

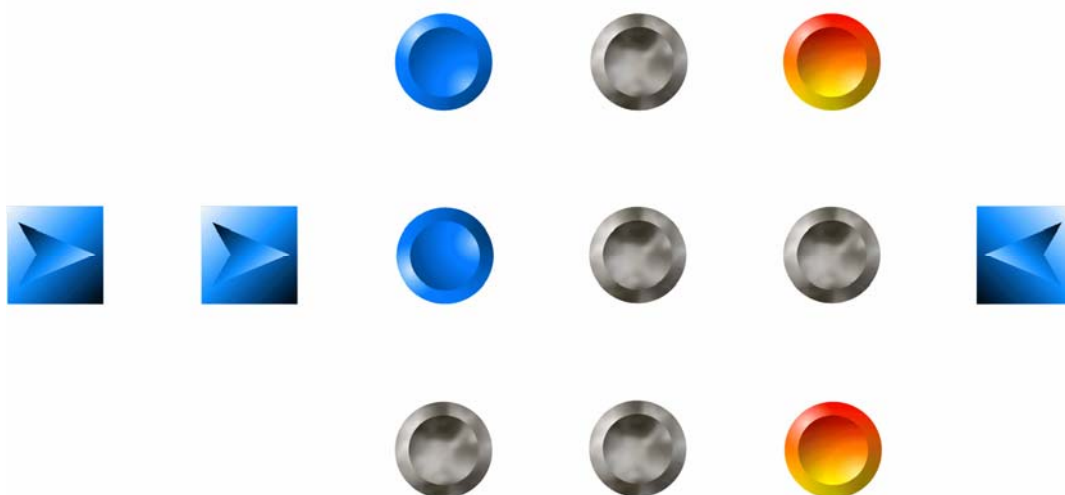
# South West of Western Australia Water Catchment Management Issues Drinking Water Policy and Logue Brook Dam

## Harvey Dialogue Forum Deliberative Survey Results

Prepared for  
Department of Water

Prepared by  
David Bruce

08 9795 4569  
0414 311 707  
davidbruce@e-wire.net.au



October 2006

## Contents

---

<b>Brief Summary of Results: Logue Brook Dam Surveys</b>	
<b>Executive Summary</b> .....	<b>2</b>
<b>1. Background and Methodology</b> .....	<b>3</b>
1.1 Background .....	3
1.2 Deliberative Survey Methodology .....	5
1.3 The Deliberative Survey Sample.....	8
1.4 Limitations .....	10
<b>2. Detailed Results</b> .....	<b>11</b>
2.1 Importance of Water and Recreation as issues in the South West .....	11
2.2 Appropriate Uses of Water Bodies.....	11
2.3 Appropriate Activities In and Around Drinking Water Sources .....	11
2.4 Water Catchment Management Philosophies.....	12
2.5 The Future of Logue Brook Dam.....	16
2.6 Beyond Logue Brook.....	23
<b>3. Discussion and Conclusions</b> .....	<b>26</b>
3.1 Reflections on the Processes.....	26
3.2 Key Results .....	27
3.3 Conclusions.....	30
<b>4. Appendices</b> .....	<b>31</b>
<b>Appendix A: The Deliberative Survey Questionnaires</b> .....	<b>33</b>
<b>Deliberative Survey #1</b> .....	<b>34</b>
<b>Deliberative Survey #2</b> .....	<b>39</b>

## Brief Summary of Results: Logue Brook Dam Surveys

To provide information to assist in evaluating a proposal to change the status of Logue Brook Dam from *irrigation and recreation* to *irrigation and drinking water*, two separate but related research and engagement processes were conducted to gauge public opinion on the issue. These two processes used similar surveys to collect information about water catchment management issues in general as well as the Logue Brook Dam proposal. However, the sampling and participation methods were very different

The first process involved a large-scale, random sample community survey. 7000 surveys were sent to residents of Perth, Bunbury, and the region in between. These recipients were randomly chosen from the WA Electoral Roll, giving the most representative practical sample of the population. 1017 useable returned surveys were analysed, with the sample weighted to match the population profile. The main findings of the community survey were:

- 83% felt that drinking water should be protected by preventing possible contamination rather than relying on treating water that was used for other purposes as well.
- 70% felt that safety and protection of drinking water sources should take priority over all other issues and possible uses of dams and the water. It was found that this was *the* critical factor in predicting reactions to the Logue Brook proposal, and to management practices generally.
- 67% preferred to keep the current policy of separating drinking water and recreation.
- 69% would *at least quite strongly* support the proposal to change the status of the dam.

The second process was a Dialogue Forum held in Harvey (near Logue Brook Dam), attended by nearly 200 people. Approximately one third of participants responded to invitations sent with the random community survey, one third were people who directly responded to adverts for the forum, and one third were invited stakeholders. Participants completed a slightly shortened version of the community survey at the beginning of the forum, deliberated on the issues and asked questions of experts throughout the day; and then completed the survey again at the close of the day. 144 of the attendees completed both surveys. This enabled an examination of whether the views of the Forum changed as a result of deliberation. In addition, it could be discerned whether the views of the Forum participants were representative of the general population. The comparative views of the dialogue participants (from the post-forum survey) were:

- 64% felt that we should rely on treatment technologies to make drinking water safe, allowing development and recreation in drinking water dams and their catchments
- Only 22% felt that safety and protection of drinking water sources should take priority over all other issues and possible uses of dams and the water.
- 75% preferred the current policy of separating drinking water and recreation to be reviewed.
- Only 13% would *at least quite strongly* support the proposal to change the status of the dam.

While there was strong support from community survey respondents for both the Logue Brook Dam proposal and the current policy of separating drinking water and recreation from the community survey respondents, there was little support from those people who participated in the Dialogue Forum.

Most community survey respondents (70%) were 'risk averse' to using drinking water sources for other purposes (eg. recreation). This appeared to be the key driver for their support to change the status of Logue Brook to drinking water and retain the current water management practices that do not allow recreation around drinking water sources. On the other hand, most Dialogue Forum participants (73%) were 'risk tolerant' towards combining drinking water sources with other uses (including recreation) prior to the day's deliberations, and this increased to 78% by the end of the Forum.

Directly comparing the views of the two groups is not appropriate due to the different sampling and participation processes. However, it is clear that the views of participants at the Dialogue Forum were not typical of the general population. Those who chose to attend the deliberation Forum clearly favoured the retention of Logue Brook for recreation purposes, and those views did not change throughout the course of the day.

What was common to both groups, though, was the importance of water and dams. The two processes show that there are competing needs for our limited supplies of water and preferences for how these should be managed, and suggest that finding the balance will be an on-going challenge for the community and for Government.



## Executive Summary

---

A community engagement process has been used to consider a number of water catchment management issues including the future of Logue Brook Dam. This process was overseen by a Steering Team of stakeholders. It commenced with a traditional random sample community survey posted to seven thousand households in June 2006 (a separate report on the community survey is available and should be read alongside this report).

The community survey was followed by a 21<sup>st</sup> Century Dialogue meeting which aimed to enhance opportunities for understanding and deliberation. The Dialogue was held in Harvey on 22 July 2006, and it included a second survey conducted as a 'deliberative survey' where participants were asked to complete the same survey at the beginning and end of the Dialogue Forum. By comparing the pre-forum and post-forum findings any change in attitudes or preferences could be identified and further considered when making decisions on water management issues, especially the future of Logue Brook Dam.

The following report outlines the results of the deliberative survey. One hundred and forty four participants at the Dialogue Forum completed this survey. Participants at the Forum attended after responding to either: random invitations sent with the June community survey; advertising of the event; or stakeholders invitations. Participants were from both Perth and the South West region.

After analysing the data from the random community survey and Harvey Forum deliberative survey, it was evident that the two survey samples were not the same, therefore limiting the ability to directly compare the two surveys. This difference can be explained by a number of factors including the difficulty in attracting a wide range of people statistically representative of the broader community to the Forum, and the location of the Forum event. Inevitably, events such as the Dialogue Forum are attended by people with a keen general interest in the subject matter, or a direct interest in the outcome, often leading to firm views being represented – and this was seen on this occasion. Regardless, provided these factors are recognised, the information in both surveys is of high value and the time and effort of all parties in completing the survey forms has been very valuable input.

Since there were two very different survey groups to consider, the results of the community survey and deliberative survey were analysed and reported separately.

### **The main conclusions of the Harvey Dialogue Forum deliberative survey were:**

- 1. Participants generally tended to be somewhat risk tolerant about protecting drinking water sources**, and preferred options that allowed recreation and drinking water sources to co-exist (for example: treating water after use rather than preventing any recreational use).
- 2. Participants did not support the proposal to convert Logue Brook Dam from an 'irrigation and recreation' dam to an 'irrigation and drinking water' dam.**
  - Participants recognised the value of improving the irrigation system, but felt that the loss of recreational facilities was a very bad outcome.
  - The level of support for the proposal decreased further during the forum.
  - While the possible trade-offs were all considered important by participants, their presence was not sufficient for the group to support the proposal. The effectiveness of the trade-offs to improve support for the proposal declined during the day.
- 3. Participants in the forum support a review of the Drinking Water Protection Policy**, and a substantial proportion (although less than 50%) would support an exception being made to the policy for Logue Brook Dam if it was to be converted to a drinking water source.
  - The majority of deliberative forum participants felt that even if Logue Brook Dam became a drinking water source that at least restricted recreation should still be allowed at the dam.
- 4. Participants showed very little change in their opinions as a result of the forum**, with only minor net changes being seen between the pre-and-post-forum surveys.



# 1. Background and Methodology

---

## 1.1 Background

Water has historically been a significant issue in Western Australia, and with the state's increasing population and an apparent decline in natural rainfall in catchment areas, it is sure to remain so for some time to come. The management of water resources is therefore of considerable concern across all sectors of the community. The newly formed Department of Water has the mandate to ensure a sustainable water supply to the state.

Western Australia has a longstanding policy of protecting sources of public drinking water through (amongst other things) the prohibition of recreation in drinking water dams and their immediate catchments. This policy is strongly advocated by the Department of Health, and has not been altered despite several previous reviews.

However, Western Australians are part of a water loving culture, and non-drinking water dams are an important component in the recreational landscape of WA. Water is also critical to the State's agricultural and industrial activities, which are themselves core elements of the economy and community.

With demand on the water supply growing, it is inevitable that pressure will ebb and flow to alter the usage patterns of some water sources and dams to optimise the overall mix. An example of this growing pressure has emerged at Logue Brook Dam (LBD) in the south west, near Yarloop.

LBD was constructed to provide irrigation water for local agriculture, and has since developed as an important recreational venue for both local residents and for visitors (primarily from Perth). The irrigation system fed from LBD is an open channel system, and it has been estimated that around 30% of the water which enters the system is lost through processes such as evaporation and seepage.

A proposal to alter the usage of LBD has been submitted to Government by Harvey Water (an irrigators co-operative using LBD) and the Water Corporation. The proposal is for Water Corporation to provide funding to construct a more efficient piped irrigation system, and in return the water saved each year would be made available to the Integrated Water Supply System (IWSS)..

The IWSS is the piped scheme water supply for the Perth metropolitan area, some towns in the South West, and towns and farms of the Central Wheatbelt through to Kalgoorlie-Boulder which are connected to the Goldfields Pipeline from Mundaring Weir. The capacity of the IWSS to meet growing demand is being challenged, and there is an immediate need to find additional sources of water for this supply.

The LBD proposal is an attractive option to the Water Corporation as it offers a relatively inexpensive on-going source of water for the IWSS. The proposal is of obvious benefit to the irrigators co-operative through an improved piped and pressurised irrigation system. Harvey Water is also looking at other options to help them fund a piped system.

If the current proposal was approved by Government, then the status of LBD would change from irrigation and recreation to irrigation and drinking water. This decision would then trigger existing drinking water protection policy resulting in the water and land surrounding LBD becoming off-limits for recreational use. Such a decision would impact on both the range of recreational opportunities in the area, and recreation demands on other dam sites.

The question for Government when considering the proposal is to determine the best value use of LBD. While the question to be resolved at LBD is already a difficult one, it is further compounded by the wider context. It is possible that similar questions will be asked in the future about other dams, and the decision on LBD will inevitably be seen as something of a precedent in terms of both the process and outcomes.

Therefore, in considering the proposal for the future of LBD, there are some wider water catchment management issues that need to be included, as well as direct consideration of this particular dam.



While in a representative democracy the ultimate *decision* on the proposal must be made by the elected Government, there is an important role for the community to play in the decision making *process*.

Traditional community consultation processes have often failed to have a meaningful and constructive effect, often because they lack representativeness of the wider community and /or true opportunities to deliberate on the issues and potential solutions. More contemporary community engagement processes are designed to improve these facets, intending to provide a better outcome for both the agencies engaging with the community and with the community members who participate. While there is not yet a culture of participation in 'deliberative democracy', it is hoped that through more positive experiences of the process that such a culture can in time be developed.

As part of the Government's consideration of the LBD proposal, the Department of Water was supported to undertake a Community Engagement Process (CEP) - the first time this type of process had been applied to water management issues in WA. The CEP consisted of two integrated components:

1. A large-scale traditional survey of community attitudes undertaken in June 2006; and
2. A Dialogue Forum held in Harvey on Saturday, 22 July 2006 where participants completed a Feedback Form (available on the DoW website) and a deliberative survey (Appendix A).

The first of these two components is a relatively standard methodology, with such surveys being widely used by both Governments and private sector businesses across western societies. When properly executed, such surveys are practical and effective ways of measuring prevailing attitudes and preferences at a community level.

One of the limitations of a traditional survey is that they are only capable of measuring existing attitudes or preferences – but not *possible* attitudes or preferences. This distinction is important when the issues being considered are incompletely or inaccurately understood in the community, or in the absence of an opportunity to discuss and explore the issues and possible solutions. While the relevance of prevailing attitudes and preferences can never be discounted, there are times when measuring these *alone* are not sufficient to make informed decisions, and it is important to also know what the community *might* think if they had access to more information and a chance to discuss the issues with other people.

