

Evaluation of the second term of the Goyder Institute

Findings and recommendations.

A report prepared for the Goyder Institute

15 September 2021

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Executive Summary

The evaluation of the second term of the Goyder Institute for Water Research found that it provided an innovative model that consistently delivered high-value, collaborative research. The focus on identifying research aligned with Government priorities ensured that the research was pragmatic to the needs of water managers in South Australia and was used to solve specific issues in water resource management. The evaluation found that the second term of the Goyder Institute delivered beneficial evidence-based outcomes for South Australia, including economic outcomes such as improved water security, and increased action on climate change and improvements in ecosystem health.

The Goyder Institute for Water Research

The Goyder Institute for Water Research (the Goyder Institute) is a partnership between the South Australian Government through the Department for Environment and Water (DEW), CSIRO, Flinders University, the University of Adelaide, and the University of South Australia. The Goyder Institute provides expert and independent scientific advice to inform government policy and decision making. The Goyder Institute was established in 2010 and renewed for a second term from 2015-2019. During the second term, research was focused on economic development, healthy ecosystems and climate action.

Approach to the evaluation of the second term

The purpose of the evaluation was to understand the whole-of-program outcomes for the second term of the Goyder Institute. The evaluation was largely qualitative and focused on the delivery of management activities and outputs, progress towards short-term and intermediate outcomes, and implications for the future of the Goyder Institute. The evaluation sought to gather evidence from both those undertaking the research (project researchers) and the end-users of the research. The evaluation used key questions to assess the outcomes of the second term against evidence from:

- the Strategic Research Plan (2015-2019) and Terms of Reference for the evaluation of the Second Term of the Goyder Institute
- project plans and project closure reports, and other project documentation for each of the projects funded through the second term
- in-depth interviews with seven project researchers and five end-users across seven priority projects, as well as one interview at the whole-of-program level
- a short survey of other participants and stakeholders, which received 39 responses, with 50% of responses from project researchers, 30% of responses from end-users, and 20% from other stakeholders.

The second term of the Goyder Institute

The evaluation was focused on the overall program delivery and outcomes rather than the individual projects. A summary of the overall program is provided in Figure 1.

Funding	Projects	Partnerships	Outputs
<ul style="list-style-type: none">• \$22,600,145 in total funding and in-kind contributions• \$6,450,488 grant funding (DEW)• \$4,440,043 external funding	<ul style="list-style-type: none">• 19 projects delivered• 15 projects through grant funding• 4 additional projects commissioned	<ul style="list-style-type: none">• 20 partner organisations helped deliver projects for more than 18 different end user organisations• 10 new partnerships established• 187 individual researchers and 16 students• 23% of the researchers were women	<ul style="list-style-type: none">• 54 technical reports (peer reviewed) and 38 other reports & data products• More than 37 journal papers and 49 conference presentations• 16 knowledge adoption workshops and 17 fact sheets and synthesis papers

Figure 1 Second Term of the Goyder Institute for Water Research

This evaluation identified that the research undertaken in the second term delivered a range of benefits and outcomes across the Goyder Institute's three priority areas:

- **Economic development:** projects under this research area helped support improved economic outcomes for South Australia including identifying new water sources and sustainable use of water to support future agricultural and mining activities.
- **Healthy ecosystems:** projects under this research area are supporting delivery of the Healthy Coorong Healthy Basin program, delivering improvements in freshwater and marine ecosystem health in South Australia, as well as improvements in the management of water quality and supporting First Nations engagement in water resource management.
- **Climate Action:** projects under this research area have helped to increase climate resilience in South Australia and identified new opportunities to meet South Australia's carbon targets. They have also provided national and international leadership in blue carbon methods and helped drive South Australia's reputation as a leader in Blue Carbon Research.

Findings of the evaluation

Key Finding 1. *The second term of the Goyder Institute delivered research that has improved decision making and policy development for water management in South Australia.*

The evaluation found that the project outputs provided appropriate evidence-based outcomes that directly supported state government decision making and policy development in water management. Influence on decision-making was consistently identified as a strength across many different research projects, delivering significant value from the program by improving decision making and water resource management across Government in South Australia.

The majority of the project end-users commented that the project outputs met expectations and brought additional scientific rigour to policy-making in South Australia. Multiple end-users agreed that they would turn to the Goyder Institute for future scientific research. Some projects had an influence and impact beyond South Australia with engagement from other State and Federal Governments. One project was identified as for providing South Australia with a national and international reputation in blue carbon research. Some researchers did consider that there could be additional 'blue sky' research to drive innovation, rather than the more pragmatic focus on research to answer known issues for government.

Learnings and recommendations

- The Goyder Institute has provided considerable value in improving Government decision-making across a range of outcomes, including economic development, healthy ecosystems and climate action.
- The Goyder Institute model should continue to provide pragmatic and practical research that answers important policy questions. However, the Goyder Institute can also provide a mechanism to help drive government policy direction in future.

Key Finding 2. *Collaboration between partner agencies and end-users was highly valued but can be further enhanced.*

Project researchers and end-users consistently identified that the program delivered excellent opportunities for collaboration across government and research partners and bringing together diverse and relevant expertise. Researchers and end-users saw the model as innovative in this regard. Project researchers and end-users noted that "the right people were pulled together from the right partners". Collaboration has been a significant achievement throughout the work of the Goyder Institute and was highly valued by both researchers and end-users. Of particular value was the connections built between Universities and State Government, often driven by embedding end-users within the project team.

Stakeholders suggested that partnerships and collaboration between relevant agencies were not without challenges, particularly in managing data sharing and interdependencies, occasionally compromising timelines. This finding is not unexpected as collaboration brings together different researchers from different organisations with officials within the government, therefore adding complexity. This added complexity will inevitably increase the level of management and increase the challenges in meeting timelines.

Learnings and recommendations

- Collaboration is one of the main achievements of the second term and should continue to be a focus of the Goyder Institute's model for future research.
- In the future, project funding, timelines, and the approach to project management could include more explicit consideration of collaboration needs, particularly for research projects with large and complex teams. For example, consideration of the need for multiple rounds of comment and review on project deliverables, or for additional meeting time. Explicit recognition of the complexity caused by collaboration will help to ensure that it is not sidelined by the need to meet timelines or deliverables.

Key Finding 3. Outputs produced were high quality, independent and rigorous.

The research projects selected delivered high levels of excellence for the overall research program, and individual research projects were seen as high-standard, independent and making significant contributions. In addition, most projects produced published outputs, and many were submitted to academic journals for peer review. One project end-user commented that "The level of expertise that the Goyder Institute members brought was excellent and was exactly what was needed; the quality was very high."

Some researchers found that they did not have sufficient time and support to submit research to academic journals during the project timeframes, leading to lost opportunities for publication. Some other researchers did question the independence of the research topics given the close alignment with Government priorities, although this may indicate a lack of understanding of the purpose of the Institute.

Learnings and recommendations

- The majority of research was of an excellent standard and most projects have contributed to academic journal articles, which is important for ensuring the credibility of research.
- Delivering research that was used to inform time-sensitive Government decisions did present additional complexities and challenges for researchers when submitting research to academic journals. In the future, greater discussion and consideration around timelines to manage this would deliver mutual benefits. Submitting reports for peer review in scientific journals as a milestone would help ensure that more of the research undertaken by the Goyder Institute is published in academic journals.
- The government's involvement in setting the policy questions for research created some concerns regarding independence. However, this is a critical aspect of the Institute's value and does not imply that the research itself was not independent. The Goyder Institute should be clear with researchers at the beginning of projects on the Institute's role in informing government policies. The Goyder Institute should continue to ensure that research is undertaken independently and not unduly influenced by the government to maintain its reputation for independent research.

Key Finding 4: The Goyder Institute Second Term was designed and delivered successfully

The Goyder Institute is seen as an innovative and effective model for delivering valuable and targeted research. Stakeholders generally considered the process for identifying research needs and assessing research projects to be appropriate and effective. The overall program delivered an appropriate and effective investment in research. Overall, the close focus on identifying research that aligned with Government priorities ensured that it was pragmatic to the needs of water managers in South Australia and has been used to solve specific issues in water management.

Some project researchers did suggest that decisions on the topics for research lacked transparency, particularly concerning how projects were agreed and prioritised. Similarly, end-users suggested that they did not always understand the internal structure of the Goyder Institute despite the information being publicly available. Those end-users who understood the strategic objectives of the Goyder Institute were more likely to agree the research was appropriate and effective.

Learnings and recommendations

- Having a clear and agreed purpose and objectives for research ensures that the program can be designed and delivered effectively to meet the purpose and objectives.
- The Goyder Institute should ensure that it maintains clarity of purpose in developing and delivering research programs in the future. This should include identifying a clear objective and outcomes for the research, which may be separate from government objectives and outcomes. For example, the use of the Premier's economic priorities to inform the strategic plan in the second term may have unnecessarily limited the definition of the economic outcomes which could have been achieved.

Key finding 5. While the program delivered valuable research, there is potential to increase efficiency through improvements to administrative and reporting activities.

The previous findings demonstrate that the second term of the Goyder Institute has delivered valuable and valued research. The majority of researchers and end-users also considered that the funding they received was appropriate for achieving the expected project outcomes. However, the area of greatest concern raised throughout the evaluation was meeting deadlines and administrative requirements. Most program managers saw operational and administrative requirements as a challenge. In particular, they saw administrative tasks, such as attendance to scheduled meetings, approvals and budget updates, as burdensome and compromising project timelines. Survey respondents felt that timelines and deliverable expectations, and budget provisions and planning were the two areas requiring the greatest improvement. In addition to the survey, an assessment of project closure reports found that achieving milestones on time was a consistent challenge felt by project managers, despite timelines being set by project managers. This may reflect the challenges of collaboration and meeting Government timelines which may not have been well understood by project managers who have not previously undertaken research under this approach.

