



Mapping of Drinking Water Availability across New South Wales Towns and Cities

Community and Public Health Nutrition Placement Project Report

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Project Abstract

Introduction and Aim:

Water is described as the most essential nutrient: neglected, underappreciated and under researched. Water consumption is important in reducing sugar sweetened beverage consumption (SSB) which is higher in vulnerable populations. Currently 61% of adolescents (14-18 years) engage in frequent SSB consumption. This is concerning as its associated with dental caries, weight gain and development of chronic disease. Therefore, promotion of water consumption is important to improving public health. The aim of this project is to map public drinking water outlets across Northern New South Wales towns and cities.

Method:

Water mapping locations featured the Central Business Districts (CBD) of Lismore, Casino, Ballina and Kyogle. Sporting grounds and parks within a 1km radius of each CBD and locations referenced on Local Council Websites were also included. Additionally, Public Drinking Water Perceptions and Drink Habits Surveys were distributed to the public. Surveys were utilised to determine public's highest preferences for water outlets. Intentional water outlets were defined as bubblers and water fountains as identified through survey analysis. Furthermore, a two-hour time sampling was conducted to determine drinking fountain use in the Lismore CBD area. Data was collated in spreadsheets, analysed qualitatively and quantitatively.

Results:

A total of 119 water outlets are distributed within the CBD, popular sporting grounds and parks across the four locations mapped. Ballina had the greatest quantity of outlets, making up 39% of the total public water outlets available. This was followed by Lismore (25%), Casino (23%) and Kyogle (12%). Of the total outlets, only 19% of these are considered intentional drinking water outlets. Ninety-one percent of survey respondents preference was for water bubblers with signage. Furthermore, 84% of respondent's report use of a refillable drink bottle.

Conclusion:

This project has identified the need for improvements to the appearance and availability of current drinking water outlets in the mapped locations. It's recommended future outlets are installed in popular sports grounds and supply chilled water, with capacity to refill drink bottles. This may have a wider health promotion impact to reduce SSB consumption. Future studies should explore

local communities' perceptions of public drinking water and other NSW town's public water outlets.



Executive Summary

Purpose of Project

Drinking water is essential to human health, and access to safe and affordable water is considered a human right (United Nations Department of Economic and Social Affairs, 2014). Yet the availability of public drinking water outlets in the Northern New South Wales (NSW) is unspecified. This project assessed the availability of public water outlets in Central Business Districts (CBD), parks and sports grounds of NSW locations including Lismore, Casino, Ballina and Kyogle. Additionally, Public Drinking Water Perceptions and Drink Habits surveys were distributed to the public. This was used to evaluate water and sugar sweetened beverages (SSB) consumption, as well gain a further understanding of people's perceptions of public water outlets.

Methodology

Data was collected from water outlets across four Northern NSW locations encompassing the CBD, popular parks and sports grounds within 1km radius of the CBD or those referred to on local council websites. This data confirmed the number and type of water outlets in the areas mapped. Surveys were distributed using convenience sampling to assess the public perception of water outlets. This included photographs of water outlets discovered by researchers during water mapping. Water bubblers were viewed as drinkable water outlets. Whereas, all taps were considered non drinking water or incidental water sources, which was guided by survey results. In addition to water mapping, a two-hour time sampling of public bubbler usage was conducted in Lismore. This time sampling featured researchers observing usage of two bubblers located in a high traffic CBD street in Lismore.

Results

A total of 119 water outlets were identified within the CBD, parks and sports grounds of the four Northern NSW locations mapped. Overall, Ballina contributed the highest amount of public water outlets at 39%, followed by Lismore (25%), Casino (23%) and Kyogle (12%). A low proportion (19%) of these water outlets were categorised as intentional drinking outlets, based on public perceptions. Survey results specified that at least 50% of the public would not drink from taps, compared to 72% stating they would drink from bubblers. Time-sampling results showed that six members of the bubbler drank from the two bubblers. The bubbler located proximal to a

local cafe was used by five members of the general public whilst the other bubbler had one.

Recommendations

Results of this project verify the need of improvements in aesthetic and accessibility of water outlets in each Northern NSW location. Water signage and visual presentation were identified as strategies to improve current water outlet usage. The general public's highest preference is for chilled bubblers with signage and water bottle refill capacity. This criteria was formulated based on survey responses and supported by the literature. Implementation of these recommendations are likely to improve public drinking water habits within Northern NSW locations.




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1.0 Introduction

Water is essential to life, making up approximately 50-70% of the human body (Wardlaw & Smith, 2013). However, the availability of free drinking water in public areas across Northern NSW towns and cities is unknown. According to the Victorian Health Promotion Foundation “free tap water should be accessible, appealing and available”(Victorian Health Promotion Foundation [VicHealth], 2016a). Therefore, gaining further insight into the availability of public drinking water outlets in this region is important for promotion of water consumption.

Water is described by Rush (2013), as “the most essential nutrient: neglected, underappreciated, and under researched”. It is required to deliver nutrients throughout the body, eliminate wastes and maintain body temperature (Jéquier & Constant, 2010). Furthermore, water is essential to hydration, replacing the body’s fluid losses via urination, perspiration and respiration (National Health and Medical Research Council [NHMRC], 2014). Adequate water consumption is associated with improved oral health, body weight maintenance and reduces likelihood of excessive energy intake (An & McCaffrey, 2016).

In spite of the health benefits of water, Australians still sume a significant amount of SSB. These are beverages that contain added sugar, whilst providing minimal nutritional value (Centers for Disease Control and Prevention, 2017). Cancer Council Australia lists the following as SSB: cordials, soft drinks, flavoured mineral waters, energy drinks, electrolyte drinks, fruit and vegetable juices (Cancer Council Australia, 2016). Results from the 2011-12 National Nutrition and Physical Activity Survey (NNPAS) showed that on average, nine million Australians consumed SSB (Australian Bureau of Statistics [ABS], 2014).  It appears that SSB consumption is higher in lower socio economic groups (Obesity Policy Coalition, 2015). Additionally, results from NNPAS (2011-2012), showed that SSB consumption peaks amongst adolescents (between 14-18 years) with 61% reporting drinking SSB (ABS, 2014). Adolescents have a significantly high rate of SSB consumption, with 14% of individuals reporting intake of four or more cups of SSB per week (Sully et al., 2017). These statistics are concerning due to the health consequences of frequent SSB consumption. It increases the risk of development of dental caries, eight gain and chronic diseases including type two diabetes and cardiovascular disease (Bleicha & Vercammen, 2018).