A deliberative survey is a technique which allows this type of information to be collected and is a variation of the standard scientific methodology of pre-and-post testing. In this methodology data is collected prior to some 'intervention', and then again after the intervention – with the intention being to identify what the effect of the intervention has been. This type of survey involves participants completing a survey prior to a deliberative experience (usually some form of interactive workshop) and then again after the experience. The theory is that the post-experience results provide an indication of what the community might feel if all people were given a similar type of experience. If a deliberative survey shows a substantial change in attitudes or preferences, then this may need to be considered alongside prevailing attitudes and preferences in the decision making process.

However, while the deliberative survey can identify places where attitudes might change with more consideration, a limitation of the technique is that it is usually harder to obtain a highly representative sample for a forum than it is for a survey (due to the greater commitment required of participants).

The combination of the two surveys allows us to calibrate the deliberative sample, allowing us to more insightfully interpret the deliberative survey results (as the pre-forum survey results are directly comparable to the community survey results). The combination of the two methodologies has been designed to give the Western Australian Government maximum insight into community attitudes towards the issues of relevance in the decision on the future of Logue Brook Dam.

This report contains the results of the Deliberative Survey. Results from the Community Survey can be seen in a separate report.

**Additional reference:** More information on the LBD proposal and Dialogue Forum can be located on the Department of Water's website at - [www.water.wa.gov.au](http://www.water.wa.gov.au). Follow the links from the homepage to 'Drinking Water' and then under Projects open 'Logue Brook Dam'.



## 1.2 Deliberative Survey Methodology

### Objectives

The objective of the deliberative survey was to see if participants' attitudes and opinions changed as a result of having more information and more chance to deliberate on the issues and possible solutions.

The deliberative survey provides different information to a standard community survey. A community survey is usually a more rigorously representative and reliable indicator of prevailing community attitudes. The deliberative survey, on the other hand, provides an insight into how these prevailing attitudes might change if people have the opportunity to understand the issues from differing perspectives and can deliberate with colleagues and experts. The overall effectiveness of these deliberations is highly dependent on the representativeness of the deliberative sample and its capacity to provide a comprehensive range of inputs and opinions.

Because the level of commitment required to attend a workshop is generally higher than to complete a questionnaire, the people who are sufficiently motivated to participate are likely to be those who are intrinsically more involved or interested in the topic. When interpreting the results of any deliberative survey it is very important to consider the starting point for the participant sample, and to acknowledge this when evaluating any changes (or not) that are observed.

### Data collection approach

The deliberative workshop was held in Harvey on Saturday July 22, 2006.

The deliberative survey methodology requires participants to complete a survey twice, once prior to the deliberative experience, and the second at the conclusion. Survey forms are identified by a participation number so that the before and after data can be tracked and compared.

In a typical deliberative survey, all participants are recruited via a random process. In this instance however, the sample included a mix of random sample respondents with invited stakeholders and self nominees. This was because the deliberative forum was originally conceived as a different type of gathering than a deliberative survey, and one which did not have such a strong requirement for a representative group of participants. The final forum was a hybrid of the original 21<sup>st</sup> Century Dialogue format and the deliberative survey format.

Only data from people who participated throughout the day and completed two survey forms could be used in the analysis.

### Questionnaire

The questionnaire for the deliberative survey was based largely on the community survey, for two reasons:

1. Answers to basically the same questions are of interest from both samples.
2. This allows us to make direct comparisons between the two - to 'calibrate' the deliberative data and to be better able to make appropriate extrapolations to the community.

The 'pre' and 'post' questionnaires for the survey were identical, except that the post survey does not repeat the demographic questions (as these do not change during the day). Copies of the two deliberative survey questionnaires can be seen in Appendix A of this report.

### Sample frame and recruitment

The sample frame for the deliberative survey was the same geographic area as for the previously completed community survey. There were two populations of interest – residents of Perth and residents of the South West (from the boundary of Perth to Bunbury). In raw size, the Perth population is something like 40 times larger than the population of the South West – yet the location



of the Logue Brook Dam in the South West dictates that the views of residents of this region are very important.

Therefore, it was decided to establish a 50:50 ratio of Perth and South West respondents in the survey. The South West sample was further broken down to Bunbury (19.5%) and the region between Perth and Bunbury (“South West Regional”, 30.5%)<sup>1</sup>. This is known as a stratified sample.

**Table 1: Areas included in the community survey sample area.**

Area	Perth (50%)	South West (50%)	
		South West Regional	Bunbury
<b>Stratification</b>	50%	30.5%	19.5%
<b>Included:</b>	All Perth metropolitan postcodes	Shires of: <ul style="list-style-type: none"> <li>• Serpentine-Jarrahdale,</li> <li>• Murray,</li> <li>• Boddington,</li> <li>• Waroona, and</li> <li>• Harvey.</li> </ul>	City of Bunbury

The deliberative workshop was initially planned as a 21<sup>st</sup> Century Town Meeting or Dialogue (21<sup>st</sup> CD), rather than a deliberative survey *per se*. A 21<sup>st</sup> Century Dialogue includes a broad range of representatives including stakeholders and those who respond to advertisements as well as those selected through random sampling. The usual deliberative survey includes only a highly representative and statistically reliable random sample similar to that targeted in the community survey sample. While the 21<sup>st</sup> CD seeks to encourage small group deliberation leading to whole of room themes and priorities, the deliberative survey does not seek to identify the common ground within the room, only to enhance opportunities for understanding and deliberation.

However, initial discussions determined that it would not be acceptable to the local community to omit the stakeholders and self nominees from the deliberations. Hence, it was determined to combine the two methodologies, utilising the approach of mixing stakeholder and self nominated participants with those from the random sample, together with the technique of applying pre and post surveys to determine if views shifted or remained the same as a result of information and deliberation.

This is very important, as it means that the sample of participants will likely not be representative of the wider community in the same way that a more rigorously controlled pure deliberative survey sample would be. This needs to be considered when interpreting the results presented in this report. What these results show is how the views of the group of participants changed over the day, but the sample as a whole is not automatically directly comparable to the community survey sample.

Section 1.3 provides more information on the deliberative sample.

#### Representativeness

The retention of most elements from the community survey to the deliberative survey allows us to calibrate the representativeness of the deliberative sample against the wider community. Given the points made above about recruiting, it should be obvious how important this is.

Logic tells us that the level of commitment required to attend a workshop is more than to simply complete even a quite detailed survey – and therefore it is likely that the people who are motivated to attend the workshop will be those who are most interested in the subject<sup>2</sup>. By definition, this means that they may not be attitudinally representative of the population, even if there is a forced structural representativeness (which was not the case on this occasion).

<sup>1</sup> The relative proportions of the Bunbury and South West Regional samples were based on their population sizes in the 2001 census data.

<sup>2</sup> Past experience also supports this assumption.





This effect is much greater when the sample is made up of a combination of people such as a) those included in the initial random sample who are sufficiently motivated to attend; and b) people who self-select in response to an advert of the event.

By retaining the same questions from the community survey in the deliberative survey and then by comparing the pre-forum results from the deliberative survey with those in the community survey, we can calibrate the workshop participants and see just how they compare to the wider population. The pre-workshop survey results should be more or less analogous to the community survey results, and so any differences in these baseline measures are indicative of how the deliberative sample may vary from the community as a whole.

In itself, this variation is a meaningful result – as it tells us about who is most interested in the subject and who is participating in the deliberative survey. More importantly though, it also means that we can make more insightful interpretations about the deliberative data than we could if we had only that data.

#### Sample size and reliability

Determining the sample reliability of the deliberative sample is only of marginal relevance given that the reliability calculations have representativeness as a fundamental assumption, and that representativeness is not an inherent characteristic of this sample.

However, a statement of reliability can give the reader some idea of the internal reliability of the sample – of the level of natural random variation that would be expected in a sample of this size. For this reason, some comments on the ‘reliability’ of the sample will be provided in section



### 1.3 The Deliberative Survey Sample

Some data was obtained from 166 participants in the deliberative workshop, however only 144 of these were correctly and fully completed (ie: two complete surveys), and it was these 144 that comprised the deliberative sample for analysis.

**Table 2: Deliberative sample size.**

How attended → ↓ Sample area	Random sample	Responded to advert	Invited stakeholder	Total
Perth	34	13	25	73
South West	26	21	20	68
<i>SW Regional</i>	20	16	16	53
<i>Bunbury</i>	6	5	4	15
<b>Total</b>	<b>60</b>	<b>34</b>	<b>45</b>	<b>139*</b>

\* 5 participants did not provide complete demographic information

As discussed in section 1.2, the structural representativeness of the deliberative sample is of interest, but is not expected that it will be rigorously structurally or attitudinally representative in the same way that the community sample is.

The recruitment of participants was based on the objectives of a 21<sup>st</sup> CD, which is to have approximately one third of respondents who are randomly recruited from the community, one third who self-nominate, and one third who are invited stakeholders.

Against these objectives, the participant breakdown is quite reasonable. Often the random sample group is the hardest to motivate to attend the workshop and is under-represented. However, in this sample this group was very strong, making up over 40% of the sample. While the sample was not perfectly evenly divided across these three sources, each group was represented in the sample to a reasonable extent.

Participants were also spread across the three sample areas in approximately the desired proportion – with 53% from Perth and 47% from the South West (although Bunbury was slightly under-represented in the deliberative sample at 11%).

The deliberative sample contained a strong over-representation of males (70%), but the age profile was very similar to that of the total (18+) community sample with a small group of 18-29 and 30-39 year olds, and the 50-64 age group being the largest group.

#### Analysing the deliberative data

Two different types of analysis are done at different times with the deliberative data. The first maximises the quantity of data by using all of the complete cases and simply looking for changes between the pre-and-post data. This type of analysis is searching for places where substantial numbers of participants changed their views, but because it is not using weighted data it will not yield overall results that are in any way comparable to the community survey data – simply information about how individual respondents have changed their views.

To provide some comparability between the deliberative sample and the community sample, the deliberative sample was weighted by age and gender (not location, which was already reasonably well balanced) to match the overall population profile<sup>3</sup>. Again, the 18-29 year old group (of which there were only 6 individuals in the deliberative sample) was dropped out of the weighted data – making the samples more comparable to the community survey results and avoiding having unrealistically high weighting multipliers required. Where the weighted data was used for analysis, this is identified in notes under charts and tables.

<sup>3</sup> Because a 50:50 stratification between Perth and the South West was stipulated, the arithmetic mean of the Perth and South West population proportions were calculated to provide the target population figures for weighting.



**Table 3: The process of weighting the deliberative sample.**

	Sample %			Target Population %			Weight	
	Male	Female	Total	Male	Female	Total	Male	Female
<b>18-29</b>								
<b>30-39</b>	11%	4%	15%	13%	13%	26%	1.1672	3.4369
<b>40-49</b>	21%	8%	29%	13%	14%	27%	0.6350	1.6168
<b>50-64</b>	28%	12%	41%	14%	14%	28%	0.4946	1.1036
<b>65+</b>	9%	6%	15%	9%	11%	20%	0.9512	1.7727
<b>Total</b>	69%	31%	100%	49%	51%	100%		

The main purpose of this weighting is to provide a method for comparison of the total deliberative sample to the community sample, primarily for the purposes of calibrating the deliberative sample and therefore allowing better understanding of the meaning of any observed changes from the pre-post forum data.

There were 130 cases in the 30+ age groups that provided sufficient data to be weighted, and after weighting the calculated effective sample size was  $N_{\text{eff}}=93$ . A representative sample of this size would have a maximum sample error of  $\pm 10.2\%$ . This figure is provided as an *indication* of the natural variability likely to be seen in a sample of this size, but because of the recruitment methods for the deliberative workshop it is not a strictly representative sample and so the reliability figure given here is not strictly relevant.

Demographic characteristics of the deliberative sample (unweighted data)

48% of the deliberative sample lived in an urban area. 24% lived in a semi-rural setting and 28% in a rural setting.

More importantly, just over half of the deliberative sample participants were recreational users of Logue Brook Dam – 55%. 60% were recreational users of other dams, and 67% used natural water bodies. This result reflects the *a priori* expectation that the people most likely to participate in such a forum are those who are more intrinsically involved in the subject.

9% of the deliberative sample were current users of irrigation water.



## 1.4 Limitations

No research or engagement process can ever be 'perfect', as practical constraints of time, budget and participation choices will always have some impact. The approach of researchers and engagement specialists is to be aware of the major potential problems and to overcome each of them as much as is possible. While this won't ever be perfect, in most cases it is possible to design and execute a methodology that is not compromised to the point of being misleading or ineffective.

The Deliberative Survey had a less rigorous sampling process than the community survey sample from a strict research perspective, but this does not mean that it cannot serve its intended purpose in the wider engagement project.

The participant sample was never intended to be strictly representative. The 21<sup>st</sup> Century Dialogue process within which the deliberative survey was embedded does not seek nor require a totally representative participant sample, but rather seeks to ensure the sample includes sufficient numbers of participants from different sources to allow effective deliberation. The spread of participants from both Perth and the South West and from the various sources (in particular the participation of people via the random sample) was quite good, and all of these groups were represented to at least some extent in the sample. This creates the potential for inclusive deliberation, so long as participants from these various sources do in fact represent the full range of attitudes prevalent in the community.

The fact that over half the participants in the forum were recreational users is indicative of who the process was of interest to. However, this does not in itself mean that the sample is any more or less representative of the wider range of views than was anticipated. The inclusion of questions in the survey which reveal underlying philosophical positions will provide much more information about the representativeness of the participants to the wider community – and about the 'starting points' of both the recreational user and the non-user segments.

