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When Public Opposition Defeats Alternative Water Projects - the Case of Toowoomba Australia

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Abstract

Located approximately 100km west of Brisbane, Toowoomba is home to approximately 95,000 people. Surface water from dams is the main source of water for the city. In 2006 the residents of Toowoomba were invited to vote in a referendum (plebiscite) concerning whether or not an indirect potable wastewater reuse scheme should be constructed to supply additional water to the area. At that stage dam levels in Toowoomba were at approximately twenty per cent of capacity. Toowoomba residents, after intense campaigning on both sides of the referendum debate, voted against the proposal. In July 2008 dam levels dropped to eleven per cent. Stage 5 water restrictions have been in place since September 2006, subsequently mains water must not be used for any outdoor uses. This paper describes in detail how public opposition in the case of Toowoomba's referendum, defeated the proposal for a water augmentation solution. Reasons for the failure are analysed. In so doing, the paper provides valuable insights with respect to public participation in indirect potable reuse proposals, and discusses factors including politics, vested interest and information manipulation. This paper is significant because of the lack of detailed information published about failed water infrastructure projects.

Disciplines

Business | Social and Behavioral Sciences

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1 **When Public Opposition Defeats Alternative Water Projects – the Case of**

2 **Toowoomba Australia**

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37 detailed information published about failed water infrastructure projects.

38
39 **Keywords:** water recycling, participation, public acceptance, public opposition,
40 Toowoomba, referendum, CADS

41

42 **1 Introduction**

43 Australia is in the midst of a water crisis. The water supplies of many of the country's
44 major urban centres are dwindling. When compared to capital cities, the water situation is
45 often much more critical in regional areas such as Toowoomba. Although many solutions
46 to the water crisis have been proposed, national policy in Australia has predominantly
47 focused on supply side solutions such as water recycling and desalination (Hurlimann
48 2006). However, in addition to these sources, a range of other alternative water sources and
49 management options are available including the use of, grey water (domestic wastewater
50 excluding toilet waste), stormwater, and water conservation – a demand side strategy.

51

52 In Australia, the use of recycled water for drinking purposes is subject to numerous
53 guidelines including those at a National Level (Natural Resource Management Ministerial
54 Council et al. 2008). However, the viability of alternative water sources also depends on
55 public attitudes. Several recycled water projects in various countries have failed due to lack
56 of community support (Hurlimann and McKay 2004). These projects include indirect
57 potable reuse schemes in the USA and Australia, and also non-potable reuse projects
58 including one in the Netherlands. Elements contributing to the demise of these projects
59 involved the public's lack of trust in the institutions charged with delivering the projects
60 (Hurlimann and McKay 2004). As described by Hurlimann and McKay (2004) anecdotal
61 evidence from such projects suggests that factors including timely communication with
62 stakeholders, transparency in the projects' process and fairness in the way in which it is
63 implemented are critical. In a similar vein Dishman et al. (1989, p. 158) conclude that
64 technical aspects of potable water reuse can be resolved, but “the issue of public acceptance

65 could kill the proposal”. Additionally, Postel (1997) highlights a major barrier to reuse of
66 wastewater is psychological not technical.

67

68 In order to reduce the risk of potential failure of alternative water projects, it is essential to
69 understand the context of such cases. Unfortunately cases where public resistance
70 prevented water augmentation schemes are not well documented. Thus other locations
71 planning the introduction of alternative water sources can not easily learn from these
72 experiences. Understanding how to facilitate public participation in decision making, and
73 the role that public interest groups have is also important. Public interest groups include
74 those opposed to desalination, such as ‘Sydney community united against desalination
75 (SCUD), and those opposed to the concept of drinking recycled water such as ‘Citizens
76 against drinking sewage’ (CADS).

77

78 CADS were present in Toowoomba before the referendum, but this was not the first project
79 the group were opposed to. CADS were first present in an earlier Queensland indirect
80 potable reuse proposal for the area of Maroochy. This plan was driven by community
81 concern for environmental impacts of ocean outfall of sewage (Simpson 1999). The project
82 was in the final stages of public consultation when CADS campaigned against the project,
83 fearing the effect of the possible presence of ‘gender-bending’ hormones in the water
84 (Stenekes et al. 2001). While the local government (the Council) voted in favour of the
85 proposal, the plans for potable reuse were later abandoned. Stenekes et al. (2001) believe
86 that the Maroochy case was complicated by CADS perceiving a lack of adequate
87 consideration for stakeholders in the consultation process, and feeling that the process was
88 not transparent. CADS believe the Council voted to implement the potable reuse strategy

89 despite evidence that sections of the community would not support potable reuse (Stenekes
90 et al. 2001).

91

92 The aim of this paper is to fill this gap in understanding of failed potable recycled water
93 projects through three research objectives (1) to provide a detailed description of one case
94 where public resistance has led to the abandonment of a project aiming to augment water
95 supply through indirect potable reuse (the case of Toowoomba, Australia), (2) to identify
96 factors leading to the Toowoomba community's opposition to the indirect potable reuse
97 proposal, and (3) assess Toowoomba community attitudes to recycled water two years after
98 the referendum (which was critical to our interpretation of all the data gathered for this
99 research).

100

101 The paper is structured as follows. In section two we outline our research method. In
102 section three, we present Toowoomba's water history in chronological order. This section
103 contains development which took place in 2005 and 2006. In section four we present and
104 discuss the situation in Toowoomba three years after the referendum. Finally, in section
105 five we provides overall conclusions which integrate the results from each of the methods
106 employed.

107

108 **2 Method**

109 Toowoomba was used as a case study of attempted introduction of indirect potable reuse.
110 As advocated by Eisenhardt (1989) our case study method combined various data
111 collection modes such as archival research, interviews, focus groups, observations and
112 survey. These divergent data collection methods allowed the collection of information

113 about the events that took place in Toowoomba surrounding the referendum. The research
114 consists of three main components: 1) The analysis of a. topical internet blog sites, and b.
115 information brochures developed by various organisations and which were publicly
116 available, 2) qualitative empirical research, consisting of a focus group and eight in-depth
117 interviews with residents of Toowoomba in July 2008, and 3) quantitative empirical
118 research conducted in January 2009 with 200 Toowoomba residents.

119

120 The purpose of the qualitative component of the research was to gain an in-depth insight
121 into the current sentiments of the population with regard to alternative water sources and
122 the drought in general. Respondents were recruited by a professional market research
123 company who administered compensation payments. The focus group and interviews were
124 conducted by one of the authors. On average the interviews lasted forty five minutes. The
125 focus group session was one and a half hours in duration and consisted of ten participants
126 Responses were entered into a data set and were then coded and categorized by the second
127 author. Krueger and Casey (2000) and Richards (2005) were consulted when analysing the
128 qualitative data.

129

130 Responses obtained in the qualitative phase informed the question design of the
131 quantitative survey. Data in this latter phase was collected using an Australian permission
132 based internet panel which recruits respondents through a range of avenues (not only the
133 internet) to ensure sample representativity. Respondents were paid a small monetary
134 compensation for taking the time to complete the questionnaire. The interviews, focus
135 groups and survey addressed a range of issues and explored various water behaviours
136 including: drinking recycled water and desalinated water, conserving water, talking to

137 others about water issues, purchasing water related products, and joining a water interest
138 group.