Learnings and recommendations

- When working closely with the government, there are likely to be greater constraints on overall timeframes, given the need to meet deadlines for departmental commitments.
- In future, any requirements to meet government timelines should be considered in the selection of project managers and in the set up of steering or project advisory committees to ensure that the management of the project can meet the needs of the end-users. The Goyder Institute could also provide additional training, guidance or tools for effective project management for researchers undertaking more complex project management activities.

Overall, the second term of the Goyder Institute was highly successful. It delivered important research that influenced decision-making regarding water management and improved outcomes within South Australia. The opportunities for improvement are focussed mainly on administration and project management, which the Goyder Institute can take forward into future terms. As the Goyder Institute evolves, it should ensure it retains those aspects which make it most successful. In particular, the collaborative approach and the focus on research that can directly inform decision-making and improve outcomes for government. In the future, the Goyder Institute should also take opportunities to have a greater role in setting the agenda for water research in Australia.

1. Background to this report

1.1. About the Goyder Institute

The Goyder Institute for Water Research (the Goyder Institute) is a partnership between the South Australian Government through the Department for Environment and Water (DEW), CSIRO, Flinders University, the University of Adelaide and the University of South Australia. The Goyder Institute provides expert and independent scientific advice to inform government policy and decision making. The Goyder Institute was established for an initial five-year term in 2010 and was renewed for a second term from 2015-2019. The second term was then extended to June 2020 to complete the remaining activities and transition to a third term (the current term).

The Goyder Institute's vision during the first and second term was to provide research that delivered independent and expert science, driven by the policy needs of the South Australian Government, to achieve enhanced water resource management outcomes for South Australia. Cash funding for research was provided by the South Australian Government, with matching in-kind contributions from research partners. The Goyder Institute's Strategic Research Plan 2015-2019 guided investment during the second term. Investment was focused on three priority areas, with specific research programs to address identified knowledge gaps in each priority area:

- **Economic Development** - delivered through the Mining and Energy, Northern Corridor and International Engagement research programs
- **Healthy Ecosystems** - delivered through the Catchments, Coasts and Marine and Communities research programs
- **Climate Action** - delivered through the Water Security, Climate Change and Carbon Neutral Adelaide and Extreme Events research programs.

Each research program was implemented through a set of integrated research projects that spanned different timelines.

The Goyder Institute has recently transitioned to its third term (2020-2023), which has a new funding model, with research funding established on a case-by-case basis, brokered by Institute staff. The Goyder Institute's overall vision has extended beyond a focus on the needs of the South Australian Government to research that is also relevant to national and international governments and industries. However, the intent remains the same - to provide scientific advice and research that informs water policy and decision making.

The recent completion of the Goyder Institute's second term provides an opportunity to assess the outcomes and identify areas for improvement that can be used to enhance future terms. While the funding model of the current term is different and the focus of research broader, lessons from the second term can be used to optimise investment and project planning in the third term and prepare the Goyder Institute for a fourth term. This evaluation will also help communicate and demonstrate outcomes from investment to end-users and beneficiaries.

1.2. The purpose and approach to the evaluation

The purpose of this evaluation of the Goyder Institute's second term (in priority order) is to:

1. Report on the outcomes¹ of the projects in the Goyder Institute's second term for South Australia
2. Report on the outcomes of the Goyder Institute to the South Australian Government (as the primary cash funder) and research partners
3. Provide a reliable evidence base to communicate outcomes to Institute Partners and potential project funding partners.

The evaluation will also document any key areas of improvement identified for future terms of the Goyder Institute to enhance outcomes for research partners and potential project funders. Areas for improvement will focus on those that relate to the new model.

1.3. Structure of the report

This report provides overall findings and recommendations that apply across all projects and research areas. The following section provides an overview of the approach to the evaluation. Section 3 sets out the key findings and recommendations based according to the following evaluation themes set out in Figure 2. Section 4 provides a summary of the outcomes of the research projects, and Section 5 concludes.



Figure 2 Evaluation themes

¹ Note: Different measure of performance (in addition to outcomes, such as papers reports and research funds) will also be accounted for.

2. Approach to evaluation

Approach to the evaluation

The purpose of the evaluation was to understand the whole-of-program outcomes of the second term of the Goyder Institute. The evaluation was largely qualitative and focused on the delivery of management activities and outputs, progress towards short-term and intermediate outcomes and implications for future implementation of the Goyder Institute. The evaluation sought to gather evidence from both those undertaking the research (project researchers) and the end-users of the research. The evaluation included evidence from:

- the Strategic Research Plan (2015-2019) and Terms of Reference for the evaluation of the Second Term of the Goyder Institute
- project plans and project closure reports, and other project documentation for each of the projects funded through the second term
- in-depth interviews with seven project researchers and five end-users across seven priority projects, as well as one interview at the whole-of-program level
- a short survey of other participants and stakeholders, which received 39 responses, with 50% of responses from project researchers, 30% of responses from end-users, and 20% from other stakeholders.

Program logics

The evaluation was undertaken against the outcomes and implementation elements set out in the initiative-level program logics in the evaluation framework. The program logic for the whole program is provided below.

Evaluation questions and data requirements

The key evaluation questions (KEQs), rationale, methods and data requirements were developed based on the program logic. These were reviewed and tailored for this evaluation, considering the evaluation context, purpose, and constraints. The KEQs were used to assess the project documentation and to develop the questions for the in-depth interviews and survey. The refined KEQs, sub-questions, methods and data sources used for this evaluation are provided in Appendix A.

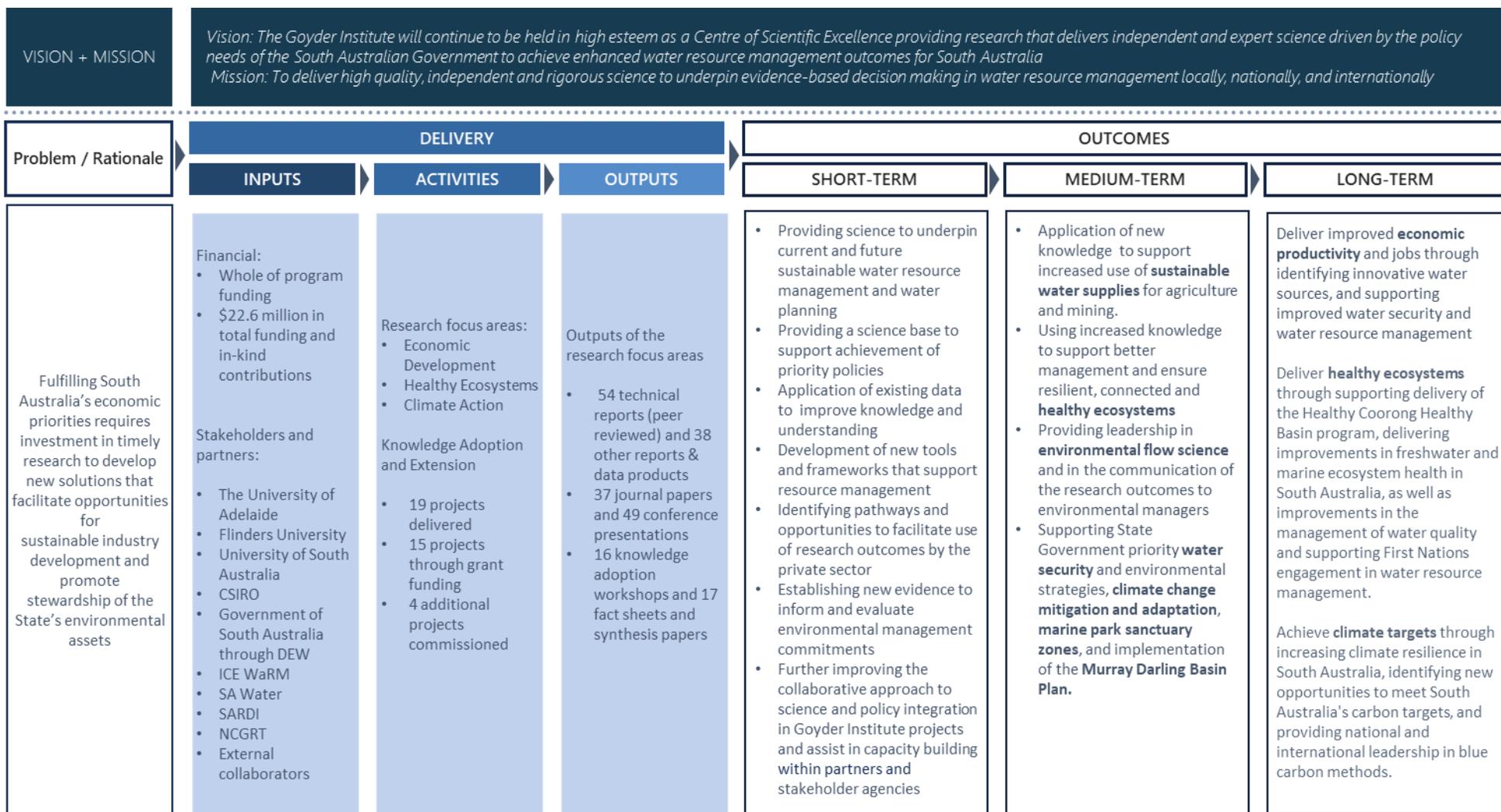


Figure 3 Whole-of-program logic

3. Program level review and findings

The evaluation of the second term of the Goyder Institute identified the following five key findings:

1. The second term of the Goyder Institute delivered research that has improved decision making and policy development for water management in South Australia.
2. Collaboration between partner agencies and end-users was highly valued. However additional resources may be required in future to overcome the inherent challenges of collaboration.
3. The outputs produced were considered to be very high quality, independent and rigorous and met the strategic objectives of the Goyder Institute.
4. Overall the second term of the Goyder Institute was designed and delivered successfully.
5. While the program delivered valuable research, there is potential to increase efficiency through improvements to administrative and reporting activities.

The remainder of this section discusses each key finding and includes appropriate recommendations for future terms.