While the representativeness of any workshop sample means that it needs to be interpreted with care, the size of the deliberative sample is a lesser consideration.

The primary purpose of the deliberative survey is to identify whether important changes in opinion take place as a result of the deliberative experience. Thus, even the smaller sample size and lower statistical 'reliability' of the sample are not major problems – because we are only interested in identifying large-scale changes in opinions that would potentially justify altering decisions or policy which might otherwise only need to consider the more robust community survey results. Small changes in the deliberative data would be very unlikely to warrant this type of response, and any changes that are not significant with the smaller sample size are of minor interest only.

The choice of venue for the deliberative workshop was always going to have an impact on participation given the geographic area of interest to the project. If the forum was held in Perth, it would have limited participation of south west residents, and the reverse is undoubtedly true as a result of holding the forum in Harvey. Thus, while it was very positive to see a reasonable proportion of participants from Perth in the forum, it is again likely that these individuals were amongst the most motivated to be involved in the Logue Brook Dam process.

Overall, the researcher is reasonably confident that the deliberative survey processes and the sample size will be effective in generating data to address the deliberative survey objectives. However, the nature of these types of forums necessitates a recommendation to the reader to consider the possible influences on the representativeness of the participant sample. Readers are encouraged to read this report alongside the community survey report, comparing the two samples both demographically and attitudinally. Section 3.1 provides additional advice on this issue.



## 2. Detailed Results

**Note:** the results presented here are for the 30+ population, due to the lack of data from the 18-29 age group (see section for details).

### 2.1 Importance of Water and Recreation as issues in the South West

This section was only included in the Community Survey.

### 2.2 Appropriate Uses of Water Bodies

This section was only included in the Community Survey.

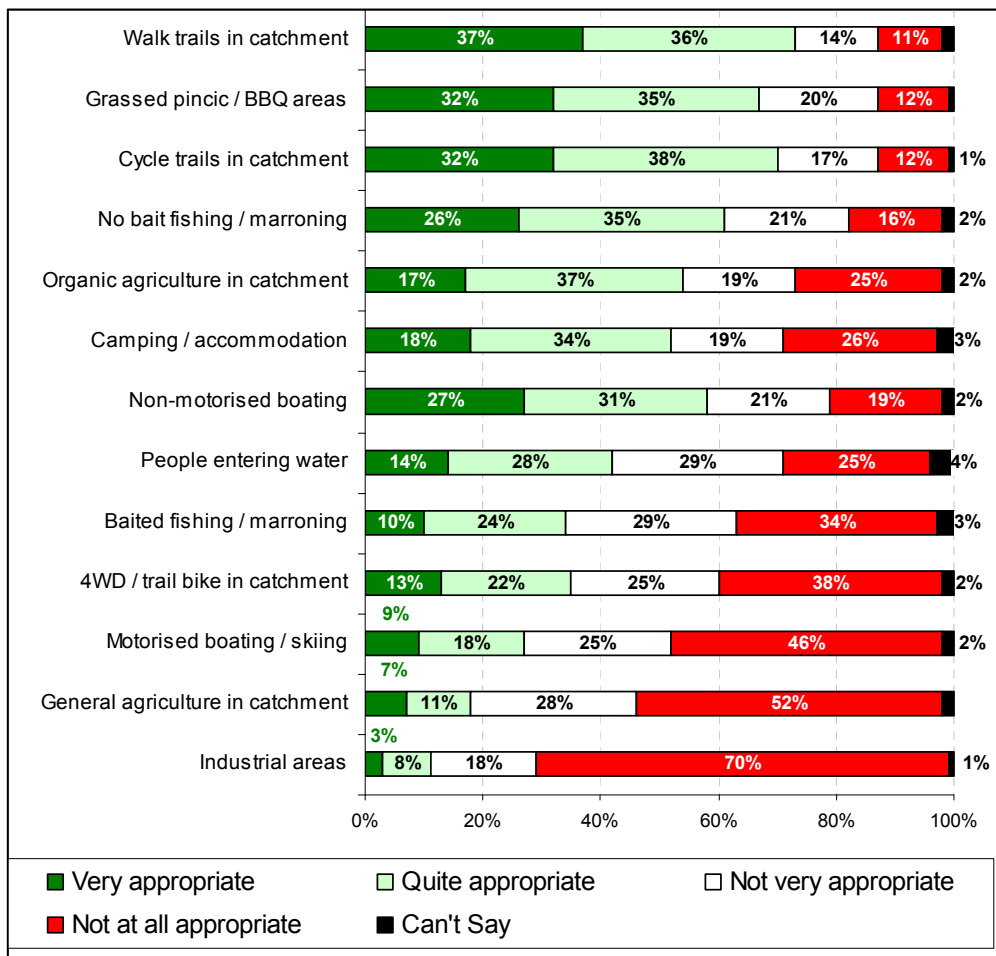
### 2.3 Appropriate Activities In and Around Drinking Water Sources

Survey respondents were given some very basic information about the possible risk of contamination to drinking water sources:

*Any activity in and around sources of drinking water can be a potential risk to the quality and safety of that water. Contamination from the presence of humans and domestic animals in particular pose threats to drinking water quality. At present, dam water for the integrated supply has only minimal treatment once it leaves the dam.*

Given this, they were asked what they thought was appropriate activity to take place in and around drinking water sources. The chart below shows initial attitudes.

**Figure 4: Appropriate activities in and around drinking water sources – Deliberative Sample Pre-Forum Results (weighted data).**



[Source: Deliberative sample – pre-forum data, weighted data]



While many participants changed their views on individual activities a little over the course of the day (ie: moved their rating up or down one category), overall there were no major net changes in attitudes amongst the group as a whole over the day.

The only two changes of note were:

- A 9% increase in the proportion of people who thought it was *very appropriate* for activities in which people enter the water to occur, from 14% to 23%. Most of these were 'upgrades' from people who initially said it was *quite appropriate*, and the total who felt it was *at least quite appropriate* did not change.
- A similar pattern in reverse was seen with non-motorised boating, with about 7-8% of respondents changing their rating from *not very appropriate* to *not at all appropriate*.

## 2.4 Water Catchment Management Philosophies

One of the important objectives of the community engagement project was to understand the community's attitudes towards general water catchment management issues. In particular, there are a number of issues where the underlying philosophy of the management approach could lean in one direction or another. Often the choices between these approaches – if not exactly mutually exclusive – do require one to at least have priority over the other.

In these situations, it is not appropriate to ask people how much they like each alternative, but rather to indicate their preference between the two. The survey gave respondents some back ground information (see italicised text below) and then asked them to indicate a preferred alternative between six paired descriptions.

### **Questionnaire introduction and question:**

*At present, dam water going into the integrated water supply system is not heavily "treated". Instead, the quality and safety of the water is protected mainly by strict controls on dams that feed water into the integrated supply. This protection includes prohibiting any development or recreational activity on the dams, or within a 2km protection area around the dam. These controls only apply to dams that supply drinking water, and are considered in Western Australia to be the best way to ensure safe, good quality drinking water. This approach has so far delivered safe drinking water in WA, and at a minimum cost to consumers.*

*However, as dams are increasingly being used for drinking water, there are fewer opportunities for people who want to develop land and recreate around these sites. Other approaches could be adopted that would allow more development and recreation opportunities on and around our drinking water dams and in their catchments. However, they would also increase the cost of water due to additional treatment that would be needed. Such treatment may also not be able to deliver the same quality and safety of the water supplied.*

***Given the above information, what do you feel should be the main guiding principles behind the management of water sources and catchments in Western Australia?***

**Tick ONE box for each pair of options**

- *Please note that in some cases the choices given could both happen – but we are interested in which you would prefer to be the stronger influence or the most visible.*
- *If you like both options, you should choose the one you like the most. If you dislike both options, you should choose the one you dislike least.*

For each of the six paired alternatives in this section, results are shown for two groups:

- **Deliberative-Pre** Pre-forum results from the Deliberative Forum [weighted] (N<sub>eff</sub>=93)
- **Deliberative-Post** Post-forum results from the Deliberative Forum [weighted] (N<sub>eff</sub>=93)

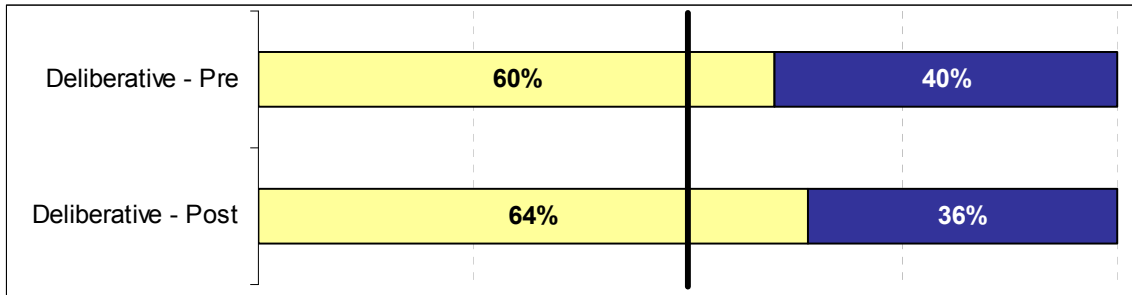


**Treatment Vs Prevention**

Rely on treatment technologies to make our drinking water safe – which is more expensive but allows more potentially contaminating development and recreational activities to occur in our drinking water catchments

Or

Protect our water by avoiding potentially contaminating development or recreational activities in our drinking water catchments



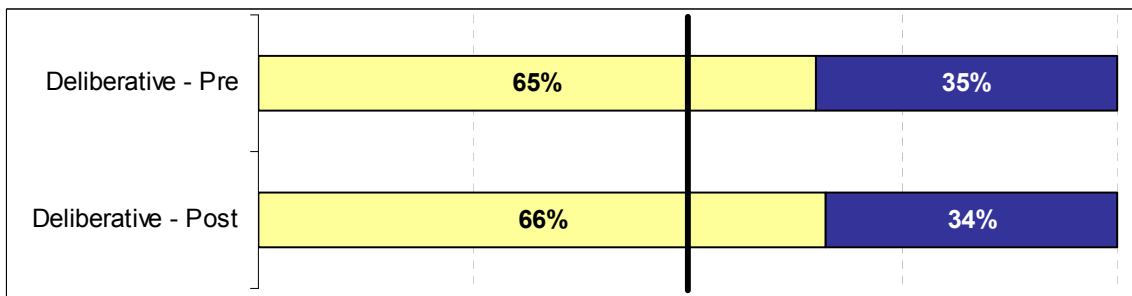
Nearly two thirds of participants in the forum preferred to see a treatment approach in preference to a preventative approach. This preference did not change during the course of the day.

**Reducing usage Vs Increasing supply**

Efforts are focussed on reducing water usage in the community to get more value from our existing water supplies

Or

Efforts are focussed on finding new sources of additional water to minimise the changes in current usage that is required



Participants in the deliberative forum had a preference for reducing usage and getting more value from existing water sources than for focussing on trying to find new sources of water.

This view did not change during the course of the forum.

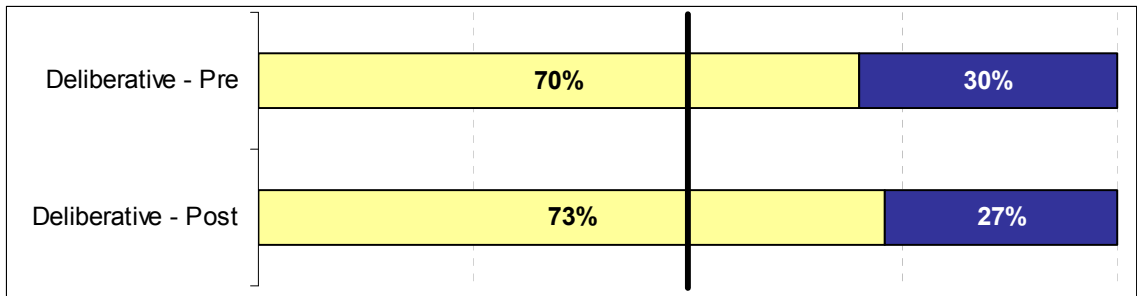


**Equalisation Vs User pays**

Everyone should pay more for treated drinking water, allowing people and organisations who want to use dams for recreational purposes to do so

Or

People and organisations who use dams for recreational activities should pay for the additional costs of treating the water that they use



Nearly three-quarters of participants felt that the community as a whole should pay for treatment of water to allow wider recreational use of dams, as opposed to taking a more targeted ‘users pays’ approach to treating water used for recreation.

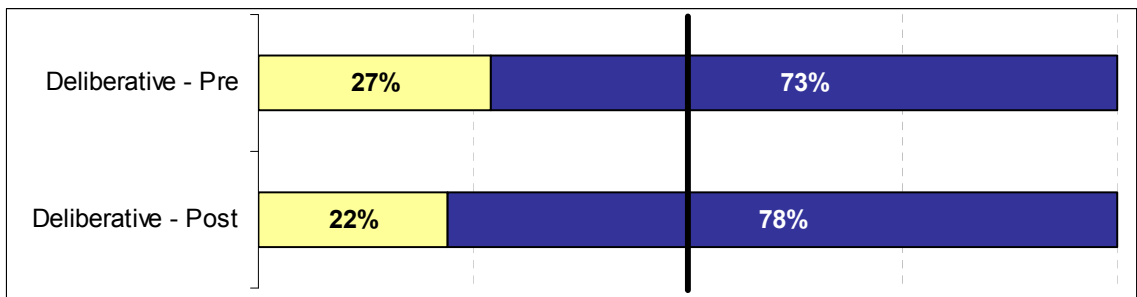
Again, this view did not change over the course of the day.

**Risk tolerance**

The safety and protection of our drinking water supplies is given the highest consideration, and achieving the lowest possible level of risk to the water takes priority over all other issues or uses of dams and their water

Or

While the safety and protection of our drinking water is considered very important, the acceptable level of risk takes into account other issues and possible uses of the dams and their water



Three quarters of the forum participants preferred to consider other issues and possible uses of the dams and their water when determining the acceptable level of risk to drinking water supplies.

