Australia's National
Science Agency

Evaluating the effectiveness of user panels in the GBA Program

Final Report

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Images on front cover

Top: Wetland in the Cooper GBA region
Credit: Geological and Bioregional Assessment Program, Russell Crosbie (CSIRO)
Element: GBA-COO-3-663

Bottom: Lancewood vegetation, Bullwaddy Nature Reserve, Beetaloo GBA region
Credit: Geological and Bioregional Assessment Program, Chris Pavey (CSIRO)
Element: GBA-BEE-3-541

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Executive summary

The $35.4 million Geological and Bioregional Assessment (GBA) Program is assessing the potential environmental impacts of unconventional gas resource development to inform regulatory frameworks and appropriate management approaches. The geological and environmental knowledge, data and tools produced by the GBA Program will assist governments, industry, land users and the community by informing decision-making and enabling the coordinated management of potential impacts.

A series of independent scientific studies in three geological basins (referred to throughout as GBA regions) – the Cooper Basin in Queensland and South Australia, the Isa Superbasin in Queensland and the Beetaloo Sub-basin in the Northern Territory – have been conducted by CSIRO and Geoscience Australia, supported by the Bureau of Meteorology and managed by the Department of Agriculture, Water and the Environment. The inclusion of user panels in the Program was a deliberate decision to create forums for targeted and early key stakeholder engagement and dialogue throughout the life of the Program.

Over the past four years, CSIRO has undertaken a project to monitor and evaluate the effectiveness of the user panels within the Program. At the outset of the Program, it was decided the effectiveness of the user panels would be assessed against a set of intended outcomes and key design principles that aimed to: (i) build legitimacy and trust in the science and the Program through early engagement of key regional stakeholders; (ii) govern risk by including diverse perspectives in a fair and equitable process; and (iii) enable transparency through informed stakeholders and effective communication. In this way, the assessment of the panels and their function over the course of the program was a considered and structured process.

This final report draws on two rounds of interviews comprised of 21 interviews with members in the Cooper User Panel and Beetaloo User Panel undertaken in 2019, and 30 interviews with 17 members in the Cooper User Panel and Beetaloo User Panel and 13 agency staff from the Department, CSIRO and Geoscience Australia undertaken in late 2020-early 2021. The aim of this final report is to examine the expectations and experiences of these regional and Program stakeholders and identify if (and how) the inclusion of the user panels contributed to tangible and beneficial outcomes for the Program.

The benefits of including the user panels in the GBA Program were found to have created alignment between Program activities and outputs with the needs and priorities of intended users. There was also evidence of the information and data identified by the user panels being taken up and used within the delivery of the Program. The benefits of the user panel engagement include:

- *early input to shape the scientific assessments* being realised in the development of context-specific assessments that reflected regional concerns and priorities
- *increased understanding of the physical aspects and scale of the regions* being assessed, along with the nature of potential environmental impacts (especially for those from outside the regions)

- *increased awareness and understanding among all stakeholders* of the range of different perspectives and knowledge in and about the regions
- *constructive relationship building among user panel members and agency staff* through formal and informal exchanges that contributed to greater 'buy in' and trust among stakeholders
- *increased confidence and trust in the independence of the science* being undertaken and the importance of establishing baseline environmental assessments as the goal of the Program.

While the onset of the Coronavirus (COVID-19) pandemic necessarily changed the nature of the user panel engagement, the early face-to-face engagement within regions was critical to establishing connections and allowing relationships to form. The findings of this report also point to factors that shaped regional differences across the user panels. Although an identical user panel engagement process was developed and implemented in all three GBA regions, each of the user panels and the regional assessments reflected the distinct membership and priorities of the stakeholders.

Areas for potential improvement related to the nature and style of information provision and communication, and possible refinements to the meeting schedule and process. Further, factors including the significant effort required to establish and maintain effective user panels, the importance of maintaining continuity and momentum through personnel changes, and the need to manage Program scope and expectations were also identified.

The findings of this evaluation have been also used to generate a series of key lessons on the design and implementation of the user panels that may be relevant for other government agencies seeking to incorporate this type of early stakeholder engagement into the design and delivery of their own programs. These five key lessons summarise the most critical design and implementation considerations as:

1. *The role of the user panels* in the GBA Program being clearly defined at the outset
2. *The design of the user panels* being carefully considered, deliberate and measurable
3. *Adequate resourcing of user panels* at establishment and then throughout the Program
4. *Meaningful communication established* in multiple channels and highly targeted
5. *Setting the intent, providing the forum*, and allowing stakeholders to shape the engagement.

Overall, the user panels were broadly effective in achieving their Program aims. By bringing together a range of diverse but committed individuals and their deep regional experience and knowledge with the drive, knowledge and commitment of staff from the Department, CSIRO and Geoscience Australia, the GBA Program has been able to achieve a scientifically rigorous assessment that also captures and reflects key regional priorities. In this way, the user panels have brought early stakeholder engagement to the development and delivery of robust scientific assessments, which has improved confidence in the science among regional stakeholders and increased awareness and understanding of the GBA Program goals.

> *I think that they should be warmly congratulated for how the process went. It was a difficult process at times but very professional and considered, and they got the good minds together. They worked well together, and it showed in the meetings and presentations.*
> *Cooper User Panel Member*

1 Background

The $35.4 million Geological and Bioregional Assessment (GBA) Program is assessing the potential environmental impacts of unconventional gas resource development to inform regulatory frameworks and appropriate management approaches. The geological and environmental knowledge, data and tools produced by the GBA Program will assist governments, industry, land users and the community by informing decision-making and enabling the coordinated management of potential impacts.

A series of independent scientific studies in three geological basins (referred to throughout as GBA regions) – the Cooper Basin in Queensland and South Australia, the Isa Superbasin in Queensland and the Beetaloo Sub-basin in the Northern Territory – have been conducted by CSIRO and Geoscience Australia, supported by the Bureau of Meteorology and managed by the Department of Agriculture, Water and the Environment.

As part of the Program, user panels were formed for each of the three GBA regions under assessment – Cooper, Beetaloo and Isa – to provide a mechanism for supporting stronger relationships and engagement between the Program, key regional stakeholders and communities (see Figure 1). The user panels formed part of the overarching governance structure of the Program, and were designed to ensure that the scientific assessments conducted in each region addressed the questions, concerns and priorities raised by the user panel members (i.e. produced fit-for purpose and regionally specific assessments).

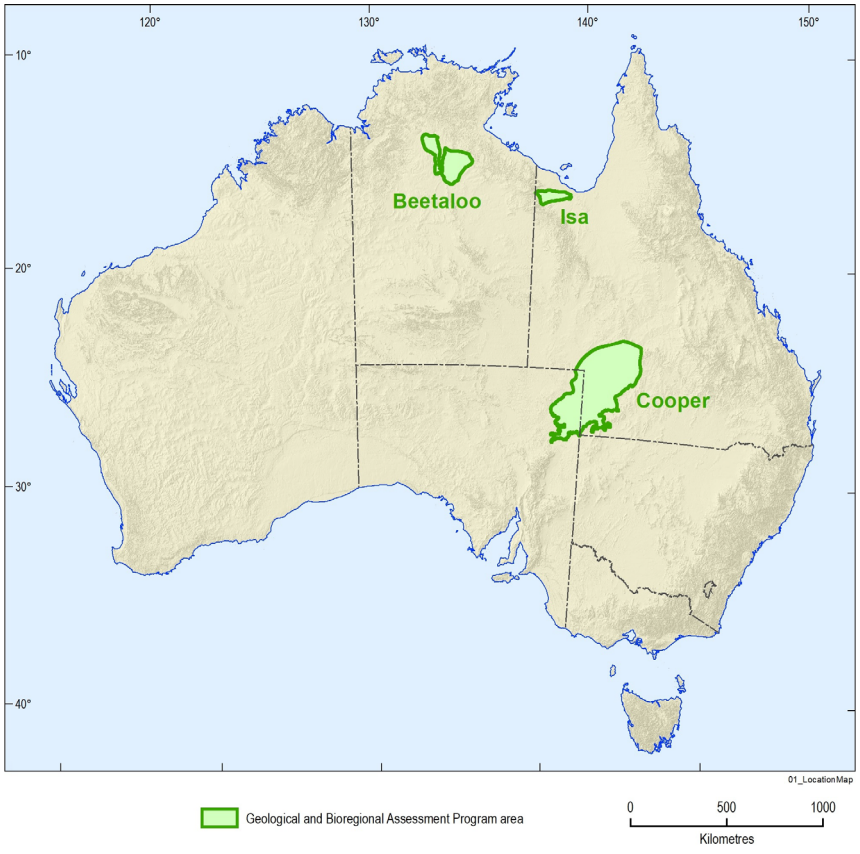

Figure 1 Beetaloo, Cooper and Isa GBA regions. Source: DAWE

At the outset of the Program, the three user panels were designed to have a broad membership comprising state and federal regulators; local and state government representatives; industry representatives (gas, agriculture, etc.); local Traditional Owners and Indigenous representatives; and other key stakeholders such as local landholders, local water users and natural resource management bodies present in the regions. The intent was to host user panel meetings in each region every 6 to 12 months to create a regular face-to-face forum for formal engagement between those regional stakeholders, the program and the scientists undertaking the assessments.

The planned user panel schedule across the regions was affected by seasonal weather conditions, the progress of the scientific assessments in each region and the onset of the Coronavirus (COVID-19) pandemic in 2020, which required all panel meetings to transition to an online format. In the Isa GBA region, the assessment was concluded by the Minister for the Environment on 15 May 2020, and after a final meeting in August 2020, the Isa User Panel was discontinued. The complete and final schedule of user panel meetings hosted over the course of the Program in all three GBA regions is shown in Table 1 (Australian Government, 2021).

Table 1 GBA Program User Panel Meeting Schedule

GBA Region	Meeting 1	Meeting 2	Meeting 3	Meeting 4	Meeting 5	Meeting 6
Cooper	21 Mar 2018	19 Sep 2018	1 Aug 2019	8 Jul 2020*	8 Dec 2020*	22 Apr 2021*
Beetaloo	31 Jul 2018	23 May 2019	12 Aug 2020*	10 Dec 2020*	28 Apr 2021*	
Isa	9 May 2018	13 Aug 2019	13 Aug 2020*			

**denotes online user panel meeting*

This report presents an analysis of a second and final round of interviews conducted with a sample of user panel members in the Cooper and Beetaloo GBA regions. Their experiences and insights are augmented with analysis of interviews undertaken with key agencies involved in the design and delivery of the Program (i.e. the Department, CSIRO and Geoscience Australia[1]). Data gathering was undertaken via interviews with the participants (i.e. a sample of panel members and non-panel members or agency staff) to understand their expectations and experiences in the user panels. This approach allows assessment of the effectiveness of the panels in each of the two GBA regions to be examined and comparisons made about similarities and differences in panel function across the Program. Outcomes from this final evaluation are intended to summarise the key lessons arising from including this type of structured engagement as a core part of the design and governance of the Program.

[1] While Bureau of Meteorology staff did not engage in the user panel setting, the Bureau is a key partner in the delivery of the GBA Program.

1.1 Research plan and design: final evaluation

To ensure the panels were effective in supporting the goals of the Program from 2018 to 2021, a targeted monitoring and evaluation project was conducted by CSIRO to assess user panel performance and effectiveness over the duration of the Program (Lacey et al., 2018a). The overarching objectives of the monitoring and evaluation project were:

- to assess the alignment between Program activities and outputs and the needs of the intended users
- to examine how data collected from the user panels has been used by the Program
- to assess how effectively the Program met the expectations of the intended (and other) users.

In order to be able to assess progress towards these overarching objectives, the design of the user panels was structured around achieving three intended outcomes, each underpinned by a set of key design principles, that aimed to: (i) build legitimacy and trust in the science and the Program through early engagement of key regional stakeholders; (ii) govern risk by including diverse perspectives in a fair and equitable process; and (iii) enable transparency through informed stakeholders and effective communication.[2] Continual monitoring through observation at panel meetings allowed specific recommendations to improve panel function to be made during the delivery of the Program. This final evaluation report identifies key insights about how including user panels delivered impact for the Program, which may be relevant for other government agencies.

The research in this final report presents information regarding the effectiveness of the GBA user panels over the course of the Program. This comprises a detailed assessment of the Cooper User Panel and Beetaloo User Panel based on interviews conducted with a sample of user panellists in those two GBA regions. The findings in this report build on a series of interviews undertaken in 2019 to provide an overarching view of function, engagement and panel performance in the Cooper and Beetaloo GBA regions that is based on their experiences and observations over time. This includes the reflections of the user panellists on the role and importance of this type of structured engagement process within their regions.

As reported last year, at the time the original user panellists' interviews were undertaken with the Cooper User Panel and Beetaloo User Panel, the membership of the Isa User Panel was continuing to form and data collection with the Isa User Panel was considered premature (see Lacey et al., 2020). In the intervening period, the assessment in the Isa GBA region was officially concluded and the Isa User Panel discontinued in mid-2020 (Australian Government, 2021). The lack of interviews conducted with user panellists from the Isa GBA region does not represent a lack of engagement between the Program and key regional stakeholders in this region, only that the timing and progress of the assessment in the Isa GBA region did not support interviews being undertaken with the Isa panellists as part of this monitoring and evaluation process.