Due to the negative consequences of SSB, there are many health programs and initiatives aimed at decreasing consumption. Many of these initiatives are targeted at children and adolescents. One such example is the New South Wales Health program: Finish With The Right Stuff (Healthy Kids, 2018). This program promotes healthy eating and beverage consumption for children participating in sports (NSW Ministry of Health, n.d.). As a part of this promotion, sports clubs and canteens are encouraged to provide and promote water, as well as healthier food options post sporting events (Country Rugby League, 2015). Another Australian SSB campaign is Rethink The Sugary Drink (Cancer Council Victoria, 2018). This campaign is partnered with Australia's Cancer Council, Diabetes Australia and the National Heart Foundation of Australia (Cancer Council Victoria, 2017). This initiative educates the general public on the sugar content of popular drinks and their negative health ramifications. For instance, there are many online infographics on sugary drinks targeted at the school and workplace environment (Cancer Council Victoria, 2018).

Although SSB and water's related health outcomes has been well documented, there are limited studies on Australians consumption of water as a beverage. Between 2011-2012 plain water (tap and bottled) contributed to 50% of Australians total fluid intake, with an average of 1064 mL of water consumed per day (ABS, 2016a). An additional average of 325 mL was attributed to non-discretionary beverages, which included tea and coffee (ABS, 2016a).

Perception is an important factor influencing people's decisions, particularly consumption of water. A person's perception of safe drinking water can be influenced by taste, odour, mouth-feel and colour, which are potential indicators of unsafe water (Webber, Atherton, & Newcombe, 2015). Other factors influencing perception of safe drinking water include water systems and overall surrounding environment (Pierce & Gonzalez, 2017). In Australia, water safe for consumption is referred to as potable water (Queensland Government, 2017). Nevertheless, factors such as aging water systems and natural disasters lead to higher rates of water system breaks and repairs, increasing the risk of microbial contamination (Ashbolt, 2015). Occurrence of these incidents contributes to health concerns of public drinking water (Armfield & Spencer, 2004). These perceptions have led to the increase in bottled water purchase. Australia has strict Drinking Water Guidelines involved in regular safety testing of drinking water, yet bottled water

is still perceived as a safer alternative to tap water (NHMRC,2011; Roy Morgan, 2016).

Evidence of people's preference for bottled water is increasing. In 2015, approximately 5.3 million Australians consumed bottled water (Lovell, 2017). It's predicted that Australia's bottled water sales will increase to \$702.4 million this year (Australasian Bottled Water Institute, 2012). One of the reasons behind increased bottled water consumption is attributable to media attention regarding soft drinks and obesity (Rani, Maheshwari, Garg, & Prasad, 2012). People are now selecting bottled water over soft drinks, believing it's the healthiest option surpassing tap water (University of Queensland, 2018). Additionally, a large portion of the general public prefer the taste of bottled water, as well as its convenience (Saylor, Prokopy, & Amberg, 2011).

However, bottled water has a significant environmental impact, potentially taking  to 1 000 years to break down (Kelly, 2017). The majority of plastic bottles contain virgin polyethylene terephthalate (PET), plastic made from non-renewable fossil fuels (Macquarie University, n.d.) Approximately three litres of water is required to create one bottle of water (Jain-Cocks, 2012). Another key concern is the energy required during the phases of bottled water production and transportation (Gleick & Cooley, 2009). Energy required for bottle water production is approximately 5.6-10.2 MJ per litre (Gleick & Cooley, 2009). Whereas, tap water requires 0.005 MJ of energy per litre (University of Queensland, 2018). Many believe that the environmental impacts of bottled water are decreased by recycling (Bolland, 2014). However, plastic quality degrades each time it's recycled and bottle caps are not recyclable as a single item (Macquarie University, n.d.; University of Queensland, 2018). Thus, recycling has its limitations. Furthermore, a significant amount of individuals do not recycle water bottles. Disposable bottles were one of the top ten pollutants for Clean Up Australia Day in 2017 (Clean Up Australia Day, 2017).



The availability of public drinking water outlets in Northern NSW is currently unknown, however two similar projects have been completed in recent years. Sydney Council have identified and mapped all public water bubblers, focusing on those located in parks, sports grounds and local tourist attractions (City of Sydney Council, 2017). An interactive map featuring drinking water bubbler locations across the Sydney CBD area is available to the

general public online (City of Sydney, 2018). These maps are a visual guide for residents and tourists. Additionally, the Victorian Government has developed a council guide for provision of drinking water fountains in public areas (VicHealth, 2016a). This was created in conjunction with the Victorian Government's Health H30 Challenge, a 30 day pledge to swap SSB with water (VicHealth, 2016b). Councils around the country can access this guide which details water outlet installation, replacement, maintenance and promotion (VicHealth, 2016a). These two initiatives have demonstrated the potential positive effect on public health promotion and water availability.

1.1 Project Aim

This community project's aim was to map available public drinking water outlets in Northern NSW towns and cities. Areas featured were the CBD of Lismore, Casino, Ballina and Kyogle. Sports grounds and parks within a 1 km radius of the CBD and those referenced on local council's websites.

1.2 Project Objectives

1. Count and inspect public water outlets available in the CBD areas of Northern NSW towns and cities
2. Count and inspect public water outlets in parks or sports grounds within 1km radius of the CBD of Northern NSW towns and cities
3. Count and inspect public water outlets in parks and sports grounds listed on Northern NSW local council websites
4. Create an interactive map of water outlets available online for public viewing
5. Provide and encourage water consumption for attendees at the Lismore Aboriginal Rugby League Knockout Carnival (LARLKC)

This research was undertaken in partnership with the Health Promotion and Planning Directorate of Northern NSW LHD. As such, findings of the report will be used by ~~this organisation~~ to ~~educate the public and council members on water availability.~~

2.0 Methodology

2.1 Research

Prior to physical inspection of public water outlets, research was conducted in order to determine mapping locations. This involved researchers referring to local council websites including Lismore City Council, Richmond Valley Council, Kyogle Council and Ballina Shire Council. These websites were utilised to access CBD maps in order to construct multiple address location lists (Appendix A). Of these locations, Kyogle Council was the only council without a specific CBD map, therefore a generic map was used as a guide. Council websites were utilised to determine the most popular sports grounds and parks. Google Maps identified sports grounds and parks within a 1km radius of each town's CBD. Two checklist categories for each town were constructed in accordance with Council websites (Appendix B). Project researchers also communicated with local councils via email and phone. Local councils were contacted to gain insight into budgets and water installation policy.