139

140 We used a number of theories to guide our analysis of the topical internet blog sites and
141 information brochures developed by various organisations, and our synthesis of the three
142 types of data collected. These theories included: information theory (McCornack et al.
143 1992); the first mover advantage theory (Lieberman and Montgomery 1988; Robinson and
144 Fornell 1985; Carpenter and Nakamoto 1989), and theory regarding referendums and
145 democracy (Heywood 1999 and Smith 2001). These theories are discussed in detail during
146 our presentation of results.

147

148 **3 The recycled water history in Toowoomba**

149 Located approximately 100km west of Brisbane (the capital city of the state of
150 Queensland), Toowoomba has a population of approximately 95,000 people. Toowoomba
151 is known as 'Queensland's Garden City' (Toowoomba City Council 2007), hosting an
152 annual 'Carnival of Flowers' each spring. In addition to this there are often Camellia and
153 Winter Flower Shows. The city has a famous Park 'Queens Park' which is well known for
154 its gardens and flowers (Toowoomba City Council 2001).

155

156 **3.1 Water shortage in Toowoomba**

157 Toowoomba's water comes from three major storage areas (Lake Cooby, Lake
158 Perserverance and Lake Cressbrook). The supply in these three storage areas has been
159 depleting due to declining rainfall over the catchment areas (Parsons Brinckerhoff Australia
160 Pty Ltd 2006). Toowoomba's population is increasing and so is industrial development

161 (Toowoomba City Council 2005b). In 2005, the average residential water use in
162 Toowoomba was 240 litres per person per day, compared to 300 litres in South East
163 Queensland (Toowoomba City Council 2005b). However, since water use restrictions have
164 been in place, per capita water use in Toowoomba and other areas of South East
165 Queensland has decreased. In Toowoomba per capita residential consumption was
166 151L/day in January 2009, however it was 123L/day during the same period in 2008
167 (Toowoomba Regional Council and Toowoomba Water 2009). The total water demand in
168 Toowoomba in 2006 was estimated to amount to 17,510 ML/annum, thus exceeding supply
169 (Parsons Brinckerhoff Australia Pty Ltd 2006).

170

171 Because of the critical water situation, Toowoomba residents have been faced with
172 restrictions to water use since 2003. Level 1 restrictions began in 2003, ultimately reaching
173 level 5 restrictions in 2006, which remain today. Restrictions to water use typically involve
174 banning outdoor use of water (for gardens) at certain times of the day, and become
175 increasingly restrictive the higher the level. For example in Toowoomba, Stage 5 water use
176 restrictions prohibit town water use for watering of gardens, topping- up of pools, and
177 washing of vehicles (for further information see: Toowoomba City Council 2008).

178 Implications of restriction levels vary across water authorities throughout Australia, thus
179 there is not a consistent state or national approach to restrictions.

180

181 In the financial year 2005/2006 the Toowoomba Council committed AUD850,000 (at
182 22/06/09 AUD1 = US\$0.80 and €0.58) to a Water Demand Management Initiative, as part
183 of this initiative residents were offered rebates for installing rain water tanks (AUD500),
184 AAAA rated (highly efficient) washing machines (AUD50), and could have their shower

185 heads replaced at no cost. Since 2005 all new developments have to install rainwater tanks
186 (Toowoomba City Council 2005).

187

188 ***3.2 The recycled water proposal***

189 The Toowoomba Council lodged a submission to the National Water Commission for
190 funding towards the project on 30 June 2005. The submission was unanimously supported
191 by all 9 Councillors (elected representatives at local government level), and by all local
192 members of State and Commonwealth Parliaments (Thorley, 2007). On the 1st of July
193 2005, Toowoomba City Council announced the ‘Water Futures Initiative’. The initiative
194 was launched to address the city’s water challenges. The project includes a range of
195 solutions, most prominently the construction of an advanced water treatment plant to
196 provide potable quality recycled water for the town (Toowoomba City Council 2005b).
197 This was principally a policy document, not a public communication document. However,
198 as part of the proposal, Toowoomba City Council was planning to undertake a three year
199 community engagement program (Thorley 2007).

200 The Water Futures Initiative was launched by the Federal Member for Groom (including
201 Toowoomba), the Honourable Ian MacFarlane, the then Queensland Premier, the
202 Honourable Peter Beattie, and all three local Members of State Parliament (Toowoomba
203 City Council 2005a). The Council expected funding to be approved in September or
204 October 2005 (Thorley 2007).

205

206 ***3.3 Public opposition against the recycled water proposal***

207 In reaction to the Water Futures Initiative, the CADS Toowoomba group formed on the 21st
208 of July 2005 and held their first public meeting on the 25th of August 2005 (Toowoomba

209 Water Futures Blog 2006). Half a year later, on the 24th of February 2006, 10,000 people
210 had signed the CADS petition against the potable recycled water initiative (Reynolds
211 2006). This public movement against the indirect potable recycled water use politicised the
212 project. Thorley, as mayor of Toowoomba at the time, identified that this moved the focus
213 to be no longer on water but on politics and vested interest, leading to political back-flips
214 and the withdrawal of support of the project by Macfarlane, three Councillors and the local
215 National Party State member (Thorley 2007).

216

217 Given that the original Water Futures Initiative proposal was not directed at the general
218 public, CADS were in fact the first to communicate their view and provide detailed
219 arguments in support of their view to the public. In so doing CADS benefited from a ‘First
220 Mover Advantage’, which is “*the ability of pioneering firms to earn positive economic*
221 *profits*” (Lieberman and Montgomery 1988). In the case of CADS it was not positive
222 economic profits that they earned. Instead, being the first to communicate with the public,
223 they became the benchmark information source for matters relating to the proposed
224 recycling project. This gave CADS significant market power and made it more and more
225 difficult over time, for any positive message about recycled water to be communicated
226 successfully to the residents of Toowoomba. Such consumer information advantages have
227 been achieved through the learning process of consumers are in line with the findings
228 reported by Robinson and Fornell (1985) and Carpenter and Nakamoto (1989).

229

230 **3.4 Announcing the referendum**

231 On the 24th of March 2006, Mr Malcolm Turnbull (Parliamentary Secretary to the Prime
232 Minister) announced that a referendum will be held asking the residents of Toowoomba

233 whether or not they were supportive of the Water Futures Project. In case of a positive vote,
234 the Federal Government was promising to contribute AUD22.9 million towards the project
235 (Mitchell 2006). Mr Turnbull's motivation for calling a referendum is unclear, especially
236 given that (1) the National Water Commission had recommended to the Prime Minister that
237 the project be approved, and (2) Commonwealth funding for a similar project in Goulbourn
238 was approved without a referendum subject to a six month consultation with the public, and
239 (3) the Queensland government had to make a special regulation to allow the vote to
240 proceed. Thorley (2007) views the Commonwealth Government's decision to approve
241 funding for the project subject to a referendum as a dangerous precedent, stating that "*The*
242 *decision was an abrogation of political leadership and usurped the democratically elected*
243 *Council's mandate for making decisions relating to its community*" (p.50).

244 It is possible that Mr Turnbull's decision was motivated by the increasing public opposition
245 developing in Toowoomba.