[2] The role of the intended outcomes and design principles in assessing the effectiveness of the user panels are outlined in Section 5. A detailed description of each design principle (i.e. intent and expression) is included in Appendix A.1.4.

This final report also includes findings from an additional set of interviews conducted with agency staff in the Department, CSIRO and Geoscience Australia who were involved in managing and conducting the assessments in all three GBA regions. While interviewees from these agencies are not members of the user panels, they attended user panel meetings and engaged with the user panel members throughout the course of the Program. In the interviews conducted with user panel members in both 2019 and 2020-21, one of the benefits consistently identified across all stakeholder types was the direct access the user panel engagement provided to staff in the Department, CSIRO and Geoscience Australia. As a result, these additional insights from staff in the Department, CSIRO and Geoscience Australia with direct experience of the user panel process and engagement are included in this final evaluation to capture perspectives on how the user panel engagement has delivered benefits and value to the Program by those tasked with delivering it. By including these additional participants, the report also touches on the extensive engagement that took place in the Isa GBA region prior to that assessment being formally concluded. Because interviews with user panellists in the Isa GBA regions were not conducted as noted above, no conclusions are made about this process. However, the general observations of agency staff may prove useful to other government agencies seeking to design similar stakeholder engagement programs.

1.2 User panel sample

A total of 30 interviewees participated in this final evaluation of the effectiveness of the GBA user panels. This was comprised of 17 user panel members (8 x Cooper; 9 x Beetaloo) and 13 agency staff (5 x the Department; 6 x CSIRO; 2 x Geoscience Australia).

User panel members interviewed represented a broad range of government, industry and community stakeholders. Seventeen interviews with user panel members were conducted from a list of purposefully selected potential interviewees provided to CSIRO by DAWE. Potential interviewees were contacted via email and telephone to determine their willingness to take part in the interview process. Interview questions used with user panel members are available at Appendix A.1.1[3]. Response rates for each user panel this year were:

- Cooper User Panel members = 66% (2019 participation rate was 83%)
- Beetaloo User Panel members = 53% (2019 participation rate was 65%).

Eight telephone interviews were conducted with members of the Cooper User Panel between 19 November 2020 and 29 January 2021. Length of interviews averaged 32 minutes, ranging from 16 to 57 minutes.

Nine telephone interviews were conducted with members of the Beetaloo User Panel between 11 November 2020 to 5 February 2021. Length of interviews averaged 19 minutes, ranging from 13 to 26 minutes.

[3] An abridged set of questions was developed for regulators in both regions.

The response rate dropped slightly in both regions since the previous data collection, which may reflect the changing nature of membership in each of the user panels. In some cases, this was brought about by changes in staffing within the organisations represented on the user panels (e.g. in two cases this was due to retirement of two original panel members and one member being on maternity leave during the period of data collection). Specific challenges associated with recruitment in this round related to change of personnel within some organisations and the challenges associated with relying on office telephone contact details for staff that were now working from home (i.e. pandemic related changes). However, the overall decrease in response rates in both regions was not significant enough to affect the usefulness of the data for analysis.

An aggregated representation of user panel interviewees from both regions is provided in Table 2 along with an indication of how many interviewees were new to the monitoring and evaluation process or were returning participants (i.e. had been interviewed previously).

Table 2 Sample of interviewees – Cooper and Beetaloo user panels

Aggregated representation of user panel interviewees	Cooper User Panel	Beetaloo User Panel
Government (local, state, federal)	3	6
Industry (oil and gas)	2	1
Peak bodies and associations (other industry, community)	1	1
Not-for-profit advocacy (community, legal, Indigenous)	2	1
Total number of interviewees	**8**	**9**
Return interviewees from last round	4	3
New interviewees in this round	4	6

In this final evaluation report, the user panel interviews outlined above were augmented with 13 additional interviews with a cross-section of agency staff, who were closely involved in the user panels across all three GBA regions. This comprises staff from the Department, who designed and coordinated the user panel engagement within the Program, and scientists from CSIRO and Geoscience Australia, who led and delivered the assessments across all three GBA regions. The list of potential interviewees was developed by the CSIRO team leading the monitoring and evaluation process based on their knowledge of the agency staff involved in user panel engagements. The request to include these additional perspectives as part of the final evaluation report was made to the GBA Board and supported by the Program Director and the GBA science leads within CSIRO and Geoscience Australia. In March 2021, the CSIRO research ethics clearance for this project was varied to reflect these changes. Interview questions used with agency staff are available at Appendices A.1.2 and A.1.3. The overall response rate for agency staff participation was:

- Department staff = 83%
- Science agency staff (CSIRO and Geoscience Australia) = 50%

Thirteen telephone interviews were conducted with agency staff involved in user panels in all three GBA regions between 11 to 26 March 2021. Length of interviews averaged 33 minutes, ranging from 23 to 54 minutes.

1.3 User panel attendance

Of the 30 interviewees, panel members and agency staff had varying levels of experience with attending in person and online user panel meetings. In some cases, this was affected by when they joined the Program. While user panel members only attended user panel meetings within their own GBA region, for agency staff, attendance could also include experience in user panel meetings across one, two or three GBA regions (including Isa GBA region) depending on their role. The experience of user panel attendance is described for each interviewee group here.

All eight Cooper User Panel interviewees had attended one or more of the Cooper User Panel meetings. Five of the interviewees had been members of the Cooper User Panel since the commencement of the Program, and three of the interviewees had become involved in the panel during the Program. At the time this final round of interviews were conducted, five panel meetings had been conducted comprised of three face-to-face meetings in Quilpie, Thargomindah and Brisbane and two online meetings. All eight interviewees had participated in face-to-face and online user panel meetings. A third and final online meeting has since been hosted for the Cooper User Panel in April 2021.

All nine Beetaloo User Panel interviewees attended one or more of the Beetaloo User Panel meetings. Four of the interviewees had been members of the Beetaloo User Panel since the commencement of the Program, and five of the interviewees had become involved in the panel during the Program. At the time this final round of interviews were conducted, four panel meetings had been conducted comprised of two face-to-face meetings in Darwin and two online meetings. Five interviewees had participated in face-to-face and online user panel meetings and four interviewees had participated in online user panel meetings only. A third and final online meeting has since been hosted for the Beetaloo User Panel in April 2021.

All 13 agency staff interviewees had attended one or more panel meetings across all three GBA regions. At the time of data collection, this included up to 12 panel meetings comprised of five meetings in the Cooper GBA regions, four meetings in the Beetaloo regions and three meetings in the Isa region (which included two face-to-face meetings in Mt Isa and one final online panel, see Table 1). By GBA region, agency staff participation at user panel meetings was as follows:

- 9 agency staff interviewed had attended Cooper User Panel meetings (4 x Department; 5 x scientists)
- 11 agency staff interviewed had attended Beetaloo User Panel meetings (4 x Department; 7 x scientists)
- 4 agency staff interviewed had also attended Isa User Panel meetings (3 x Department; 1 x scientist)

Among this group of interviewees, there were some overlaps in the above numbers across regions (i.e. participation at meetings in more than one region) and some staffing changes during the Program. Of the 13 agency staff interviewees, only three interviewees had direct experience with user panel meetings in all three GBA regions (including Isa), seven interviewees had been involved in user panel meetings in two regions (Cooper and Beetaloo), and three interviewees had largely participated in one region only (Cooper or Beetaloo). The shift of the user panel meetings to the online format from 2020 increased attendance at user panel meetings for agency staff but in some cases, attendance was for observation purposes only (i.e. not participating as an organiser or presenter).

Following data collection, two further and final online user panel meetings were conducted in the Cooper and Beetaloo GBA regions as noted above.

1.4 Research methods and analysis

Interviews were semi-structured[4], with question prompts used to ascertain:

1. Interviewee background, role and participation in the user panels.
2. Interviewee expectations and the anticipated outcomes or benefits from participating in the user panel.
3. Interviewee experiences with attending the user panels, including examples of what had been beneficial or challenging.
4. Interviewee reflection on the importance of including this type of stakeholder engagement in the GBA Program.

With the permission of the interviewees, interviews were audio recorded and transcribed. Responses from each group of interviewees (Cooper User Panel and Beetaloo User Panel members, and agency staff) were manually coded according to the above four areas of enquiry.

The interview transcripts were initially subjected to a systematic and verifiable analysis of the main themes emerging from the data (Minichello et al., 2008). In addition to the manual thematic analysis undertaken for each set of responses, NVIVO, a form of Computer Assisted Qualitative Data Analysis Software (CAQDAS) was also used to document and facilitate retrieval of coded content in the transcripts. The use of NVIVO facilitated the process of sorting and linking of coded data segments and allowed for comparison of viewpoints within the data (van Hoven and Poelman, 2003).

The remainder of this report is structured as follows. The key findings from the Cooper User Panel and Beetaloo User Panel interviews are presented in Sections 2 and 3, respectively. Reflections from agency staff are presented in Section 4. Each of these sections focuses on stakeholders' expectations and experiences of the user panels, and their reflections on the value of early stakeholder engagement forums such as user panels.

[4] See Appendices A.1.1-A.1.3 for interview questions

Section 5 provides a whole-of-program summary of the effectiveness of the user panels within the GBA Program. It identifies the key aspects of user panel experience for all stakeholders, factors that influenced the differences across the user panels, aspects that could be improved, and an assessment of whether the user panels achieved their intended outcomes.

Finally, Section 6 summarises the overarching benefits of the user panels and summarises key lessons on the design and implementation of the user panels that may be relevant to other government agencies seeking to incorporate early stakeholder engagement in their own programs.

2 Cooper User Panel analysis

This section provides a qualitative analysis of the interview responses of Cooper User Panel interviewees. The qualitative analysis involved:

- reviewing the eight individual interview transcripts
- isolating specific sets of question responses about expectations, anticipated benefits and outcomes, user panel experiences, and importance of a stakeholder engagement process
- transposing the data into software to cluster text across the full sample for further analysis
- manually identifying prominent 'influencing factors'
- summarising the corresponding text into short descriptive summaries.

Prior to presenting the results, we include a short contextual summary of the Cooper GBA region.

2.1 Cooper GBA region

The Cooper GBA region covers approximately 130,000 square kilometres and is a Permian-Triassic sedimentary geological basin. Located mainly in south west Queensland, the Cooper GBA region extends into the north east of South Australia (see Figure 1).

The Cooper GBA region is named after the Cooper Creek, an ephemeral river that flows some 1,500 kilometres through Coongie Lakes Ramsar Wetland and into Lake Eyre (Australian Government, 2020). Referred to as the Channel Country, the area includes a network of intertwined rivulets that cross the region stemming from Cooper Creek, and the Georgina and Diamantina rivers. These river systems are critical to sustaining small towns and settlements in the arid and desert landscape of the Cooper GBA region. Land use in the Cooper GBA region is primarily for cattle grazing (Western Rivers Alliance, 2020).

One of Australia's most important onshore oil and natural gas regions, the Cooper GBA region incorporates the Cooper-Eromanga Basin hydrocarbon system (Australian Government, 2020). The first commercial discovery of gas in the region occurred in 1963 (Gidgealpa 2), followed by the development of the Moomba gas field in 1966 (South Australian Government, 2020). The Cooper GBA region has been producing gas for some 60 years, houses significant pipeline and well infrastructure, and active exploration for unconventional gas is currently underway.

2.2 Expectations, anticipated benefits and outcomes

When asked whether attending the user panel meetings had met their expectations, the majority of panellists (n=6 of 8 interviewees) responded positively indicating that their involvement in the user panel had been useful to them:

> *The short answer is yes. It's pretty much what I expected it to be and I found it very useful. I was also pleased to have the opportunity to be involved in it – Cooper interviewee*

Analysis of the responses of Cooper User Panel interviewees indicated several factors motivating their decision for involvement in the user panel, including to (see Table 3):

- increase understanding of the GBA Program and supporting science
- represent regional and organisational interests
- gain awareness of local community concerns
- contribute to policy development.

Table 3 Cooper User Panel – motivations for involvement (qualitative analysis)

Influencing factor	Description	Responses (Sample = 8)
Increase understanding of the GBA Program and supporting science	To contribute knowledge and increase understanding of the GBA Program and supporting science, the potential for gas industry development and market opportunities, and how these might interact with the natural resources and water management	6
Represent regional and organisational interests	To represent regional and organisational interests across government and not-for-profit sector, including local Traditional Owner and Indigenous groups	3
Gain awareness of local community concerns	To be more informed of the social implications and local sensitivities associated with the development and market potential of a gas industry	2
Contribute to policy development	Represent and/or be involved in policy development	1

In this round of data collection, the focus on increasing understanding of the GBA Program and supporting science emerged as the most frequently cited reason for involvement (or continued involvement) in the user panel (n=6). One interviewee described the importance of being able to understand how proposed industry development may interact with natural resource management and the regional economy:

> *I felt I needed to be involved and have the opportunity to put my bit in but also have the opportunity to learn about how everything's working or not working. It's been a steep learning curve and there's still new science coming out with new information about how groundwater systems work all the time. So, we certainly haven't reached a plateau in our learning about it – Cooper interviewee*

While the focus on science had increased, which also reflects the stage of the Program's delivery, the second most prominent reason for involvement was the ability to represent regional and organisational interests (n=3). Last year, this had been the most prominent reason for involvement and continued to be emphasised by several interviewees:

> *The organisation was keen to participate because, obviously, from a natural resource management perspective, we're moving into a far more complex economic region and what we're keen to do is to make sure that the management of natural resources is the best it can be – Cooper interviewee*

Similarly, the importance of representing local Traditional Owner and Indigenous interests in the assessments was raised:

My interest is what is happening to our country and my people. That's the reason why I'm there – Cooper interviewee

Of the four reasons interviewees identified as the main motivating factors for their involvement in the user panels, the same four reasons had been identified in the 2019 interviews but this year the order of priorities had shifted slightly. In this report, the emphasis on understanding of the Program and supporting science had increased in importance. This reflects a slight shift from last year's top priority which was the ability to represent regional or organisational interest in the process. While representing those interests remained important, the responses also revealed that interviewees were more motivated in developing an understanding of local community concerns and priorities (n=2) as opposed to only representing their own interests through the user panels. This suggests that access to the diverse views expressed in the user panels was now one of the motivating reasons for involvement.