This view also did not change significantly over the day.



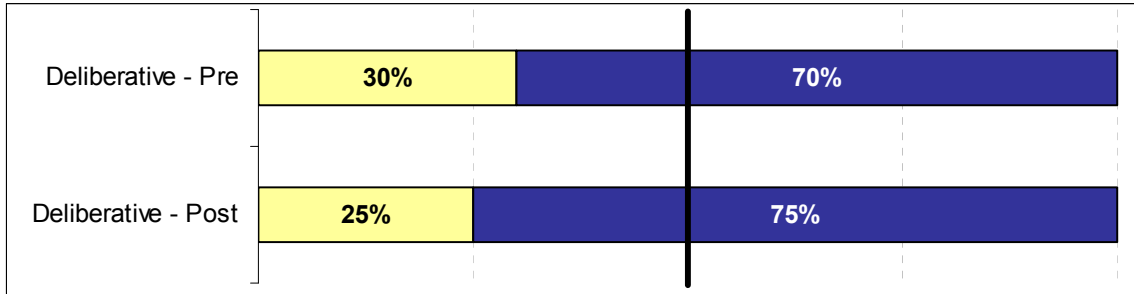


**Integrated supply Vs Local supply**

All water practically available in the State is combined into a single water supply to best meet the needs to the whole State

Or

Water that naturally occurs in an area is first used to meet the needs of that area, with any extra water going to meet the needs of other areas where local demand exceeds the natural supply



A clear majority of participants in the deliberative forum felt that water that naturally occurs in an area should be first used to meet the needs of that area before being included into a single water supply to meet the needs of the whole state.

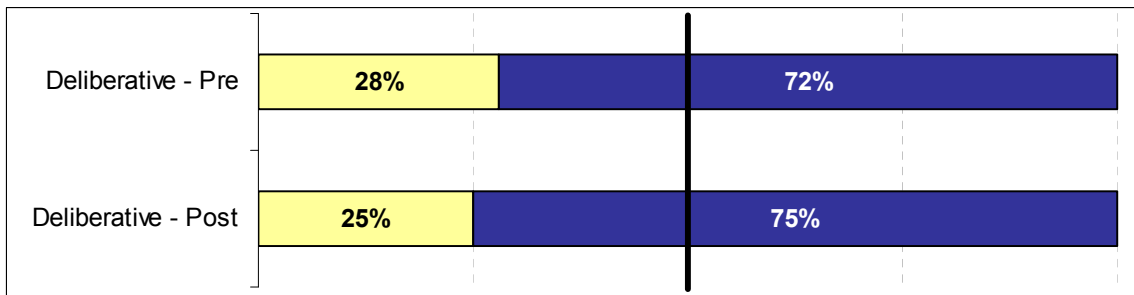
This view did not change as a result of their experiences during the forum.

**Support for reviewing the policy of separating drinking water and recreation**

The current policy of keeping recreation and drinking water separate is maintained, accepting that this will potentially put more and more limitations on recreational opportunities in public dams

Or

The policy of keeping recreation totally separate from drinking water is reviewed and possibly changed, acknowledging that the limitations it puts on recreation may no longer be justifiable or financially viable



Participants in the deliberative forum had a strong preference for the current policy of separating recreation and drinking water sources to be reviewed.

Once again, this view did not change significantly during the course of – or as a result of - the forum.



## 2.5 The Future of Logue Brook Dam

After the first section of the survey examined respondent's attitudes and preferences about water management issues more generally, the second half focussed quite specifically on the future of Logue Brook Dam.

One of the main reasons for choosing a mail methodology for the community survey was to allow space to provide background information for some questions – allowing respondents to make a more informed and considered response to questions than might otherwise be possible. The following italicised text is the introduction to the LBD section of the survey.

*The next set of questions specifically addresses the future of dams in the Harvey-Waroona area south of Perth (see included map). The issues here are important right now for this area, but they will be important across the State as demand for water continues to grow. The views of all parts of the community on how to deal with these issues are very important.*

*There are six major dams in the Harvey-Waroona area. Their size and main current uses are:*

<b>Dam</b>	<b>Harvey</b>	<b>Stirling</b>	<b>Logue Brook</b>	<b>Waroona</b>	<b>Samson</b>	<b>Drakes Brook</b>
<b>Size (in Gigalitres)</b>	56.4	53.8	24.3	14.9	8.0	2.3
<b>Used for: Drinking + Irrigation</b>		✓			✓	
<b>Used for: Irrigation + Recreation</b>	✓ Limited rec.		✓	✓		✓ Limited rec.

*Due to low rainfall and increasing population, there is a need to find additional sources for the integrated water supply. Logue Brook Dam is being looked at for this purpose. The dam was built to provide irrigation water for local agriculture, and is also used for a variety of recreational activities. Of the four irrigation / recreation dams in the area it is one of the most heavily used for recreation. The dam and its facilities (including a camping ground and accommodation at a caravan park) are used by local residents and visitors from other areas, particularly from Perth.*

*A proposal is being considered by Government that would make Logue Brook Dam a drinking water source. Currently, water from the dam feeds into an open-channel irrigation system, from which about 30% of the water is lost through evaporation and 'seepage'. The proposal is for Government funding to be provided to build a new piped irrigation system, and the water saved through reduced loss would be made available to the integrated water supply (about five gigalitres per year).*

*If this happened, the existing policy for the protection of drinking water sources would apply to Logue Brook Dam, preventing any recreational use of the dam.*

Following this introduction, respondents worked through a series of questions about the dam.



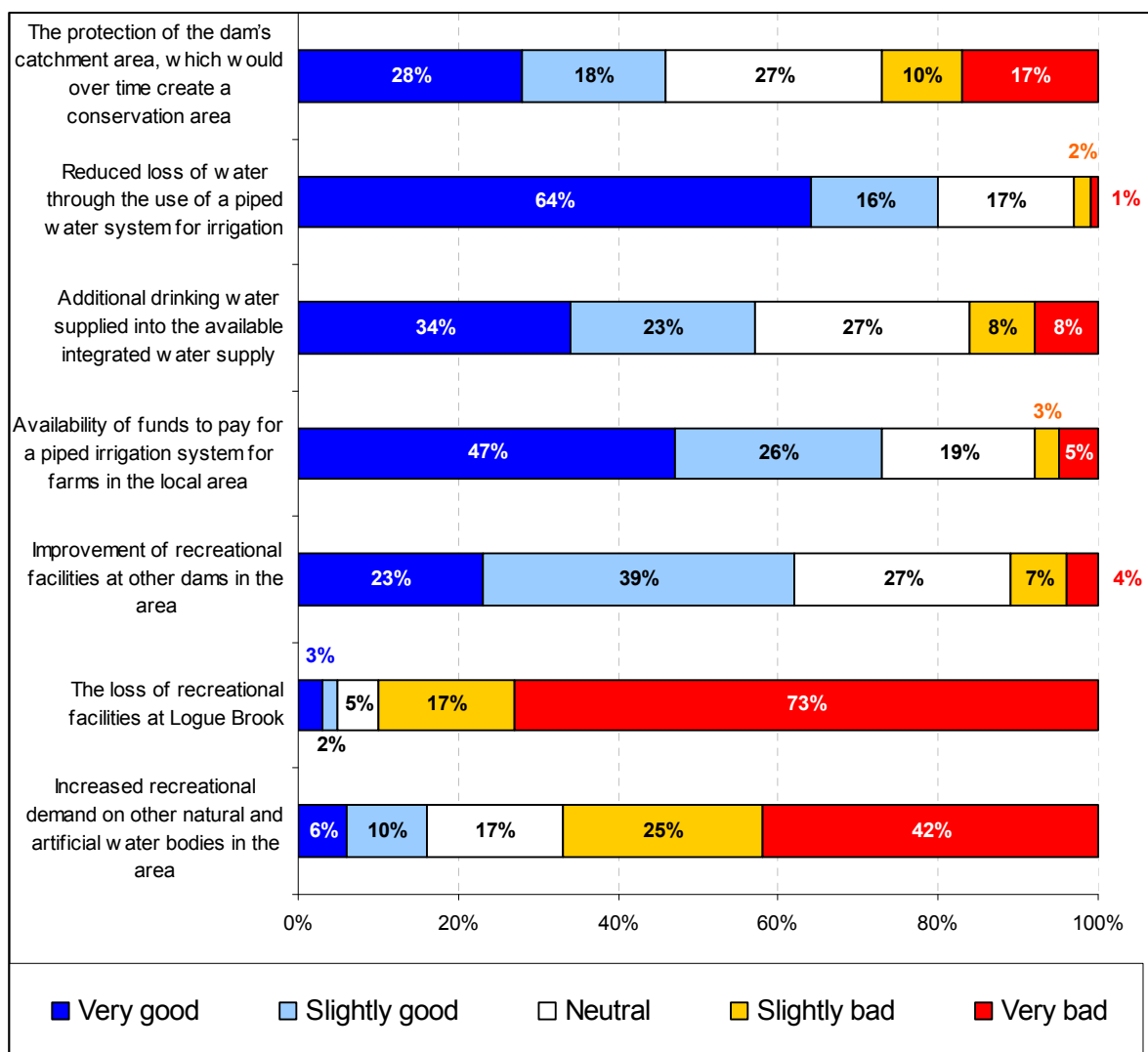
## Value of outcomes

Clearly the most positive likely outcome to participants of converting LBD to an irrigation and drinking water dam was the reduced loss of water through having a piped irrigation system. The availability of funds to pay for such a piped system was also seen as a positive outcome.

More than half the participants felt that improvements being made to recreational facilities at other dams in the area and having additional drinking water available to the integrated supply were *at least slightly good* outcomes.

The loss of recreational facilities at Logue Brook Dam was seen as a *very bad* outcome by nearly three quarters of participants, and increased recreational demand on other water bodies in the areas was also widely seen as *at least slightly bad*.

**Figure 5: Perceived value of likely outcomes of converting Logue Brook Dam from an irrigation and recreation dam to an irrigation and drinking water dam.**



[Source: Deliberative sample – pre-forum data, weighted data]

Over the course of the forum many participants changed their responses on individual outcomes up or down, although less than 1-in-4 changed their response more than  $\pm$  one level (eg: more than from 'slightly good' + one level to 'very good' or – one level to 'neutral').

However, in terms of net changes over the day (ie: total proportions who held particular views at the end of the day as compared to the beginning of the day), there was only one real change of note.



- In the pre-forum survey 67% of participants thought that the increased demand on other water bodies in the area was a bad outcome, including 42% who felt it was a *very bad* outcome. In the post-forum survey these two figures had increased to 83% and 63% respectively.
- There was also an 8% decline in the proportion who thought that having funds available to pay for a piped irrigation system was a good outcome – from 73% to 65%, but not really changing the overall positive nature of this outcome (and the movement was to being a ‘neutral’ outcome rather than a bad outcome).

There were no evident systematic differences in how stable were the views of different groups, although there were a couple of isolated cases where particular groups showed a greater predilection to change their response over the course of the day:

- 36% of non-recreational users of the dam changed their view on the value of the loss of recreational facilities at LBD during the day, compared to just 11% of recreational users.
- 57% of the participants who came from the random sample changed their view on the value of increased demand on other water bodies – compared to 18% of participants who responded to the advertising of the forum and 40% of stakeholders.

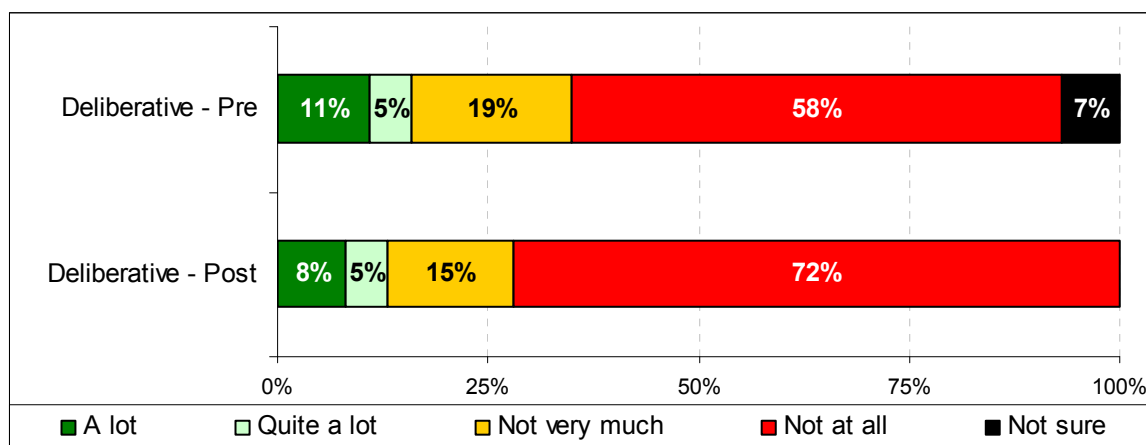
However, in both cases participants who changed their minds were almost equally likely to change their rating of the outcome up or down, suggesting that these are unlikely to indicate places where a particular group was strongly influenced in a particular direction by the forum content.

### **Support for basic proposal to change the status of Logue Brook Dam**

The deliberative forum participants were initially very opposed to the proposed change of status for LBD. Only 16% supported the change, while 58% would *not support the change at all*. The level of opposition to the basic proposal increased over the course of the day from 77% to 87%.

Three quarters of the participants did not change their view on supporting the proposed change in its basic form, and of the 39 participants who *did* change their view, 28 had decreased their level of support when they did the post-forum survey.