246 Toowoomba City Council was not pleased with the referendum. In fact, they had actively
247 campaigned to Mr Turnbull against the referendum, pointing to poor records of
248 referendums without bipartisan political support, and cognisant of the fear campaigns that
249 tend to dominate political debate (Thorley 2007). These arguments are partially supported
250 by theory on democracy and referenda. According to Heywood (1999) models of
251 democracy range from the classical idea of direct democracy in which people literally
252 govern themselves through to more modern forms of representative democracy where
253 professional politicians govern on behalf of people. Referendums are a form of direct
254 democracy, which are used widely in some countries such as Switzerland (Heywood 1999).
255 The way in which referendums are implemented, and the influence they have on decision
256 making, varies from jurisdiction to jurisdiction (Ashworth 2001). As discussed by Smith

257 (2001) there are positive and negative aspects of all methods of deliberation. Those in
258 favour of referendums believe that they have the capacity to widen the political agenda; are
259 more likely to overturn established pro-business policy than normal parliamentary
260 proceedings; and are a mechanism by which groups within civil society can challenge the
261 government to defend status-quo (Smith 2001). Common arguments against referendums
262 include the belief that ordinary people lack the time, maturity and specialist knowledge to
263 rule wisely on their behalf (Heywood 1999). However, on the contrary most studies
264 suggest that voters exercise shrewd judgement despite the complexity of measures and the
265 deceptions of some campaigns (Heywood 1999). Additionally in opposition to
266 referendums, it has been highlighted that consulting the general public on each and every
267 issue could paralyse decision making and make a country ungovernable (Heywood 1999).

268

269 Importantly, as highlighted by Heywood (1999), referendums suffer the effects of material
270 and social inequalities. These such issues include but are not limited to 1) uneven
271 participation in referendums by minority groups, 2) a growing influence of money, paid
272 petition circulators, direct mail deception and deceptive advertising campaigns, and 3)
273 media manipulation – particularly when business interests are threatened. Many of these
274 problems identified by Heywood were present in the Toowoomba referendum.

275

276 ***3.5 Council's attempt to rescue the Water Futures Initiative***

277 When the referendum became unavoidable, Toowoomba City Council started 10-week
278 information campaign and distributed a Water Futures booklet which contained
279 explanations about the water cycle, the current level of water supply as well as possible
280 water alternatives on the 20th of March 2006 (Donaghey 2006). This put Toowoomba City

281 Council in the situation of (1) having to condense a proposed three year community
282 engagement program – consisting of public fora, flyers, taste testings of recycled water and
283 on request public presentations (Toowoomba City Council 2006a, 2006c) - into a three
284 month local political campaign (Thorley 2007), and (2) face the substantial first mover
285 advantage of CADS. By the time Council started informing the public, CADS had been
286 communicating with Toowoomba residents for more than half a year.

287

288 The main proponents of the Water Futures Project were Toowoomba Council, the Mayor of
289 Toowoomba at the time (Ms Dianne Thorley), Mr Malcolm Turnbull, as well as State and
290 Federal Governments. Examples of the ‘yes’ campaign material are referenced in Table 1.
291 These were predominantly produced by the Council and were factual. Personal testimonies
292 by upstanding members of the community were used to promote the scheme.

293

294 It should be noted that, as opposed to CADS, Council were bound by Codes of Conduct,
295 and thus had to ensure that campaign content was at all time ‘above board’ (Thorley 2007).
296 In response to the CADS campaign arguments, the Council presented the following
297 messages:

298 1) Communities around the world use recycled water for drinking. Examples were
299 given including Orange County and Virginia in the USA since the 1970s, Singapore
300 since 2003 and Namibia since 1968 (multiple campaign brochures including the
301 prominent: Toowoomba City Council 2006b).

302 2) The reputation of the Toowoomba food industry will not be at risk: Water used in
303 food processing is required to meet Australian Drinking Water Guidelines. The six

304 star recycled water treatment far exceeds these guidelines (multiple campaign
305 brochures including the prominent: Toowoomba City Council 2006b).

306 3) Recycled water is safe and will produce water as safe as current drinking water
307 because of the ‘Advanced Water Treatment Plant Purification Process’. Academics
308 and General Practitioners (doctors) were quoted about safety in multiple campaign
309 brochures (including items listed in Table 1). Diagrams of the ‘seven barriers of
310 water futures – Toowoomba’ were provided in multiple Council brochures. It
311 should be noted that when the Australian national recycled water guidelines were
312 first drafted (Natural Resource Management Ministerial Council et al. 2006) they
313 did not include indirect potable reuse as a possible option, this has since been
314 addressed in phase two of the guidelines (Natural Resource Management
315 Ministerial Council et al. 2008).

316

317 **3.6 More public opposition**

318 While Council commenced its campaign, the campaigners against the Water Futures
319 Project continued to use public meetings, petitions and internet blogs to activate residents
320 to vote “no” at the referendum (O’Malley 2006). The key opponents of the Water Futures
321 Project who were rallying for a “no” vote were CADS (led by Rosemary Morely, a past
322 president of the Chamber of Commerce), Clive Berghofer (a millionaire property developer
323 and former local mayor) as well as members of the public who posted their concerns in
324 internet blogs (of which there were more than three). One blog (waterfutures.blogspot.com)
325 claimed to be impartial, yet the majority of contributions were arguing against the recycled
326 water scheme. Some water experts from industry and University contributed to the blogs.

327

328 Examples of initiatives from the ‘no’ campaign include a newspaper printed by Clive
329 Berghofer called “Water Poll” which was dedicated solely to arguing against the recycled
330 water scheme (Berghofer 2006). Table 1 provides more extensive references to pictorial
331 material produced by the ‘no’ campaign. As can be seen from this material, much of it was
332 driven by emotions, and at discrediting sources of factual information. In addition to
333 pictorial material, there was reading material and videos produced by each side of the
334 campaign.

335

336 *Insert Table 1*

337

338 The main reasons against the recycled water scheme stated by the opponents were as
339 follows:

340 (1) People were concerned about the image of Toowoomba. They were worried that their
341 image as Garden City would change to an image of being the “Shit City” or
342 “Poowoomba” (Balderson 2006).

343 (2) As a consequence of such an image residents were concerned that Toowoomba would
344 become less attractive to businesses, industry, families, retirees and travellers both as a
345 tourism destination and as a place to live (Concerned Ratepayer 2006; Frew 2005). One
346 illustrative case was that of an ice cream factory in Toowoomba which claimed that it
347 could never use Toowoomba’s town water for production because the market would not
348 tolerate any question mark over the water quality (SBS Network 2005). The same was
349 claimed to be true for all businesses in the food industry (Clark 2006).

350 (3) Residents had health concerns. They were not sure if they could trust science; they were
351 irritated that the Toowoomba Council refused to state that the water was 100% safe and

352 stated that they felt like “lab rats” (Berghofer 2006). Furthermore they were concerned
353 that there were no official guidelines for the quality of recycled drinking water and that
354 a twenty-five per cent component of recycled water in tap water is very high by
355 international standards (Concerned Ratepayer 2006). Laurie Jones, an Australian
356 plumber interviewed on television (SBS Network 2005), summarized these fears:

357 *“Well, the problem with the purifying, and my biggest concern, is that the impact of*
358 *drinking treated sewage wastewater will have on my family and all other families. And I'm*
359 *concerned because there is no guarantee, there is absolutely no evidence that the treated*
360 *sewage wastewater is free of all contaminants. And along those lines, in Australia, there's*
361 *no health department that approves it presently.”*

362

363 **3.7 Toowoomba votes**

364 On the 29th of July 2006 the referendum was held in Toowoomba. The majority, 62% of
365 residents, voted against the proposed recycled water scheme. As a consequence the Water
366 Futures Project was abandoned (Australian Associated Press 2006).