When asked what Cooper User Panel interviewees expected as a result of attending the user panel meetings, their frequently expressed views included (see Table 4):

- stakeholder representation and advocacy
- better understanding of the GBA Program and supporting science
- information sharing
- policy development and decision making
- relationship building.

Table 4 Cooper User Panel – expectations of attending panel meetings (qualitative analysis)

Influencing factor	Description	Responses (Sample = 8)
Stakeholder representation and advocacy	Represent and advocate the concerns and perspectives of different and varied stakeholders of the GBA Program including from community including Indigenous interests, governments and industry	4
Increased understanding of the GBA Program and supporting science	To improve understanding of the GBA Program with emphasis on anticipated impacts and potential risks, specifically relating to resource development and water flows	3
Information sharing	Contribution and access to panel and GBA Program information	3
Policy development and decision making	Contribute to policy development and decision-making through active involvement and representing local interests	3
Relationship building	Engage and establish connections with stakeholders, their organisations, communities and perspectives	2

Several interviewees (n=4) emphasised the importance of the user panels as a vehicle for representing and advocating for stakeholder interests:

> *It's to have a mutual platform where everyone can be heard or put their concerns or their voice forward and be heard amongst everyone else – Cooper interviewee*

A response that captured the value of the science in the GBA Program was expressed as follows:

> *The expectation is that with the involvement of the CSIRO and Geoscience Australia, we have an excellent opportunity to have some real independent science, which has been gathered and examined and reported on, and on which we can rely – Cooper interviewee*

Of the top five expectations expressed by interviewees, the ability to represent and advocate for stakeholder interests was the most prominent theme. This represented a combining of two themes that had been reported separately in the previous data collection (i.e. stakeholder representation and advocacy). The prominence of this new merged theme (n=4) had also overtaken the previous top theme of understanding the GBA Program and supporting science (n= 3), which was now the second most prominent theme. A new expectation with respect to user panel involvement of contributing to policy development and decision-making was reported by interviewees this year as the fourth most prominent expectation of their involvement (n=3).

2.3 User panel experience

Aspects that influenced Cooper User Panel interviewees' experience of attending the Cooper User Panel meetings included (see Table 5):

- level of comfort and accessibility
- ability to remain informed
- ability to remain connected
- ability to provide input
- stakeholder engagement.

Table 5 Cooper User Panel – user panel experience (qualitative analysis)

Influencing factor	Description	Responses (Sample = 8)
Level of comfort and accessibility	Shift from face-to-face to online meetings highlight changes to engagement. Loss of valuable informal discussion but online meetings reduced time and travel costs	8
Ability to remain informed	Prior exposure to science and industry influenced the perceived value of information provided. Long gaps identified between meetings and information provision. Phase 2 technical report valued and accessible language versions sought	8
Ability to remain connected	One and two-day meetings facilitated stronger panel connections and networking, while shorter online meetings increased productivity. Direct access to scientists and other stakeholders considered beneficial	8
Ability to provide input	Discussions enhanced by the diversity of stakeholder perspectives. Online formats considered adequate but not as effective for enabling participation	6
Stakeholder engagement	Engagement with panellists was seen to be genuine and not just 'ticking the box'	2

In 2020-21, the panel experience was significantly different because of the COVID-19 pandemic and the requirement to shift from face-to-face meetings in the regions to online forums. Interviewees identified both positive and negative aspects of the change:

> *There's a lot to be gained from face-to-face meetings. COVID-19 has forced us to do virtual meetings, they're not as efficient, but they're much cheaper, and easier for people to get to – Cooper interviewee*

Alongside this focus on level of comfort and accessibility of the user panel meetings, all eight interviewees emphasised their ability to remain informed and connected as equally important aspects of their experience. In terms of remaining informed, lengthy gaps between meetings and information being provided was identified as a drawback which could disrupt momentum:

> *I found with the communication … it's too long between the next discussion, so you tend to lose the point going forward, so for the next one, I look at the agenda and think, how is it going to be different? – Cooper interviewee*

However, in terms of remaining connected, connections between several panellists were evident in that interviewees reported having contact with other panellists on various issues between the user panel meetings and new connections forming through the panels.

The five themes reported about user panel experience this year reflected a shift from the three themes reported in 2019 data collection. While the focus on comfort and accessibility in the meetings was maintained (n=8), this was largely dominated by the shift to online panel meetings. While the opportunity for informal conversations had been lost, this panel had met three times in

person and spent time as a group in the region (i.e. Thargomindah meeting and field trip). This created a strong sense that there was at least a baseline level of exposure to the region and a level of social capital in the panel relationships that supported their transition to the online format. It was generally agreed that starting the user panel process online would have been more challenging. The additional themes about experience were equally focused on remaining informed (n=8) and remaining connected (n=8). In this regard, the timing or length of time between meetings and information being provided was the main critique of the process, but it was also reported that several panellists were in contact between panel meetings and most felt as though they could make contact if needed. Most panellists (n= 6) felt their ability to provide input was enhanced by the diverse stakeholders on the panel, and two interviewees explicitly expressed the view that the user panel engagement had been 'genuine' from their perspective.

2.4 Importance of a stakeholder engagement process

For the final round of interviews, panellists were asked a new series of questions about the overall importance or value of including early and targeted engagement with key regional stakeholders (i.e. user panels) alongside the scientific assessment. When asked about the overall importance of a stakeholder engagement process like the GBA user panels, the majority of interviewees (n=7 of 8) responded positively, highlighting significant value and importance attached to the process. In particular, the decision to host the panels within the regions and to take account of local knowledge and experience were frequently acknowledged as critical factors:

> *I just can't reinforce that enough, how critical it is. I've been involved in dealing with government, mainly state, in this area for probably 20 years or more. The number one gripe is that decisions are made, and policies are formulated remotely about an area where people – the people formulating those decisions and policies have never been, and don't have any sense of the area – Cooper interviewee*

Interviewee feedback is summarised in Table 6 with the three main themes emerging as:

- improved regional knowledge for decision-makers and stakeholders
- identified benefits of the GBA Program
- broader awareness and understanding of the GBA Program and gas industry.

Table 6 Cooper User Panel – importance of stakeholder engagement (qualitative analysis)

Influencing factor	Description	Responses (Sample = 8)
Improved regional knowledge for decision-makers and stakeholders	Greater understanding of scale, impact and a range of intersecting regional and local interests; including multi-generational local knowledge and longer-term views of sustainability; role for genuine early engagement to inform policy development and decision-making	8
Identified benefits of GBA Program	Comprised of better-informed governance of industry, enhanced risk management, increased stakeholder engagement and buy in; greater understanding and awareness of community expectations and networks, and greater understanding of environment	7
Broader awareness and understanding of the GBA Program and gas industry	Broader awareness facilitated through delivery of credible science, aided by open and transparent local and regional stakeholder engagement	7

In terms of improved regional knowledge, the benefit was seen to flow to those within and beyond the region:

> *It helps broaden understanding with a range of players. Some involved obviously already had a fairly good understanding but even with some of them, they probably get to understand the interplay of different interests across the basin better. For instance, people that understand the science don't necessarily understand the interplay of interests and politics and ideology and everything else that goes on in the region – Cooper interviewee*

One of the clearly identified benefits was the decision to involve key regional stakeholders at an early stage as part of the formal governance of the Program. This directly informed the GBA Program and created an environment that allowed stakeholders to 'buy in' to the process:

> *You need to be talking to people who, in many instances, have generations of experience on certain things. Or (a) you can get it wrong, which has certainly happened or (b) you just spend an inordinate amount of time and resources finding out something which you could have found a lot easier, and a lot quicker by talking to the relevant people with the relevant experience – Cooper interviewee*

Finally, the user panel engagement was considered to contribute to broader understanding of potential industry development from having multiple perspectives at the table and in conversation with each other, not just the community perspective or the industry perspective, for example. The mix of stakeholders involved in the user panels also increased credibility and confidence in the process, where diverse views could be expressed directly in the user panel setting rather than being reported indirectly:

> *…in terms of credibility, the value of the GBA is, you're taking a very complex concept where not all the information is known, where people have got concerns, you're running them through very complex solutions. If you didn't do that with a user panel, I think you'd be stuffed, because people would be saying, this is scientific gibberish and who produced it and we don't know anything about this, off we go. It sets you up for immediate dismissal of the information, regardless of how credible it is – Cooper interviewee*

While the potential environmental impacts of new resource development were the focus of the GBA Program, the potential to broaden out the scope to include cultural and social implications of development was noted by several interviewees. Even though such assessments were beyond the scope and funding of the GBA Program, the multi-stakeholder perspectives and engagement of the user panel contributed to the identification of those potential opportunities and how they would be valuable within their region.

3 Beetaloo User Panel analysis

This section of the report provides a qualitative analysis of interview responses from Beetaloo User Panel interviewees. The qualitative analysis involved:

- reviewing the nine individual interview transcripts
- isolating specific sets of question responses about expectations, anticipated benefits and outcomes, user panel experiences and importance of a stakeholder engagement process
- transposing the data into software to cluster text across the full sample for further analysis
- manually identifying of prominent 'influencing factors'
- summarising the corresponding text into short descriptive summaries.

Prior to presenting the results, we include a short contextual summary of the Beetaloo GBA region.

3.1 Beetaloo GBA region

The Beetaloo GBA region is located south east of Katherine in the Northern Territory (see Figure 1). The region covers approximately 30,000 square kilometres and forms part of the greater Macarthur Basin.

Katherine and Tennant Creek comprise the main regional centres and they are surrounded by numerous smaller and more remote communities. The population in the region is characterised by a high level of remoteness and cultural diversity, and issues such as the Per- and Poly-Fluoroalkyl Substances (PFAS) contamination of water resources in Katherine and surrounding areas may directly influence broader community views about potential risks to water resources from potential unconventional gas development (Coffey, 2018). The Beetaloo GBA region has been assessed as '*one of the most prospective areas for shale gas in Australia, containing an estimated prospective resource of 178,200 petajoules of gas, as well as having liquids potential'* (Australian Government, 2019).

Of relevance to the GBA Program, the Northern Territory Government announced a moratorium on hydraulic fracturing of unconventional gas reserves for exploration, extraction and production on 14 September 2016. In order to fully assess the environmental, social and economic risks and impacts of hydraulic fracturing in this jurisdiction, the Northern Territory Government announced the final Terms of Reference for the Scientific Inquiry into Hydraulic Fracturing of Onshore Unconventional Reservoirs and Associated Activities in the Northern Territory (the Inquiry) in December 2016. The final report of the Inquiry was released in March 2018 (Northern Territory Government, 2018) and the moratorium was subsequently lifted.

The implementation of the findings and recommendations of the Inquiry continues to be progressed and includes the development of a Strategic Regional Environmental and Baseline Assessment (SREBA) for the Northern Territory (Northern Territory Government, 2019). A guide to undertaking a strategic regional environmental and baseline assessment in the Northern Territory, the SREBA Framework, was released in July 2020 (Northern Territory Government, 2020). The

framework was developed in line with findings and recommendations included in the *Final Report of the Scientific Enquiry into Hydraulic Fracturing in the Northern Territory* (Northern Territory Government, 2018). The bulk of the SREBA activities will be undertaken across 2021 and 2022 after which a final report and database will be released (Northern Territory Government, 2021). There has been extensive stakeholder engagement involved in these parallel government processes.

3.2 Expectation, anticipated benefits and outcomes

When asked whether attending the user panel meetings had met their expectations, two thirds of panellists (n=6 of 9 interviewees) responded positively indicating that their involvement in the user panel had been useful to them:

> *It's reassuring to know that the work's getting done and for me, seeing it presented by the people who are doing the work gives me a better understanding of that information. And you've got the ability to ask questions, so yeah, it's about information gathering and reassurance – Beetaloo interviewee*

Analysis of the responses of Beetaloo User Panel interviewees indicated several factors motivating their decision for involvement in the user panel, including (see Table 7):

- information sharing
- increased understanding of the GBA Program and supporting science
- represent organisational interests
- relationship building for knowledge exchange.