2.2 Lismore Pilot Test (Monday, 13th of August)

The purpose of pilot testing is to determine the parameters that guide further field work (Lavrakas, 2011). This project's pilot test was conducted in Lismore which included use of Lismore's CBD map, checklists, data collection sheets and phones. Phones were used to record Google Map images, coordinates and photo documentation of public water outlets. Lismore was the pilot test location ~~due to research convenience.~~

The pilot test commenced with CBD streets ~~most proximal~~ to the researchers parked car (Magellan Street, Lismore). Water mapping featured visual inspections, searching on foot for public water outlets in the CBD. Any public water outlets identified were tested for taste, temperature and aesthetic with location coordinates recorded (Appendix C). Sports grounds and parks were mapped after Lismore's CBD was completed. Water mapping data was manually entered into computer generated tables. Photos and maps were uploaded to computer folders to store information.

2.3 Inclusion and Exclusion Criteria

From the pilot test, researchers constructed inclusion and exclusion criteria for public water outlets. The inclusion criteria identified water outlets to be included in the project, whereas the exclusion criteria was data considered unsuitable (Patino & Ferreira, 2018).

Table 2.1 Inclusion and Exclusion Criteria for Public Water Outlets

Inclusion Criteria	Exclusion Criteria
<i>Drinking water supplies within the CBD Council listed local sports grounds, parks and/or sport grounds and parks within 1 km radius of the CBD</i>	<i>Drinking water supplies in non CBD areas, recreational grounds and private properties</i>
Taps including those referred to as water stations (waist and ankle height) Bubblers Amenity blocks (toilet blocks and/or public sinks) Paid water dispensers Water at Petrol Stations	Indoor Water Supplies: local stores, businesses Schools/Sports Clubs National Parks Hiking Tracks Faulty/non-working/sealed taps Private Property (houses, apartments)

**All water outlets were assumed to be potable water sources unless otherwise stated*

This criteria was developed through discussions with project supervisors and pilot test results. Parties agreed all taps, including those available at petrol stations were to be featured in water mapping for thorough data and variety. Popular hiking tracks and national parks were excluded due to the short project timeframe.

2.4 Incidental and Intentional Water Outlet Classification

Incidental and intentional classifications were developed through data collection, physical inspection and survey analysis (Appendix D). Researchers identified intentional water outlets as water bubblers and paid dispensers, whereas all taps were considered incidental water outlets or non-drinkable water sources. These classifications were heavily influenced by survey responses and anecdotal evidence from members of the public who did not perceive taps to be suitable.

2.5 Water Mapping Locations

Based on pilot testing it was estimated that 8 hours would be required for data collection for each location. One day per week was allocated for physical water mapping, from August to September, 2018. The four locations chosen were considered priority as each of these have distinctive community profiles, providing a wider cross section of data. For instance, Lismore is the only mapping location classed as a rural city (Wilkinson, 2014). It features a well-established urban area, covering 1267 square kilometres with a population of 43,905 (Lismore & Nimbin Tourism, 2018). Ballina is classed as a rural coastal town, featuring many natural tourist landmarks including beaches, waterfalls and creeks (Ballina Shire Council, 2017). In 2017, Ballina's population was 16, 506 (ABS, 2017a). Casino is the largest town in the Richmond Valley Council and is known as NSW's "Beef Capital" providing services for farming communities (REMPPLAN, 2018). Casino's population is 10, 914 (North Coast Primary Health Network, 2018). Kyogle is a town with a ~~significantly~~ smaller population of 8, 940 individuals, 32 km North of Casino (ABS, 2017b). Byron Bay and Tweed Heads were not mapped due to time constraints.



2.6 Water Time Sampling

Time sampling is a form of data collection which involves recording the number of times a specific behaviour is observed within a set time frame (Oldfield, 2001). A two hour time sampling was undertaken to determine drinking bubbler use in Lismore's CBD. Researchers observed and tallied public usage of two water outlets in Woodlark street, proximal to a busy pedestrian crossing and popular cafe. The observed water outlets consisted of a bubbler, situated next to a water bottle refill tap (Figure 3.5, 3.6). Due to the project's short duration, researchers were unable to complete time sampling for the other three NSW towns.

2.7 Public Drinking Water Perceptions and Drink Habits Surveys



In addition to water mapping, researchers distributed surveys to the general public (Appendix D). The purpose of the survey was to further understand social and behavioural factors influencing people's perceptions of public water outlets and drinking habits. Due to a limited timeframe, a survey pilot test was unable to be executed, instead was edited based on feedback from supervisors.

Table 2.2 Summary of steps involved in Public Drinking Water Perceptions and Drink Habits Survey Development

Survey Step	Action
Step 1.	Identifying purpose of survey
Step 2.	Determine outcomes to be measured
Step 3.	Establish Target Group and Sample Size
Step 4.	Develop Survey
Step 5.	Distribution of surveys
Step 6	Ethical Considerations

Note: Table 2.2 Adapted from Survey design by Loyola Marymount University, 2018. Copyright by 2018 Loyola Marymount University

A series of open ended survey questions was determined the most suitable to collect qualitative data (Farrell, 2016). Key measures included people's daily intake of water, SSB and reasons behind these drinking habits. Additionally, survey responses established general public's perception of drinking water outlets. This was determined through inclusion of a wide variety of water outlet photographs that were collected from water mapping days (Appendix H).

Convenience sampling is a non-probability research method that involves collecting data from selected and readily available research subjects (Lavrakas, 2011). Convenience sampling was employed in this project to distribute surveys, ensuring low cost and rapid response (Etikan, Musa, & Alkassim, 2016). These surveys were given to Allied Health students attending the Multidisciplinary University Centre for Rural Health (UCRH) Educational Stroke Day on Wednesday the 12th of September. Additionally, surveys were completed by LARLKC attendees on the 15th and 16th of September. ~~Researchers survey response target rate was a minimum of 25 responses.~~

Ethical considerations in research is essential, increasing data validity and project accountability (Resnik, 2015). Researchers ensured that survey respondents understood the survey and project purpose. Additionally, all survey respondents were made aware their responses were confidential and survey completion was voluntary (Appendix D). Verbal permission was also gained from each survey respondent to establish consent (Griffith University Office for Research, 2016).



2.8 Data Analysis

To analyse results from water mapping days all raw information was transferred into an excel document. A series of tables were constructed based on key themes identified during the methodology process including public water outlet types and locations. Following the construction of multiple tables, a series of graphs were produced (Results). This analysis process was also applied to quantitative survey responses.