367

368 The internet blog sites have continued, in light of a new indirect potable recycled water
369 proposal for Brisbane with implications for Toowoomba – The Western Corridor Recycled
370 Water Scheme (described in section 3.3 below). CADS have reproduced campaign
371 material for Brisbane households (Water Futures Blog 2007). As reported by the Science
372 Media Centre (2006), one water engineer from Toowoomba City Council said he was
373 frustrated, angry and disappointed. He was especially frustrated that the debate was “*..not*
374 *based on science. It was not a debate about water, but about politics and vested interests”*.
375 Another water expert was quoted as saying: *“The No in Toowoomba is ultimately a failure*

376 *in communication, first on the safety and reliability and second on the urgency of*
377 *Australian water crisis"* (Science Media Centre 2006).

378

379 The conclusion Thorley (2007), as the Mayor of Toowoomba at the time of the referendum,
380 draws from the events is that the way forward for indirect potable reuse is for governments
381 to forget referendums, plebiscites and polls which will always be at the mercy of negative
382 campaigns and are thus likely to fail. Instead, politicians need to have vision and leadership
383 and decide to implement such schemes, or else, alternative ways of measuring community
384 acceptance need to be developed.

385

386 Interestingly more recent research by Miller and Buys (2008) through which 410 household
387 questionnaires conducted in South East Queensland found that the majority of respondents
388 believed that the general community did not have adequate knowledge to vote on indirect
389 potable reuse. The majority of respondents were found to be supportive of the
390 government's decision to implement the recycled water decision without a referendum. It
391 is clear that political / decision making processes have been a significant influence in the
392 indirect potable reuse plan outcomes in Toowoomba.

393

394 **4 Toowoomba two years after the referendum**

395 ***4.1 Political developments***

396 On the 28th of January 2007, Peter Beattie, the then Premier of Queensland, publicly
397 announced his decision not to let the public vote on whether or not to proceed with a large
398 scale recycled water project for the State's capital city Brisbane. This was contrary to his
399 prior commitment to a referendum. The Premier argued that even if the public were

400 opposed, there is no other option than to put in place ways to augment water such as
401 recycling (Australian Associated Press 2007). The project soon began construction and
402 was completed at the end of 2008. It involves six wastewater treatment plants (WWTPs)
403 (Luggage Point, Gibson Island, Bundamba, Oxley Creek, Goodna and Wacol), connected
404 to Wivenhoe dam (Brisbane's main dam). Three separate Advanced Water Plants have
405 been constructed: one at Luggage Point (receiving water from the Luggage Point WWTP),
406 Gibson Island (receiving water from the Gibson Island and Luggage Point WWTPs) and
407 Bunamba (receiving water from the other four WWTPs). For further information see
408 Western Corridor Recycled Water Project (2008). In response, CADS members distributed
409 a booklet titled 'think before you agree to drink' to 500,000 Brisbane households in early
410 2007 (Roberts 2008).

411

412 In July 2008 the Member for Toowoomba South, Mike Horan announced that a pipeline
413 would be constructed from Wivenhoe Dam (Brisbane's main dam to which the above
414 recycled water would be delivered) to Lake Cressbrook in order to address Toowoomba's
415 water demand (Australian Associated Press 2007). Consequently Toowoomba will be
416 supplied with recycled water (Western Corridor Recycled Water Project 2008) despite the
417 negative referendum vote. However, more recently, the current Queensland Premier Anna
418 Bligh announced that treated wastewater will only go into the dams when they fall below
419 40% of capacity (ABC News 2008). Brisbane's dams were at 74% of capacity at 29th May
420 2009 after significant rainfall over the past 12 months, thus the recycled water will not be
421 put into the dam at present.

422

423 Based on the referendum history, it could be expected that Toowoomba residents hold
424 negative attitudes towards the Western Corridor Recycled Water Project. It would logically
425 be expected that Toowoomba residents would be concerned that the State Government has
426 ended up building a recycling plant which will feed into their water supply system despite
427 the negative referendum. Interestingly these feelings were not expressed by the respondents
428 who participated in the interviews and focus group during July 2008 and the survey in
429 January 2009, the results of which are described in detail below.

430

431 **4.2 Residents' attitudes**

432 Details of the empirical results from both the qualitative and quantitative study are now
433 presented. Firstly respondents' opinions about Toowoomba's water situation are detailed,
434 followed by their attitudes to the use of recycled water, and the referendum which was held.
435 Lastly information needs of respondents are identified.

436

437 **With respect to residents' opinions about Toowoomba's water situation,** they generally
438 agreed that Toowoomba will run out of water unless action of some kind is taken. Having a
439 rainwater tank is a common solution to the problem, many participants use tankwater for
440 multiple purposes, including drinking. Respondents were attuned to the fact that with
441 below average rainfalls, rainwater tanks may no longer be a solution to the water problem.
442 They were also aware that the tank size they currently have would not cover all their needs
443 if the water situation got worse.

444

445 Respondents felt strongly about people who break water restrictions and/or steal other
446 people's water tanks or tank water (which is reportedly common). There was a perception

447 that the Council was not actually enforcing whether or not people comply with the water
448 restrictions, and thus respondents held a belief that offenders are not prosecuted.
449 Respondents proposed that there should be more control and fines for offenders. Some
450 respondents thought that making above average water use very expensive would be an
451 appropriate and indirect way of punishing people for excessive use.

452

453 Water conservation was an expressly important concern for all participants. It appeared
454 that all respondents were actively conserving water. Stated water conservation measures
455 included, but were not limited to: taking short showers, reusing washing machine water on
456 the garden, using water saving shower heads, and fixing leaks. As stated by one
457 respondent: *“I am absolutely disgusted by people who do not save water, I want to drown*
458 *them in their own water.”* This demonstrates the strong emotions surrounding water and its
459 status as a public resource.

460

461 Table 2 contains results from questions about water conservation asked in the survey of 200
462 Toowoomba residents. Respondents were presented with a series of statements about
463 water conservation and asked to state whether they agree or disagree with the statements.

464

465 *Insert Table 2*

466

467 As can be seen from Table 2, the attitude of Toowoomba residents towards water
468 conservation is overwhelmingly positive with 99% of respondents stating that it is
469 important, 95% stating they conserve water wherever they can and only 10% or less feeling
470 no pressure to conserve water or feeling that it is not their responsibility.

471

472 **With respect to residents' attitudes to water recycling**, five interview respondents stated
473 they have no reservations about recycled water at all. One respondent stated they dislike
474 the chlorine (but admits that this is a problem not only related to recycled water but also the
475 current tap water – they prefer to drink “*the shit and leaves in the tank water*”). Another
476 respondent had no concerns, as long as the recycled water had been approved by scientists.
477 Only one respondent categorically refused to use recycled water for drinking, stating:

478 *“I won't drink it - just me personally, I don't think I would let my children drink it either.*
479 *Because you can buy bottled water, but now they are saying it might not be that good*
480 *either. Well it's like any machine, how it works and everything ... if it doesn't work*
481 *properly or it leaks a little bit, it only needs to let a little bit in, doesn't it?”*

482

483 One interview respondent directly mentioned the referendum. When asked how they feel
484 about recycled water the respondent replied:

485 *“It doesn't bother me - they are going to stick other germs in it to get it the same. How do*
486 *they know that with the normal water you drink, someone hasn't gone and crapped in it. It*
487 *is not going to impact it. Fish and turtles swim in it. Some people just don't think about it.*
488 *That was when the vote was in. It was stupid, it just should have gone ahead. I don't think*
489 *things would change now - people are still afraid of getting turds in their water, I think it is*
490 *stupid.”*