3.1. The overall program has delivered research that has had a major influence on decision making in South Australia

The second term of the Goyder Institute delivered critical water research that directly influenced Government decision-making and policy development. Projects delivered during the second term of the program produced high-quality, independent and rigorous scientific outputs and were considered to have effectively achieved their stated objectives and expected outcomes (Figure 4). Through both the consultation and the survey, most of the researchers agreed that the project outcomes supported scientific understanding that improved water resource management. Similarly, most end-users were satisfied by the project outputs. Some end-users felt that they were "getting a better deal" because of the selection of partners and contributors and the collaboration that was enabled. Collaboration between partners and "getting the right people for the job" made a good impression on most end-users.

"the report was fed directly into the risk assessment and then used to inform the decision-making process. Policy outcomes were absolutely agreed to as a result of this process". – End-user

"Information [from the project] has been able to be used to help plan for delivery of environmental water and operation of the river, which has been really important for decision making" – End-user

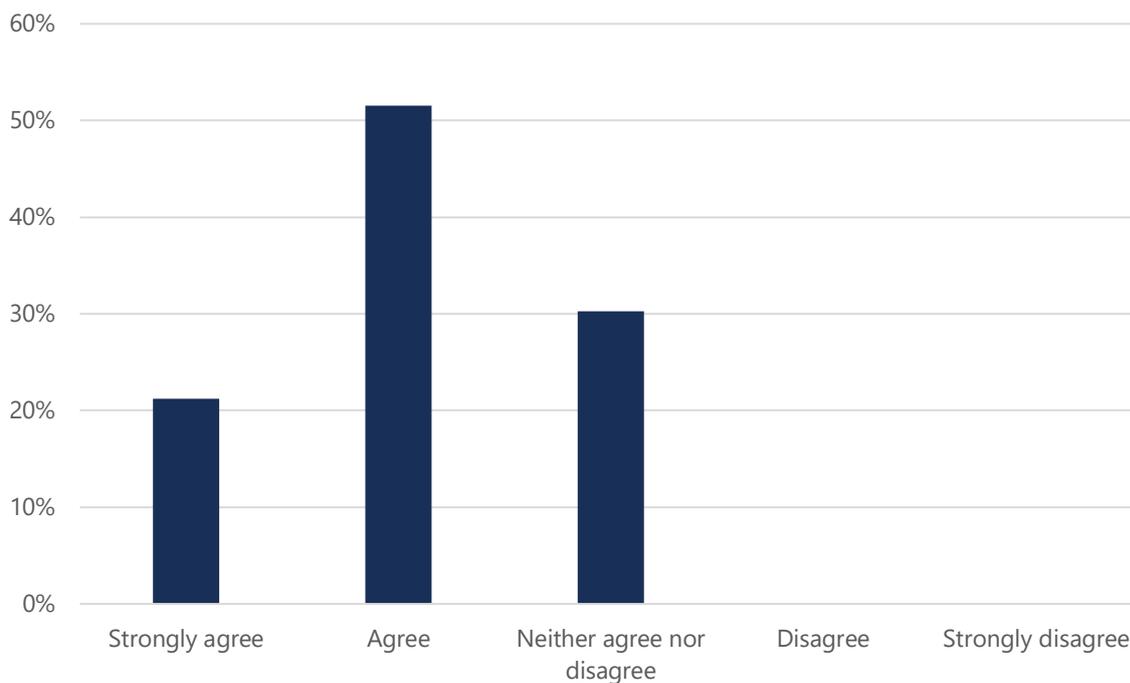


Figure 4 Responses to survey question "Did project outcomes progress and support scientific understanding towards improved water resource management?" (n = 33)

Influence on decision-making was consistently identified as a strength across many different research projects, delivering significant value from the program by improving decision making and water resource management across Government in South Australia. The majority of the project end-users commented that the project outputs met expectations and brought additional scientific rigour to policy-making in South Australia. Multiple end-users agreed that they would turn to the Goyder Institute for future scientific research. Most researchers were happy with the outputs of the projects, with one researcher highlighting that the project outcomes contributed to overcoming major gaps in geological data science in South Australia, which was limiting policy development and confidence in decision making. Most survey respondents survey believed that the outcomes of their project will influence decision making, either now or in the future (Figure 5). The continued provision of funding from DEW was also seen as a good indicator that the research was valuable for supporting Government decision making.

*"the best projects are those with the department heavily embedded to ensure the right and most useful questions have been answered" -
Researcher*

The influence on decision making was identified as a key benefit of the Goyder Institute approach and was considered to add significant value to research. Some projects had an influence and impact beyond South Australia with engagement from other State and Federal Governments. One project was identified as providing South Australia with a national and international reputation in blue carbon research. The research helped build a strong reputation within South Australia for both the Goyder Institute itself and the quality of water research. It was identified that Ministers continue to turn to the Goyder Institute to answer questions. The Goyder Institute model is seen as providing a valued approach to answering complex research and policy questions. Several projects have seen interest from other states and territories and the private sector, who view the Goyder Institute as an independent and objective actor.

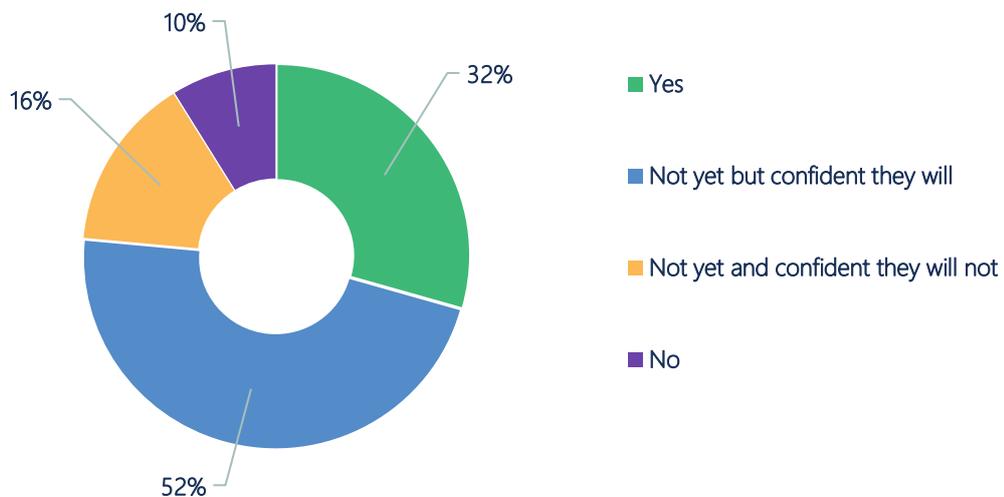


Figure 5 Responses to survey question "Do you think project outcomes have influenced decision making and policy development?" (n=31)

Some researchers did consider that there could be additional 'blue sky' research to drive innovation rather than the more pragmatic focus on only undertaking research to answer known issues for government. Although most of the outputs were seen as high-value and useful for decision making, some researchers felt that the policy questions in the second term were "less focused" compared to the first term programs. One researcher suggested that there was no outward promotion that the Goyder Institute was meeting targets, thereby reducing the value of outputs in the second term compared to the first: "The concept of the Goyder Institute may not be as well understood as it once was. It seems to have lost its importance with government, potentially due to a lack of funding". Although the Goyder Institute has continued to receive funding to date, it may be important to consider how it will continue to add value and how that value is communicated.

Some of the consultation feedback suggested that the research wasn't as focused on meeting the most important government policy objectives during the second term as it was during the first term. It was suggested by several stakeholders that being able to focus research on the most important policy needs is crucial for delivering additional value and contributing to decision making. To maintain this, the Goyder Institute needs to keep a close eye on the relevance of the research undertaken and continue to ensure that policy is considered, as well as scientific questions.

Learnings and recommendations

- The Goyder Institute has provided considerable value in improving Government decision-making across a range of outcomes, including economic development, healthy ecosystems and climate action.
- The Goyder Institute model should continue to provide pragmatic and practical research that answers important policy questions. However, the Goyder Institute can also provide a mechanism to help drive government policy direction in future.

3.2. Collaboration between partner agencies and end-users was highly valued but could be further enhanced

The program was consistently praised for delivering excellent opportunities for collaboration across government and research partners and bringing together diverse and relevant expertise. Researchers and end-users saw the model as innovative in this regard. Stakeholders noted that "the right people were pulled together from the right partners".

"[The project] got a lot of support from DEW and CSIRO, weren't just relying on Goyder resources but were able to draw on lots of other resources"

Collaboration has been a significant achievement throughout the work of the Goyder Institute and was highly valued by both researchers and end-users (Figure 6). Of particular value were the connections between research organisations and State Government, often driven by embedding end-users within the project team. Most of the projects saw collaboration across multiple universities and DEW, with end-users from a variety of public and private organisations (see Table 1). Collaboration with CSIRO was often identified as being of particularly high value. For many projects, collaboration across disciplines ensured that projects were better able to answer policy and science questions and provide pragmatic and actionable solutions. Several researchers also identified that they were able to collaborate internationally as well through the Goyder Institute model, with the value of this particularly being highlighted for the Salt to C project and the Yannarumi project.