**Figure 6: How much would you support the use of Logue Brook Dam being changed from ‘irrigation and recreation’ to ‘irrigation and drinking water’?**



[Source: Community sample; Deliberative sample - weighted data]

Recreational users of the dam were more opposed than non-users to the basic proposal to begin with (see Table 7) and less likely to change that position. Nearly half the non-users of the dam



changed their view during the day, with most becoming less supportive. There were no differences in the reactions of Perth and South West participants, nor based on how they came to attend the forum.

**Table 7: Differences in the level of support for the proposed change of recreational users of LBD and non-users – Pre and Post the Deliberative Forum.**

How much would you support the use of Logue Brook Dam being changed from 'irrigation and recreation' to 'irrigation and drinking water'?		Support 'a lot' + 'quite a lot'	Support 'not very much' + 'not at all'	Support 'not at all'
Pre-forum	<i>LBD users</i>	8%	88%	81%
	<i>Non-users</i>	24%	65%	31%
Post-forum	<i>LBD users</i>	10%	90%	84%
	<i>Non-users</i>	18%	82%	58%

#### **Possible trade-offs to make the change of status more acceptable**

Given that 11% of the deliberative sample (pre-forum) gave the highest level of support ('a lot') to the basic proposal, there is conceivably room for some 'negotiation' – trade-offs that would make the proposal more acceptable (ie: increase the level of support).

**Note:** The analysis of the trade-off data only looks at respondents who did not support the basic proposal *a lot*.

The following chart shows the attractiveness of trade-off options to the deliberative sample in both the pre and post forum surveys.

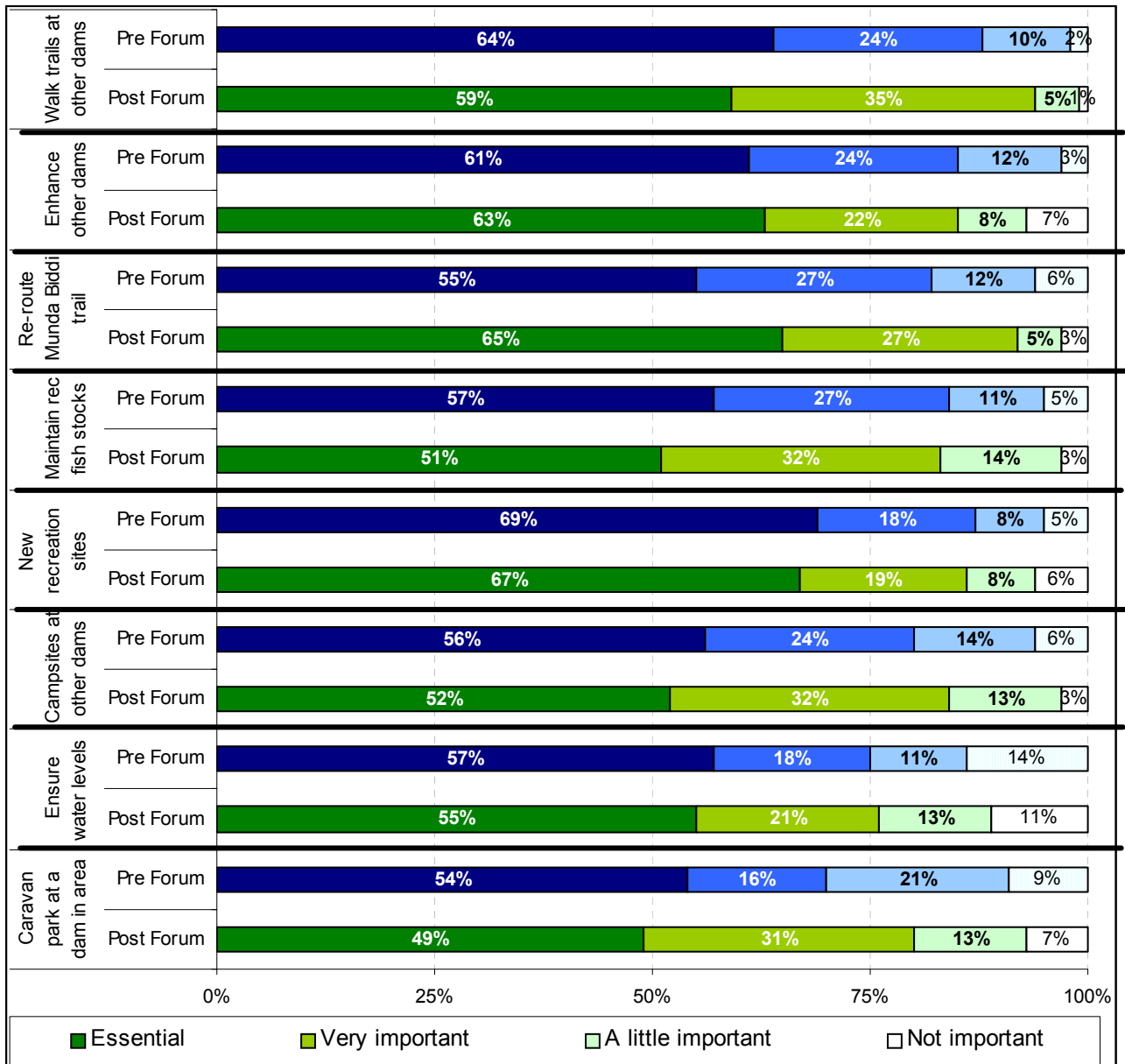
Each of the tradeoffs were about equally attractive to the forum participants in the pre-forum survey, with between 54% and 64% saying that each was *essential*, and 70% to 88% saying that each was *at least very important*.

There were only marginal net changes to the attractiveness of the trade-off options over the course of the forum. The attractiveness of each trade-off stayed constant or slightly increased over the day, with the biggest increase being a 10% increase in the proportion who felt it was *essential* to re-route and maintain the Munda Bididi cycle trail. However, none of these changes altered the interpretation of the deliberative data that all of the trade-off options were very important to participants, and none clearly more so than any other.



**Figure 8: Attractiveness of trade-off alternatives – Deliberative Sample.**

If you assume Logue Brook dam was approved as a drinking water source, how important would the following options be to you as a way of making up for the loss of recreation from this dam?



[Source: Deliberative sample – Pre and Post forum data; support for basic proposal less than 'a lot']



**Support for the proposal to change the status of LBD with trade-offs**

While there did not appear to be any particular trade-off(s) that were dramatically more appealing to participants in the deliberative forum, the main question around the trade-offs was whether their presence in the process would affect levels of support for the proposed change to the dam’s status.

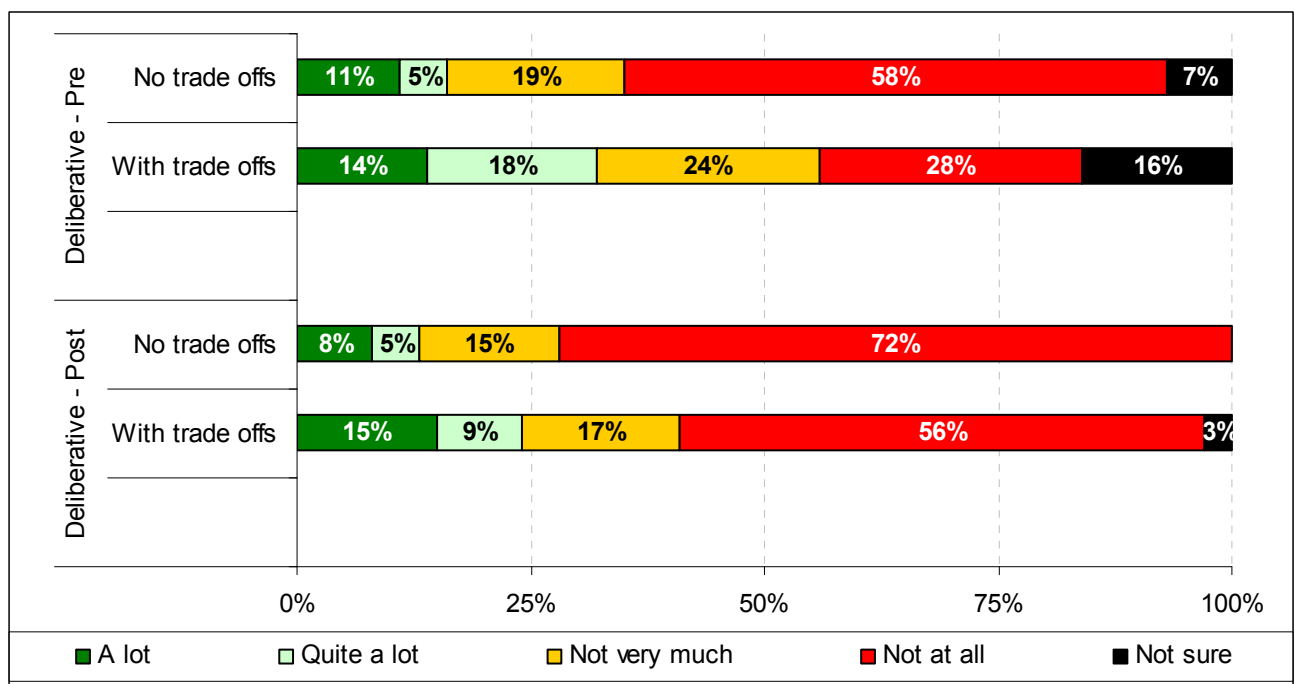
Participants in the deliberative sample who were less supportive of the proposal rated more trade-offs as being *at least very important*. Those who would support the basic proposal *a lot, quite a lot or not very much* all rated around 5 trade-offs as important, and those who would *not support the proposal at all* rated 6-7 of the eight trade-offs as *at least very important*.

Any respondent who did not indicate that *any* trade-offs were *essential* or *very important* to them was not asked to provide a second indication of their support assuming that the trade-offs occurred. For this group, it was assumed that the presence of the trade-offs would have no impact on their level of support.

However, those who *did* indicate that one or more trade-off was *at least very important* to them were asked to indicate their support for the proposal assuming that all the trade-offs that were *essential* or *very important* actually happened.

Consideration of the trade-offs had an interesting effect on respondent’s level of support, as can be seen in Figure 9.

**Figure 9: Change in support for the proposed change to Logue Brook Dam assuming that any essential or very important trade-offs actually happened.**



[Source: Deliberative sample - weighted data]

The deliberative sample showed a decreased level of opposition to the proposal after considering the trade-offs. However, even with this reduced opposition, more than half of the participants remained opposed to the proposal.

It is also notable that the impact of the trade-offs in reducing opposition to the proposal declined over the course of the day. In the pre-forum survey the trade-offs reduced opposition to a greater extent than they did in the post-forum survey. This suggests that after considering their experiences across the forum, they were less satisfied that these trade-offs made a sufficient difference to make the proposal as a whole acceptable.

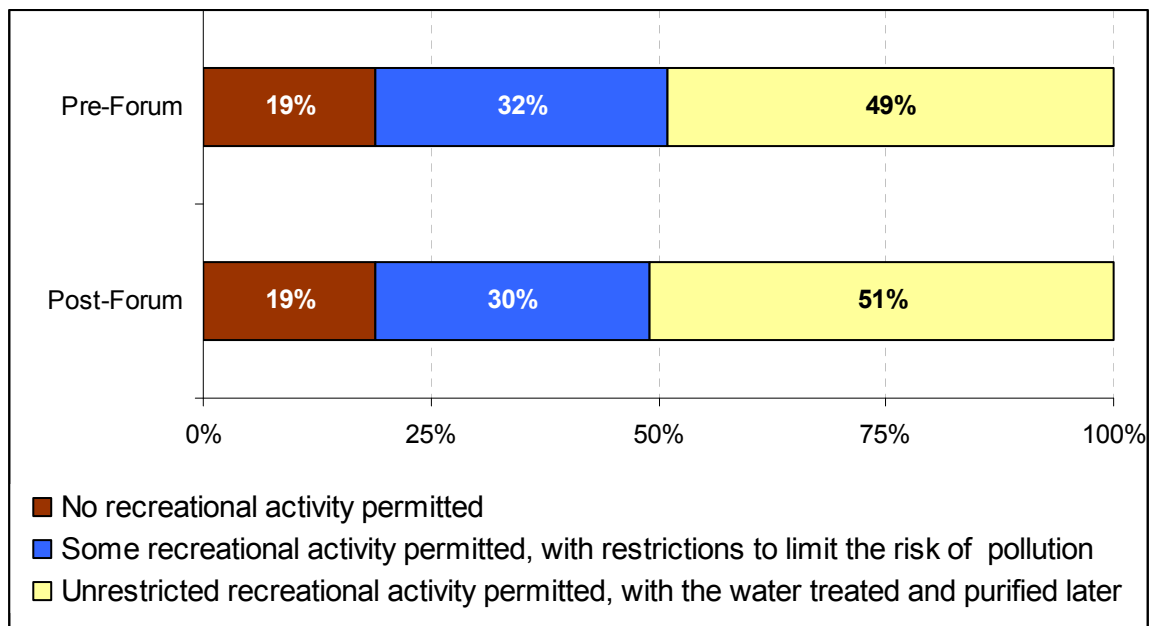


### **Recreation at Logue Brook if it was a drinking water source**

An additional question was included in the deliberative survey to capture the impact of discussions during the forum on attitudes relating to the limitation of recreation from LBD if it was to be made a drinking water source.

Before the forum half the participants felt that even if LBD became a drinking water source that there should still be unrestricted recreation allowed at the dam, with water treated and purified for consumption afterwards. Only 19% felt that no recreation should be allowed if LBD was a drinking water source.

**Figure 10: Preferred management of recreation at Logue Brook Dam if it was to become a drinking water source.**



[Source: Deliberative sample - weighted data]

Only 1-in-5 participants at the deliberative survey changed their views of how recreation should be managed at LBD if it was to be made a drinking water source.

In the post-forum survey the net results were almost identical, despite the 20% of individuals who did change their personal response.