491

492 This shows that the respondent acknowledged that water from dams also has impurities at
493 source, but is managed in the treatment process. When asked whether they would drink
494 recycled water if the drought got worse, the majority of respondents said that they would be
495 quite happy to use and drink it now. Arguments made by respondents in support of their
496 view included that recycling water would simply increase water supply and thus allow

497 water uses which under current restrictions are not permitted. For example one respondent
498 made the following comment:

499 *“My husband and I thought it was the best thing coming. When I had my first daughter the*
500 *restrictions weren't so bad. You could fill up her little pool and have a little splash but with*
501 *my second one there is none of that you can't go out and have fun like that - like we did*
502 *when we were kids”*

503

504 Other respondents commented that recycled water may in fact represent an improvement
505 over current solutions. For example:

506 *“They have just scientifically proven that recycled water is better than tank water. I'm*
507 *drinking pesticides”*

508

509 Respondents mentioned that while there might be a little risk of some contamination of the
510 recycled water, it is rather unlikely:

511 *“We are going to have to do it eventually, and it really doesn't worry me. The scientists*
512 *have said it is ok. There is only one thing: sometimes scientists say something, then 10*
513 *years later they say, oh we were wrong. Can they guarantee 100% that the water is safe,*
514 *not one little micro organism. It might come and bite them, but the possibility of that is*
515 *very, very rare”.*

516

517 Most respondents who first expressed a negative reaction to recycled water use,
518 subsequently changed their attitude when asked to consider necessity. Only one of the
519 respondents, who expressed a negative attitude towards recycled water originally, indicated
520 that they would not change their attitude even if the drought got worse:

521 *“I won't drink it, I would bath in it and everything else. You've got Gatorade and other*
522 *things for drinking. If they put recycled water in the supply I would buy other water for*
523 *drinking”*

524

525 Table 3 presents the results from the survey which relate to attitudes to recycled
526 water use. Respondents were presented with a series of statements about water
527 recycling and were asked to state whether they agree or disagree with the
528 statements.

529

530 *Insert Table 3*

531

532 As can be seen from Table 3, most of the statements that have achieved high agreement
533 levels relate to safety issues relating to recycled water. Strict controls of recycled water are
534 demanded by 96% of respondents and two thirds state that they would like to have more
535 information about how recycled water is treated and how safe it is. Despite the stated safety
536 concerns almost half of the Toowoomba residents agree that recycled water is safe to drink.
537 About one third of respondents had very negative feelings about recycled water, agreeing
538 that it is disgusting and that it tastes / smells bad. Another interesting finding, a likely
539 consequence of the referendum in Toowoomba, is that 28% of the respondents agreed with
540 the statement *“They should supply recycled water without asking the public”*.

541

542 When asked about the **referendum**, it was clear that the information campaigns from both
543 sides of the referendum had an impact on the emotions of participants. One participant (P1)
544 in the focus group was against the use of recycled water for drinking purposes based on

545 concerns about radioactive material (from hospitals). The interaction between participants
546 at this point is found below:

547 P1: *"If they worked out the radioactive business I wouldn't have a problem"*

548 P2: *"As I understood it, you know the little booklet that came out in opposition to CADS,
549 well all the filters, those molecular filters will not let molecules through, those molecules
550 carrying radioactive charge...they will be stopped there. I think the radioactive argument
551 stops there because those filters – and there are seven of them – each one is designed to
552 filter out something specific. Even atoms can't get through"....*

553 P1: *"How big is an AIDS virus?"*

554 P3: *"We have a friend who is a pharmacist who says you can't get all of it out, the
555 hormones etc."*

556 P1: *"It has to be stopped at source"*

557 P2: *"I disagree with that because a virus is much bigger than a molecule"*

558 P4: *"If there was no water, I'd drink anything"*

559 P2: *"Two atoms of hydrogen and one of water is not very big"*

560

561 Respondents clearly felt that the Council information was a reaction to CADS. It also
562 confirms the first mover advantage CADS appears to have had with having their message
563 in public before the Council. The discussion above shows how important 'expert friends'
564 (pharmacists), are in shaping attitudes to recycled water. When asked about barriers to
565 drinking recycled water, the main barrier identified by participants was the need for
566 accurate information which was 'untarnished', 'unbiased', 'scientific', and 'the truth'.
567 When asked about incentives to drinking recycled water, respondents again identified
568 information.

569 P5: *“Good information on what filters remove. Are men going to become women? Scientific*
570 *information from someone from a University who is not funded by a company building the*
571 *plant.”*

572 ALL: *“Agree”*

573 P5: *“I would really like Australian information at least in relation to our temperature and*
574 *humidity”* [regarding the treatment process]

575 P6: *“It would be interesting to have one brochure on all drinking alternatives: desalination,*
576 *recycled, tank, bore, and have the information on all of them so you could decide which to*
577 *drink...”*

578 P1: *“The information should not be a sales pitch from one party or the other. Because the*
579 *information we got here was a sales pitch from one side or the other”*

580 P4: *“It was very biased”*

581 P8: *“It was a scare campaign”*

582 P7: *“Scare mongering. This is what happens a lot. People with vested interests”*

583 P8: *“We won’t mention any names, but certain land developers”*

584 P4: *“Didn’t want to scare anyone from buying in Toowoomba”*

585

586 This excerpt from the focus group demonstrates the need to provide unbiased and impartial
587 information. It is clear that respondents were not satisfied with the information campaign
588 surrounding the Toowoomba referendum, and did not seem to trust ‘either side’. This
589 relates to Heywood’s (1999) identified limitations to referendums as discussed in section
590 3.2. A number of respondents indicated the need for information about the cleaning
591 process that takes place with recycling (specifically scientific information from someone
592 who has no conflict of interest) and comparative information about all kinds of water from
593 alternative sources.

594

595 The results from the survey confirm the sentiments of the focus group. As shown in Table
596 3, sixty six percent of respondents stated that they need more information on how recycled
597 water is treated and how safe it is. Sixty five percent stated that it would be acceptable to
598 them is if scientists approved of it for human consumption (see Table 3).

599

600 Respondents were asked who would **influence their opinion about recycled water use**.

601 About half of the interview respondents stated that nobody would influence them. The

602 following sources of influence were mentioned by other respondents: scientists, their

603 General Practitioner, information on the internet and information obtained from locals who

604 are seen as having no particular agenda with respect to recycled water. One respondent

605 provided an illustrative example:

606 *“Well, we were about to vote. We were thinking of no, but a scout leader we knew in the*
607 *area said by voting no we were not going to get the federal government money, so vote*
608 *yes. He did clarify a lot. We had a good talk about it. With the medication he said we*
609 *wouldn't even know. He told us that Dolby (a near by town) has had it for years and you*
610 *wouldn't even know.”*

611

612 The responses indicated that those participants who were open to consideration (who had

613 not already formed a firm opinion about recycled water), were interested in obtaining more

614 information. They sought information from a wide range of sources including from

615 experts, in general, on the internet, or even interested respected non-experts from within the

616 community.

617

618 When asked about what others would think about them drinking recycled water, there were

619 a number of responses from participants of the focus group, with one saying that it would

620 “depend which side of the fence they are on”. One respondent clearly stated they don’t
621 mind what others think: “I don’t think I would let someone else’s opinion worry me
622 actually. If I was thirsty, it is simple as that.” Another participant questioned: “Who
623 cares?”