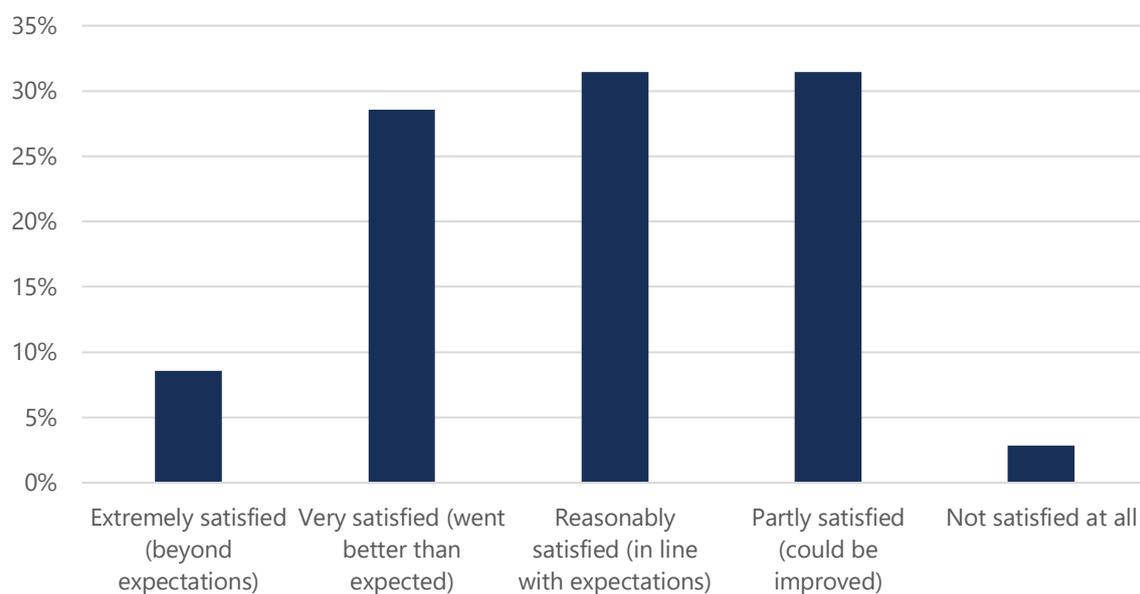


Figure 6 Responses to survey question "How satisfied were you with the amount of collaboration between governmental and/or organisations and relevant partners?" (n= 35)

Although collaboration was highly valued, stakeholders suggested that it was not without challenges, particularly in managing data sharing and interdependencies. Collaboration was also identified as a factor compromising timelines for some projects. This finding is not unexpected as collaboration brings together different researchers from different organisations with officials within government,

therefore adding complexity. This added complexity will inevitably increase the level of management and increase the challenges in meeting timelines.

Table 1 Collaboration during the Second Term

Project name	Partner organisations	End users (organisations)
Climate Resilience Framework	CSIRO, UoA	SA Water, DEW, BoM, WaterRA, Salisbury Water, Inside Infrastructure
Coastal carbon opportunities	CSIRO, UoA, EPA, SA Water, Edith Cowan Uni	DEW (Climate change unit), Cwth Dept. Env. & Energy (DoEE)
Salt to C	DEW, Flinders, UoA, UniSA, ANU, Silvestrum Climate Assoc., Drs Steve Crooks, Ingino Emmer	DEW, Cwth Dept. Env. & Energy (DoEE), Buckland Dry Creek Pty Ltd
Soil Carbon Knowledge gap assessment	PIRSA-SARDI	PIRSA, DEW, [<i>Farming Systems and Industry Groups</i>]
Carbon Offset Co-benefit evaluation	DEW, UoA, UniSA, SA Water	DEW (Climate change unit), SA Water, NSW DPI, [<i>C sequestration investors & brokers</i>]
Small-scale desalination trial	PIRSA-SARDI	PIRSA, SA EPA, Hortex, Allwater, P'Petual Holdings, [<i>other Horticultural businesses</i>]
Sustainable irrigation NAP	CSIRO, DEW, Flinders, PIRSA-SARDI, UniSA	PIRSA, DEW, EPA, SA Water, Hortex, Ausveg SA, Barossa Infrastructure, [<i>horticultural businesses</i>]
GFLWS3	CSIRO, DEW, Flinders, GSSA	DEW, PIRSA, DEM/GSSA, APY Lands board
SE WAP science review	CSIRO, Flinders, UNE	DEW, SE NRM Board, [<i>various WAP stakeholders</i>]
Spencer Gulf socio-ecological assessment	DEW, Flinders, PIRSA-SARDI, UoA	DEW, EPA, SA Water, PIRSA, FRDC, SGEDI, [<i>other gov depts.</i>]
River Murray ecological connectivity	CSIRO, DEW, PIRSA-SARDI, UoA	DEW (River Ops, Major Projects), SA Water, EPA, MDBA, CEWO
Yannarumi	DEW, Flinders, UTS, Ngarrindjeri Regional Authority	DEW (policy, major projects), NRA & other Ngarrindjeri entities, MDBA, Mildren
Coorong science advice	CSIRO, DEW, Flinders, SARDI, UoA, In fusion consulting	DEW, [<i>various public stakeholder groups</i>]
Coorong restoration (HCHB Phase 0)	CSIRO, DEW, Flinders, PIRSA-SARDI, UoA, UniSA, UWA	DEW, Cwth Gov, Ngarrindjeri Regional Authority
Urban water	Flinders, UoA, UniSA, SA Water	DEW, Green Adelaide, [<i>Local Government, consultants</i>]
PIRSA Growing Regional Corridors	DEW, PIRSA-SARDI, SA Water, UoA	DEW, PIRSA, SA Water, [<i>horticulture, aquaculture industries</i>]
NT Water Allocation Review	CSIRO, Flinders, UoA, PIRSA-SARDI, DHS	NT Gov
Marine Park Peer Review	UoA, contracted researchers	DEW, BoM
DEWNR Climate change	EDGE Environment	DEW

Many of the project researchers and end-users identified that the quality of the collaboration process was quite dependent on the individual project managers. Some projects had good processes and steering groups in place. However, this was often driven by personal experience in managing complex multidisciplinary teams.

The Goyder Institute model was also able to help reduce common issues around IP and data within the research community and enabled new partnerships to be developed. Through the second term, 17 new partnerships were developed across a range of projects (see Table 2). The public funding model ensured that researchers are clear that the results and data will be made public, and therefore helps to support collaboration. Experiences with data sharing responsibilities between partner agencies were mixed. One project manager felt that the partner cooperation was "excellent, and essential as the project required data sharing across organisations". Other survey respondents felt that challenges associated with data sharing across the partner agencies were major hurdles for their respective projects.

Table 2 Outputs of the Second Term program

Project name	New partnerships established
Carbon Offset Co-benefit evaluation	1
Sustainable irrigation NAP	3
GFLOWS3	1
SE WAP science review	1
Spencer Gulf socio-ecological assessment	3
River Murray ecological connectivity	2
Yannarumi	2
Coorong science advice	1
Urban water	2
NT Water Allocation Review	1

Sustained consideration for the needs of research end-users will help support an effective research development process. The review found that approximately 64 per cent of survey respondents felt that consideration of the research needs of end-users could be improved (Figure 7), and in particular, the research needs to include outcomes that are fit-for-purpose and those that can be readily and immediately applied in the industry.

Most survey respondents felt that the available resources invested towards the project were moderately appropriate and effective. Some respondents felt that the research process could be more effectively refined and tailored to the project's individual needs. For example, one Project Manager suggested scheduling meetings when required, rather than on regular time intervals, would promote more efficient use of operational and planning time and ensure the project team felt supported and informed throughout the project's duration.

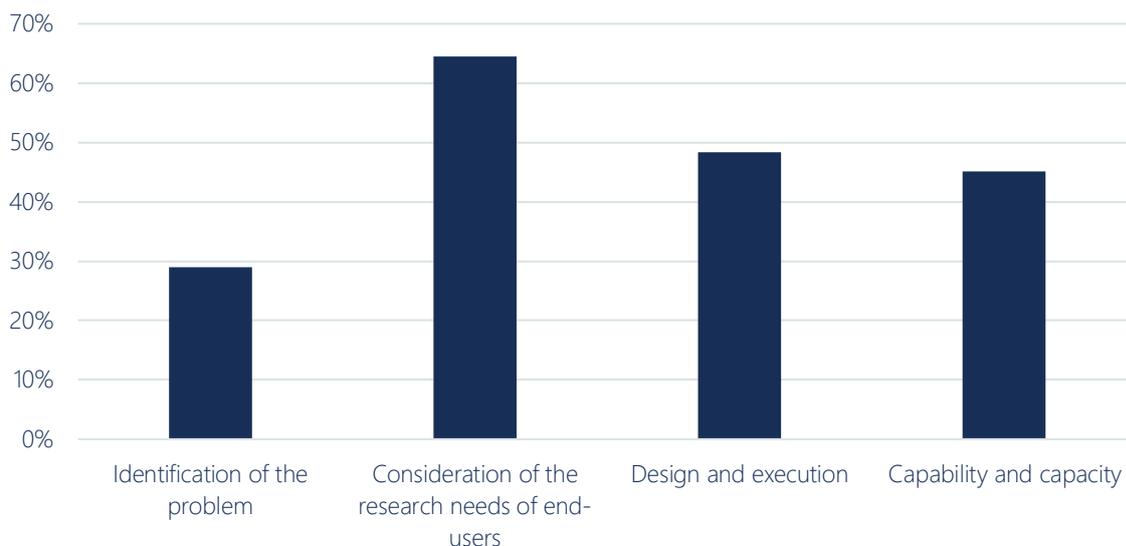


Figure 7 Responses to survey question "Please select any areas of the research development process that you think could be improved" (n= 31)

Learnings and recommendations

- Collaboration is one of the main achievements of the second term and should continue to be a focus of the Goyder Institute's model for future research.
- In the future, project funding, timelines, and the approach to project management could include more explicit consideration of collaboration needs, particularly for research projects with large and complex teams. For example, consideration of the need for multiple rounds of comment and review on project deliverables, or for additional meeting time. Explicit recognition of the complexity caused by collaboration will help to ensure that it is not sidelined by the need to meet timelines or deliverables.

3.3. Outputs produced were high quality, independent and rigorous

The research projects selected for evaluation delivered high levels of excellence for the overall research program, and individual research projects were seen as high-standard, independent and making significant contributions to academic research. In addition, most projects produced published outputs, and many were submitted to academic journals for peer review as shown in Figure 8 (noting that there is often lags in publication compared to funding and so more publications are likely to result in future that are not captured here). Those that were not published in academic journals were projects that were more directly policy-oriented, so lack of publication did not necessarily indicate a lower level of quality, especially as all project reports underwent a peer-review process. For example, for one project that was not published, the end-user commented that "The level of expertise that the Goyder Institute members brought was excellent and was exactly what was needed; the quality was very high."