- Almost all of the participants who originally felt that no recreation should be allowed still felt that way at the end of the day (18 of 20).
- Of the 51 participants who initially felt that restricted recreation should be allowed, 36 (71%) answered the same way after the forum. All but one of the 15 who changed their view moved to preferring unrestricted recreation.
- Half of the participants in the survey initially preferred unrestricted recreation to be allowed at LBD, even if it was a drinking water source. 85% of these participants did not change their view, and eight of the 10 who did moved only to preferring restricted recreation.





## 2.6 Beyond Logue Brook

As mentioned in the introductory discussions around this study, the issue of Logue Brook Dam's future is complicated by the wider context in which any decision needs to be viewed. Depending on the balance between rainfall and demand, it is possible (even likely) that the circumstances currently being considered at Logue Brook will be replicated around the area and the state. There were several questions asked that addressed some of these wider contextual issues.

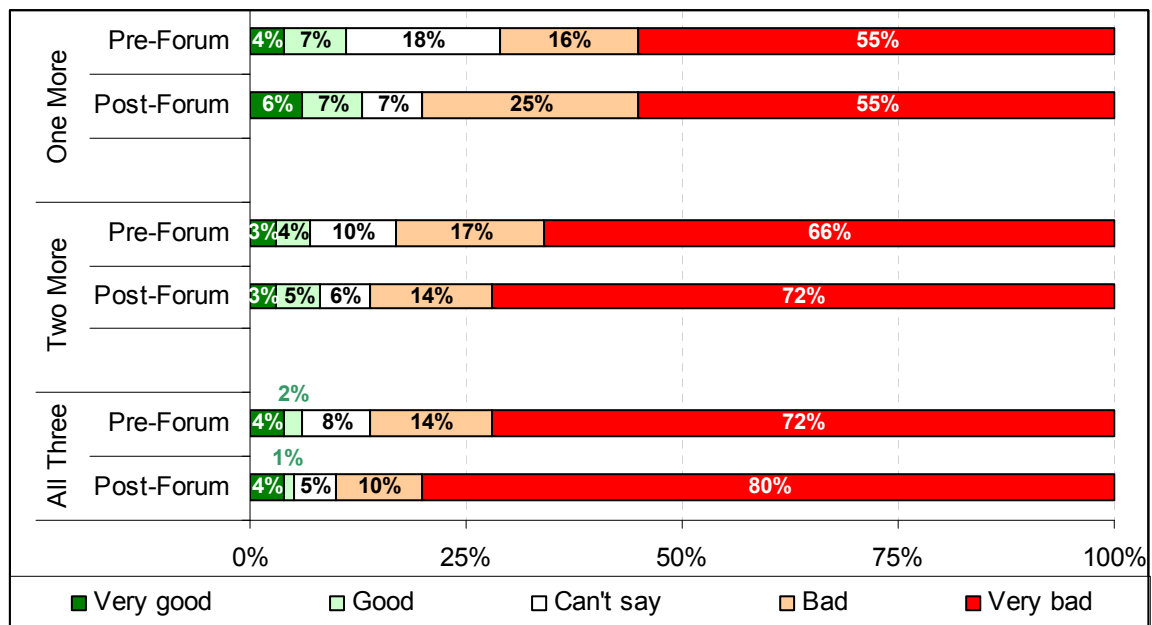
### What about other dams in the Harvey-Waroona area?

There are three other dams in the Harvey-Waroona area that are classified as irrigation / recreation – Harvey, Waroona and Drakesbrook). There are currently no plans to consider the future usage of any of these dams. However, it is possible at some point in the future that, as demands on the available water supply increase, one or more of these dams may also be looked at as a potential supply of more water for the integrated water supply (as well as other dams around the State).

Participants in the deliberative survey were asked how they would feel about one, two or all three of these dams becoming drinking water dams and off limits for recreation – assuming that this had already happened at Logue Brook.

In keeping with previous results, the deliberative sample were strongly opposed to the concept of converting additional dams to drinking water sources, and if anything became a little more negative over the course of the deliberative forum.

**Figure 11: Comparison of pre-forum and post-forum reactions to converting other dams in the Harvey-Waroona area to drinking water sources.**



[Source: Deliberative sample - weighted data]

**Note:** During the course of the Deliberative Forum the Water Corporation advised participants that it would be willing to forgo future access to these dams in order to obtain community support for the current Logue Brook Dam proposal. Given that this information was made available between the completion of the pre-forum and post-forum surveys, it is unclear what effect this may have had on responses to this question in the post-forum survey.



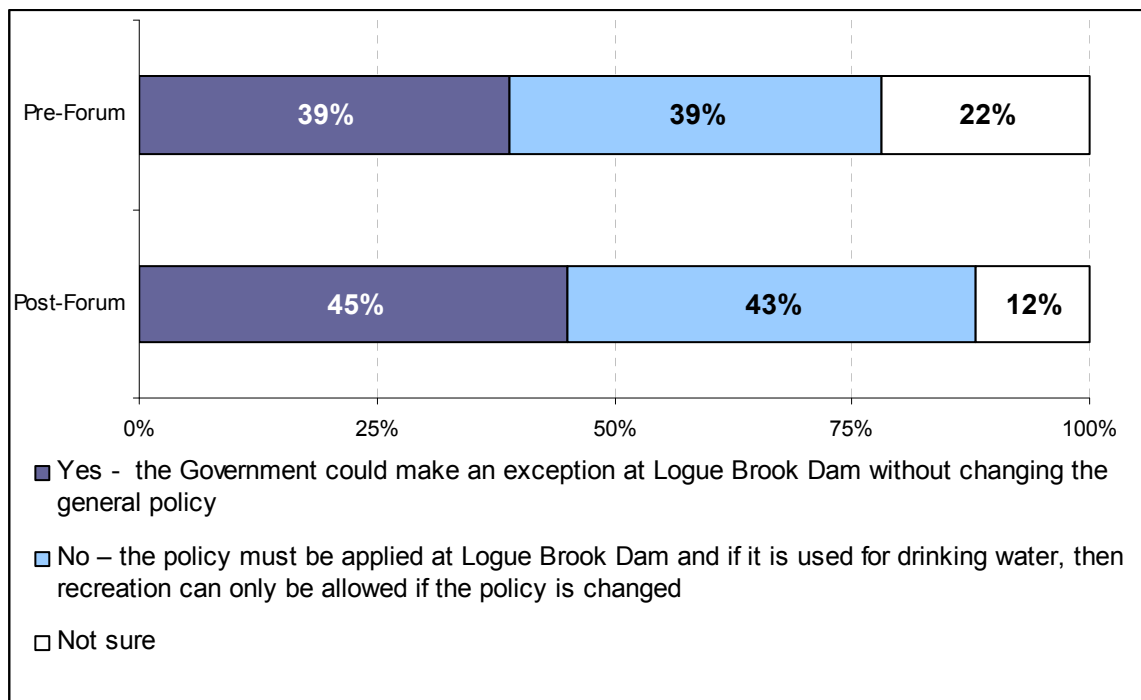
### **Can an exception be made at Logue Brook Dam?**

One issue which was not addressed in the original community survey, but which emerged in discussions prior to the deliberative forum / survey was that of making an exception at Logue Brook Dam to the policy of separating drinking water sources and recreation.

Participants in the deliberative forum / survey were mixed as to whether it was appropriate for an exception to the policy of separating recreation and drinking water sources to be made at Logue Brook Dam.

Initially 39% of participants felt it was appropriate, and 39% that it was not – with 22% unsure.

**Figure 12: Is it appropriate that an exception be made at Logue Brook Dam to the policy of separating drinking water sources and recreational activity?**



[Source: Deliberative sample - weighted data]

In the post-forum survey the proportion of participants who were unsure had halved, but the people who had formed an opinion during the day split evenly between the other two alternatives. There were a small number of participants who changed their minds about the appropriateness of making an exception during the day – but these were balanced in each direction.

Hence, in the post-forum results the proportions of participants who did or did not feel it was appropriate to make an exception to the policy at LBD remained even.

### **Support for the current risk minimisation policy**

The final issue to consider is support for the drinking water protection policy itself. While this issue had been addressed indirectly through the course of the survey, a question to directly measure how much respondents would support the policy being reviewed was included in both the community and deliberative surveys. The initial wording of the question in the community survey was:

***How strongly would you support the Government reviewing the current policy of protecting drinking water sources by prohibiting recreation?***



Unfortunately, it appears that the question was misunderstood by a proportion of respondents, and the data from the question could not be reliably used. Although the question did not appear to cause any problems when the survey was piloted, the results very strongly indicate that some respondents interpreted the wording in a way that was contrary to the intended meaning. As a result of this misinterpretation, the data from the question was not reported.

However, this problem was identified prior to the deliberative survey, and a reworded question was included:

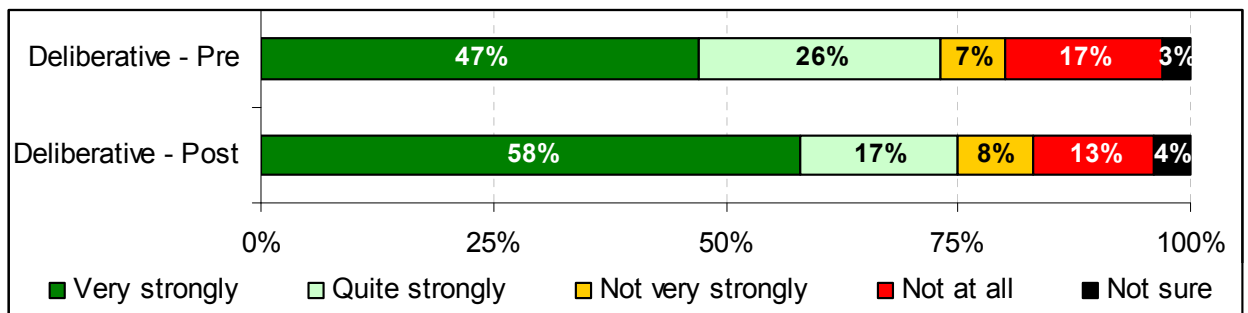
***The Government often reviews policies to ensure that they are still the best solution to the needs of the State. When a policy is reviewed it does not mean that it will necessarily be changed – the review might recommend that no changes should occur, that the policy should be significantly changed, or anywhere in between.***

***How strongly would you support the Government reviewing the current policy of protecting drinking water sources - to consider whether some forms of recreation should be allowed in or around drinking water dams?***

The deliberative survey participants very strongly supported the Government conducting a review of the drinking water protection policy of prohibiting recreation.

Over the course of the forum, the proportion of participants that would *at least quite strongly* support a review did not change, but the proportion who would *very strongly* support a review increased from 47% to 58%.

**Figure 13: How much deliberative survey participants would support Government reviewing the current policy for protecting drinking water sources.**



[Source: Deliberative sample - weighted data]



### 3. Discussion and Conclusions

---

#### 3.1 Reflections on the Processes

The Dialogue Forum together with the community and deliberative survey work have allowed Government to better understand attitudes in the community about water catchment management practices, and to provide guidance on the future of a proposal to change the status of Logue Brook Dam from *irrigation and recreation* to *irrigation and drinking water*.

The large scale traditional community survey involved residents of Perth and the South West area between Perth and Bunbury. The deliberative survey was conducted to both supplement this information and provide an indication of how attitudes might change after deeper consideration and deliberation on the issues. The deliberative survey also provided the views of key stakeholders with a strong interest and understanding of water resource issues in the South West and at LBD in particular.

The key reflection for the deliberative survey is how representative the participant sample was. As described in section 1, this is important both to the degree of deliberation achieved during the forum, and for understanding any changes that may or may not have been seen across the two waves of the deliberative survey. The recruitment model used meant that it was never going to be as robustly representative as the community sample in a statistical sense.

Comparing the two groups on stable and fundamental values is a critical step for any reader who wishes to fully understand the information provided by the two methodologies. There are two particular sets of results that the reader should consider in putting the deliberative sample into context against the community sample:

1. The proportion of recreational users of Logue Brook Dam in the two samples, and the differences in views expressed by users and non-users in both surveys: and
2. The water catchment philosophy questions (section 2.4 of both reports). These questions address underlying values of respondents, and a comparison of the pre-forum deliberative survey results to the community survey results will provide considerable insight.

In particular, a segmentation of the community survey data found that *the* key defining characteristic of the most differentiated segment was their willingness to consider issues beyond only the safety of drinking water when determining an appropriate level of risk around water sources. 27% of the community sample fell into this segment, and 30% of all respondents indicated such a willingness to consider wider issues. In contrast, in the deliberative sample three quarters of the participants indicated a greater degree of risk tolerance.

The researcher cautions the reader to be diligent in understanding these issues before making comparative interpretations and drawing subjective conclusions about how the results should be used in the overall decision making process. This caution is especially important for the Department of Water and ultimately Government to consider when reviewing this report and the community survey report.



## 3.2 Key Results

### Water Catchment Management Issues

#### Activity in and around drinking water sources

There were seven activities which were initially considered *at least quite appropriate* by more than 50% of the deliberative survey participants:

- Walking trails through the catchment
- Grassed picnic / BBQ areas on the foreshore
- Cycling trails through the catchment
- Organic agriculture in the catchment
- Fishing / marroning without bait
- Camping / accommodation; and
- Non-motorised boating.

There were no major changes that occurred to these views across the course of the forum.

It should be noted that these results reflect participants views on what they think is 'appropriate', and they do not necessarily reflect the actual risks to drinking water quality.

#### Catchment management philosophies

The deliberative sample held quite clear views on all of the six catchment management choices offered, with more than two thirds holding the dominant view for each choice. There was essentially no net change in any of these views as a result of the forum deliberations.