Table 7 Beetaloo User Panel – motivation for involvement (qualitative analysis)

Influencing factor	Description	Responses (Sample = 9)
Information sharing	To understand what information is available, to access, query, influence and be reassured by credible scientific information and to better understand potential use of and users of the information	6
Increased understanding of the GBA Program and supporting science	To better understand the GBA Program with emphasis on baseline geologic and environmental basin characteristics, and potential implications of industry development	4
Represent organisational interests	To represent organisational interests and constituencies, including local government and not-for-profit sectors	2
Relationship building for knowledge exchange	Establish connections/networks with GBA scientists, industry and other stakeholders to facilitate knowledge exchange	2

In this round of data collection, the focus on information sharing emerged as the most frequently cited reason for involvement (or continued involvement) in the user panel (n=7). One interviewee described the importance of being able to be involved and access the information being generated by the Program for their own planning processes:

> *Knowing that the GBA was occurring and wanting to be able to have some input into what the GBA actually did, so that we could take that information and add value to it as part of our water allocation planning process – Beetaloo interviewee*

The second most prominent theme, increased understanding of the GBA Program and supporting science, was a new motivating influence in this round of data collection (n=4). However, it did overlap with a theme identified in the previous data collection which had emphasised the importance of alignment between the GBA and other government processes:

> *Under the legislation we're required to provide information relating to baseline environmental features and then assess the risks of such features for the approvals. So, the GBA Program is designed to characterise and quantify the baseline of environmental features in the Beetaloo Basin. So, it was a nice fit in that sense – Beetaloo interviewee*

In addition to the above themes, interviewees also identified the ability to represent organisational interests (n=2) and build relationships with other stakeholders in the panel to facilitate knowledge exchange (n=2):

> *I think from [local organisation] perspective, and the organisation is not pro or anti-fracking, [the local organisation's] view is if fracking is going to happen, let's try and benefit from that…should it proceed – Beetaloo interviewee*

Notably, of the top four motivating factors identified by interviewees this year, the focus on information sharing had increased in importance and representing organisational interests had slightly decreased in importance but both were sustained factors motivating involvement.

When asked about what Beetaloo User panel interviewees expected as a result of attending the user panel meetings, responses were similar to their motivations and included a desire for increased (see Table 8):

- information sharing
- understanding the GBA Program and supporting science
- relationship building.

Table 8 Beetaloo User Panel – expectations of attending panel meetings (qualitative analysis)

Influencing factor	Description	Responses (Sample = 9)
Information sharing	Access and share information, ask questions impart knowledge and bring information together for reporting back, reassuring stakeholder organisations and communities	6
Understand the GBA Program and supporting science	To better understand the GBA Program, methodologies and rigour of the science including field studies and baseline data; emphasis on aquifer and groundwater studies including water cycles, volumes and recharge capacity, how these influence land systems and future activities	5
Relationship building	Meet, connect and network with researchers and scientists and other panel members, share knowledge, become aware of the perspectives and concerns of other stakeholders	4

In this case interviewee expectations were closely aligned with their motivation for attending user panels and several interviewees (n=6) emphasised the importance of information sharing in the panel forums. One response that captured the value of understanding the science being developed as part of the GBA Program and for other potential uses was as follows:

> *If anything, it was to understand what the scientists were going to be doing, what work they were going to be undertaking, what their methods were for undertaking that field work, and then understanding how we may be able to use the science that comes out of this for our future activities – Beetaloo interviewee*

The third most prominent influencing factor (n= 4) identified the importance of relationship building, even within a regional context, where there are many parallel and intersecting government and industry processes. This included the value of meeting firsthand and knowing who was undertaking various roles in the science and government agencies.

3.3 User panel experience

In describing their experiences of the Beetaloo User Panel, interviewees identified many similar influencing factors to those identified by Cooper User Panel interviewees. However, these influencing factors, while similar, were expressed with a slightly different priority, as can be seen in Table 9 below:

- ability to remain informed
- level of comfort and accessibility
- ability to remain connected
- ability to provide input
- stakeholder engagement.

Table 9 Beetaloo User Panel – user panel experience (qualitative analysis)

Influencing factor	Description	Responses (Sample = 9)
Ability to remain informed	Largely positive; technical information and reporting that is useful to facilitating discussions or information sharing; presentations and debriefs well received; pre-meeting information could be provided earlier; technical report review period considered too short	9
Level of comfort and accessibility	Face-to-face meetings largely preferred over online meetings. While online meetings short in comparison to face-to-face, they were considered long for online format	8
Ability to remain connected	Ability to develop connections with government, scientists, industry, stakeholders and other panellists; assisted facilitation of information sharing and knowledge when seeking answers to questions	8
Ability to provide input	Positive and negative considerations regarding face-to-face and online formats with respect to ability to contribute in meetings	5
Stakeholder engagement	Ability to engage different stakeholders through the GBA Program to better understand their concerns, viewpoints, and perspectives	2

The main influencing factor identified by Beetaloo interviews was the ability to remain informed (n=9). The feedback from interviewees was largely positive in that the GBA user panels were considered a useful forum in a crowded stakeholder ecosystem, with multiple government processes underway. The scientific information was identified as useful to a range of other processes and purposes, and the only critique tended to relate to having enough time to review or provide feedback on information. The following response highlights that exposure to a range of other stakeholder views was central to remaining informed:

> *It was really interesting to hear, particularly from local government, NGOs and industries what's important to them, what their concerns are, and particularly how I think their perception has been swayed from what they're hearing in the media. Then allowing the scientists to hear that as well and then go through the process of doing the research to answer their questions… everyone walks in with their own ideas about what they believe is going to happen. That's the role of science - to actually inform – Beetaloo interviewee*

As noted earlier, this year the panel experience was significantly different because of the COVID-19 pandemic and the requirement to shift from in-person meetings in the regions to online forums. By comparison with the Cooper feedback, the interviewees in the Beetaloo largely preferred face-to-face meetings (n=8) but accepted the need for online forums. Equally important to interviewees was the ability to remain connected by establishing connections with other stakeholders because of their participation in the user panels (n=8):

> *So, having that connection with the [local special interest] groups and the local mayors and the pastoralists, it's always good to hear other people's views and to see where there are common issues – Beetaloo interviewee*

The influencing factors reported this year showed that access to information had greatly increased in importance, whereas the level of comfort and accessibility of panel meetings was largely focused on the transition to online. The motivating factors this year also highlighted the panellists seeing themselves in a more active role within the panel setting (e.g. informing, remaining connected, providing input).

3.4 Importance of a stakeholder engagement process

For the final round of interviews, panellists were asked a new series of questions about the overall importance or value of including early and targeted engagement with key regional stakeholders (i.e. user panels) alongside the scientific assessment. When asked about the importance of a stakeholder engagement process such as the GBA Program's user panels, the majority (n=7 of 9 interviewees) of the Beetaloo User Panel interviewees responded positively, highlighting significant value and importance attached to the process, with one panellist considering such formats as critical for ensuring local stakeholders know that the scope of the Program will ensure that they not only get to express their concerns but also have their comments addressed:

> *It's critically important, particularly for people that do have concerns about the industry to know that their concerns are being listened to, to know how the research is going to address their comments, and then to actually hear the results from the scientists at the other end. I think that is extremely valuable – Beetaloo interviewee*

A summary of interviewee feedback is noted below (see Table 10):

- identified benefits of the GBA Program
- informed stakeholders
- broader awareness and understanding of the GBA Program and gas industry.

Table 10 Beetaloo User Panel – importance of a stakeholder engagement process (qualitative analysis)

Influencing factor	Description	Responses (Sample = 9)
Identified benefits of GBA Program	Development of credible baseline data to inform stakeholders, government policy or decision-making and improve industry governance. Connections may support ongoing information exchange across government agencies, industry and stakeholders and build better knowledge base	9
Informed stakeholders	Engaging with local communities or stakeholders involves, reassures, and informs; local concerns and interests genuinely considered in the assessment process; may help build trust	8
Broader awareness and understanding of the GBA Program and gas industry	Awareness of the GBA Program and industry improved by sharing unbiased, fact-based information allowing stakeholders to draw their own informed conclusions. Potential to replicate process across other government agency initiatives	8

In terms of increasing the opportunity to generate benefit from the user panel process, all of the interviewees (n=9) identified the value of generating a credible and trusted source of baseline environmental data, particularly among stakeholders who may hold different views about potential industry development:

> *The main benefits obviously are the baseline studies over the longer term, because we have something to go back to if and when things change and we've got data around it to prove the case for or against, whatever it may be – Beetaloo interviewee*

Most of the interviewees (n=8) focused on importance of the process involving and reassuring key stakeholder interests in the region and that their concerns were genuinely considered in the process:

> *I needed a lot of reassuring and information and I've got that so far and looking forward to continuing to get more information as they progress with the work that they're doing. I've been able to report back to my [constituency], to reassure them as well, especially around water, impacts on land and the types of drilling quality assurance systems that we're using here are quite high in comparison to other countries – Beetaloo interviewee*

Equally important, was the observation that the general awareness of the GBA Program and the industry was enhanced by the availability of trusted and unbiased information:

> *It doesn't matter whether you're for or against fracking, it's actually having good information to make up your own mind… any process that can help with that and connect me to people who can provide information, that's a good thing – Beetaloo interviewee*

The information generated by the GBA Program was also reported to be used by other government processes, interest was expressed in the risk assessment methodology for other government processes, and the panel process was deemed a useful way of engaging with a range of stakeholders early on to develop a fit-for-purpose assessment that met multiple needs.

4 Agency staff analysis

This section of the report provides a qualitative analysis of interview responses from 13 agency staff. The qualitative analysis involved:

- reviewing the 13 individual interview transcripts
- isolating specific sets of question responses about expectations, anticipated benefits and outcomes, user panel experiences, and importance or value of stakeholder engagement process (noting that in some cases the questions posed to Department staff and scientists were slightly different based on their roles)
- transposing the data into software to cluster text across the full sample for further analysis
- manually identifying of prominent 'influencing factors'
- summarising the corresponding text into short descriptive summaries.

4.1 The role of agency staff in the user panels

The inclusion of agency staff perspectives on the user panels arises from the collaborative design of the GBA Program, which sees the Department, Bureau of Meteorology, CSIRO and Geoscience Australia working together to deliver a set of bioregional assessments. The collaboration involves over 100 scientists working across ecology, hydrology, basin geology, hydrogeology, informatics and risk analysis, and also draws on scientific experts in state and territory agencies and a range of other agencies (Australian Government, 2018).

As outlined in Section 1, this final evaluation of the effectiveness of the user panels includes 13 interviews with agency staff, who were *directly involved* in the user panels across all three GBA regions. This comprises five staff from the Department, who designed and coordinated the user panel engagement within the Program, and eight scientists from CSIRO and Geoscience Australia, who delivered the assessments across all three GBA regions.

4.2 Expectations, anticipated benefits and outcomes

When agency staff (within the Department) were asked what had motivated the decision to include user panels in the design of the GBA Program and what benefits they had sought to achieve, the main influencing factors were to (see Table 11):

- enhance stakeholder engagement
- increase information sharing
- support achievement of Program goals.

Table 11 Agency staff (Department) – motivation for inclusion (qualitative analysis)

Influencing factor	Description	Responses (Sample = 5)
Enhance stakeholder engagement	Build in a user focused approach to developing bioregional assessments; provide opportunity for direct stakeholder involvement in the Program and development of scientific outputs (i.e. for higher confidence and use of outputs)	5
Increase information sharing	Access to data and the ability to inform and be informed by stakeholders; increase information sharing and access to resources	4
Support achievement of Program goals	Expend effort to achieve Program goals, i.e. panel establishment and membership; communication of complex science; enhanced stakeholder agency and ability to influence through panel structure changes; additional outputs achieved; broader information sharing where uncertainty remains	4

It was noted that the inclusion of user panels in the GBA Program design was a very early decision. It also reflected a key lesson from the prior Bioregional Assessments Program: early engagement of key regional stakeholders is critical to developing fit-for-purpose assessments that reflect regional priorities and concerns. Outputs are likely to be used to inform subsequent decision-making by multiple stakeholder interests. All interviewees from the Department (n=5) noted the importance of embedding this early key stakeholder engagement:

> *It [was] about getting the scientists talking to either local people or local government to hear what the key concerns were and then to be able to address those concerns in the scientific assessments. The panels were an opportunity for locals to get their views across to the Program as to what they cared about, and an opportunity for the Program to understand that and take that on board – Department interviewee*

The purpose of increasing information sharing was also found to have directly influenced the scope of the assessments (n=4) with two key examples of new science being undertaken including the collection of the LiDAR data in the Cooper GBA region to better understand the movement of surface water, especially during flooding, and the focused scientific investigation on potential risks to groundwater systems in the Cambrian Limestone Aquifer in the Beetaloo in response to local concerns and priorities:

> *We have been able to use the information that particular groups have provided to the Program to shape the scope of the Program. I can think of a number of examples where, in direct response to what the user panels have said, we've gone out and done field investigations or made sure that the assessment really focused on the issues that the panel raised – Department interviewee*

This combination of activities was critical to supporting the achievement of Program goals over the longer term (n=4). While there had been significant effort in identifying and engaging the initial panellists in all three regions, the early sharing of information was shown to influence the scope of

scientific work while there was still time to do so. This included additional fieldwork by scientists, and increased agency of all participants. One area where the role of the user panels was still thought to be inconclusive was the extent to which user panellists had communicated outwards to their wider constituencies or stakeholder groups, and what effect that might have had:

> *In terms of the output around using our stakeholders to communicate with their broader stakeholder groups, I don't know how well that worked. My feeling is it probably hasn't worked as well as we might have hoped it had done – Department interviewee.*

By contrast to the Department staff, the scientists were asked about their initial impressions of the inclusion of user panels in the Program. The majority of scientists interviewed (n=7 of 8 interviewees) were positive about the inclusion of the use for the following reasons (see Table 12):

- unanticipated benefits
- stakeholder engagement and access to local knowledge
- opportunity to explain the science.

