13)	Extreme (23)	Extreme (23)	High (20)	High (17)	Medium (13)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Strategic planning for engagement and response to protests</li> <li>▪ Undertake robust EIS using team with strong experience and reputation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic planning involving state and local government for housing</li> <li>▪ Project being taken on as a project of state significance</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic planning involving state and local government</li> <li>▪ Engagement with private sector for solutions and investment</li> </ul>	Throughout project lifecycle create an environment for local employment Set local employment targets <ul style="list-style-type: none"> <li>▪ Strategic approach to timing and ramp up (not too quick into development – allow locals to adapt)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic planning involving state and local government</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategy for effective, genuine community engagement</li> <li>▪ Ongoing information on the project, progress, and prospects</li> </ul>


**Area 15: Labour**

	Project Risk 59	Project Risk 60
<b>Risk</b>	Unable to get people for construction	Unable to get people for on farm labour
<b>Trigger</b>	Construction	Scheme operation
<b>Consequence</b>	Project delays	Unable to achieve the outcomes and benefits of the project
<b>Risk level</b>	High (17)	High (17)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Strategic planning involving state and local government for incentivization</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic planning involving state and local government for incentivization</li> <li>▪ Consideration of technology solutions</li> <li>▪ Post covid strategies to return workforce to the region</li> </ul>




**Area 16: Politics (Council, State, Federal)**

	Project Risk 61	Project Risk 62	Project Risk 63	Project Risk 64	Project Risk 65
<b>Risk</b>	Federal – change of government	State – lack of bipartisan support	Do not get Local Council support	Project not aligned with Local Council activities	Project is delayed and tied up in Government processes
<b>Trigger</b>	Federal election	Funding approval process	Funding approval process	Funding approval process	Funding approval process
<b>Consequence</b>	Loss of project support	State Government refusing to fund portion of project	State Government refusing to support project	State Government refusing to support project	Project delays
<b>Risk level</b>	Medium (13)	Medium (13)	High (21)	High (21)	Medium (13)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Consider timing of the DBC release</li> <li>▪ Advocacy for the project across party lines to keep the project apolitical</li> </ul>	<ul style="list-style-type: none"> <li>▪ Advocacy for the project across party lines to keep the project apolitical</li> </ul>	<ul style="list-style-type: none"> <li>▪ Joint planning mechanism to align projects</li> <li>▪ Strategic approach by Board</li> </ul>	<ul style="list-style-type: none"> <li>▪ Joint planning mechanism to align projects</li> <li>▪ Strategic approach by Board</li> </ul>	<ul style="list-style-type: none"> <li>▪ Adopt strategic apolitical approach to project advocacy</li> <li>▪ Commence post-DBC activities to keep momentum</li> </ul>


**Area 17: Cultural heritage and Traditional Owner opportunities**

	<b>Project Risk 66</b>	<b>Project Risk 67</b>	<b>Project Risk 68</b>
<b>Risk</b>	Project does not meet aspirations of Traditional Owners	Unable to get the CHMP agreed	Conflict between traditional owner groups
<b>Trigger</b>	Operation of the scheme	Negotiation with Traditional Owners	Development of the project
<b>Consequence</b>	Project fails to provide social and economic outcomes	Loss of support from Traditional Owners	Loss of support from Traditional Owners
<b>Risk level</b>	High (18)	High (18)	High (18)
<b>Mitigation activities</b>	<ul style="list-style-type: none"> <li>▪ Consider Traditional Owner allocations</li> <li>▪ Explore Traditional Owner enterprises</li> <li>▪ Explore Traditional Owner management of offsets</li> <li>▪ Develop CHMP</li> <li>▪ Close engagement with Traditional Owners</li> </ul>	<ul style="list-style-type: none"> <li>▪ Close engagement with Traditional Owners</li> <li>▪ Consider Traditional Owner allocations</li> <li>▪ Explore Traditional Owner enterprises</li> <li>▪ Explore Traditional Owner management of offsets</li> </ul>	<ul style="list-style-type: none"> <li>▪ Develop high level understanding of boundaries of the project and impacted Traditional Owner groups</li> <li>▪ Consider engagement with broader Traditional Owner groups that are impacted by the project</li> </ul>