- 60% preferred to protect drinking water supplies by treatment (therefore allowing more potentially contaminating activities) rather than by prevention. This figure increased marginally to 64% over the course of the forum.
- Two thirds (65%) of the deliberative survey participants preferred to focus on reducing usage to make better use of existing water supplies than to focus on finding more sources of additional water. This figure was unchanged after the forum.
- 70% of participants felt that everyone should pay more for drinking water to be treated (therefore allowing more use of dams for recreation), rather than individuals and organisations who use the dams recreationally to pay the treatment costs. This proportion was essentially unchanged at 73% after the forum.
- 73% of the deliberative sample felt that the acceptable level of risk should take into account other issues and possible uses of dams and their water, and only 30% that the safety and protection of drinking water supplies should be given the highest consideration – ahead of *all* other issues or uses.

The proportion who felt that other issues and possible uses should be considered increased a little to 78% at the end of the forum.

This result is particularly important as a preparedness to consider a wider range of issues seemed to be the single biggest predictor of likely reactions to the Logue Brook Dam proposal in the community survey. It was also the main factor that differentiated the one distinctive segment in the community survey.

- 70% of the deliberative sample thought that water which is naturally occurring in an area should first be used to meet the needs of the local community, with any excess going to meet the needs of other areas. The proportion who felt this way increased a little to 75% at the end of the forum.



- There was strong support in the deliberative sample to review the policy of protecting drinking water by prohibiting recreation. 72% of the community sample favoured reviewing this policy, and this increased to 75% during the forum.

The deliberative sample generally had strong and clear preferences. Three quarters were relatively risk tolerant in terms of the safety of drinking water sources. They had a clear preference for options that allowed recreation opportunities on drinking water sources, and felt that the community as a whole should fund the provision of these community recreation facilities.

## **Logue Brook Dam**

### Value of outcomes

There was only one possible outcome of the Logue Brook proposal that more than 50% of the deliberative sample thought was *very good*, which was reduced loss of water through a piped irrigation system. The availability of funds to pay for a piped irrigation system was also viewed quite positively.

Three quarters rated the loss of recreational facilities at Logue Brook Dam as *very bad*, and two thirds rated the increased demand on other water bodies in the area as being *at least slightly bad*.

### Support for the basic proposal

Only 16% of the deliberative sample would initially support the basic proposal to convert Logue Brook Dam from an irrigation and recreation dam to an irrigation and drinking water dam, while 58% would *not support it at all*.

By the end of the forum the level of support for the proposal had declined further, with just 13% supportive and 87% opposed – including 72% who would *not support at all* the proposed change.

### Trade-offs

Of the eight categories of trade-offs suggested to mitigate the impact on recreation of a change of Logue Brooks status, there were no dramatically more effective ones.

In the pre-forum survey between 54% and 64% said that each was *essential*, and 70% to 88% said that each was *at least very important*. These figures did not change significantly over the course of the day.

### Support for the proposal after considering the trade-offs

It would be expected that the effect of the trade-offs (if any) would be to increase the level of support for the proposal. Even though there were no stand-out elements of the possible trade-offs, overall the effect of the trade-offs was to increase support – although this was to only a very small extent and the majority of participants remained opposed to the proposal.

Further, the effectiveness of the trade-offs appeared to diminish over the course of the day – or at least they became less able to overcome what appeared to be a higher level of opposition at the end of the forum than was seen at the start.



### Management of Logue Brook Dam if it was a drinking water source

Half the participants in the deliberative survey felt that even if LBD was converted to a drinking water source that unrestricted recreational activity should be permitted, and around 80% that at least restricted recreation should be allowed. These figures did not change across the forum.

### Converting more dams in the Harvey-Waroona area

Participants in the deliberative forum were strongly opposed to converting any of the other dams in the area to irrigation and drinking water, and making them off limits to recreation. More than half the participants felt *very bad* about even one more dam being converted, and opposition increased during the day.

### The drinking water protection policy

At the outset of the day 47% of participants very strongly supported the drinking water protection policy being reviewed, with 73% at least quite strongly supporting a review. These figures increased to 58% and 75% over the course of the forum.

39% initially felt that an exception could be made to the policy at Logue Brook, with another 22% unsure. By the end of the forum 45% felt an exception could be made, with 12% unsure.



### 3.3 Conclusions

The Harvey Dialogue Forum deliberative sample participants generally tended to be somewhat risk tolerant about protecting drinking water sources, and preferred options that allowed recreation and drinking water sources to co-exist.

Participants did not support the proposal to convert Logue Brook Dam from an irrigation and recreation dam to an irrigation and drinking water dam.

- Participants recognised the value of improving the irrigation system, but felt that they loss of recreational facilities was a very bad outcome.
- The level of support for the proposal decreased further during the forum.
- While the possible trade-offs were all considered important by participants, their presence was not sufficient for the group to support the proposal. The effectiveness of the trade-offs to improve support for the proposal declined during the day.

Participants in the forum support a review of the Drinking Water Protection Policy, and a substantial proportion (although less than 50%) would support an exception being made to the policy for Logue Brook Dam if it was to be converted to a drinking water source.

- The majority of deliberative forum participants felt that even if Logue Brook Dam became a drinking water source that at least restricted recreation should still be allowed at the dam.

The group who participated in the deliberative forum showed very little change in their opinions as a result of the forum, with only minor net changes being seen between the pre-and-post-forum surveys.

As noted throughout this report, the reader is cautioned about drawing conclusions from the data in either this report or the community survey report on their own. For a complete understanding of the issues this report must be read together with the community survey report dealing with the same subject matter. In this way, the significant difference in conclusions evident in the traditional community survey and the deliberative survey can be understood, and the value of both survey types better appreciated.

It is clear that such a complex and difficult project as this one is not going to be decided solely by the survey work completed here or in the community survey report, and there are many other factors that will need to be considered in the final decision by Government on the future of Logue Brook Dam.





## 4. Appendices

---





## Appendix A: The Deliberative Survey Questionnaires

---



# Deliberative Survey #1

## Water Catchment Management Issues

Please write in your Participant Reference Number →  
(which is printed on your name tag)

1. **Any activity in and around sources of drinking water can be a potential risk to the quality and safety of that water. Contamination from the presence of humans and domestic animals in particular pose threats to drinking water quality. At present, dam water for the integrated supply has only minimal treatment once it leaves the dam.**

**Given this, how appropriate do you think it is for each of the following activities to happen in, on and around sources of public drinking water? Tick one box on each line**

	Very appropriate	Quite appropriate	Not very appropriate	Not at all appropriate	Can't say
1. <b>Activities where people enter the water</b> (eg: swimming, some types of fishing or marroning)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2. <b>Motorised boating and water skiing</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
3. <b>Non-motorised boating</b> (eg: canoes, sailboats)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
4. <b>Fishing or marroning <u>without</u> bait</b> (eg: using lures, snares or scoops)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
5. <b>Fishing or marroning <u>with</u> bait</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
6. <b>Walk trails through surrounding water catchment areas</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
7. <b>Cycle trails through surrounding water catchment areas</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
8. <b>4WD and trail-bike use in surrounding water catchment areas</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
9. <b>'Organic' agricultural activities in the catchment</b> (ie: no use of chemicals)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
10. <b>General agricultural activity in the catchment</b> (including possible use of chemicals and fertilisers)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
11. <b>Industrial areas</b> (eg: mining, factories, power stations)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
12. <b>Grassed picnic and BBQ areas on the dam's foreshore</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
13. <b>Camping and accommodation areas and associated facilities</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

At present, dam water going into the integrated water supply system is not heavily “treated”. Instead, the quality and safety of the water is protected mainly by strict controls on dams that feed water into the integrated supply. This protection includes prohibiting any development or recreational activity on the dams, or within a 2km protection area around the dam. These controls only apply to dams that supply drinking water, and are considered in Western Australia to be the best way to ensure safe, good quality drinking water. This approach has so far delivered safe drinking water in WA, and at a minimum cost to consumers.

However, as dams are increasingly being used for drinking water, there are fewer opportunities for people who want to develop land and recreate around these sites. Other approaches could be adopted that would allow more development and recreation opportunities on and around our drinking water dams and in their catchments. However, they would also increase the cost of water due to additional treatment that would be needed. Such treatment may also not be able to deliver the same quality and safety of the water supplied.

**2. Given the above information, what do you feel should be the main guiding principles behind the management of drinking water sources and catchments in WA?**

**Tick ONE box for each pair of options**

- Please note that in some cases the choices given could both happen – but we are interested in which you would prefer to be the stronger influence or the most visible.
- If you like both options, you should choose the one you like the most.  
If you dislike both options, you should choose the one you dislike least.

<input type="checkbox"/> <sub>1</sub> Rely on treatment technologies to make our drinking water safe – which is more expensive but allows more potentially contaminating development and recreational activities to occur in our drinking water catchments	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> Protect our water by avoiding potentially contaminating development or recreational activities in our drinking water catchments
<input type="checkbox"/> <sub>1</sub> Efforts are focussed on reducing water usage in the community to get more value from our existing water supplies	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> Efforts are focussed on finding new sources of additional water to minimise the changes in current usage that is required
<input type="checkbox"/> <sub>1</sub> Everyone should pay more for treated drinking water, allowing people and organisations who want to use dams for recreational purposes to do so	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> People and organisations who use dams for recreational activities should pay for the additional costs of treating the water that they use
<input type="checkbox"/> <sub>1</sub> The safety and protection of our drinking water supplies is given the highest consideration, and achieving the lowest possible level of risk to the water takes priority over <u>all</u> other issues or uses of dams and their water	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> While the safety and protection of our drinking water is considered very important, the acceptable level of risk takes into account other issues and possible uses of the dams and their water
<input type="checkbox"/> <sub>1</sub> All water <u>practically</u> available in the State is combined into a single water supply to best meet the needs to the whole State	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> Water that naturally occurs in an area is first used to meet the needs of that area, with any extra water going to meet the needs of other areas where local demand exceeds the natural supply
<input type="checkbox"/> <sub>1</sub> The current policy of keeping recreation and drinking water separate is maintained, accepting that this will potentially put more and more limitations on recreational opportunities in public dams	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> The policy of keeping recreation totally separate from drinking water is reviewed and <u>possibly</u> changed, acknowledging that the limitations it puts on recreation may no longer be justifiable or financially viable



The next set of questions specifically addresses the future of dams in the Harvey-Waroona area south of Perth. The issues here are important right now for this area, but they will be important across the State as demand for water continues to grow. The views of all parts of the community on how to deal with these issues are very important.

There are six major dams in the Harvey-Waroona area. Their size and main current uses are:

Dam	Harvey	Stirling	Logue Brook	Waroona	Samson	Drakes Brook
Size (in Gigalitres)	56.4	53.8	24.3	14.9	8.0	2.3
Used for: Drinking + Irrigation		✓			✓	
Used for: Irrigation + Recreation	✓ Limited rec.		✓	✓		✓ Limited rec.

Due to low rainfall and increasing population, there is a need to find additional sources for the integrated water supply. Logue Brook Dam is being looked at for this purpose. The dam was built to provide irrigation water for local agriculture, and is also used for a variety of recreational activities. Of the four irrigation / recreation dams in the area it is one of the most heavily used for recreation. The dam and its facilities (including a camping ground and accommodation at a caravan park) are used by local residents and visitors from other areas, particularly from Perth.

A proposal is being considered by Government that would make Logue Brook Dam a drinking water source. Currently, water from the dam feeds into an open-channel irrigation system, from which about 30% of the water is lost through evaporation and 'seepage'. The proposal is for Government funding to be provided to build a new piped irrigation system, and the water saved through reduced loss would be made available to the integrated water supply (about five gigalitres per year).

If this happened, the existing policy for the protection of drinking water sources would apply to Logue Brook Dam, preventing any recreational use of the dam.

**3. There are a number of likely outcomes of converting the Logue Brook Dam from an 'irrigation and recreation' dam to an 'irrigation and drinking water' dam. How good or bad do you personally see each of these possible outcomes? Tick one box on each line**

	Very <u>good</u> outcome	Slightly <u>good</u> outcome	Neutral outcome	Slightly <u>bad</u> outcome	Very <u>bad</u> outcome
Additional drinking water supplied into the available integrated water supply	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The loss of recreational facilities at Logue Brook	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Increased recreational demand on other natural and artificial water bodies in the area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Improvement of recreational facilities at other dams in the area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Availability of funds to pay for a piped irrigation system for farms in the local area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Reduced loss of water through the use of a piped water system for irrigation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The protection of the dam's catchment area, which would over time create a conservation area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5



4. How much would you support the use of Logue Brook Dam being changed from 'irrigation and recreation' to 'irrigation and drinking water'?

A lot <input type="checkbox"/> 1	Quite a lot <input type="checkbox"/> 2	Not very much <input type="checkbox"/> 3	Not at all <input type="checkbox"/> 4	Not sure <input type="checkbox"/> 5
-------------------------------------	---	---	--	--

5. If you assume Logue Brook dam was approved as a drinking water source, how important would the following options be to you as a way of making up for the loss of recreation from this dam? Please tick one answer on each line

	Essential	Very important	A little important	Not important
<b>Providing new recreation sites</b> (ie: increasing the number of recreation sites available by making other, existing dams available for recreation)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Enhancing existing recreation facilities at other dams</b> (ie: improving facilities at sites that already exist)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Ensuring water levels at existing dams were kept high enough to guarantee recreation use</b> (especially for skiing)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Ensuring a caravan park was available at a dam in the area</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Ensuring adequate campsites are available at other dams</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Introducing and maintaining fish stocks in dams that allow recreational fishing</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Ensuring walk trails are available at other dams</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Ensuring the Munda Biddi long distance cycling trail is maintained and re-routed if necessary</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

*If you did not tick any of the things in question 5 as being "Essential" or "Very important": → skip to question 7.*

6. If all of the things that you ticked as being "Essential" or "Very important" in question 5 happened, how much would you then support the proposed change?