Table 12 Agency staff (scientists) – initial impressions (qualitative analysis)

Influencing factor	Description	Responses (Sample = 8)
Unanticipated benefits	Understand the concerns of stakeholders; importance of face-to-face engagement; ability to reflect regional priorities in the scope of work; linkages between stakeholder data sets identified; the value of user panel input for shaping science outputs and building relationships	8
Stakeholder engagement and access to local knowledge	Opportunity to engage directly with a range of key regional stakeholders in one setting to access local knowledge, and first-hand understanding of perspectives of a potential gas industry and likely impacts	5
Opportunity to explain the science	Opportunity to communicate science in user panel settings, invite feedback and respond to questions about findings/investigations; undertake fieldwork in regions to understand scale and potential impacts (in some cases with local advice). Some challenges in refining communication of science for a diverse audience	5

All eight scientists interviewed (n=8) identified unanticipated benefits as the main influencing factor for their initial impressions of the user panels. This included having direct access to understand stakeholder priorities and concerns, being able to identify links between different data sets to build a more complete understanding of the regions, and in being able to develop research to address stakeholder requests and build trusted relationships over time:

…just understanding levels of concern for particular activities that may occur and different perspectives. So, you'll have an industry perspective. You'll have a Traditional Owner perspective. Then you might have a regional development group perspective. So, getting the nuances of those perspectives to me was really valuable – Scientist interviewee

Stakeholder engagement via the user panels also allowed scientists to develop a deeper understanding of the regions through access to local knowledge (n=5). Scientists also valued the opportunity to be able to present their science to users (n=5) and acknowledged there had been some challenges for them to overcome in making their science meaningful and accessible in these forums. The communication of this complex science from the earliest panel meetings had evolved to a point where they were able to share data and undertake research to directly address stakeholder priorities and concerns.

All remaining interview questions were asked of the agency staff collectively.

4.3 User panel experience

In describing their experiences of attending the user panel meetings across all three regions, agency staff identified six highly rated influencing factors with several of these themes being shared with those identified by the Cooper User Panel and Beetaloo User Panel members (see Table 5 and Table 9 respectively). However, the main themes that emerged from the agency staff interviews about their experiences of the user panels included (see Table 13):

- ability to remain connected
- ability to remain informed
- sense of scale and potential for impact
- ability to provide input
- meeting structure
- relationship building and trust.

Table 13 Agency staff (Department and scientists) – experience of involvement (qualitative analysis)

Influencing factor	Description	Responses (Sample =13)
Ability to remain connected	Stakeholder networks supported by user panel activities; achieved via formal or informal face-to-face meetings process and/or regional visits or in-field studies; online meetings served different purpose	13
Ability to remain informed	Access to information or data sets via user panels supported research, science awareness and knowledge transfer through outputs including technical reports, tools and communication products; stakeholder need for more frequent or less complex information recognised	11
Sense of scale and potential for impact	Knowledge of sense of scale of landscapes and potential for regional impact greatly enhanced by access to local knowledge and perspectives; Cooper User Panel's field trip a significant 'value add'; differential engagement across the three regions recognised	10
Ability to provide input	Contribution during face-to-face meetings improved over time; user concerns influenced user-driven research and encouraged two-way exchange; not as easy to sustain online but well facilitated	9
Meeting structure	As meetings progressed, reduced intensity of PowerPoint presentations permitted greater exchange of ideas; benefit gains reduced with move to online meetings; shorter meetings, tighter agendas and virtual process changed meeting dynamics	9
Relationship building and trust	Increasing regional engagement beyond government or industry ensured broader representation and supported mutual benefit; not designed to achieve social licence to operate or change views but create a forum to speak openly; build trust and confidence in the science, enhance trust in government, ongoing use of Program outputs	7

The top two influencing factors that reflected the experience of agency staff participating in the user panels were the ability to remain connected (n=13) and the ability to remain informed (n=11). Both influencing factors were also identified as important aspects of the user panel experience by the user panellists interviewed in the Cooper and Beetaloo regions. Similarly, ability to provide input (n=9) was also identified in both GBA regions by panellists. Broadly, these three themes captured the development or consolidation of stakeholder networks through the user panel engagements, the role of the panels in identifying additional data sets and knowledge to inform the scientific assessments, and the evolution in the meeting styles from one-way communication of complex science toward an increasing amount of exchange among all attendees. The responses also highlighted the value of engaging beyond the usual government and industry forums:

My learning from the user panels was the wonderful connection to community by including the shire mayors. They are a stakeholder group that we don't normally interact with. We typically interact with industry and government but reaching out into the community, and particularly the shire mayors for me, was one of the highlights – Scientist interviewee

The aspects of experience in the user panels that emerged as distinct for the agency staff interviewees included an increased understanding of the sense of scale in the regions and what this meant for understanding potential impact (n=10):

It was useful for the scientists to be able to go out and have a look around in those regions. I'm pretty sure it might have been the first time that some of them had seen those landscapes and you get a better understanding conceptually about what the place looks like and what the potential impacts might be – Department interviewee

This exposure to the regions included the field trip that was undertaken in the Cooper GBA region. A similar field trip had been planned for the Beetaloo GBA region but had not been possible due to timing, weather, and finally, COVID-19 restrictions.

Another factor pointed out by agency staff related to their observations about changes in the meeting structure of user panels over time (n=9), which included how they had learned to adapt their own presentation styles to allow more time for exchange (i.e. less PowerPoint, more conversation):

There's also a greater chance of the conversation driving in directions that are unexpected in a positive sense, because the panellists offer an opportunity to challenge each other. Again, just to challenge a viewpoint or a thought process that would not always be seen if you're in a room surrounded by your own similar viewpoints or goals – Department interviewee

It was noted that the necessary move to the online format had meant the user panel meetings had become shorter and more structured. Some observed this shift may have only worked as there had been the benefit of being able to establish relationships through the initial face-to-face forums. Finally, the focus on relationship building and the role of trust in the user panel forums was also identified as an influencing factor (n=7):

The level of trust that was built up through successive panel meetings, that's definitely something that you can track – Scientist interviewee

4.4 Importance of a stakeholder engagement process

When agency staff were asked to assess how important it was to include an early stakeholder engagement process in the GBA Program, the majority of interviewees (n=11 of 13 interviewees) responded positively, highlighting significant value and importance attached to the process:

It's crucial really. There have been plenty of times where governments do big projects … in a region and people either don't know what's going on, or they don't understand it, and the project misses the mark – Scientist interviewee

In particular, the importance of ongoing stakeholder engagement that applies a flexible structure and approach for leveraging contacts, establishing champions, ensuring science accountability and

articulating key regulatory and socio-political issues in the regions was identified by agency staff (see Table 14) as follows:

- broader awareness and understanding of the GBA Program and gas industry
- identified benefits of GBA Program
- informed and involved stakeholders.

Table 14 Agency staff (Department and scientist) – importance of stakeholder engagement process (qualitative analysis)

Influencing factor	Description	Responses (Sample = 13)
Broader awareness and understanding of the GBA Program and gas industry	Recognising and valuing local risk perceptions and continuing the conversation, ability to connect to industry, local communities, NGOs and other stakeholders, familiarity through exposure, and knowledge and reach	12
Identified benefits of GBA Program	Informed decision making through increased knowledge and understanding and shared resources, supports trust in the science to inform governance, for government to actively regulate the gas industry, and for industry to proactively manage its environmental risks	11
Informed and involved stakeholders	On-ground experience; direct accessibility of Department and scientists to panel members and vice versa; access to knowledge of local expectations or matters of cultural importance; bridging knowledge gaps (in layperson's terms).	9

In terms of assessing the importance of including early stakeholder engagement in the form of user panels, agency staff identified similar influencing factors to the user panellists in the Cooper and Beetaloo regions. The top two influencing factors identified by agency staff – broader awareness of the GBA program and gas industry (n=12) and identified benefits of the GBA Program (n=11) – were extensively shared. For agency staff, this emphasised how the importance of having access to local knowledge and connections influenced the direction of GBA Program. Additionally, agency staff identified that the user panels had been central to creating informed and involved stakeholders across the GBA Program (n=9). This included the importance of visiting the regions or undertaking new fieldwork studies to contextualise the assessments and reflect user priorities, and the fact that the user panels unlocked existing information more quickly than would otherwise have been possible:

> *I think you would also lose building on learnings as well that have been in the past. So, for example, in the Cooper basin there's a lot of learning because the gas industry has been there for over 50 years. In the Beetaloo there's a lot of learning because they had been through the fracking enquiry. So, if you don't have those engagements you may uncover those things, but it would take longer – Scientist interviewee.*

5 GBA Program-level summary of user panels

The interviewees from the Cooper User Panel and Beetaloo User Panel, along with agency staff, provided rich understanding of their experiences in the user panel process over the life of the GBA Program. This section provides a program-level analysis of the effectiveness of the user panels and identifies:

- aspects of experience that were important to all stakeholders
- factors that influenced regional differences in user panels across the Program
- aspects that could have been improved
- other factors for consideration, which may be useful for those considering similar types of early stakeholder engagement.

In evaluating the effectiveness of the user panels in this final stage of the GBA Program, it is useful to revisit the intended outcomes and design principles that were co-developed with and used by the Department to guide the implementation of the user panels (Lacey et al., 2018b)[5]. At the outset of the GBA Program, it was determined that the user panels would aim to (see Table 15):

1. build legitimacy and trust in the science and the Program through early engagement of key regional stakeholders
2. govern risk by including diverse perspectives in a fair and equitable process
3. enable transparency through informed stakeholders and effective communication.

Table 15 Intended outcomes and design principles of GBA User Panels

Intended outcomes	Key design principles
Building legitimacy and trust	• Early engagement • Trust
Governing risk	• Representation on panels • Fair process
Enabling transparency	• Informed participation • Effective communication

Linking the findings back to the intended outcomes and design principles is a reminder that the approach to user panels and this type of early engagement in the GBA Program was a carefully considered and structured investment. It is hoped the evaluation findings presented here may

[5] See also Appendix A.1.4 for a detailed explanation of the intent and expressions of the key design principles underpinning the three intended outcomes (reproduced from Lacey et al., 2018b). The design principles and how they were executed provided the basis for monitoring and evaluating the effectiveness of the Panel performance in the GBA Program over time.

help to identify what worked well; aspects that could be improved; and, potentially inform other similar engagement processes for government initiatives.

5.1 Important aspects of user panel experience for all stakeholders

At the Program-level, the user panel experience for interviewees across the Cooper and Beetaloo GBA regions reflected a list of five almost identical factors comprised of:

- *level of comfort and accessibility*, which in the last round of data collection was largely dominated by the shift to online meetings due to COVID-19
- *ability to remain informed*, which focused on the importance of access to information and information sharing but also identified some elements of communication that could be improved
- *ability to remain connected*, which identified how face-to-face interactions within regions had facilitated networking among stakeholders and the importance of direct access to agency staff (both Department and scientists)
- *ability to provide input*, which had increased awareness of diverse perspectives and stakeholder knowledge, which is a key element of robust risk governance
- *stakeholder engagement*, which emphasised the importance of the networking and connections formed through panel interactions, some of which extended beyond the formal panel meetings.

As noted earlier, the experience of user panels in 2020 and 2021 changed significantly due to the onset of the COVID-19 pandemic. Part of the original design of the user panels was to provide face-to-face forums where regional stakeholders could meet within the regions to formally engage with the GBA Program. With the shift to online panel meetings, which was necessary to assure the health and safety of participants and in response to national border closures, it was felt the nature of the engagement changed. While this was unavoidable, the alternative would have been to abandon the meetings altogether which was considered a much less beneficial option. While the online panels were praised for being well facilitated, the opportunity for exchange and discussion in these forums was felt to be somewhat reduced. However, there was general agreement that it would have been difficult to achieve the same benefits and outcomes that user panels had provided if the panels had been delivered solely online:

> *Making those initial connections face-to-face is really important. So, maybe you do the formal meeting face-to-face as an exception, but in that inception phase, talk about how you would run the panels, along the lines of, 'we'll be here once a year. We want to do a formal gathering every year, but between times, every four to six months we're going to run just a virtual two-hour catch-up', or something like that – Department interviewee*

The face-to-face connection within the regions proved to be an important aspect of the design in that it seeded the relationship building and stakeholder engagement between panellists and agency staff, and between panellists and the Program.

This importance of hosting panel meetings within regions was reflected in the comments of agency staff on their user panel experience. While agency staff also identified the importance of

the ability to remain connected, remain informed and provide input (identical to user panellists), their experience also introduced the additional aspects of:

- *sense of scale and potential for impact*, which emphasised the importance of being in the regions for their own understanding of the vastness and how impacts might be experienced in those regions
- *meeting structure*, which focused on the evolution of the meetings from one-way communication of complex science toward greater exchange and discussion
- *relationship building and trust*, which for agency staff was often about hearing from stakeholders who they would not ordinarily engage with (i.e. regional and community stakeholders beyond government and industry).