"Definitely world-leading – wasn't a lot of blue carbon research at the time – some of the first research done in Australia – was probably pioneering for Australia" – End-user

Several project researchers received prizes or accolades for the work undertaken through the Goyder Institute, and the interview and survey data showed that many projects were able to present multiple conference papers. This also helped to meet the Goyder Institute's other strategic objectives of delivering impact and knowledge sharing. The number of reports produced across the individual projects is provided in Table 3, with a total of 54 peer reviewed technical reports and 37 scientific journal articles.

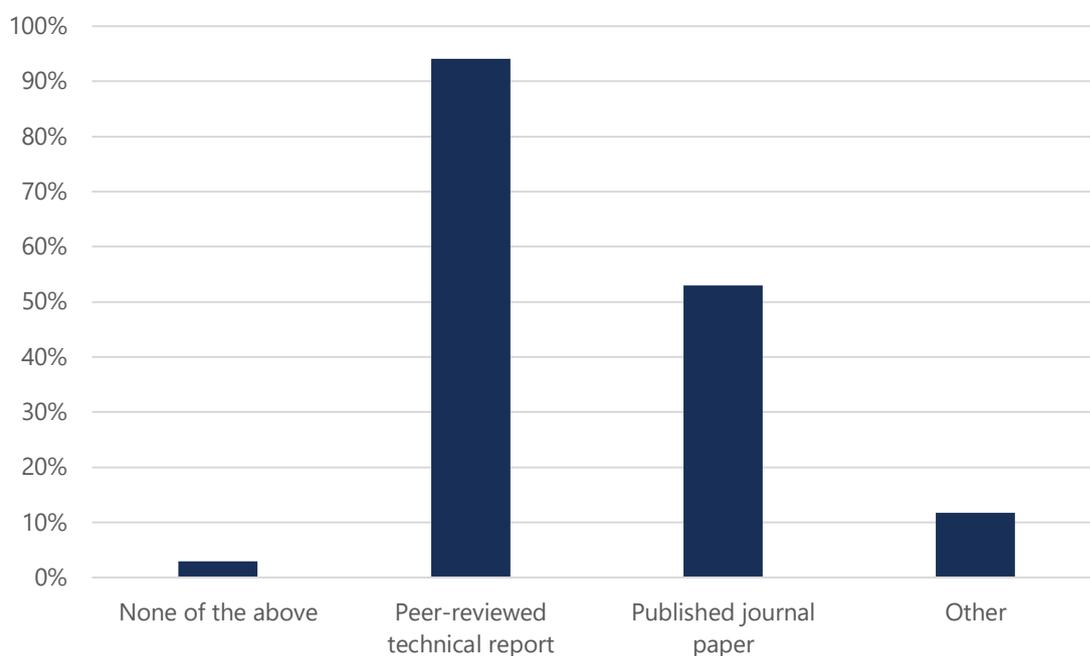


Figure 8 Responses to survey question "Were the project outputs peer-reviewed and published?" (n=34)

Table 3 Outputs of the Second Term program

Project name	Technical reports (peer reviewed)	Other reports & data products	Journal papers	Conference presentations	Knowledge adoption workshops / events
Climate Resilience Framework	2	1		4	1
Coastal carbon opportunities	9	3	9	8	4
Salt to C	3	3	2		3
Soil Carbon Knowledge gap assessment	1		1	1	
Carbon Offset Co-benefit evaluation	8		4	3	2
Small-scale desalination trial	1				1
Sustainable irrigation NAP	5	5	8	4	1
GFLOWS3	6	2	5	15	
SE WAP science review	1	1			1
Spencer Gulf socio-ecological assessment	2	4			
River Murray ecological connectivity		1	4		1
Yannarumi	1	8	4	14	1
Coorong science advice	1				
Coorong restoration (HCHB Phase 0)	7	5			
Urban water	1	1			
PIRSA Growing Regional Corridors	3				
NT Water Allocation Review	2				
Marine Park Peer Review	1	2			1
DEWNR Climate change		2			

Some other researchers did question the independence of the research topics given the close alignment with Government priorities. While there was consensus that the outputs were aligned well with policy settings, some researchers felt that government influence limited the direction of research. Given that the focus of the Goyder Institute is on providing research to support Government decision making this may not be an issue for the Institute itself, but rather require clarification for researchers.

One issue raised was the lack of indigenous expertise within the Goyder Institute, which led to some challenges in funding research focused on indigenous engagement and values. However, the researchers did identify that once the funding was provided, the Goyder Institute acted as an important advocate for the project.

Similarly, a focus on pure science expertise (i.e. biophysical) at the expense of other disciplines such as policy and social sciences could limit the extent and value of research delivered. The Goyder Institute should continue to consider how to ensure that research across a wide range of disciplines and research areas can be championed, rather than being too focused on pure scientific research. This will help ensure that the research undertaken through the Goyder Institute is truly holistic and world-leading.

There were also some challenges in meeting timeframes, particularly in achieving research to a standard for publication. Many researchers found that they did not have sufficient time and support to submit research to academic journals during the project timeframes, leading to lost opportunities for publication. Ensuring that timeframes provided for projects take sufficient account of the different stages of research, including publication requirements, will enable project managers to better achieve the Goyder Institute objectives of research excellence.

Learnings and recommendations

- The majority of research was of an excellent standard and most projects have contributed to academic journal articles, which is important for ensuring the credibility of research.
- Delivering research that was used to inform time-sensitive Government decisions did present additional complexities and challenges for researchers when submitting research to academic journals. In the future, greater discussion and consideration around timelines to manage this would deliver mutual benefits. Submitting reports for peer review in scientific journals as a milestone would help ensure that more of the research undertaken by the Goyder Institute is published in academic journals.
- The government's involvement in setting the policy questions for research created some concerns regarding independence. However, this is a critical aspect of the Institute's value and does not imply that the research itself was not independent. The Goyder Institute should be clear with researchers at the beginning of projects on the Institute's role in informing government policies. The Goyder Institute should continue to ensure that research is undertaken independently and not unduly influenced by the government to maintain its reputation for independent research.

3.4. The Goyder Institute Second Term was designed and delivered successfully

The Goyder Institute is seen as an innovative and effective model for delivering valuable and targeted research. Stakeholders generally considered the process for identifying research needs and assessing research projects to be appropriate and effective. Many of the projects were identified out of prior research from the first term of the Goyder Institute and often in close collaboration with government. In some cases, such as the Yannarumi project, the research need was identified outside of the Goyder Institute's process, but the Goyder Institute was able to provide support and funding that enabled valuable research to be undertaken. The majority of users considered that the projects funded through the second term effectively achieved their stated objectives, suggesting that the majority of the research was delivered successfully. Over 95 per cent of respondents to the survey considered the project method, including data collection and analysis, appropriate.

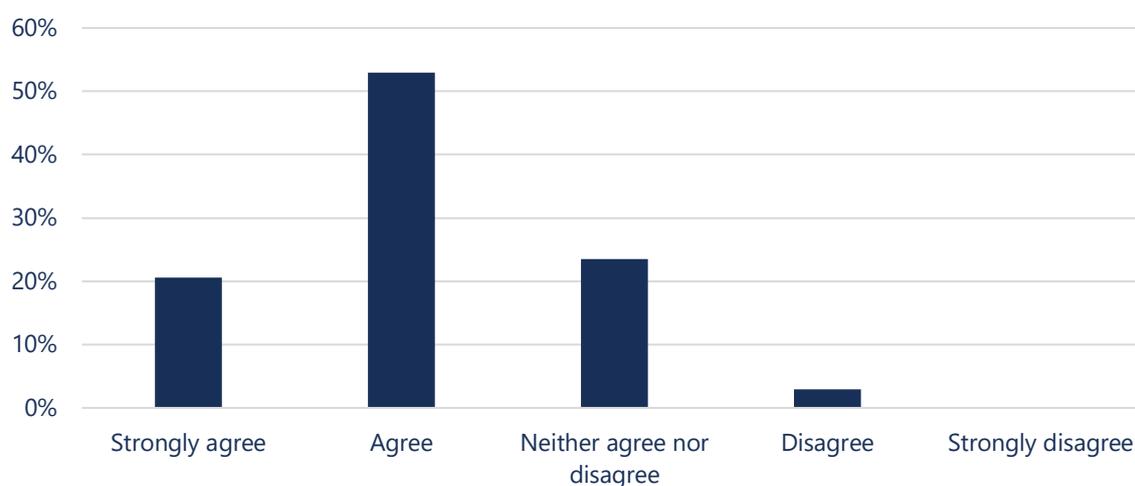


Figure 9 Responses to survey question "Did the projects effectively achieve stated objectives and expected outcomes?" (n=34)

Overall, the close focus on identifying research that aligned with Government priorities ensured that it was pragmatic to the needs of water managers in South Australia and has been used to solve specific issues in water management. However, some stakeholders identified a recent shift in focus towards DEW, with a consequent loss of focus on the bigger picture. In particular, previous engagement with PIRSA at the State level and CSIRO at the federal level was seen as valuable.

Some project researchers did suggest that decisions on the topics for research lacked transparency, particularly concerning how projects were agreed and prioritised. Similarly, the purpose and model for the Goyder Institute is not very clear to all end-users, which lead to confusion about the strategic objectives of the research. Those end-users and researchers who understood the strategic objectives of the Goyder Institute were more likely to agree the research was appropriate and effective.