A lot <input type="checkbox"/> 1	Quite a lot <input type="checkbox"/> 2	Not very much <input type="checkbox"/> 3	Not at all <input type="checkbox"/> 4	Not sure <input type="checkbox"/> 5
-------------------------------------	---	---	--	--

7. There are currently no plans to consider the future usage of any of the other three irrigation and recreation dams in the Harvey-Waroona area (Harvey, Waroona and Drakesbrook). However, it is possible at some point in the future that, as demands on the available water supply increase, one or more of these dams may also be looked at as a potential supply of more water for the integrated water supply (as well as other dams around the State).

If Logue Brook Dam had already become part of the drinking water supply, how would you feel about:

	Very good	Good	Can't say	Bad	Very bad
1. <u>One</u> other dam becoming a drinking water source, and off limits for recreation?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2. <u>Two</u> other dams becoming a drinking water source, and off limits for recreation?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
3. All <u>three</u> of the other dams becoming a drinking water source, and off limits for recreation?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5



8. If Logue Brook Dam was to become an 'irrigation and drinking water' dam, and thinking only of Logue Brook Dam, would you prefer that... tick one box only

No recreational activity was permitted	<input type="checkbox"/> 1
Some recreational activity was permitted, with restrictions to limit the risk of pollution	<input type="checkbox"/> 2
Unrestricted recreational activity was permitted, with the water treated and purified later	<input type="checkbox"/> 3

The Government often reviews policies to ensure that they are still the best solution to the needs of the State. When a policy is reviewed it does not mean that it will necessarily be changed – the review might recommend that no changes should occur, that the policy should be significantly changed, or anywhere in between.

9. How strongly would you support the Government reviewing the current policy of protecting drinking water sources - to consider whether some forms of recreation should be allowed in or around drinking water dams?

Very strongly <input type="checkbox"/> 1	Quite strongly <input type="checkbox"/> 2	Not very strongly <input type="checkbox"/> 3	Not at all <input type="checkbox"/> 4	Not sure <input type="checkbox"/> 5
---	--	---	--	--

10. Do you think it is appropriate that an exception could be made to the policy of separating drinking water sources and recreational activities at Logue Brook Dam?

<p><b>Yes</b></p> <p>The Government could make an exception at Logue Brook Dam without changing the general policy</p> <input type="checkbox"/> 1	<p><b>No</b></p> <p>The policy must be applied at Logue Brook Dam and if it is used for drinking water, then recreation can only be allowed if the policy is changed</p> <input type="checkbox"/> 2	<p><b>Not sure</b></p> <input type="checkbox"/> 5
---	---	---

11. In the last 12 months, which of the following have you done? Tick all that apply

	Active recreation swimming, walking, skiing etc	Casual recreation picnicking, BBQ etc	Stayed overnight	None of these
At Logue Brook Dam	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
At another dam	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
At a natural lake or river	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

12. Which of the following age groups are you in?

1 18-29       3 30-39       3 40-49       4 50-64       5 65+

13. Which gender are you?

1 Male       2 Female

14. What is the postcode where you live?

15. Which of the following best describes where you live?

1 In an urban area       2 In a semi-rural area       3 In a rural area

16. How did you come to be at the Dialogue today?

Received an invitation with a survey in the mail	Responded to invitation in an advertisement	Invited to attend as a stakeholder or representative
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

17. Are you a current user of irrigation water for agricultural production?

1 Yes       2 No





# Deliberative Survey #2

## Water Catchment Management Issues

Please write in your Participant Reference Number →  
(which is printed on your name tag)

**18. Any activity in and around sources of drinking water can be a potential risk to the quality and safety of that water. Contamination from the presence of humans and domestic animals in particular pose threats to drinking water quality. At present, dam water for the integrated supply has only minimal treatment once it leaves the dam.**

**Given this, how appropriate do you think it is for each of the following activities to happen in, on and around sources of public drinking water? Tick one box on each line**

	Very appropriate	Quite appropriate	Not very appropriate	Not at all appropriate	Can't say
1. <b>Activities where people enter the water</b> (eg: swimming, some types of fishing or marroning)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2. <b>Motorised boating and water skiing</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
3. <b>Non-motorised boating</b> (eg: canoes, sailboats)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
4. <b>Fishing or marroning <u>without</u> bait</b> (eg: using lures, snares or scoops)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
5. <b>Fishing or marroning <u>with</u> bait</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
6. <b>Walk trails through surrounding water catchment areas</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
7. <b>Cycle trails through surrounding water catchment areas</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
8. <b>4WD and trail-bike use in surrounding water catchment areas</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
9. <b>'Organic' agricultural activities in the catchment</b> (ie: no use of chemicals)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
10. <b>General agricultural activity in the catchment</b> (including possible use of chemicals and fertilisers)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
11. <b>Industrial areas</b> (eg: mining, factories, power stations)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
12. <b>Grassed picnic and BBQ areas on the dam's foreshore</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
13. <b>Camping and accommodation areas and associated facilities</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5



At present, dam water going into the integrated water supply system is not heavily “treated”. Instead, the quality and safety of the water is protected mainly by strict controls on dams that feed water into the integrated supply. This protection includes prohibiting any development or recreational activity on the dams, or within a 2km protection area around the dam. These controls only apply to dams that supply drinking water, and are considered in Western Australia to be the best way to ensure safe, good quality drinking water. This approach has so far delivered safe drinking water in WA, and at a minimum cost to consumers.

However, as dams are increasingly being used for drinking water, there are fewer opportunities for people who want to develop land and recreate around these sites. Other approaches could be adopted that would allow more development and recreation opportunities on and around our drinking water dams and in their catchments. However, they would also increase the cost of water due to additional treatment that would be needed. Such treatment may also not be able to deliver the same quality and safety of the water supplied.

**19. Given the above information, what do you feel should be the main guiding principles behind the management of drinking water sources and catchments in WA?**

**Tick ONE box for each pair of options**

- Please note that in some cases the choices given could both happen – but we are interested in which you would prefer to be the stronger influence or the most visible.
- If you like both options, you should choose the one you like the most.  
If you dislike both options, you should choose the one you dislike least.

<input type="checkbox"/> <sub>1</sub> Rely on treatment technologies to make our drinking water safe – which is more expensive but allows more potentially contaminating development and recreational activities to occur in our drinking water catchments	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> Protect our water by avoiding potentially contaminating development or recreational activities in our drinking water catchments
<input type="checkbox"/> <sub>1</sub> Efforts are focussed on reducing water usage in the community to get more value from our existing water supplies	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> Efforts are focussed on finding new sources of additional water to minimise the changes in current usage that is required
<input type="checkbox"/> <sub>1</sub> Everyone should pay more for treated drinking water, allowing people and organisations who want to use dams for recreational purposes to do so	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> People and organisations who use dams for recreational activities should pay for the additional costs of treating the water that they use
<input type="checkbox"/> <sub>1</sub> The safety and protection of our drinking water supplies is given the highest consideration, and achieving the lowest possible level of risk to the water takes priority over <u>all</u> other issues or uses of dams and their water	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> While the safety and protection of our drinking water is considered very important, the acceptable level of risk takes into account other issues and possible uses of the dams and their water
<input type="checkbox"/> <sub>1</sub> All water <u>practically</u> available in the State is combined into a single water supply to best meet the needs to the whole State	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> Water that naturally occurs in an area is first used to meet the needs of that area, with any extra water going to meet the needs of other areas where local demand exceeds the natural supply
<input type="checkbox"/> <sub>1</sub> The current policy of keeping recreation and drinking water separate is maintained, accepting that this will potentially put more and more limitations on recreational opportunities in public dams	<b>Or</b>	<input type="checkbox"/> <sub>2</sub> The policy of keeping recreation totally separate from drinking water is reviewed and <u>possibly</u> changed, acknowledging that the limitations it puts on recreation may no longer be justifiable or financially viable



The next set of questions specifically addresses the future of dams in the Harvey-Waroona area south of Perth. The issues here are important right now for this area, but they will be important across the State as demand for water continues to grow. The views of all parts of the community on how to deal with these issues are very important.

There are six major dams in the Harvey-Waroona area. Their size and main current uses are:

Dam	Harvey	Stirling	Logue Brook	Waroona	Samson	Drakes Brook
Size (in Gigalitres)	56.4	53.8	24.3	14.9	8.0	2.3
Used for: Drinking + Irrigation		✓			✓	
Used for: Irrigation + Recreation	✓ Limited rec.		✓	✓		✓ Limited rec.

Due to low rainfall and increasing population, there is a need to find additional sources for the integrated water supply. Logue Brook Dam is being looked at for this purpose. The dam was built to provide irrigation water for local agriculture, and is also used for a variety of recreational activities. Of the four irrigation / recreation dams in the area it is one of the most heavily used for recreation. The dam and its facilities (including a camping ground and accommodation at a caravan park) are used by local residents and visitors from other areas, particularly from Perth.

A proposal is being considered by Government that would make Logue Brook Dam a drinking water source. Currently, water from the dam feeds into an open-channel irrigation system, from which about 30% of the water is lost through evaporation and 'seepage'. The proposal is for Government funding to be provided to build a new piped irrigation system, and the water saved through reduced loss would be made available to the integrated water supply (about five gigalitres per year).

If this happened, the existing policy for the protection of drinking water sources would apply to Logue Brook Dam, preventing any recreational use of the dam.

**20. There are a number of likely outcomes of converting the Logue Brook Dam from an 'irrigation and recreation' dam to an 'irrigation and drinking water' dam. How good or bad do you personally see each of these possible outcomes? Tick one box on each line**

	Very good outcome	Slightly good outcome	Neutral outcome	Slightly bad outcome	Very bad outcome
Additional drinking water supplied into the available integrated water supply	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The loss of recreational facilities at Logue Brook	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Increased recreational demand on other natural and artificial water bodies in the area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Improvement of recreational facilities at other dams in the area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Availability of funds to pay for a piped irrigation system for farms in the local area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Reduced loss of water through the use of a piped water system for irrigation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The protection of the dam's catchment area, which would over time create a conservation area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5



21. How much would you support the use of Logue Brook Dam being changed from 'irrigation and recreation' to 'irrigation and drinking water'?

A lot <input type="checkbox"/> 1	Quite a lot <input type="checkbox"/> 2	Not very much <input type="checkbox"/> 3	Not at all <input type="checkbox"/> 4	Not sure <input type="checkbox"/> 5
-------------------------------------	---	---	--	--

22. If you assume Logue Brook dam was approved as a drinking water source, how important would the following options be to you as a way of making up for the loss of recreation from this dam? Please tick one answer on each line

	Essential	Very important	A little important	Not important
<b>Providing new recreation sites</b> (ie: increasing the number of recreation sites available by making other, existing dams available for recreation)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Enhancing existing recreation facilities at other dams</b> (ie: improving facilities at sites that already exist)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Ensuring water levels at existing dams were kept high enough to guarantee recreation use</b> (especially for skiing)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Ensuring a caravan park was available at a dam in the area</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Ensuring adequate campsites are available at other dams</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Introducing and maintaining fish stocks in dams that allow recreational fishing</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Ensuring walk trails are available at other dams</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<b>Ensuring the Munda Biddi long distance cycling trail is maintained and re-routed if necessary</b>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

If you did not tick any of the things in question 5 as being "Essential" or "Very important": → skip to question 24.

23. If all of the things that you ticked as being "Essential" or "Very important" in question 5 happened, how much would you then support the proposed change?

A lot <input type="checkbox"/> 1	Quite a lot <input type="checkbox"/> 2	Not very much <input type="checkbox"/> 3	Not at all <input type="checkbox"/> 4	Not sure <input type="checkbox"/> 5
-------------------------------------	---	---	--	--

24. There are currently no plans to consider the future usage of any of the other three irrigation and recreation dams in the Harvey-Waroona area (Harvey, Waroona and Drakesbrook). However, it is possible at some point in the future that, as demands on the available water supply increase, one or more of these dams may also be looked at as a potential supply of more water for the integrated water supply (as well as other dams around the State).

If Logue Brook Dam had already become part of the drinking water supply, how would you feel about:

	Very good	Good	Can't say	Bad	Very bad
1. <u>One</u> other dam becoming a drinking water source, and off limits for recreation?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2. <u>Two</u> other dams becoming a drinking water source, and off limits for recreation?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
3. All <u>three</u> of the other dams becoming a drinking water source, and off limits for recreation?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5



25. If Logue Brook Dam was to become an 'irrigation and drinking water' dam, and thinking only of Logue Brook Dam, would you prefer that... tick one box only

No recreational activity was permitted	<input type="checkbox"/> 1
Some recreational activity was permitted, with restrictions to limit the risk of pollution	<input type="checkbox"/> 2
Unrestricted recreational activity was permitted, with the water treated and purified later	<input type="checkbox"/> 3

The Government often reviews policies to ensure that they are still the best solution to the needs of the State. When a policy is reviewed it does not mean that it will necessarily be changed – the review might recommend that no changes should occur, that the policy should be significantly changed, or anywhere in between.

26. How strongly would you support the Government reviewing the current policy of protecting drinking water sources - to consider whether some forms of recreation should be allowed in or around drinking water dams?

Very strongly <input type="checkbox"/> 1	Quite strongly <input type="checkbox"/> 2	Not very strongly <input type="checkbox"/> 3	Not at all <input type="checkbox"/> 4	Not sure <input type="checkbox"/> 5
---	--	---	--	--

27. Do you think it is appropriate that an exception could be made to the policy of separating drinking water sources and recreational activities at Logue Brook Dam?

<b>Yes</b> The Government could make an exception at Logue Brook Dam without changing the general policy <input type="checkbox"/> 1	<b>No</b> The policy must be applied at Logue Brook Dam and if it is used for drinking water, then recreation can only be allowed if the policy is changed <input type="checkbox"/> 2	<b>Not sure</b> <input type="checkbox"/> 5
---	---	---

Please check that you have completed all questions and that your Participant Reference Number is written on the front page, and then pass the completed survey form to you table facilitator.