Among agency staff, scientists frequently commented on the value of undertaking fieldwork and getting to know the regions firsthand, in some cases with the added benefit of access to local knowledge shared by user panellists. In the Cooper GBA region, the place-based engagement had also included a field trip that allowed a group of user panellists and agency staff to travel across the region to examine the landscape, gas industry operations and visit pastoral operations. For those who attended the field trip, it was universally considered to be critically important to both engagement with the region and engagement between stakeholders. The field trip attendees spent three days together having formal and informal discussions about the region, potential industry development, the science being undertaken and the Program. Two different stakeholders expressed the value of the field trip to their engagement with the Program as follows:

> *What we got was the opportunity to actually take people aside, more one-on-one or in small groups, and actually delve into these things a little bit more. If we didn't have the field trip, I would be pretty concerned about your process actually – Cooper interviewee*

> *For any future user panel on a multi-year project, you must get in the field. That was one of the failings of the Bioregional Assessments, that you didn't get into the field to see anything and that Cooper GBA trip, it helped put the landscape in perspective for me and what an impact might look like. I spoke a lot with the locals during that trip – Scientist interviewee*

The location of the face-to-face panel meetings in the regions was also considered to reflect commitment on the part of the GBA Program to its regional stakeholders. The effort of the Department to engage in and with the regions likely to be affected by 'decisions made in Canberra' was also acknowledged.

The focus on meeting structure for agency staff was less about the transition to online and much more about the evolution of the user panel meetings from 'talking at, to talking with'. This also enhanced the nature of engagement with the science being developed, including allowing user questions to be reflected in the assessments developed in each region. While user panel members appreciated the direct access to agency staff, agency staff also commented on the benefits of having the opportunity to hear from stakeholders with whom they did not ordinarily engage. This helped with access to sites to undertake new fieldwork and tailoring scientific investigations to provide answers to direct questions and concerns expressed by regional stakeholders.

5.2 Factors influencing regional differences across user panels

Although an identical user panel engagement process was developed and implemented in all three GBA regions, each of the user panels reflected the distinct membership and priorities of the stakeholders. In terms of assessing the factors that contributed to regional differences in the user panels, the main factors were identified as:

- regional differences and stakeholder characteristics
- different state or territory government engagement with the GBA Program
- process and structural differences across user panels
- basin specific investigations and outputs influenced by user needs.

One of the main regional differences characterising user panels often related to the level of maturity of the gas industry within the region and thus the level of exposure panel members may have had with the industry. For example, it was frequently noted the gas industry had been operating for several decades within the Cooper GBA region and there were well-established relationships and interactions between the industry and various stakeholders already in place. By contrast, the Beetaloo User Panel had a high proportion of government members on the panel (i.e. a much higher proportion than any other region comprised of both territory and federal agencies) which related to other government enquiries and processes into the potential development of gas resources in the region. Similarly, the Isa GBA region was closer to being a greenfield site in terms of industry presence with very limited exploration and a comparatively smaller set of engaged regional stakeholders:

> *I've found that the way the community acts or the concerns in Cooper will be different to Beetaloo and I think that's also in part due to the maturity of the industry in the region. Like in Cooper, they've been there for 50-plus years and Beetaloo are just really starting out – Scientist interviewee*

> *I guess there was a lot of uncertainty from some [stakeholders] as to what this thing was going to be and what was expected of them and why they were being brought in to start with in Isa. I'm not sure we overcame that – Department interviewee*

Another factor that was found to vary across the regions was the level of state or territory agency engagement in the user panel process. For example, if the GBA Program strongly aligned with a key policy development or activity in the state or territory, this tended to be reflected in a higher level of engagement and commitment to the user panel process. However, if policy directions changed, this could equally affect the engagement of this stakeholder group. The alignment of the GBA Program as an input to the SREBA process in the Northern Territory, for example, reflected a high level of government engagement in the Beetaloo User Panel. In the Cooper GBA region, the South Australian Government identified clear uses for the causal pathway methodology for their own risk assessment processes and were motivated to use GBA inputs to inform their water allocation planning. The Queensland Government, represented in the Cooper and Isa GBA regions, were perceived by other panel members as having been more engaged in the early stages of the GBA Program, when the Program aligned more closely with plans for state-based strategic assessments.

Differences in the process of the various user panels related to the frequency of meetings and where they occurred. However, while the Isa assessment was concluded at the end of Stage 2, interviews with agency staff identified that even though there had been comparatively few formal user panel meetings conducted in the Isa GBA region, there had been extensive bilateral engagement with key regional stakeholders to initially build up the user panel membership and Program engagement in the region. While this did not lead to a unified and fully functioning user panel that continued through a Stage 3 assessment, the stakeholder engagement did allow the Department to assess regional concerns and priorities. This engagement was one of the contributing factors to the decision to conclude the assessment. While it might be considered that the rejection of the formal user panel process by key stakeholders in this region did not advance the goals of the Program (in that a full assessment was not progressed), it did reflect a commitment to listening to and being responsive to regional priorities and concerns:

> *It was really bottom up from the community who owned the land. And that's pretty healthy … from a community who felt empowered to be responsible for what happens on their own land – Department interviewee*

In terms of developing scientific assessments that were fit-for-purpose and reflected local priorities, there were several tangible examples provided of how the engagement with regional stakeholders via user panels had shaped the development of the assessments. The two most frequently mentioned examples were expressed as follows:

> *The scope of the assessment has been different for each region. For example, in the Cooper, you have the LiDAR work and that's a specific bit of fieldwork targeted to address a range of different concerns about water flows. For the Beetaloo, there were a number of different investigations around risks of chemicals and hydraulic fracturing that the traditional scientific risk assessments indicate are low risk but we've actually focused in on that to address the specific concerns on groundwater impacts there – Department interviewee*

Additionally, the ability to obtain stakeholder input early in the process and why this was beneficial was identified as follows:

> *The user panel meetings certainly changed the scope of the work we were doing. In that sense I'm guessing DAWE would be extremely happy because the users are the stakeholders that they're trying to reach and if they're telling us that our plan wasn't quite what they wanted then getting that feedback at the start is much better than three years later when it's all over. That was extremely valuable – Scientist interviewee*

5.3 Other factors for consideration

Beyond the above considerations, the following additional factors relating to the setting up and running of user panels were also identified. These reflections captured aspects that are likely to be informative for others seeking to design similar engagement programs and included:

- significant effort to establish and maintain user panels
- maintaining continuity and momentum through changes in personnel
- managing Program scope.

Staff within the Department were responsible for establishing and maintaining the user panels. While the user panels were included in the Program from the outset, all panels had established Terms of Reference and effort was dedicated to designing panels that would achieve identified outcomes for the Program. It was acknowledged that establishing, planning and coordinating user panels in each region was time and resource intensive:

> *The only drawback really is that we underestimated two things, the schedule and the logistics – Department interviewee*

In some instances, the effort expended did not always deliver the expected return. However, on balance, it was considered that the user panels were a very worthwhile investment and had increased engagement between the Program and the key stakeholder interests in the GBA regions as intended.

Another factor for consideration is how to maintain momentum in user panels where there was inevitably going to be changing personnel across the four-year life of the Program. This was especially the case in user panels with a high degree of government membership as these organisations were more likely to experience personnel changes:

> *The only thing is sometimes there would be changing participants on the user panels and changing Department representatives. And that hinders that evolution of a group – Scientist interviewee*

However, those who had become involved in user panels during the Program generally indicated that they had little trouble finding their place and following the process but in one instance, there was a case where a new member had not been well oriented to the process and was unclear about their role as a regional stakeholder representative. The shift to online was also perceived to reduce the opportunity for new members to network or connect within the user panel settings. However, user panel momentum could equally be challenged by long gaps between panel meetings. There was no evidence to suggest that changing personnel had undermined the effectiveness of the user panels, but this tended to be supported by a high level of interpersonal engagement from the Department staff managing the user panels (i.e. part of the resource commitment associated with user panels and maintaining relational capital in the engagement).

Finally, the issue of managing Program scope when parallel or related opportunities were identified should be noted as this was often tied to the expectations and experiences of user panel members and agency staff. For example, in both the Cooper User Panel and Beetaloo User Panel, the environmental assessment and the potential development of gas resources frequently intersected with other regional priorities and the experience of those living and working in the region, i.e. legacy risks, multigenerational views on sustainability, economic opportunities and Indigenous cultural heritage. For example:

> *You need to I think do a little bit more research upfront to see who the key players are, what their interests are, how we can better engage with them. Maybe in some cases, we just can't, because of the timeframes that government work on. It's not the same timeframe that these groups work on. Four years is nothing to [Traditional Owners] – Department interviewee*

Such opportunities included the potential to undertake cultural and social assessments to understand the impacts of resource development on local regional and Indigenous

communities and culturally significant heritage within the regions. While it was not within the scope of the GBA Program to undertake these assessments, the engagement process revealed other critical regional priorities beyond environmental impacts that would be essential to address if a gas industry was to develop. These would continue to be addressed through a combination of industry and state or territory-based negotiation and engagement. The importance of being aware of the breadth of these intersecting concerns was noted by one agency staff member as follows:

> *I think the approach of the user panels is really valuable and it's also been really good to just be able to talk to the people who are out there at the coalface, so to speak, hearing what their main concerns are. If we can hear those concerns, even if it's not something that's in our scope to deal with, we should know as a federal agency where you can go to get the information you need – Department interviewee.*

5.4 What could be improved

It was largely the user panellists who identified areas for potential improvement in the user panel process and across both Cooper and Beetaloo GBA regions, these were:

- improving information provision and communication
- refining the meeting schedule and process.

In terms of information provision, interviewees identified that they had sought greater pre- and post-meeting information and, while it was noted this had improved over the course of the Program, depth of content in the non-technical post-meeting communiques had been difficult to achieve. A persistent request also related to communicating the science in a more accessible way. While early meetings had been acknowledged as being heavy-going in terms of science communication, scientists had actively shifted their communication style in response to feedback from the user panellists. Indeed, provision of communication materials (i.e. summary documents) in language accessible for a lay audience were also considered to be important for disseminating the findings of the Program more widely. One user panellist suggested the Department could have been more directive in tasking the panellists with actions to follow up as a way of maximising the regional engagement of the Program. However, such roles and responsibilities would need to be formalised in the Terms of Reference and appointment of user panellists if it was to be an agreed requirement.

In terms of refining the meeting process, this mainly related to regular timing of user panel meetings which were, in some cases, up to one year apart for various reasons, some of which were beyond the Program's control (i.e. regional weather events, assessment progress, COVID-19 impacts). Concerns about timing largely related to the importance of maintaining momentum, especially for those who only engaged with the GBA Program via the formal user panels (and not for any other reason including informal communication or via other processes). This has resourcing implications for the design of future programs in terms of communications and dedicated stakeholder engagement personnel.

The facilitation of the online meetings was frequently identified as valuable even though the format presented some challenges. An area that the agency staff noted might have been improved

also related to communication and while it had originally been anticipated that user panel members might outwardly communicate the progress and findings of the GBA Program to their own constituencies, it was unclear how effective this had been. However, it was noted that the focus of the user panels had initially been on building strong communication with the panel members involved in the process:

> *I think that broader communications strategy was probably something we didn't do as much of as we might have. But it comes down to the way you focus your resources. We were very much focused on those key players in these communities and bringing them along rather than communicating to the masses quite so much – Department interviewee.*

5.5 Did the user panels achieve their intended outcomes?

As described in Table 15, the intended outcomes and design principles of developing and implementing the user panel engagement in the GBA Program were to:

1. build legitimacy and trust in the science and the Program through early engagement of key regional stakeholders
2. govern risk by including diverse perspectives in a fair and equitable process
3. enable transparency through informed stakeholders and effective communication.

These intended outcomes and principles were co-developed with agency staff based on best practice community and stakeholder engagement in the extractive industries, coupled with the aim of designing a mechanism that would allow this early stakeholder engagement to play a role in the formal governance of the Program (Lacey et al, 2018b). In this way, the design of the user panels was intended to create a forum for exchange among a range of key stakeholders in each region that would also ensure the assessments were regionally specific and fit-for-purpose. In this way, it was anticipated that government decision makers would be informed by quality data and science generated by the Program, to support clear understanding of the activities and information needs of diverse stakeholders in the GBA regions (Boully et al., 2005).

Efforts to ***build legitimacy and trust*** in the user panel process aimed to support open and collaborative involvement of key stakeholder and community interests. User panellists brought their own insights, questions and concerns to the assessment process to contextualise the scientific assessments and make them accessible, understandable and useable in practical terms (Rowe et al., 2005). There was evidence of the scientific assessments being developed to respond to regional stakeholder priorities in all three GBA regions. The engagement in the user panel forums and access to the scientists undertaking the work contributed to building trust in both the underlying science and the Program. In terms of building legitimacy and trust by engaging with the end users of the assessments, the evidence collected over the life of the Program indicates the user panels were largely successful in this regard.