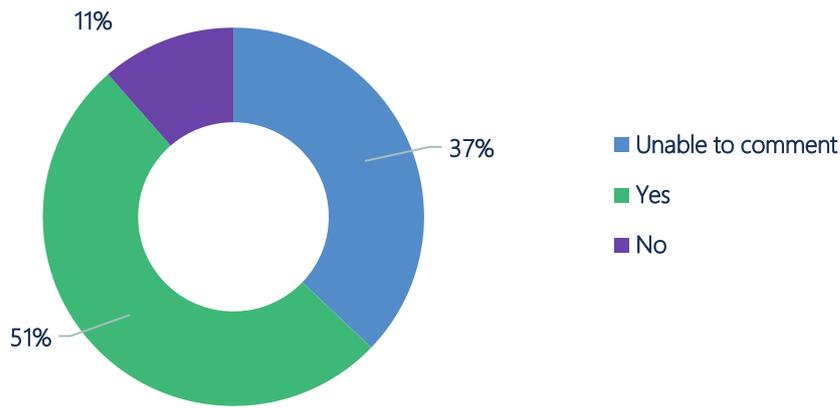


Figure 10 Responses to survey question "Was the process for identifying research needs effective?" (n=35)

Most survey respondents agreed that the process for identifying research needs was effective (Figure 10). This evaluation considered the robustness of the approach as part of the initial process. Eleven per cent of respondents felt that this process could be improved. There was a common theme in responses identifying a lack of transparency in how this process was undertaken and how proposals were then submitted. The lack of transparency then led to a reduced understanding of the coordination process. This theme was also reflected in the perceptions surrounding the Project Advisory Committee (PAC). Most survey respondents felt that the PAC was either partially effective or not very effective (Figure 11). Conversely, one researcher noted that the PAC was active during the project duration, indicating that the effectiveness and influence of the committee was mixed and inconsistent across projects.

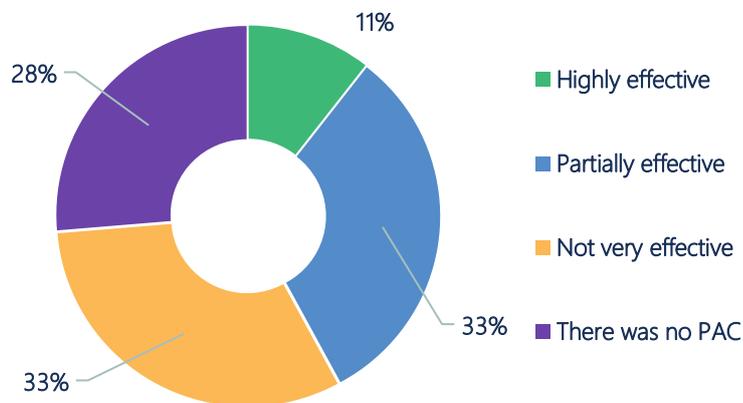


Figure 11 Responses to survey question "How effective was the Project Advisory Committee (PAC) in connecting the research team to the research end-user?" (n=18)

"Goyder ran a good steering group that helped ensure that the overall objectives were understood and met – were well constrained to keep to the broader goals" – Researcher

Some respondents also felt that the research development process was hindered by the policy agendas of those in the PAC, with one respondent suggesting that "the Goyder Institute was more interested in delivering what the government wanted as opposed to delivering the best available

science to solve the problems". While this was not a view held by most respondents, and may reflect a lack of understanding of the purpose of the Institute, there remains an opportunity for improved internal transparency and communication. By way of combatting this, one respondent suggested including peer review in the development stages of projects and greater accountability for research outcomes that align with initial deliverables (noting that this role is undertaken by the Research Advisory Committee and so again this suggestion may reflect a misunderstanding of the structure of the Institute).

Learnings and recommendations

- Having a clear and agreed purpose and objectives for research ensures that the program can be designed and delivered effectively to meet the purpose and objectives.
- The Goyder Institute should ensure that it maintains clarity of purpose in developing and delivering research programs in the future. This should include identifying a clear objective and outcomes for the research, which may be separate from government objectives and outcomes. For example, the use of the Premier's economic priorities to inform the strategic plan in the second term may have unnecessarily limited the definition of the economic outcomes which could have been achieved.

3.5. While the program delivered valuable research there is potential to increase efficiency through improvements to administrative and reporting activities

The previous findings demonstrate that the second term of the Goyder Institute has delivered valuable and valued research. The majority of researchers and end-users also considered that the funding they received was appropriate for achieving the expected project outcomes. Most respondents to the survey considered that project delivery was undertaken effectively and efficiently, within scope, budget and timeframe.

Operational and administrative requirements were seen as a challenge by most program managers. Administrative tasks, such as attendance at scheduled meetings, approvals and project updates, were viewed as burdensome and compromised project timelines. Figure 12 demonstrates that survey respondents felt that timelines and deliverable expectations, and budget provisions and planning were the two areas requiring the greatest improvement. In addition to the survey, an assessment of project closure reports found that achieving milestones on time was a consistent challenge felt by most project managers. Reasons for delays included:

- Unavoidable extensions to field programs and challenges associated with land access approvals.
- Coordination of several organisations and departments (an inherent issue that may be an unavoidable feature associated with collaboration between partner institutions).
- Milestone and budget progress reporting was perceived to be too frequent. Managers felt that it took time away from project work. This work seemed to be overlooked or underestimated in project timelines.
- The upfront project scoping process took considerable time for many projects.

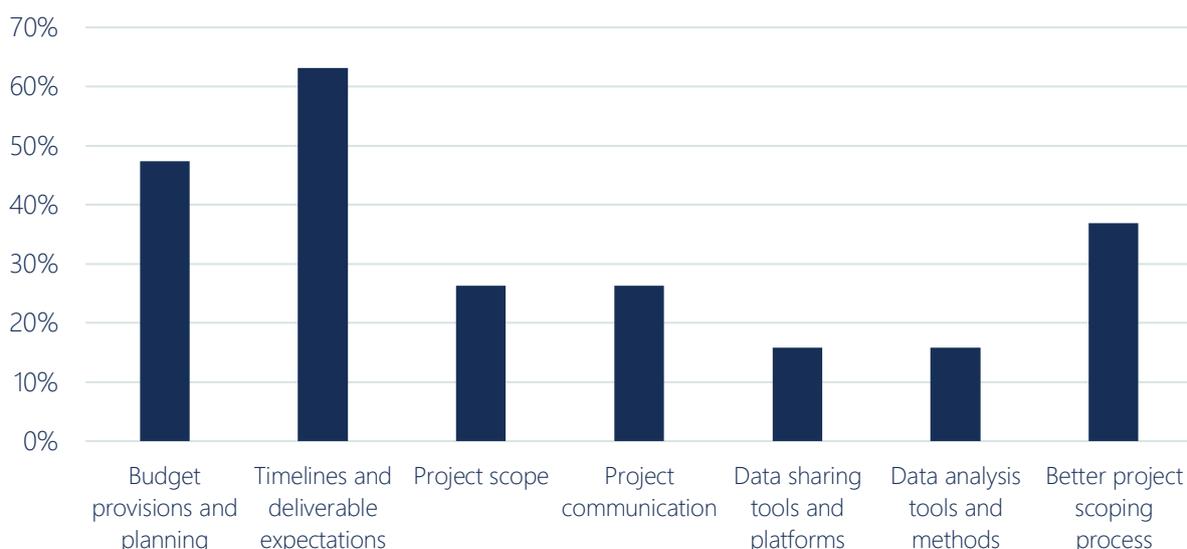


Figure 12 Responses to survey question "What areas of project management could be improved to ensure better project delivery outcomes?" (n=19)

Challenges associated with meeting timelines was a common issue across projects. Some managers have commented on the considerable pressure placed on researchers to deliver reports within a short timeframe. These pressures then inevitably compromised the review and output process for some projects. Actions to better accommodate these challenges should be considered for future terms of the Goyder Institute to help project managers with project operation.

"[We're] still getting requests from Goyder to finish things off - better clarity on the outputs required by Goyder would be useful." – Researcher

"sometimes it has taken a lot of effort to trigger payment – the whole procedure – having several organisations involved is challenging – even if one research groups delivered they wouldn't pay anyone until all were complete – caused some angst in organisations." - Researcher

In addition to administrative requirements, some researchers suggested that while collaboration between partners was highly valued, challenges associated with communication and transparency, in addition to a general increase in administration was viewed as slowing down project progress.

Given the inherent value of partnership and collaboration to the Goyder Institute, these challenges should not be seen as a rationale for reducing collaboration. However, providing additional materials and resources to support research partners during projects, and reducing administrative burdens and accommodating for increased timelines where feasible is recommended.

In developing future terms, the Goyder Institute should ensure that administrative requirements are more tailored to the project level. This will help ensure that timelines for outputs, meetings and data collection activities are appropriate to each project. (i.e., scheduling meetings when and if they are needed, rather than setting recurring dates). Additional time should be included to account for administrative requirements.

Learnings and recommendations

- When working closely with the government, there are likely to be greater constraints on overall timeframes given the need to meet deadlines for departmental commitments.
- In future, any requirements to meet government timelines should be considered in the selection of project managers, and in the set up of steering or project advisory committees to ensure that the management of the project can meet the needs of the end-users. The Goyder Institute could also provide additional training, guidance or tools for effective project management for researchers undertaking more complex project management activities.

4. Outcomes of the individual research projects

Second term research projects deliver a range of outcomes

This evaluation identified that the research undertaken in the second term delivered a range of benefits and outcomes across the Goyder Institutes three priority areas: economic development, healthy ecosystems and climate action. The evaluation did not include an assessment of the outcomes of each individual research project, as it was focused on the effectiveness of the overall program and recommendations for future changes. However, a high-level description of the projects and the outcomes have been provided here based on information provided by the Goyder Institute. Additional outcomes are also likely to be achieved in future due to lags in knowledge generation and adoption.

Economic development

Projects under this research theme helped support improved economic outcomes for South Australia through identifying new water sources and supporting improved sustainable use of water for agricultural production and forestry.

Small-scale desalinisation trial project tested the potential of a low-cost, low-energy, small-scale desalination technology for treating brackish water to support agriculture. The project drove further research and development of new desalinisation technologies which can be used to support improved water security and agricultural productivity in South Australia.