Qualitative survey responses were analysed utilising a simplified version of Pitney & Parker's (2009) eight CREATIVE steps of data analysis (Appendix E). Steps one to four were conducted in accordance with the traditional CREATIVE Steps of Data Analysis, however step five and six were completed as one. The 7th Creative Step is verification of trustworthiness of response (Pitney & Parker, 2009). Due to time constraints this step was excluded from data analysis. Overall, a modified version termed the six CREATE STEPS by researchers was employed to suit project purposes (Appendix F). The most prevalent qualitative data was interpreted through thematic analysis (Table 3.5).

Additionally, raw data was utilised to create a series of Google Maps (Results). A total of four maps were created identifying all public drinking water outlets in each location. Water pins were used to represent each water outlet. These pins were added by inputting the water outlets' identified address and were colour coded by type: bubbler (blue), petrol station taps (orange), toilet taps (red), any other tap (green) and paid water dispensers (purple). Furthermore, images of water outlets were attached to pins.

3.0 Results

3.1 Water Mapping

A total of 119 water outlets were recorded across the four towns mapped. Nineteen percent of these were considered intentional drinking water outlets by the survey respondents (Table 3.1).

Table 3.1. Summary Of Public Water Outlets Mapped in the Northern New South Wales

Town	Total Intentional & Incidental Water Outlets	Town Population	Water Outlet ratio per population of 10,000
Lismore	30	43 905	7
Casino	28	10 914	26
Ballina	47	16, 506	28
Kyogle	14	8 940	16
Total	119		

The four locations mapped differed in population, which must be considered when drawing comparisons between each location. Ballina was calculated have both the highest water outlets per ratio of 10,000 individuals and the greatest quantity of outlets (39%). This was followed by Lismore (25%), Casino (23%), then lastly Kyogle (12%). However, Lismore showed the lowest water outlet ratio per person in spite of having the second highest number of total water outlets. Casino was observed to have the second lowest number of total water outlets, yet the second highest ratio per 10, 000. However, all Casino's water outlets are identified as incidental outlets (Figure 3.1a). Overall, these results show that Lismore and Kyogle lack public water outlets to meet population demands.

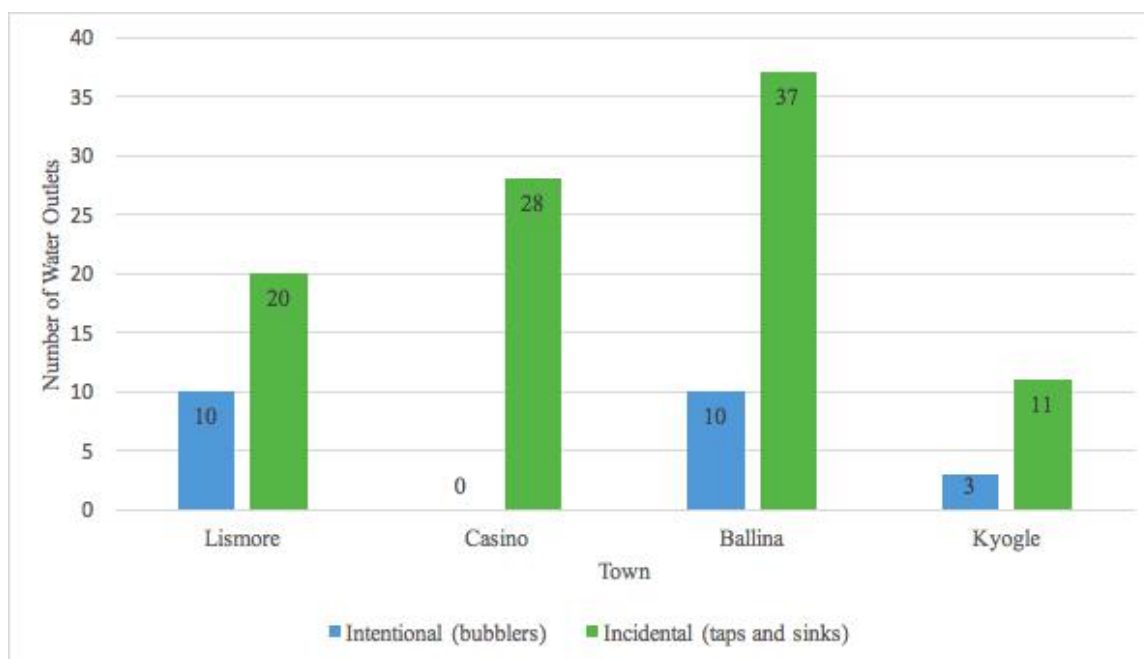


Figure 3.1a) Intentional and Incidental Water Outlets Across Four Towns

Intentional water outlets were defined as bubblers and water fountains, with or without signage. Incidental water outlets included taps located in parks, bathrooms, streets and petrol stations. A total of 23 out of 119 water outlets were intentional water outlets.