Governing risk through the inclusion of diverse stakeholder perspectives in the user panels was developed on the basis that engagement is essential in relation to the management of complex environmental issues (Small et al., 2014). By seeking to combine regionally representative interests with fair process, the assessment of the potential environmental risks of resource

development (i.e. the scientific advice) could be combined with the acceptability of any potential consequences for the stakeholders affected or their communities more broadly. The user panel forums provided opportunity for mutual exchange between regional stakeholders and the Department, and between regional stakeholders and scientists. Commentary from stakeholders on the value of having access to diverse perspectives for relationship building and for shaping the scientific assessments emerged early in the Program and remained important. The user panels did appear to create forums where highly diverse positions could be held in relation to gas industry development without the need for reaching consensus (this may have actually been enabled because the panels did not have a decision-making role) but their input also helped to refine a risk analysis methodology for each region. Hearing about other perspectives was not necessarily designed to shift stakeholders toward accepting a pre-defined position but rather allowed the science to become the central focus. This was frequently expressed in the value of having access to independent science on an issue that could be contentious and emotive. In this regard, the relatively diverse user panels in the Cooper and Beetaloo GBA regions appear to have been successful in creating forums where stakeholders could engage openly and respectfully, no matter what their views on gas industry development.

In terms of ***enabling transparency*** through informed stakeholders and effective communication, it was anticipated that the user panels would enable mechanisms for open communication that might even unlock the potential to explore an extended network of communication from the panels out into their stakeholder groups and communities, and in turn, to bring those broader interests and issues to the panels for consideration (Keywood et al., 2018). Effective communication of science and Program information was routinely a topic of focus. It is the case that panellists enjoyed having direct access to scientists and clearly influenced the scope of investigations, which contributed to regionally specific assessments. As a result of the user panel engagement, panellists also had a great deal more insight and access into a government program than their broader stakeholder groups and communities. However, communicating complex science and the ability to make the panel activities accessible beyond the panel were areas identified for potential improvement. It is fair to say this intended outcome was largely achieved. Panel activities and functions were transparent to all engaged in the user panels and efforts were made to increase the sharing of pre-and post-meeting information over the course of the Program. However, the creation of extended communication networks is not a benefit that emerged organically and would need to be a targeted activity of any similar investment if it was to be achieved with the dedicated resourcing and personnel to support it.

Section 6 summarises the key findings and overarching benefits of the user panel engagement in the GBA Program.

6 Key findings on effectiveness of user panels

The monitoring and evaluation of the user panels in the GBA Program specifically allowed examination of how a carefully designed early stakeholder engagement process is implemented and experienced in different regions across Australia over time. Conducting this research to assess the effectiveness of the user panels serves several purposes.

As outlined in Section 5, this research enabled the data collection to be linked back to the intended outcomes of the user panel design (i.e. building legitimacy and trust; governing risk; and enabling transparency) that were established at the outset of the Program. It provides scope for examining the key outcomes of including user panels in the GBA Program and it was anticipated that the results of this process would also have the potential to identify the most critical implications for designing early stage engagement processes on issues of national importance. In this final section, the key findings are presented in response to the following two questions:

- What were the main benefits achieved by including user panels in the GBA Program?
- What are the key lessons that might be usefully translated to other government agencies seeking to develop similar early stakeholder engagement processes?

The response to the first question seeks to translate the insights shared by those who were involved in the user panels into clearly defined benefits that were realised during the Program. The response to the second question seeks to distil key considerations that may identify and guide the most useful lessons for developing other similar risk governance and engagement processes for large scale programs being implemented across Australia.

6.1 Main benefits of including user panels in the GBA Program

There were a range of clear benefits arising from the inclusion of user panels in the GBA Program. The benefits identified here were expressed by all stakeholder groups interviewed for this research and broadly created alignment between Program activities and outputs with the needs and priorities of intended users; and, demonstrated how data generated by the user panels was taken up and used within the delivery of the Program. The main benefits have been synthesised as:

- *early input to shape the scientific assessments* was realised in the development of context-specific assessments that reflected regional concerns and priorities
- *increased understanding of the physical aspects and scale of the regions* being assessed along with the nature of potential environmental impacts (especially for agency staff who were likely to be less familiar with the regions)
- *increased awareness and understanding among all stakeholders* of the range of different perspectives and knowledge in and about the regions
- *constructive relationship building among user panel members and agency staff* through formal and informal exchanges that had contributed to greater 'buy in' and trust among stakeholders (this took some time to become evident as would be expected)

- *increased confidence and trust in the independence of the science* being undertaken and the importance of establishing baseline environmental assessments as the goal of the GBA Program.

6.2 Key lessons for designing and implementing early stakeholder engagement processes

The main lessons arising from the user panel experience can be broadly categorised across the various stages comprising the design and implementation of the user panels in the GBA Program and cover:

- design and set up (before engagement)
- implementation (during engagement)
- considerations for close out (post engagement).

There is significant planning required at the outset to ensure that the stakeholder engagement meets the requirements of any program and adds value to the stakeholders who are being engaged. Key lessons from the GBA Program include:

1. The role of the user panels in the GBA Program was clearly defined at the outset (before)

- User panels formed part of the formal governance arrangements of the GBA Program.
- This included developing a clear set of overarching objectives for the user panels as part of the GBA Program design.
- These objectives defined clear roles for the input of user panels in contributing to the development of context-specific assessments that reflected regional priorities and concerns.
- It was always clear that user panels informed the GBA Program but did not have a decision-making role. This may have enabled more open discussion and diverse views to be expressed in the panel forums (i.e. no requirement to reach consensus).
- There was never any suggestion that early stakeholder engagement with key regional stakeholders in the GBA Program was replacing the full community-scale engagement that would be required in the event of gas industry development, or the gas industry's own responsibilities in this regard.

2. The design of the user panels was carefully considered, deliberate and measurable (before)

- Following the design of the GBA Program, the Department spent time identifying the most important intended outcomes sought from user panel engagement and their approach was grounded in research and practice.
- The intended outcomes were underpinned by a set of key design principles. Each principle was further described in terms of its intent and a list of practical ways it might be expressed in the panels (i.e. pragmatic, workable solutions).
- The intended outcomes were used to monitor and evaluate effectiveness of the user panels over time.

- By including monitoring and evaluation there was capacity to document process lessons and improvements, and in some cases adapt user panel engagements during the Program. Such changes included adjusting the way the science was communicated, the provision of information before and after meetings, and refining the structure of meetings.
- Improving and refining communication remained a work in progress during the delivery of the Program. Over time, the focus shifted from initially refining communication style in user panel meetings to exploring communication products for broader use and information dissemination.

3. ***Adequate resourcing is required to establish user panels and maintain them throughout the Program (before and during)***

- Resourcing to establish and maintain early stakeholder engagement is not to be underestimated. Resourcing and logistics were two key considerations identified by the Department.
- A further consideration is in how panel members will be recruited to ensure diverse and representative interests are included. In GBA, initial advice was provided by state or territory agencies, accessing existing networks and their recommendations (i.e. not unlike snowball sampling in research). Panel members were also invited to provide advice on whether the key interests were adequately represented for their region. These early decisions affect how well regional interests may or may not be represented, and influence how the engagement process is perceived, from within and without.
- For the host of the engagement process, recruiting the panel membership involves many hours of engaging with individuals and learning about their priorities to bring together a collective of individuals who are willing to commit to the process for up to four years. Relationships start being formed from this earliest contact.
- Having clear expectations about the purpose of the engagement is critical to maintaining momentum and the quality of engagement experience. In GBA, weather events and seasonal conditions, scientific progress and a global pandemic were factors that influenced the scheduling of meetings causing the frequency of face-to-face contact to be lower than anticipated.
- Striking a balance between face-to-face contact to support time for relationship building and networking among stakeholders (including agency staff) and regular online communication may be a way to maintain regular, quality contact (i.e. it cannot be transactional). This is recognised as a key consideration for all engagement activities in a post COVID-19 world.

4. ***Establishing meaningful communication in multiple channels (during and post)***

- In the GBA Program, user panel members consistently spoke to the importance of communication and it was an area that was routinely identified for improvement during the monitoring an evaluation process.
- While the focus on communication initially related to the complexity of the science being communicated during panel meetings (i.e. communication style between stakeholders and agency staff), it also identified the importance of timely pre- and post-meeting information

to support informed stakeholders arriving at meetings and being equipped to communicate about the GBA Program to others.

- While the main outputs of the GBA Program were scientific assessment and detailed reports, factsheets and communiques were developed as additional communication products during the Program to increase accessibility and reach for stakeholders. The aim was to assist user panellists to further disseminate information stemming from the Program to their communities.
- If the use of an engagement process to reach extended stakeholder networks is essential to Program success, this intent does need to be targeted to the more specific communication requirements of stakeholders to support development of tailored products for those broader audiences. While this outward reach was anticipated in the early design of the user panels, resourcing restrictions meant that communication among panel stakeholders during the delivery of the Program was prioritised, which is where the benefits were largely realised.
- It may be useful to consider how best to host a repository of information after completion of the Program so that it remains accessible for other processes or as a record. This also honours the inputs of those who shaped the Program outputs.

5. ***Set the intent, provide the forum and then allow stakeholders to shape the engagement (before, during and post)***

- No engagement process is perfect, and all engagements will be unique in some way as they are based on interactions between different people with different priorities – even if they come together around one issue. A serious consideration must be about the robustness of an engagement process to accommodate how the individual memberships and dynamics will be expressed differentially across different landscape and engagement forums, and having this add value to the Program.
- The Department put the time and effort into designing a deliberate and carefully considered engagement process, which provided a structure for assessing effectiveness and advancing the Program goals, but also allowed each of the user panels to shape the engagement style and scientific assessments based on regional priorities.
- The three GBA user panels reflected a range of geographical and socio-political contexts, diverse knowledge and experience among their membership, and different stages of industry development. In some user panels there were mature and long-standing relationships (or diverse points of view) among regional stakeholders in place. In some user panels, these relationships were tied to other government processes or policy priorities or were newly forming. There are a range of regionally specific factors that will form part of any engagement with different regions (see Section 5.2).
- The legacy of the engagement experience and how people felt because of the engagement may also last beyond the Program's conclusion, particularly among regional stakeholders and their perception of whether their input was valued (or not). The relationships and relational capital developed as a result of the engagement may continue to exist as part of a network of regional connections and in the event of unconventional gas industry

development, these stakeholders and their networks may be critical points of contact for any new engagement.

The lessons described in detail here are stripped back and presented in Table 16 as they may prove useful for others designing and implementing engagements similar to the GBA User Panels.

Table 16 Key lessons from GBA User Panel engagement during stages of implementation

Key lessons from GBA User Panel engagement	Before	During	Post
1. The role of the user panels in the GBA Program was clearly defined at the outset			
• Embedded in formal governance arrangements in program design • Supported by clear set of overarching objectives in program design • Identified clear role for engagement input (i.e. context-specific assessments reflecting regional priorities, not decision making) • Did not aim to represent or replace full-scale community engagement			
2. The design of the user panels was carefully considered, deliberate and measurable			
• Commitment to establishing the most important intended outcomes and outlining how they will be realised in practice (design principles) • Intended outcomes were used to conduct monitoring and evaluation process • Monitoring and evaluation used during program to make adaptive improvements and identify key lessons			
3. Adequate resourcing is required to establish user panels and maintain them throughout the Program			
• Resourcing and logistics are two critical considerations – do not underestimate • Consider recruitment processes to ensure diverse or representative interests and how this sets the tone for engagement • Clear expectations about the purpose of engagement are critical to maintaining momentum and the quality of the experience • Consider an appropriate balance of face-to-face and online communication (are mitigation strategies required?)			
4. Establishing meaningful communication in multiple channels			
• Quality of communication is central to how information is understood, shared and exchanged • Style of communication and products must be fit-for-purpose, accessible and timely (in relation to engagement activities) • Any requirement for stakeholders to communicate outwardly on behalf of a process requires targeted communication materials (i.e. suited to their audiences and channels) • Consider whether information or communication products will remain available beyond program end and how this would be supported			
5. Set the intent, provide the forum, and then allow stakeholders to shape the engagement			
• All engagements are unique in some way as they involve different people with different priorities – even when considering one issue • Allow engagement to provide structure and accommodate stakeholders' preferences and diversity such as geographical or socio-political context, breadth of knowledge or experience, combination of government, industry, community interests, mature or new relationships etc. • The legacy of engagement may last beyond program end. Consider how this may be nurtured or reflected in regional networks and why			

Overall, the user panels in the GBA Program provide a case study of how an early stakeholder engagement process was designed and then implemented across three diverse regions in Australia. This monitoring and evaluation of the engagement has aimed to identify how:

- the Program activities and outputs have aligned with the needs of the intended users
- the input from the user panels has been used in the development of Program outputs
- the Program and its outputs met the expectations of the intended (and other) users.

The experience, outcomes and benefits of the engagement across the three GBA regions was necessarily different because of the differences in geographical and socio-political context, the mix of individuals and interests at table, and the priorities within regions. The design and purpose of the user panels facilitated a strong focus on the role of independent science in developing environmental baseline assessments, that were also responsive to key regional concerns.

While there were opportunities identified for improvement, the quality of the engagement experience was reported to be high by both user panellists and agency staff interviewed for this monitoring and evaluation project. The user panels were broadly effective in achieving their Program aims.