Sustainable irrigation Northern Adelaide Plains (NAP) project provided knowledge and tools for the sustainable use of recycled water for irrigation on the Northern Adelaide Plains. This included tools to assist horticulture businesses in tailoring soil management practices to the type of irrigation water being applied, as well as assessment tools for use by regulators when granting permits for irrigators to use Northern Adelaide Irrigation Scheme (NAIS) water.

GFLOWS3 project discovered new outback water sources that can support regional communities and economic development in the Anangu Pitjantjatjara Yankunytjatjara (APY) Lands. The project also developed a new methodology that can be used to identify water sources in the Braemar area, potentially facilitating mining opportunities in this region. Data from the project has also been used in various workshops and teachings, including Australian groundwater schools and NEXUS, teaching groundwater fundamentals to tomorrow's leading mineral explorers, enhancing knowledge and increasing capability.

SE WAP science review project informed updated risk assessments and water allocations to irrigators in the South East region. Undertaking this research ensured that updated water allocations were evidence based, and provided a sustainable resource to support agricultural productivity and groundwater dependant ecosystems, and therefore received community support.

Healthy ecosystems

Projects under this research theme are delivering improvements in the health of inland water and marine ecosystems in South Australia, as well as improvements in the management of water quality and supporting First Nations engagement in water resource management.

Spencer Gulf socio-ecological assessment project created a snapshot of the region's social, economic and environmental health, started an integrated ecosystem assessment, and developed an integrated ecosystem assessment tool – the first step towards developing an integrated multi-sector approach for Spencer Gulf management. Tools developed by the research project are being used for the integrated assessment of social, economic and environmental values in development proposals ensuring that the full range of benefits are identified and assessed.

River Murray ecological connectivity project developed tools that are being used by river operators to mitigate water quality risks and improve ecosystem health associated with floodplain infrastructure operations. Ongoing training of hydrologists in DEW is enabling maximum uptake and impact of the methods developed, and this uptake leads directly to advice being provided to inform environmental water planning and river management. Management decisions can therefore be made faster and more reliably, using operational scenarios that accurately predict benefits and trade-offs for entire ecosystems.

Yannarumi project led to the State Government updating its water planning risk management framework such that cultural values are incorporated into water planning, and led to the development of a First Nations Engagement Guideline. It also improved DEW staff understanding of the Yannarumi assessment process and improved Ngarrindjeri understanding of the DEW water risk assessment process. The project is helping to support other First Nations engagement in water resource risk assessments and driving First Nations engagement in water resource management in South Australia and further afield.

Coorong science advice project provided decision-makers with a clear, simple high-level description of the drivers that make the Southern Lagoon of the Coorong such a unique and valuable ecological system, and the actions required to restore its health. This led to the development of the \$70 million Healthy Coorong Healthy Basin Program.

Coorong restoration (HCHB Phase 0) project facilitated the scoping and initiation of a larger scientific program (approximately \$8 million) and feasibility assessments of urgent management interventions which was required under the Healthy Coorong Healthy Basin program. Urgent investigations have strengthened the HCHB "Trials and Investigations" project, which informs the development of plans to restore the Coorong.

Urban water project produced a framework that can support state and local government decisions on where and how best to invest in urban water management solutions across Metropolitan Adelaide to remove fine sediment from stormwater runoff. It also identified several data gaps and made recommendations as to how to improve local understanding of fine sediment sources and measures to reduce sediment transport to Adelaide's coastal waters, helping to improve urban water management in Adelaide.

Climate Action

Projects under this research theme have helped to increase climate resilience in South Australia and identified new opportunities to meet South Australia's carbon targets. They have also provided

national and international leadership in blue carbon methods and helped drive South Australia's reputation as a leader in Blue Carbon Research.

Climate Resilience Framework project developed innovative tools to adapt water management to mitigate climate change impacts and drove greater uptake of climate projections data. The project also supported further R&D using the tools developed and improved the ability of natural resource managers and planners to increase the resilience of natural resources and water supply systems.

Coastal carbon opportunities project informed the Blue Carbon Strategy for South Australia by identifying the potential carbon storage capacity at the state scale and for different coastal habitats. It also supported the optimisation of carbon offset schemes and deepened the understanding of the interconnectedness of critical terrestrial-coastal ecosystem linkages. The project also provided proof of concept that can be used to inform other coastal and blue carbon opportunities in South Australia and at the National level.

Salt to C project informed the Blue Carbon Strategy for South Australia by establishing a proof of concept for coastal wetland restoration for carbon sequestration through tidal reconnection, supporting future blue carbon action in South Australia. It also supported the identification of a new method of carbon offsets under the Emissions Reduction Fund (ERF), helping offset emissions in SA and increase investment.

Soil Carbon Knowledge gap assessment project identified the best available method to increase carbon sequestration for agricultural land and increase payments under the emissions reductions fund. DEW and PIRSA have used the information from this project to identify new activities to offset greenhouse gas emissions which can drive reduced emissions from agricultural land in South Australia and increase payments to landowners.

Carbon Offset Co-benefit evaluation project assisted the State government in developing policies and plans to facilitate carbon sequestration projects. This included developing estimates of carbon offset supply amounts and investigating the economics of three types of co-benefits, as well as identifying key policy drivers and barriers and providing practical recommendations. The project identified creek-line revegetation as the most viable land-based intervention for the Emissions Reduction Fund and initiated discussions with SA Water. This is helping to support new funding opportunities for private and public landholders in SA and increased investment in SA, as well as delivering carbon reductions.

Commissioned projects

Four additional projects were commissioned through the Goyder Institute. The outcomes of these projects are aligned across the three research areas of economic development, healthy ecosystems and climate action.

PIRSA Growing Regional Corridors project provided the South Australian Government with information for use in economic development planning, including potential sources and applications of water for development in the region north of NAP to Whyalla. This will help support economic activity in the area resulting from greater use of water resources (e.g. refurbishment of surface water dams) and aquaculture opportunities.

NT Water Allocation Review project involved an expert panel review of the science used to determine the environmental water requirements of the Daly River. This provided the NT government with a number of recommendations to improve the water allocation process for this water resource, which are also applicable to a number of other water resources in the NT. This supported an appropriate,

evidence-based assessment of alternative allocation scenarios in order to improve the ability of the management regime to protect ecological functions and environmental values of the Daly River system and the security of water license holders.

Marine Park Peer Review project provided critical input into the development of monitoring and evaluation methods for Marine Parks in SA, which will be used to track changes in the values (social, economic and ecological) for each Marine Park. It also built up a consensus amongst 20-25 of the country's leading social scientists, ecologists and economists who have expertise in marine parks through a workshop and subsequent peer-reviewed report of proceedings. This will support further improvements to the Marine Park mechanism, including improved ecosystem health and associated economic benefits.

DEWNR Climate change project informed the development of a State Climate Change Science and Knowledge Plan through determining the highest priorities for the provision of knowledge to support climate risk assessment and adaptation activities among industries and government (State and local) within South Australia. This included the implementation of a well-coordinated cross-government plan to develop the evidence base to help the State make the best decisions, find innovative solutions, and take action to respond and adapt to a changing climate.

5. Final remarks

The evaluation of the second term of the Goyder Institute for Water Research found that it provided an innovative model that consistently delivered high-value, collaborative and independent research to a high standard. The focus on identifying research aligned with Government priorities ensured that the research was pragmatic to the needs of water managers in South Australia and was used to solve specific issues in water resource management. The evaluation found that the second term of the Goyder Institute delivered beneficial evidence-based outcomes for South Australia across all three areas of research: economic development, healthy ecosystems and climate action.

Research delivered by the Goyder Institute directly influenced decision-making (regarding water management), which in turn improved outcomes within South Australia. The opportunities for improvement are focussed mainly on administration and project management, which the Goyder Institute can take forward into future terms. As the Institute evolves, it should ensure it retains those aspects which make it most successful. In particular, its collaborative approach and focus on research that can directly inform decision-making and improve outcomes for the government are highly valued.

Collaboration was one of the main achievements of the second term and should continue to be a focus of the Goyder Institute's model for future research. However, in the future, project funding, timelines, and the approach to project management could include more explicit consideration of collaboration needs, particularly for research projects with large and complex teams. Explicit recognition of the complexity caused by collaboration will help to ensure that it is not sidelined by the need to meet timelines or deliverables.

The majority of research was of an excellent standard. The focus on providing knowledge to inform Government decisions that were time-critical presented some challenges in submitting research to academic journals, which is essential for scientific credibility. In the future, submitting manuscripts for peer review in academic journals as a milestone within project timelines would help ensure that more of the research undertaken by the Goyder Institute is published in academic journals. Furthermore, the government's involvement in setting the policy questions for research created some concerns regarding independence. However, this is a critical aspect of the Institute's value and does not imply that the research itself was not independent. The Goyder Institute should be clear with researchers at the beginning of projects on the Institute's role in informing government policies. The Goyder Institute should also continue to ensure that research is undertaken independently and not unduly influenced by the government to maintain its reputation for independent research

Having a **clear and agreed purpose and objectives** for research ensures that the program can be designed and delivered effectively to meet the purpose and objectives. The Goyder Institute should ensure that it maintains its clarity of purpose in developing and delivering research programs in the future. This should include identifying a clear objective and outcomes for the research, which may be separate from government objectives and outcomes.

When working closely with the government, there are likely to be greater constraints on overall timeframes given the need to meet deadlines for legislated or Ministerial commitments. In future, any requirements to meet Government timelines should be considered in the selection of project managers and in the set-up of steering or project advisory committees to ensure that the management of the project can meet the needs of the end-users. The Goyder Institute could also

provide additional training, guidance or tools for effective project management for researchers undertaking more complex project management activities.

Overall, the Goyder Institute **has provided considerable value** in improving Government decision-making across a range of outcomes, including economic development, healthy ecosystems and climate action. The Goyder Institute model should continue to provide pragmatic and practical research that answers important policy questions. However, the Goyder Institute can also do more in the future to help drive government policy direction, rather than just responding to issues already identified.