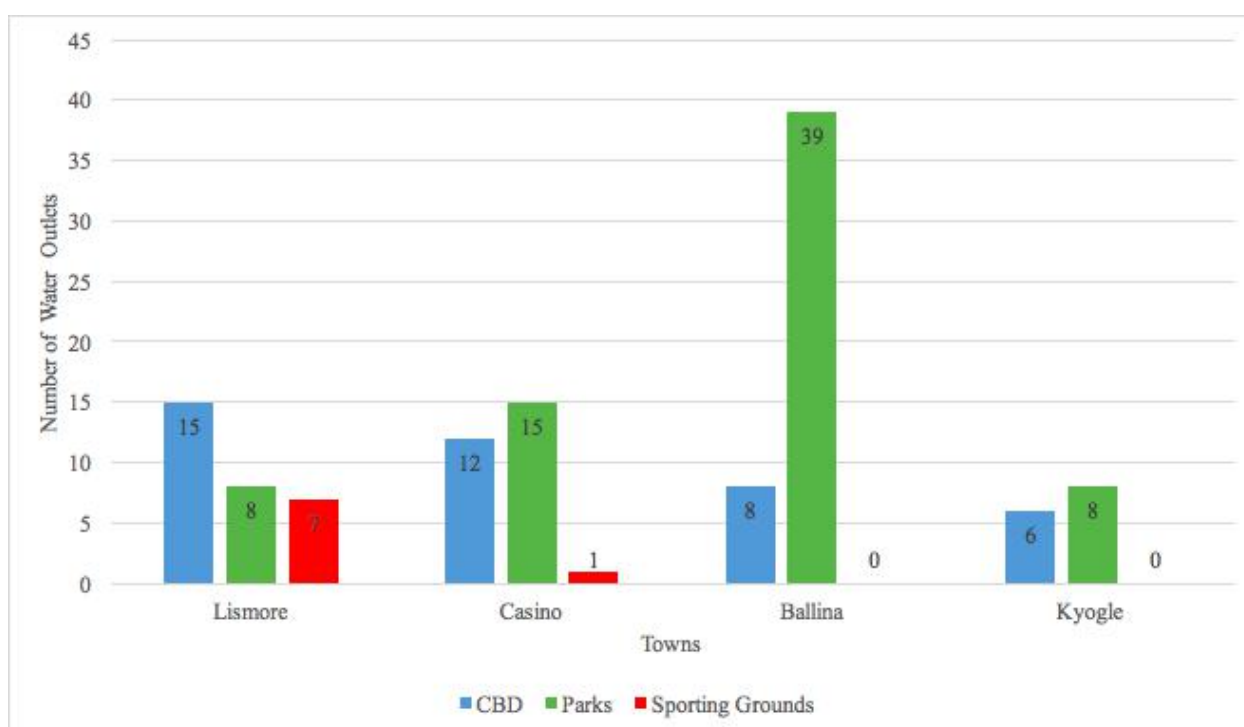


Figure 3.1b) Water Outlets in CBD versus Parks and Sports Grounds

Results from water mapping have identified disparities between water outlet availability in CBD, sports grounds and parks. Within Lismore, 50% of public water outlets were mapped in the CBD, whilst 26% were in parks and 23% in sports grounds. Whereas 42% of Casino's water outlets were in the CBD, the majority (53%) were in parks and 3% in sports grounds. The largest proportion of Ballina's public water outlets were located in parks (83%). Whilst, 17% of Ballina's water outlets were located within the CBD and nil were found at sports grounds. Similarly, Kyogle had zero water outlets located within sports grounds, 42% were identified in the CBD and the majority were located within parks (58%).

Overall, the trend across all four locations shows a scant amount of water outlets found at sports grounds with a total average of two water outlets per town. In comparison, the average of water outlets available in CBD was 10, parks had the highest average (18). This contradicts sports grounds intended use, being exercise and sports games in which higher water intake is required to maintain hydration (Sports Dietitians Australia, 2009).

3.2 Water Outlet Installation Policy

Information regarding local council policy was collected through verbal and electronic communication with relevant Council staff from each location mapped. As stated by Lismore Council's Parks Co Ordinator, public water outlets are installed on an "as required basis". Ballina's Department of Engineering stated similarly, that water outlets are installed "at request". Operations Coordinator of Open Space and Facilities stated the Richmond Valley Council currently has no water policy regarding installation of public drinking water and water at public events. Furthermore, taps and water connection points are "based on the need for servicing parks and reserves such as gardens and also for amenity blocks to comply with plumbing, cleaning and drainage requirements". Kyogle had an equivalent response, confirmed by the Urban Services Manager who stated the only current legislative requirements are to "provide a safe drinking water supply."

3.3 Water Time Sampling

Table 3.3 Lismore Water Time Sampling (13/08/18)

Water Outlet	Water Outlet Address	Location	No. of individuals that used the bubbler (12 am- 2pm)	No. of individuals that used the bottle refill (12 am- 2 pm)
Bubbler 1	70 Woodlark St, Lismore	In front of two local real estate offices	1	0
Bubbler 2	58 Woodlark St, Lismore	10 m proximal to a local cafe	4	1

During Lismore water mapping, researchers engaged in time sampling (12-2pm). On the day of sampling it was 18 degrees Celsius with 21% humidity, a typical winter temperature for Lismore (Bureau of Meteorology [BOM], 2018).

While providing a snapshot in time of water outlet usage, this sampling may not provide an accurate representation overall of bubbler usage. A confounding factor is the proximity to cafes, which also provide free water, possibly reducing the number of people seeking water bubblers. The time sampling was also performed in June, the first month of winter in Australia (BOM, n.d). The cold weather potentially limited the number of people using bubblers, as cold weather reduces the heat induced thermoregulation response of perspiration and thirst (Tamura, Huang, & Togawa, 2017). Results are difficult to draw definite conclusions from, but could indicate that public water outlets near cafes are prone to lower usage. One could assume, public water outlets would receive greater usage in areas such as sporting grounds and parks, where citizens are exercising, in the sunlight and geographically distanced from shops and cafes.



Figure 3.3a Bubbler 1 - 70 Woodlark St, Lismore



Figure 3.3b Bubbler 2 - 58 Woodlark St, Lismore

3.4 Public Drinking Water Perceptions and Drink Habits Surveys Demographic

Due to convenience sampling, the survey demographic consisted of more than 50% of responses being from tertiary level Allied Health students. The proportion of female to male UCRH respondents was approximately 50:50 respectively, and majority were estimated to be aged between 20 to 35 years. Other survey respondents were the LARLKC attendees, all of whom were female and estimated to be aged between 35-45 years.

Table 3.4 Northern NSW Water Mapping Survey Results






Public Water Outlets Participants Would Drink From							
Survey Image			Participants Response				
Water Outlet Type	Water Outlet Address	Photos	Yes	No	Non response	Majority Response	
Image 7a Water Tap	41 Dawson Street Barry Davidson Oval, Lismore		4	40	1	88.8% NO	
Image 7b Water Tap	Anzac Park, Kyogle		16	23	1	51% NO	
Image 7c Water Tap	130 Canterbury Street, Petrol Station, Casino		10	34	2	75% NO	

Image 8a Water bubbler	Amphitheatre, Kyogle		41	4	0	91% YES
Image 8b Water bubbler	Apex Park, Kyogle		38	7	0	84% YES
Image 8c Water bubbler	Community Centre, Ballina		35	10	0	77.7% YES