By bringing together a range of diverse but committed individuals' personal and professional experiences and perceptions with the drive, knowledge and commitment of staff from the Department, CSIRO and Geoscience Australia, the GBA Program has been able to achieve a scientifically rigorous assessment that reflects key regional priorities. In this way, the user panels have brought early stakeholder engagement to the development and delivery of these scientific assessments, which has improved confidence in the science among those regional stakeholders along with an awareness and understanding of the GBA Program goals.

Appendices: Interview questions and design principles

A.1.1 Interview questions for GBA User Panel attendees: Members

1. Since we last spoke, has there been any change in your role or the organisation you represent on the User Panel?
2. Can you please confirm which User Panel meetings you have attended since we last spoke? Details of meetings will be provided at interview.

Operation of the Panel

3. What continues to motivate your involvement in this User Panel?
4. Have your expectations in terms of attending the Panel meetings changed in any way since we last spoke? Are the benefits you hoped to realise from attending these meetings being achieved? What are they?
5. Due to COVID-19, the panels have necessarily moved to an online format. How did you find this experience? Were you still able to feel informed, connected and provide input?
6. Was there anything significantly different (better or worse) for you in engaging in the online User Panel format?
7. Have you noticed any other changes in the way the panel meetings are run since we last spoke? If so, have they been beneficial for you/your community?
8. Has it been useful to meet/connect with other Panellists in these forums? If yes, how?
9. Has the pre and post meeting communication from the Department been adequate to support your engagement in the Panel meetings? Has this changed since we last spoke?
10. Do you have contact with other Panellists or the Department of Agriculture, Water and the Environment (DAWE) between Panel meetings? Have the Panels seeded/strengthened any connections?

Closing Questions

11. Overall, has engaging in the User Panel met with your expectations and needs?
12. How important is it for a government agency to include this type of early engagement with key stakeholders as part of a program like the GBA?
13. What do you think the main benefits of investing in this early stakeholder engagement will be over the longer term? Would anything be lost by not having these early conversations in the region and with key stakeholders?
14. Do you think this engagement has contributed in any way to building a broader awareness or understanding of the GBA and potential unconventional gas development in your region?
15. Any final thoughts or comments?

A.1.2 Interview questions for GBA User Panel attendees: DAWE

1. Can you briefly summarise your role in relation to the GBA User Panels over the course of the Program? (e.g. coordination, presenting, attending etc for all/some regions)
2. Please identify the User Panel meetings you attended during the Program.

Operation of the Panel

3. What was the reason for adding User Panels to the GBA Program? a. Additional questions, for those who were involved in set up: How easy or difficult was it to make the justification for this internally? (i.e. expected ROI)
4. What was the process of establishing three regionally representative Panels like in terms of both effort and reward?
5. In reflecting on the reason for including the Panels in the GBA Program, how well do you think the User Panels were in achieving the intended purpose?
6. In your view, did the User Panels evolve in any way over the course of the Program? If yes, what did you observe?
7. If person has experience across multiple regions: Was there any notable variation in Panel performance/effectiveness across the three regions in your view?
8. Did participating in the User Panels generate any tangible benefits for the GBA process from your perspective? If yes, what were they? (e.g. science or otherwise)
9. Were there any drawbacks associated with working with the Panels from your perspective? If yes, what were they?
10. Was it useful to meet/connect with other Panellists in these forums? If yes, how?
11. Did you have contact with Panel members between Panel meetings?
12. Due to COVID-19, the panels necessarily moved to an online format. Did this change the functioning of the Panels in any way?

Closing Questions

13. Overall, would you assess the GBA User Panels as having added clear value to the Program?
14. How important is it for a government agency to include this type of early engagement with key stakeholders as part of a program like the GBA? (include any challenges of working in this way)
15. What do you think the main benefits of investing in this early stakeholder engagement will be over the longer term?
16. Would anything be lost by not having these early conversations in the region and with key stakeholders?
17. Do you think this engagement has contributed in any way to building a broader awareness or understanding of the GBA and potential unconventional gas development in the regions?
18. Any final thoughts or comments

A.1.3 Interview questions for GBA User Panel attendees: CSIRO & GA Scientists

1. Can you briefly summarise your role in relation to the GBA User Panels over the course of the Program? (e.g. coordination, presenting, attending etc for all/some regions)
2. Please identify the User Panel meetings you attended during the Program.

Operation of the Panel

3. When the User Panel structure was first introduced to the GBA, what were your initial thoughts/impressions?
4. What was your experience of attending and working with the User Panels over the course of the Program? Were there any 'aha' moments?
5. In your view, did the Panels evolve in any way over the course of the Program? If yes, what did you observe?
6. ***If person has experience across regions:*** Was there any notable variation in Panel performance/effectiveness across the three regions in your view?
7. Did participating in the User Panels generate any tangible benefits for the GBA process from your perspective? If yes, what were they? (e.g. science or otherwise)
8. Were there any drawbacks associated with working with the Panels from your perspective? If yes, what were they?
9. Was it useful to meet/connect with other Panellists in these forums? If yes, how?
10. Did you have contact with Panel members between Panel meetings?
11. Due to COVID-19, the panels necessarily moved to an online format. Did this change
12. the functioning of the Panels in any way?

Closing Questions

13. Overall, has attending and engaging in GBA User Panels met with your expectations and needs?
14. How important is it for a government agency (i.e. DAWE) to include this type of early engagement with key stakeholders as part of a program like the GBA?
15. What do you think the main benefits of investing in this early stakeholder engagement will be over the longer term?
16. Would anything be lost by not having these early conversations in the region and with key stakeholders?
17. Do you think this engagement has contributed in any way to building a broader awareness or understanding of the GBA and potential unconventional gas development in the regions?
18. Any final thoughts or comments

A.1.4 Design principles for the GBA User Panels in detail

As outlined in Section 5, the three intended outcomes of the User Panels in the GBA Program were identified as: (i) building legitimacy and trust; (ii) governing risk; and (iii) enabling transparency. Each of the outcomes were underpinned by key design principles which provided the basis for monitoring and evaluating the effectiveness of the Panel performance in the GBA Program over time.

The following tables are reproduced from the original design document (Lacey et al., 2018b) and provides a description of each design principle and examples of how each principle could be reflected in the structure and prioritisation of Panel activities.

Table 17 Design principles for building legitimacy and trust: Early engagement and trust

Key Principle	Summary of Intention	Demonstrated by
Early engagement	GBA is an assessment Program focused on the potential environmental impacts of onshore shale and tight gas development. There is an existing commitment in place to conduct these assessments in three regions in Australia. Stakeholder and community engagement via user panels is not driven by the existence of conflict or problems (or the need to 'rubber stamp' a pre-determined outcome) but a desire to develop relationships in each basin to better understand user needs as part of the assessment process.	• A commitment to host user panels in all three regions to develop relationships from commencement of GBA Program. • Initial meeting provides all panel members context and knowledge of the GBA Program and panel expectations. This allows members to make a fully informed decision about their commitment and involvement (i.e. are they willing to fully commit and sign on). • Panel members are invited to comment on draft Panel TOR and provide their expectations of the process at first meeting (after Department has outlined their expectations as this might add new objectives that are useful). • An early agenda item might be dedicated to how everyone in the room defines community and stakeholders in each basin (i.e. the term 'user' is slightly novel in this context so perhaps an exploration of the nature of living and working in the basin will draw out additional specifics of the regional context, which in turn, may help to identify who else should be included as per principle of representation).
Trust	Trust among stakeholders and communities around extractive industries has been found to underpin sustainable and positive relationships that are more likely to lead to mutually beneficial outcomes Often built through formal and informal dialogue processes. It is important to identify how reciprocity is reflected in these relationships.	• Engendered by adherence to the commitments made by all panel members (i.e. signed on and participating fully in respectful interactions within and beyond the panel setting) • Mutual respect based on genuine desire to work together for common good • Confidence in the process • Confidence that diverse basin views are represented (links to Representation and Fair Process) • Increased knowledge of diverse basin interests and priorities in assessing new industries • Confidence in the science of the basin assessments

Table 18 Design principles governing risk: Representation and fair process

Key Principle	Summary of Intention	Demonstrated by
Representation	The purpose of the panels is to reliably reflect a broad cross-section of community and stakeholder interests in each region. These may vary across the three GBA regions but there should be a high degree of confidence among all panel members that the right representatives are 'at the table' and no key party has been excluded. Because the panels are focused on building mutual understanding between basin users and the Program, diversity is highly valued in representing the full range of basin interests.	• Strong agreement is reached in each Panel that all interests, opinion shapers or leaders are represented at the table. This may be discussed at first meeting and reviewed annually. • In initial introductions, it may be useful to map the various interests at the table and ask the panel to collectively reflect on whether anyone is missing/overlooked. • Proxy arrangements will support flexibility and representation over the course of the Program. • Government members will prioritise that senior staff are involved and committed to the process. • The focus on achieving committed and representative panels seeks to support relationship building and a strong commitment to the ideal that 'people matter' (i.e. socio-economic contexts are critical to the assessment process and people are at the heart of that) • Increased understanding of the representativeness of each panel could be explored by each member articulating their individual and shared needs, values, or objectives (this could be tied to a discussion of expectations or as a separate process)

Fair process	Fair process refers to whether individuals believe they have had a reasonable voice in contributing to the GBA Program and in their engagement with other basin interests and the Department.
	
	By focusing on fair processes as opposed to pursuing fixed outcomes, there can be increased opportunity to create mutual understanding (and bypass transactional relationships).
	
	The aim is to create an environment that supports quality dialogue and information exchange between all panel members to support mutual understanding of diverse interests (and areas of mutual gain where relevant).
		• Create a safe environment for government and non-government members to speak openly through the development of agreed behavioural guidelines or operational values (i.e. determining the respectful rules of engagement might be an activity that each panel undertakes at first meeting).
		• Acknowledge and respect the roles and responsibilities of all members and make a commitment to incorporate local knowledge and values in the panel dialogue and engagement
		• Encourage panellists to challenge assumptions (i.e. leverage the diversity of membership to understand where views diverge and why)
		• While no consensus is required from panels (and they are not decision-making bodies), it may be valuable to identify processes in panel meetings that focus on creating 'collective understanding' of topics including:
		  • The Department holding ultimate responsibility for advising future decision-making (user panels provide input)
		  • The established scientific information or data, degree of confidence and what is unknown (engagement with scientific outputs for users; what it means, how it will be used; relevance to user interests and priorities)
		  • Relevant policies or legislation including the opportunities and constraints they create (states may have a stronger role in this and this will build understanding of formal governance structures in relation to risks and opportunities that are explored over time)

Table 19 Design principles for enabling transparency: Informed participation and effective communication

Key Principle	Summary of Intention	Demonstrated by
Informed participation	The Program creates an opportunity for knowledge sharing and learning where User Panels will have opportunity to advance knowledge and be better informed about both scientific undertakings and stakeholder or community interests. Well-informed participants help to navigate the mutual exchange of knowledge between scientists and communities. This also reflects the intention of the Program to maintain transparency. Informed participation builds confidence and trust among parties – including those involved in the process and those outside the process who have an interest but are not direct participants. Being transparent about the Panel processes allows for three independent panels to operate within established guidelines (and this is fair and ensures comparability of the process) but there is also room to adapt within those guidelines so each process is context specific (e.g. different mix of interests or members across basins).	• Communiques from each meeting will be provided to each panel member for sharing more broadly and via the website. • TOR, membership of panels (not individual contact details) and meeting schedules will be made public (via GBA website) • Panel members agree to take responsibility for wider industry/community engagement – this expands the circle of trust 'beyond the table' and this allows the formal panel mechanisms to be translated to more informal interactions in the basin. • Findings of scientific assessments will be discussed in depth during user panel meetings to enable deliberation of the findings and their implications (i.e. science will not simply be presented without discussion) • The Program will support a balance of formal and informal aspects of engagement in each basin (i.e. formal dialogue happened at the user panel table but informal dialogue can take place outside these settings between panellists and to raise awareness of the process beyond the panel membership)
Effective communication	Effective communication provides a base for productive Panellist engagement because supports a deliberative process where parties can include their interests and values in discussion. Communication applies to both communication within Panels and beyond Panels. Members of User Panels can have a significant role in disseminating information and facilitating outreach beyond the Panels. Effective communication is also about adopting a realistic	• Identifying how information will be communicated, by who and for what purpose to ensure there is clarity in communication • Identifying the appropriate means of communication for Panel members (where and when) • Communicating panel business in a timely and concise manner, both internally and externally • The use of communiques post meeting (communiques can be written collectively at the conclusion of each meeting to ensure participation of all members in reflecting the key points for broader communication) • Panel members commit to communicating to their constituencies • Beyond the formal meetings, there may also be bilateral and multi-lateral program contact with users on an as

Key Principle	Summary of Intention	Demonstrated by
	approach to timely and appropriate dissemination of information, and scheduling of meetings. This means setting practical agendas that are achievable in time available, making all tasks time bound. Matters of logistics should also be considered such as ensuring democratic opportunities for all to participate (may include the venue selection in the basins rather than capital cities)	needs basis between meetings. The need for this will be defined by things such as users holding data the Program needs, clarification of needs, connecting GBA with any parallel regulatory activities that may occur.

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