Finally, the Goyder Institute second term was highly successful. The excellent work delivered in the second term provides a foundation of trust which the Goyder Institute can build on in the future. It can become a leader in water resource management and take opportunities to have a greater role in setting the agenda for water research in Australia.

Appendix A - Key Evaluation Questions

Key evaluation questions

Table 4 Evaluation theme – Program design and delivery

Program logic component	Key evaluation questions	Rationale	Methods and data requirements
Program level - Problem / rationale, delivery, outcomes	<p>Was the process for identifying research needs and assessing research projects appropriate and effective? Did the program deliver an appropriate and effective investment in research?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> • <i>How was the research program designed and executed?</i> • <i>Was the process for selecting projects aligned with the Institutes Strategic objectives?</i> • <i>How was the problem/rationale for research investment identified?</i> • <i>Did the process identify the research projects which would be most effective in meeting the research needs of the end users?</i> • <i>Was the process for selecting projects appropriate?</i> • <i>Were there any issues or challenges in identifying appropriate projects to undertake?</i> • <i>Was there sufficient capability and capacity across researchers and end-users to undertake the required program?</i> • <i>Was funding sufficient to meet the identified problem and desired outcomes?</i> 	<ul style="list-style-type: none"> • Understand whether the overall program of research was appropriate and effective 	<ul style="list-style-type: none"> • Qualitative insights from interviews
Project level - Problem / rationale, delivery, outcomes	<p>Was the process for developing and undertaking research projects appropriate and effective? Did the project deliver an appropriate and effective investment in research? <i>Consider:</i></p> <ul style="list-style-type: none"> • <i>How was the research project designed and executed?</i> • <i>How was the problem/rationale identified?</i> • <i>Did the process consider the research needs of the end users?</i> • <i>Was there sufficient capability and capacity across researchers and end-users to undertake the required project?</i> • <i>Was funding sufficient to meet the identified problem and desired outcomes?</i> 	<ul style="list-style-type: none"> • Understand whether individual projects were appropriate and effective 	<ul style="list-style-type: none"> • Qualitative insights from interviews

Table 5 Evaluation theme - research excellence

Program logic component	Key evaluation questions	Rationale	Methods and data requirements
Project level - Activities, outputs	<p>Have the individual research projects delivered independent, peer-reviewed, world-leading research?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> • <i>Have reports and articles been accepted for submission to academic journals?</i> • <i>How many reports and articles have been accepted and which journals have they been accepted into?</i> • <i>Has research supported research partners in attracting Category 1 grants by research partners?</i> • <i>Where there any challenges or risks to research?</i> • <i>What, if anything, could be done to improve the standard of research?</i> 	<ul style="list-style-type: none"> • Captures the standard of delivery for individual projects 	<ul style="list-style-type: none"> • Qualitative insights from interviews • Data on publications and funding
Program level - Activities, outputs	<p>Were the research projects selected the best suited to achieving the highest level of excellence for the overall program of research?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> • <i>Was the process for selecting projects appropriate?</i> • <i>Was sufficient consideration given to how the individual projects would be designed and delivered?</i> • <i>Where there any challenges or risks to the selection process that affected the scientific rigour of the work?</i> • <i>Has the program helped establish the next generation of capability and capacity necessary to tackle the water resource challenges facing the State</i> 	<ul style="list-style-type: none"> • Captures the standard for delivery for the whole program 	<ul style="list-style-type: none"> • Qualitative insights from interviews

Table 6 Evaluation theme - collaboration

Program logic component	Key evaluation questions	Rationale	Methods and data requirements
<p>Problem / rationale, delivery, outcomes</p>	<p>To what extent has the program brought together diverse and relevant expertise (from the research and government sectors) and created an environment that inspires innovation and builds capability in water resources management?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> • <i>Has the program drawn upon experts from across all research partners and disciplines</i> • <i>Do all research teams have representation from more than one organisation?</i> • <i>Do stakeholders understand the Institutes objectives?</i> • <i>Were stakeholders and end users able to meaningfully engage in the process including in developing research questions?</i> • <i>Have new partnerships been developed as a result of the research program?</i> • <i>Have project teams been cross-disciplinary, culturally diverse and gender balanced?</i> • <i>Was the diversity of project teams identified in the project plan?</i> • <i>Where there any challenges or risks to collaboration that occurred at either the project or program level?</i> 	<ul style="list-style-type: none"> • Assess the extent to which collaboration has been achieved • Identify whether collaboration has supported delivery of the program's outcomes and objectives • Identify any challenges or risks that could be better managed in future 	<ul style="list-style-type: none"> • Qualitative insights from stakeholder reflections on achievement of outcomes • Quantitative data on the number of new partnerships

Table 7 Evaluation theme - impact

Program logic component	Key evaluation questions	Rationale	Methods and data requirements
<p>Program and project level - Outcomes, outputs</p>	<p>What is the evidence of the program's progress toward its stated objectives and expected outcomes, including alignment between the program, its output, the Institutes Strategic Intent and SA Government priorities? Has the program ensured that evidence-based science outcomes support State Government decision making and policy development, and progress scientific understanding?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> • <i>What were the main achievements of the research program/project?</i> • <i>To what extent have outcomes been achieved?</i> • <i>To what extent is research aligned with government priorities?</i> • <i>Was achievement of outcomes influenced by external factors?</i> • <i>To what extent were/are assumptions appropriate and valid?</i> • <i>To what extent and quality have expected activities/outputs been achieved?</i> • <i>Were activities/outputs targeted effectively towards achieving outcomes?</i> • <i>Have new jobs been created as a result of the program?</i> 	<ul style="list-style-type: none"> • Assesses success of implementation. • Helps to understand what is working, what is not working, and what may need attention to ensure ongoing and future success. • Identifies unexpected risks that impacted success, some of which may be better managed in the future. 	<ul style="list-style-type: none"> • Qualitative insights from stakeholder reflections on achievement of outcomes
<p>Knowledge adoption - Outcomes, outputs</p>	<p>Have the findings from the program been shared and used outside of the Institute, and have they influenced decision making?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> • <i>Whether potential uptake and usage of research project findings have been identified?</i> • <i>Are the program findings provided in an accessible and meaningful format?</i> • <i>Have knowledge adoption activities been undertaken?</i> • <i>What are the challenges or risks in sharing knowledge and supporting adoption by partners?</i> 	<ul style="list-style-type: none"> • Assess the success of knowledge sharing activities • Helps understand what is working and what is not working • Identify gaps that can be better managed in future 	<ul style="list-style-type: none"> • Qualitative insights from stakeholder reflections on achievement of outcomes

Table 8 Evaluation theme - value

Program logic component	Key evaluation questions	Rationale	Methods and data requirements
<p>Program level - Inputs, activities, outputs</p>	<p>Has the Institute demonstrated efficiency in the delivery of the program, including in its overall management and governance? Has the program delivered value for South Australia?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> • <i>What were the programs administrative costs?</i> • <i>Have investments made by the institute and its research partners attracts external funding?</i> • <i>Have research staff been employed through the projects?</i> • <i>Could similar or greater benefits have been achieved more efficiently?</i> • <i>To what extent has collaboration created efficiencies for development and ongoing delivery?</i> 	<ul style="list-style-type: none"> • Identifies a program's costs and benefits • Provides a consistent basis for informing decision making about resource allocation and comparison of alternative options • Helps identify opportunities for improving efficiency 	<ul style="list-style-type: none"> • Summary of expected and actual program costs • Data on external cash funding received • Qualitative insights from stakeholder interviews
<p>Project level - Inputs, activities, outputs</p>	<p>Project level - Have the research projects been delivered efficiently and effectively within scope, budget, expected timeframe, and in line with appropriate governance and risk management practices? What were the challenges in delivery? How were these challenges addressed?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> • <i>Were budget, scope and timeframes appropriate for the intended activities and outputs?</i> • <i>Is there anything that could be done differently or better?</i> • <i>Has implementation been influenced by external factors?</i> • <i>Was implementation constrained in any way by inputs?</i> 	<ul style="list-style-type: none"> • Captures progress towards implementation of activities and delivery of outputs. • Captures unforeseen risks to delivery, which may inform improved future planning. • Considers whether the existing activities and outputs remain the most appropriate, efficient and effective way to achieve outcomes. 	<ul style="list-style-type: none"> • Review of project closure documents and briefings to Research Advisory Committee for: • Qualitative insights from stakeholders

Appendix B - Stakeholder engagement

Stakeholder engagement - Interviews

The evaluation drew on insights from project researchers and project end-users. The engagement was undertaken primarily through focused interviews. In total, 13 interviews were undertaken, 7 with researchers, 5 with end-users. Table 9 provides details of stakeholder interviews conducted to inform the evaluation.

Table 9 Stakeholder interviews conducted to inform the evaluation

Project	Type	Participants
RM water quality risks	Researcher	Matt Gibbs
RM water quality risks	End-user	Tony Herbert
G-Flows 3	Researcher	Tim Munday
G-Flows 3	End-user	Neil Power
Restoring Coorong South Lagoon	Researcher	Justin Brookes
LL Coast WAP	Researcher	Craig Simmons
LL Coast WAP	End-user	Wendy Telfer
Salt to C - wetland restoration	Researcher	Sabine Dittmann
Salt to C - wetland restoration	End-user	Louisa Perrin, Graham Green
Irrigated Ag in NAP	Researcher	Jim Cox
Ngarrindjeri Yannarumi	Researcher	Steve Hemming
Ngarrindjeri Yannarumi	End-user	Lachy Sullivan
Program level	Program	Ben Bruce

Stakeholder engagement – Survey

A stakeholder engagement survey was also sent out to a wider group of participants, with 39 responses from a range of researchers, project participants, end-users and other stakeholders. The survey responses were analysed and compared with the findings from the in-depth interviews and project documentation review.

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