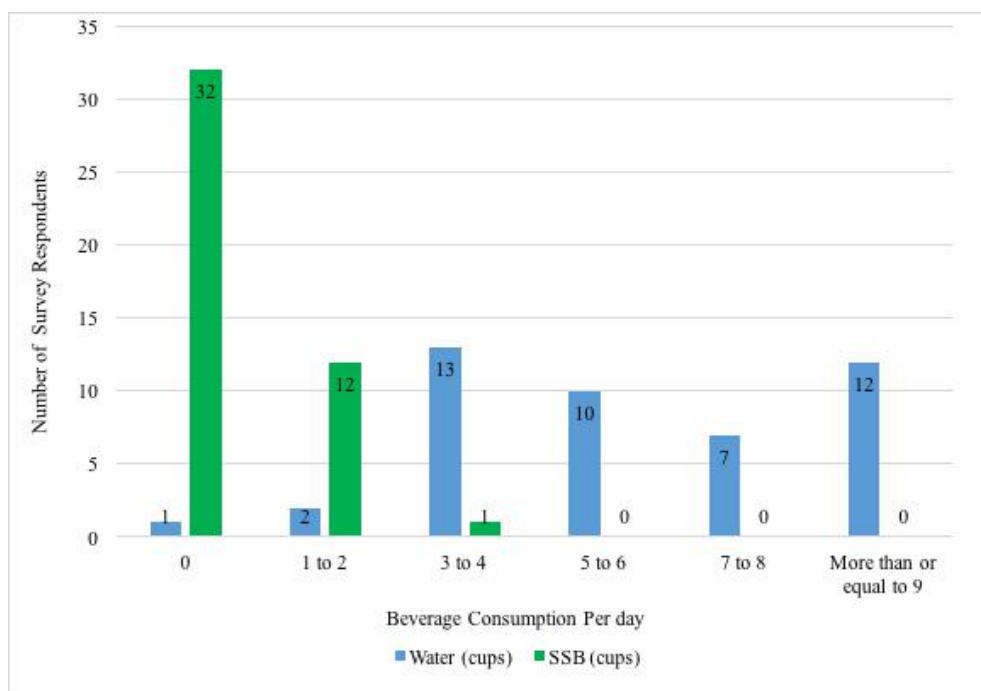


Figure 3.4a Survey Respondents Daily Water and SSB Consumption

Analysis of surveys showed the almost one third of respondents (29%) consume 3-4 glasses of water per day. This is concerning, as individuals aged 18 years and older require more than six cups of fluid per day (NHMRC, 2014). A substantial number of individuals also reported drinking nine cups of water per day or more (27%). A minimal proportion reported consumption of 1-2 glasses per day (4%) and zero glasses (2%). Unexpectedly, the highest percentage of respondents reported zero consumption of soft drinks per day (71%), followed by 27% reporting 1-2 cups of SSB. These results are dissimilar from the research, with evidence showing higher consumption of daily SSB. According to the Australian Beverage Council, on average Australians drink 300 ml of soft drink daily (Hector, Rangan, Louie, Flood, & Gill, 2009). Additionally, purchasing of bottled water was low, with 27 respondents reporting zero purchasing of bottled water per week (60%). The number of participants that purchased 1-2 bottled waters per week was 24%. The remainder reported, purchasing three or more bottles of water per week.

Overall, the validity of the SSB and water consumption and bottled water purchasing data is questionable. Due to the sampling method, the survey pool featured more than 50% of Allied

Health students. As identified by the literature, there is poor generalisation associated with non-probability survey sampling (Etikan, Musa, & Alkassim, 2016).

As shown in Table 3.4 the majority of survey respondents consider bubblers the only suitable public drinking water outlet. The most appealing public water outlets appear to be bubblers with adequate signage, evidenced by the 91% stating they would drink from Image 8a (Table 3.4). More than 50% of participants would drink from a bubbler, however the majority of respondents would not drink from a tap. This was evident by 72% of survey respondents selecting “No” for drinking water from taps, in comparison to the 16% that selected “No” for drinking from public bubblers.

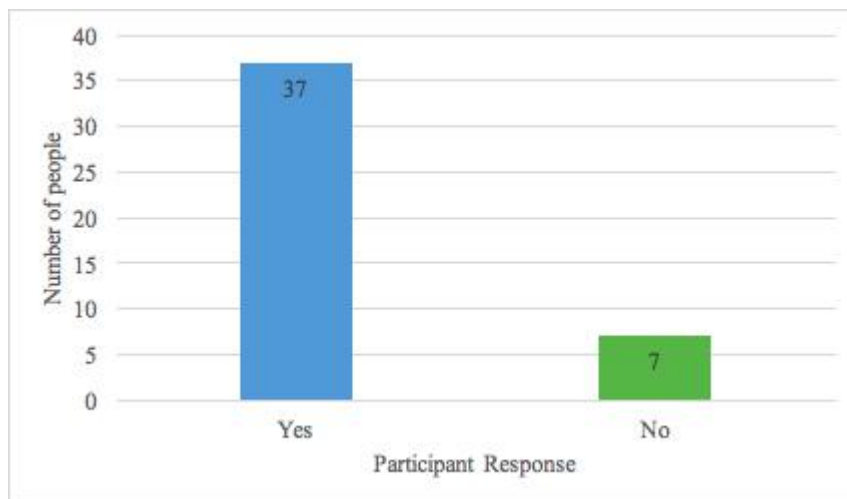


Figure 3.4b Survey respondents that use refillable drink bottles

As depicted by Figure 3.4b the majority of respondents use a refillable drink bottle (84%). This is a key factor when considering the installation of new public water outlets and their design. Preferably future water outlets will be designed to accommodate for members of the public to refill their drink bottles.

3.5 Survey Qualitative Results

Table 3.5 Survey Response Themes

Themes	Label	Survey Excerpts (n=45)
<i>Reasons Participants Drink Water</i>	Thirst	"To quench thirst"
	Exercise Induced Thirst	"Drink more when I'm exercising & when the day is warmer"
	Health	"Awareness of benefits of drinking water"
		"Headache"
		"Keep hydrated"
		"I know it's good for me"
<i>Reasons Participants Don't Drink Water</i>	Prefers other beverages (Tea, coffee)	"Drink more tea & coffee"
	Forget	"Forget to drink more"
	Time Constraints	"Limited time in the working day"
<i>Reasons Participants Drink from Public Water Outlets</i>	Inconvenience	"Not convenient work in clinic environment"
	Cost	"Free"
	Environment	"I hate contributing to landfill so I never buy bottled water. I always have a drink bottle with me to refill"
	Convenience	"Free, accessible"
	Limited options	"If desperate would drink from fountain"
		"If I'm thirsty and it is the only thing available"
<i>Reasons Participants Don't Drink from Public Water Outlets</i>	Hygiene/Sanitation	"Unsure of hygiene"
		"Worried about it being unsanitary"
		"If it looks safe I will drink it"
	Home bottled Water preference	"Don't need to - Always bring my own bottle"
	Purchased Bottled Water Preference	"Don't trust the water- usually buy a bottle of water"
	Filtered Water Preference	"Some may not be filtered"
	Taste	"I like cold water"
		"Prefer cold drinks", "Yuk"

Transcription analysis was employed to construct themes. The majority of respondents reported thirst and overall health benefits as motivational factors of water consumption. Additionally, many respondents reported frequent consumption from public water outlets due to convenience and free cost. On the other hand, there were many underlying reasons why individuals choose not to drink from public water outlets including taste, inability to refill their drink bottles and preference for filtered water. However, of these responses, the most common reason for avoidance of public water outlets was hygiene and/or safety concerns.