624

625 Results from the survey, regarding people of influence to respondent attitudes towards
626 water related matters, are presented in Table 4. Respondents were asked “Who or what
627 could influence your attitude towards water related matters (e.g. the use of water efficient
628 appliances, the use of recycled water etc.)?” A list of people / factors were presented and
629 respondents were asked to indicate whether each was an influence (yes / no), these were
630 drawn from results of the in-depth interviews.

631

632 *Insert Table 4*

633

634 The results in Table 4 indicate that objective sources of information are perceived as more
635 influential be Toowoomba residents. Politicians received the lowest rating with only nine
636 percent of the Toowoomba population agreeing that they would influence their attitudes.

637

638 In sum, the insights gained through the focus group, the interviews and the survey indicate
639 that overall, respondents were open-minded about recycled water and in many instances
640 regretted that indirect potable reuse was voted against. People were well aware of their
641 dependence on water (especially having a very strong garden city culture) and
642 acknowledged that insufficient water supply may well force them to relocate.

643

644 **5 Conclusions**

645 The referendum on indirect potable reuse in Toowoomba was perceived by the Council to
646 be forced upon them, a condition of Commonwealth Government funding. The Council's
647 preferred approach was a three year consultation program. As such, the Council's resultant
648 public consultation was rushed and the government information campaign commenced
649 many months after public interest groups started mobilising the residents of Toowoomba to
650 vote against the recycling scheme. The impact of this was evidenced in the focus group
651 discussion and could be one explanation for the negative vote. Another explanation could
652 be information in general and the difficulty participants had in trusting information sources.
653 Participants raised concerns about information and sources of bias on both sides of the
654 referendum

655

656 Interestingly, the public resistance clearly expressed at the referendum was not mirrored in
657 people's attitudes towards recycled water as evidenced in this study conducted 2 – 2.5 years
658 post referendum. Participants were very aware of water issues and were found to actively
659 contribute to local solutions (such as water conservation and the use of rainwater tanks).

660 Given that the Queensland government is building a large scale recycling plant, the
661 Toowoomba residents may end up with indirect potable reuse. Perhaps knowledge of this
662 was a contributing factor to the more positive attitudes toward recycled water found in this
663 study. Many media statements made by CADS in the lead up to the referendum mentioned
664 that Toowoomba did not want to be the first, or the only location in Australia to drink
665 recycled water. Thus knowing Brisbane (the State's capital city) would also be drinking
666 recycled water may have allayed some concerns.

667

668 The research conducted and presented in this paper indicates that the failure of the
669 Toowoomba indirect potable reuse plans, can not just be attributed to public opposition to
670 the plans. Politics, timing, vested interests and information manipulation also played a part.
671 The case of Toowoomba raises fundamental questions regarding public participation in
672 government decisions and the way in which democracy is exercised. As a consequence of
673 the Toowoomba referendum, the Queensland state government chose not to put critically
674 needed alternative water projects to a public vote. Currently a large scale recycled water
675 scheme is being implemented, which will in fact lead to recycled water being fed into the
676 dams that are the source of Toowoomba's water supply. It may well be that such an
677 approach is more effective in achieving the 'public interest'. A question this raises is *how*
678 *should the public be involved in decisions which have unavoidable consequences for them?*
679 It would be beneficial to conduct research in the future to better understand the impact
680 politics, vested interests, information manipulation, and timing each had on the
681 Toowoomba referendum, and the potential impact such factors may have in future projects.

682

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688

689 **References**

- 690 ABC News. (2008). "Bligh rejects recycled water pipeline a waste of money" *Australian*
691 *Broadcasting Commission*. Brisbane, 1 December. Accessed on 17 September 2008
692 at: <http://www.abc.net.au/news/stories/2008/12/01/2433775.htm>
- 693 Ashworth, G. J. (2001) "Planning by Referendum: empowerment or anarchy in Groningen,
694 the Netherlands" *Local Environment*, 6(3), 367-372.
- 695 Australian Associated Press. (2006). "Toowoomba says no to recycled water" *Sydney*
696 *Morning Herald*. Sydney, June 30. Accessed on 17 September 2008 at:
697 [http://www.smh.com.au/news/national/toowoomba-says-no-to-recycled-](http://www.smh.com.au/news/national/toowoomba-says-no-to-recycled-water/2006/07/29/1153816419568.html)
698 [water/2006/07/29/1153816419568.html](http://www.smh.com.au/news/national/toowoomba-says-no-to-recycled-water/2006/07/29/1153816419568.html)>
- 699 Australian Associated Press. (2007). "Qld Govt expects recycled water by 2008" *Sydney*
700 *Morning Herald*. Sydney, 28 January. Accessed on 16 September 2008 at:
701 [http://www.smh.com.au/news/National/Qld-govt-expects-recycled-water-by-](http://www.smh.com.au/news/National/Qld-govt-expects-recycled-water-by-2008/2007/01/28/1169919196919.html)
702 [2008/2007/01/28/1169919196919.html](http://www.smh.com.au/news/National/Qld-govt-expects-recycled-water-by-2008/2007/01/28/1169919196919.html)>.
- 703 Balderson, S. (2006). "Anti-recycling campaigners voice their defiance" *Toowoomba*
704 *Chronicle*. Toowoomba, 25 May. Accessed 19 January 2009 at:
705 [http://www.thechronicle.com.au/story/2006/05/29/apn-anti-recycling-](http://www.thechronicle.com.au/story/2006/05/29/apn-anti-recycling-campaigners-voice-thei/)
706 [campaigners-voice-thei/](http://www.thechronicle.com.au/story/2006/05/29/apn-anti-recycling-campaigners-voice-thei/)>.
- 707 Berghofer, C. (2006). "Clive says NO." *Toowoomba decides- Water Poll*, Accessed 19
708 September 2008 at [http://waterfutures.blogspot.com/2006/07/clive-berghofer-](http://waterfutures.blogspot.com/2006/07/clive-berghofer-prints-his-own.html)
709 [prints-his-own.html](http://waterfutures.blogspot.com/2006/07/clive-berghofer-prints-his-own.html)>.
- 710 Clark, D. (2006). "Recycling Debate - transcript" *Stateline*. Australia. 5 May. Accessed 14
711 September 2008 at:
712 <http://www.abc.net.au/stateline/qld/content/2006/s1632022.htm>>.

713 Concerned Ratepayer. (2006). *It is ok to say no*, Toowoomba, 28 May. Accessed on 16
714 September 2008 at: <<http://saynotocouncil.blogspot.com/>>.

715 Dishman, M., Sherrard, J. H. and Rebhum, M. (1989). "Gaining Support for Direct Potable
716 Water Reuse." *Journal of Professional Issues in Engineering*, 115(2), 154-161.

717 Dolnicar, S. and Schäfer, A. I. (2009). "Desalinated versus recycled water: Public
718 perceptions and profiles of the accepters." *Journal of Environmental Management*,
719 90(2), 888-900.

720 Donaghey, K. (2006). "Booklet is latest weapon in water war of words" *Toowoomba*
721 *Chronicle*. Toowoomba, 21 March. Accessed on 19 January 2009 at:
722 <[http://www.thechronicle.com.au/story/2006/03/21/apn-booklet-is-latest-weapon-](http://www.thechronicle.com.au/story/2006/03/21/apn-booklet-is-latest-weapon-in-water-war-o/)
723 [in-water-war-o/](http://www.thechronicle.com.au/story/2006/03/21/apn-booklet-is-latest-weapon-in-water-war-o/)>.