3.6 Maps Featuring Public Water Outlets per Location Site

Lismore Public Water Outlets Map

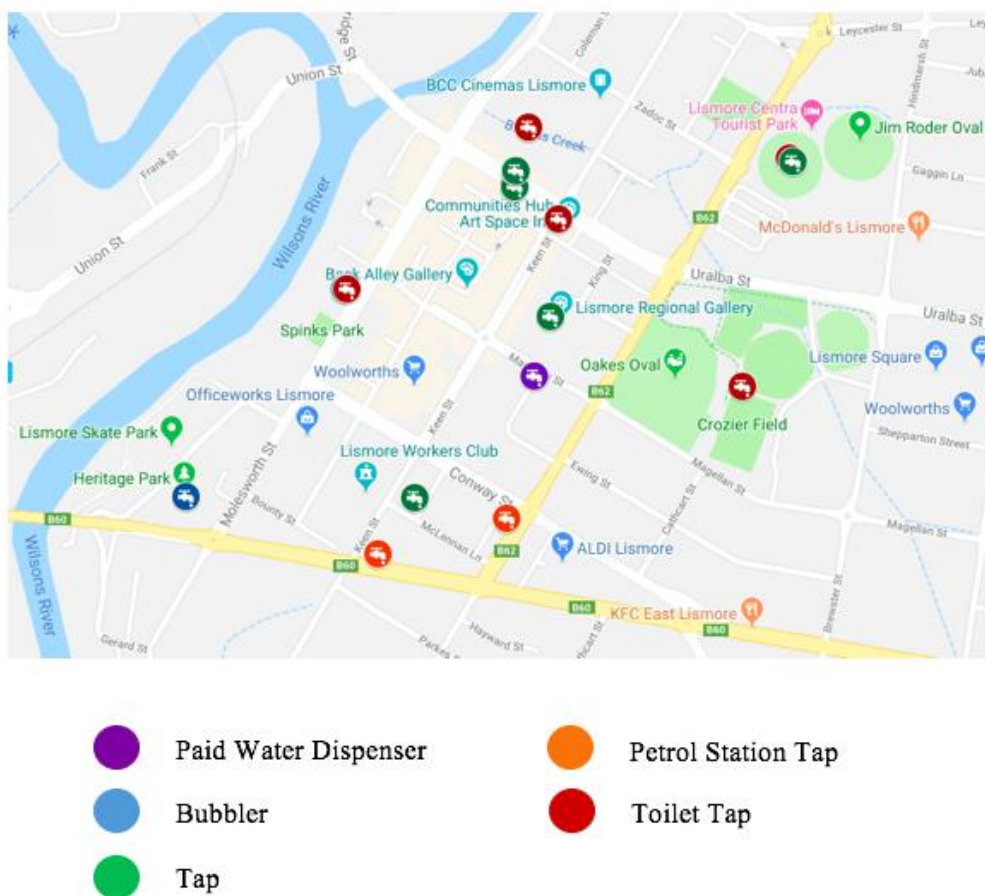


Figure 3.6a Excerpt of Lismore Water Outlet Map available via Google Maps

Link to interactive Google Map:

<https://www.google.com/maps/d/edit?mid=1zSijtB9mcuoa98xuJ99jbl4yXEkGSYt4&ll=-28.80991514138274%2C153.27794545000006&z=16>

Casino Public Water Outlets Map

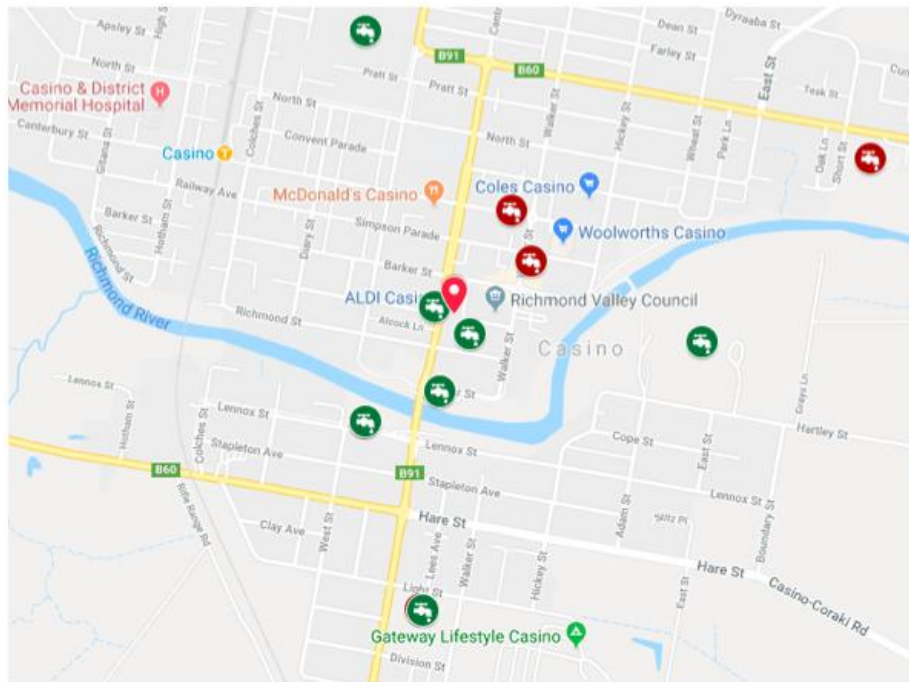


Figure 3.6b Excerpt of Casino Water Outlet Map available via Google Maps

Link to interactive Google Map:

<https://www.google.com/maps/d/edit?mid=1ZpXpNADA2WM8dODyZGnEKKzy-2AmzIIg&ll=-28.862766464210583%2C153.03816575206724&z=15>