724 Eisenhardt, K. M. (1989). "Building Theories from Case Study Research." *Academy of*
725 *Management Review*, 14(4), 532-550.

726 Frew, W. (2005). "The yuk factor" *Sydney Morning Herald*. Sydney, 26 October, News and
727 Features, p.5.

728 Heywood, A. (1999). "Democracy, Representation and the Public Interest" *Political*
729 *Theory: An Introduction* (London, Macmillan).

730 Hurlimann, A. (2006). "Water, Water, Everywhere - Which Drop Should be Drunk?"
731 *Urban Policy and Research*, 24(3), 303-305.

732 Hurlimann, A. and McKay, J. (2004). "Attitudes to Reclaimed Water for Domestic Use:
733 Part 2. Trust." *Water, Journal of the Australian Water Association*, 31(5), 40-45.

734 Krueger, R. A. and Casey, M. A. (2000). *Focus Groups: A Practical Guide for Applied*
735 *Research*, California: Sage.

736 McCornack, S. A., Levine, T. R., Solowczuk, K. A., Torres, H. I., and Campbell, D. M.
737 (1992). "When the alternation of informaiton is viewed as deception: An empirical
738 test of information manipulation theory." *Communication Monographs*, 63, 83-92

739 Miller, E. & Buys, L. (2008). "Water-recycling in South East Queensland, Australia: What
740 do men and women think?" *Rural Society*, 18(3), 220-229.

741 Mitchell, S. (2006). "Town to vote on drinking sewage" *The Weekend Australian*.
742 Canberra, March 25, p. 10.

743 Natural Resource Management Ministerial Council, Environment Protection and Heritage
744 Council, and Australian Health Ministers' Conference. (2006). *National Guidelines
745 for Water Recycling: Managing Health and Environmental Risks (Phase One)*.
746 Natural Resource Management Ministerial Council and Environment Protection and
747 Heritage Council, Canberra.

748 Natural Resource Management Ministerial Council, Environment Protection and Heritage
749 Council, and National Health and Medical Research Council. (2008). *Australian
750 Guidelines for Water Recycling Managing Health and Environmental Risks (Phase
751 Two): Augmentation of Drinking Water Supplies*, Environment Protection and
752 Heritage Council, the National Health and Medical Research Council and the
753 Natural Resource Management Ministerial Council, Canberra.

754 O'Malley, B. (2006). "Waste not, water not: Toowoomba is the first battleground in the
755 recycled water debate " *The Courier Mail*. Brisbane, June 10, Focus p. 60.

756 Parsons Brinckerhoff Australia Pty Ltd. (2006). *Future Water Supply Options for
757 Toowoomba City and Customer Shires Pre-feasibility Study*. Department of Natural
758 Resources, Mines and Water, South East Queensland Regional Water Supply

759 Strategy, Brisbane. Accessed on 19 September 2008 at:
760 <<http://www.nrw.qld.gov.au/>>.

761 Postel, S. (1997). *Last Oasis*, New York: W.W. Norton and Company.

762 Reynolds, M. (2006). "Recycling receives a spray" *The Australian*. Adelaide, 24 February,
763 Finance, p. 28.

764 Richards, L. (2005). *Handling Qualitative Data*, London: Sage.

765 Roberts, G. (2008). "Flush then drink in the Sunshine State" *The Australian*. Canberra, 30
766 October, Viewed on line 27 January 2009 at:
767 <[http://www.theaustralian.news.com.au/story/0,,24572253-
768 30417,00.html?from=public_rss](http://www.theaustralian.news.com.au/story/0,,24572253-30417,00.html?from=public_rss)>.

769 SBS Network. (2005). "Running Dry - transcript" *Insight*. SBS Australia, 1 November.
770 Accessed 19 September 2008 at: <<http://webdiary.com.au/cms/?q=node/262>>.

771 Simpson, J. M. (1999). "Changing Community Attitudes to Potable Re-use in South-East
772 Queensland." *Water Science and Technology*, 40(4-5), 59-66.

773 Smith, G. (2001). "Taking deliberation seriously: institutional design and green politics"
774 *Environment Politics*, 10(3), 72-93.

775 Stenekes, N., Schaefer, A. I. and Ashbolt, N. (2001). "Community Involvement in Water
776 Recycling - Issues and Needs", in A. I. Schaefer, T. D. Waite, and P. Sherman,
777 (eds.), *Proceedings from the Recent Advances in Water Recycling Technologies*
778 *Workshop*. Brisbane: Centre for Water and Waste Technology, Civil and
779 Environmental Engineering The University of New South Wales, and the
780 Queensland Government Environmental Protection Authority, pp. 113-124.

781 Suarez, F. F. and Lanzolla, G. (2007). "The role of environmental dynamics in building a
782 first mover advantage." *Academy of Management Review*, 32(2), 377-392.

783 Thorley, D. (2007). "Toowoomba recycled water poll." *Reform*, 89(Summer), 49-51.

784 Toowoomba City Council. (2001). *Queens Park Gardens: Where history and*
785 *contemporary garden design connect (brochure)*, Toowoomba: Toowoomba City
786 Council.

787 Toowoomba City Council. (2005a). *Toowoomba Water Futures Project, media release*,
788 Toowoomba: Accessed 20 September 2008 at:
789 http://www.toowoombawater.com.au/mediareleases/index.php?option=com_content&task=view&id=71&Itemid=52.
790

791 Toowoomba City Council. (2005b). "Water Futures-Toowoomba: Taking control of
792 Toowoomba's Future Briefing Paper." Accessed 12 September 2008 at:
793 <http://www.toowoombawater.com.au/>.

794 Toowoomba City Council. (2006a). "Media Release: Yes campaign up and running."
795 Accessed 27 July 2009 at:
796 [http://www.toowoombawater.com.au/index.php?option=com_content&task=view](http://www.toowoombawater.com.au/index.php?option=com_content&task=view&id=142&Itemid=52)
797 [&id=142&Itemid=52](http://www.toowoombawater.com.au/index.php?option=com_content&task=view&id=142&Itemid=52).

798 Toowoomba City Council. (2006b). "Peter Beattie Insert to the Toowoomba Chronicle."
799 Accessed 20 January 2009 at:
800 [http://www.toowoombawater.com.au/index.php?option=com_docman&task=category](http://www.toowoombawater.com.au/index.php?option=com_docman&task=category&gid=60&Itemid=23)
801 [&gid=60&Itemid=23](http://www.toowoombawater.com.au/index.php?option=com_docman&task=category&gid=60&Itemid=23).

802 Toowoomba City Council. (2006c). *Water Futures Toowoomba*, Toowoomba: Accessed 19
803 September 2008 at: <http://www.toowoombawater.com.au/>.

804 Toowoomba City Council. (2007). *Toowoomba and Surrounds Visitors Guide*,
805 Toowoomba: Toowoomba City Council.

806 Toowoomba City Council. (2008). "Water Restrictions". Accessed 12 December 2008 at:
807 <[http://www.toowoomba.qld.gov.au/index.php?option=com_content&task=blogcat](http://www.toowoomba.qld.gov.au/index.php?option=com_content&task=blogcategory&id=286&Itemid=447)
808 [egory&id=286&Itemid=447](http://www.toowoomba.qld.gov.au/index.php?option=com_content&task=blogcategory&id=286&Itemid=447)>

809 Toowoomba Regional Council, and Toowoomba Water. (2009). "Weekly Water Supply
810 Statistics." Accessed on 19 January 2009 at:
811 <[http://www.toowoombarc.qld.gov.au/index.php?option=com_docman&task=cat_v](http://www.toowoombarc.qld.gov.au/index.php?option=com_docman&task=category&gid=148&Itemid=133)
812 [iew&gid=148&Itemid=133](http://www.toowoombarc.qld.gov.au/index.php?option=com_docman&task=category&gid=148&Itemid=133)>.

813 Toowoomba Water Futures Blog. (2006). *How we got this far* Toowoomba: Posted 25th
814 March. Accessed 15 January 2009 at:
815 <<http://waterfutures.blogspot.com/2006/03/chronicle-how-we-got-this-far.html>>.

816 Water Futures Blog. (2007). *Over a million Brisbane people will have their say on drinking*
817 *sewage water*, Toowoomba: Posted 20th March. Accessed 20 January 2009 at:
818 <<http://waterfutures.blogspot.com/2007/03/manners-book-media.html>>.

819 Western Corridor Recycled Water Project. (2008). *Western Corridor Recycled Water*
820 *Project Home Page*, Brisbane: Queensland Government. Accessed 22 June 2009 at:
821 <<http://www.westerncorridor.com.au>>.

822

823

Table 2: Select pictorial messages from both sides of the Toowoomba potable recycled water referendum*

No.	Date	Title	Organisation	Web address
No campaign				
1	21/12/2005	The Downstream Boys	Water Futures Blog	http://waterfutures.blogspot.com/2005/12/downstream-boys.html
2	28/11/2005	I don't know what is going through Council	Water Futures Blog	http://waterfutures.blogspot.com/2005/11/humour-this-cartoon-has-appeared-in.html#links
3	30/4/2006	Vote no	BlogToowoomba	http://www.blogtoowoomba.com/entry.php?w=toowoombawatervote&e_id=97
4	19/4/2006	Will the guinea pigs drink?	BlogToowoomba	http://www.blogtoowoomba.com/entry.php?w=toowoombawatervote&e_id=69
5	7/5/2006	Straight from sewage plant for you to drink	BlogToowoomba	http://www.blogtoowoomba.com/entry.php?w=toowoombawatervote&e_id=103
6	27/5/2006	Save your children now	BlogToowoomba	http://www.blogtoowoomba.com/entry.php?w=toowoombawatervote&e_id=110
7	28/5/2006	Trick or turd	BlogToowoomba	http://www.blogtoowoomba.com/entry.php?w=toowoombawatervote&e_id=113
8	16/7/2006	Clive says 'NO'	Water Futures Blog	http://www.valscan.com.au/webpaper.pdf
9	31/7/2006	Truth told in pictures to the people	BlogToowoomba	http://www.blogtoowoomba.com/entry.php?w=toowoombawatervote&e_id=235
10	28/1/2007	I don't want to die mummy	BlogToowoomba	http://www.blogtoowoomba.com/entry.php?w=toowoombawatervote&e_id=565
11	02/2007	Think before you agree to drink	Privately produced document	http://www.valscan.com.au/tbyatdBris.pdf
Yes Campaign				
1	03/2006	The Water Booklet	Water Futures Toowoomba	http://www.toowoombawater.com.au/dmdocuments/TCC-WaterFuturesLORES.pdf
2	04/2006	What does recycled water mean for me?	Water Futures Toowoomba	http://www.toowoombawater.com.au/index.php?option=com_docman&task=cat_view&gid=58&Itemid=23
3	04/2006	What are our water options?	Water Futures Toowoomba	http://www.toowoombawater.com.au/index.php?option=com_docman&task=cat_view&gid=58&Itemid=23
4	04/2006	How safe is recycled water?	Water Futures Toowoomba	http://www.toowoombawater.com.au/index.php?option=com_docman&task=cat_view&gid=58&Itemid=23
5	04/2006	How will our water be recycled?	Water Futures Toowoomba	http://www.toowoombawater.com.au/index.php?option=com_docman&task=cat_view&gid=58&Itemid=23
6	04/2006	No new dam – how Toowoomba's water recycling will work	Water Futures Toowoomba	http://www.toowoombawater.com.au/index.php?option=com_docman&task=doc_view&gid=174&Itemid=23
7	04/2006	It's a dam good thing!	Water Futures Toowoomba	http://www.toowoombawater.com.au/dmdocuments/StreetsAheadInsPIPage1.pdf
8	04/2006	Water futures facts	Water Futures Toowoomba	http://www.toowoombawater.com.au/index.php?option=com_content&task=view&id=210&Itemid=20
9	04/2006	Councillors statements	Water Futures Toowoomba	http://www.toowoombawater.com.au/index.php?option=com_docman&task=cat_view&gid=61&Itemid=23
10	25/07/2006	The Chronicle (newspaper) advertisements	Water Futures Toowoomba	http://www.toowoombawater.com.au/index.php?option=com_docman&task=cat_view&gid=0&Itemid=23
11	03/2006	Other materials	Water Futures Toowoomba	http://www.toowoombawater.com.au/index.php?option=com_docman&task=cat_view&gid=57&Itemid=23

* All websites were viewed and verified 20 January 2009

Table 2: Attitudes towards water conservations expressed by Toowoomba survey respondents

Attitudinal statement	Average agreement
Water conservation is important	99%
Water conservation is necessary because of water scarcity	97%
More attention to water conservation is needed	95%
I conserve water wherever I can	95%
I advocate water conservation among my friends and family	80%
I could make more effort to conserve water	75%
I only conserve water if water conservation does not cause additional expenses for me	23%
Water conservation ALONE can solve Australia's water problem	21%
I only conserve water if water conservation does not take more time	12%
I only conserve water if water conservation does not inconvenience me	11%
I feel no pressure to conserve water at the moment	10%
Water shortage issues don't affect me	4%
Water conservation isn't my responsibility	3%
I am not concerned at all with water conservation	3%

Table 3: Attitudes towards recycled water expressed by Toowoomba residents (n=200)

Recycled water attitudinal statement	Average agreement
Recycled water would have to be strictly controlled	96%
Those who don't like recycled water can install a rainwater tank to use	76%
I am cautious of what is actually in recycled water	70%
It's OK as long as it's clean	67%
I need more information on how recycled water is treated / how safe it is	66%
It's OK if it's absolutely necessary	66%
Those who don't like recycled water can buy bottled water	66%
I think it's OK if scientists approve of it for human consumption	65%
It's OK for other uses but not as drinking water	63%
I am sceptical of how clean / safe recycled water is	62%
I have no problem with recycled water	50%
I think recycled water is safe for everyone to drink	49%
I don't like the idea of recycled water	46%
There are too many health risks	45%
Recycled water is disgusting	37%
It is wrong to supply recycled water to people's homes	32%
They should supply recycled water without asking the public	28%
The taste/smell of recycled water is bad	27%

Table 4: Factors / people influential to respondent attitudes to water

Factor / Person	Average agreement
Research findings	89%
News / facts / other publicised information	86%
Consideration of future generations	84%
An individual or organisation qualified in water management	78%
A scientist	78%
Family	72%
An ecologist	71%
The water authority	69%
Friends	62%
My partner	60%
An environmentalist / an environmental group	55%
Conservation advertisements	49%
The media	39%
Neighbours	33%
The government	32%
A recognisable personality	21%
No one	17%
A politician	9%