Ballina Public Water Outlets Map

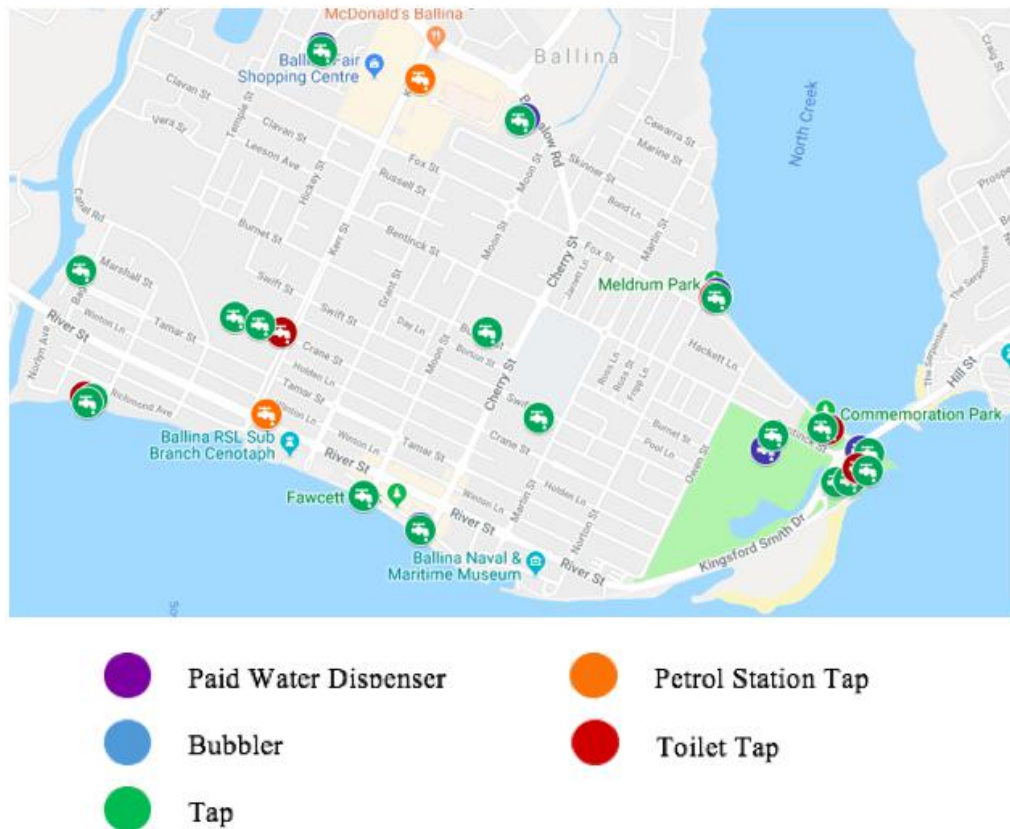


Figure 3.6c Excerpt of Ballina Water Outlet Map available via Google Maps

Link to interactive Google Map:

<https://www.google.com/maps/d/edit?hl=en&hl=en&mid=1za7FoQXV9iLjjgdRz9IgFrCXWmPoY1oa&ll=-28.863264452669476%2C153.5562821415342&z=15>

Kyogle Public Water Outlets Map

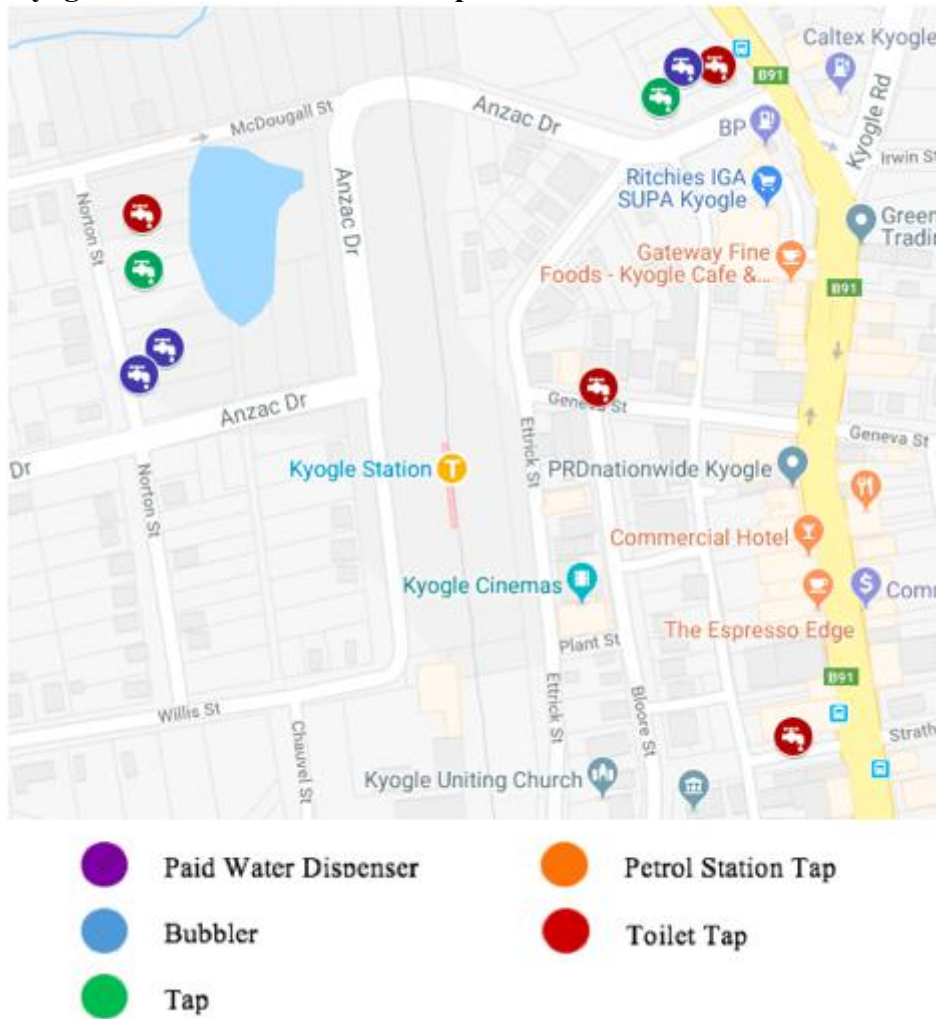


Figure 3.6d Excerpt of Kyogle Water Outlet Map available via Google Maps

Link to interactive Google Map:

https://www.google.com/maps/d/edit?hl=en&mid=1iCf0WMASNsw_Pg2sJ-Wu3ZoNN5_Y0GMt&ll=-28.617882348148676%2C153.0023072154005&z=19

4.0 Lismore Aboriginal Rugby League Knockout Carnival (LARLKC) Case Study

The LARLKC is a football carnival that was hosted at Lismore's Oakes Oval on the 15th and 16th of September 2018, with over 5000 people in attendance. The role of researchers was to assist in management of a nutrition stall and promote water consumption over SSB. Upon investigation, it was discovered the event site had just one water tap, excluding taps in bathrooms, therefore bulk water supply was necessary. It was discovered the volunteer run canteen was focused on selling SSB, to create profit for the local rugby team. Researchers began attempting to procure water one month before the event, however, lack of finances was a significant barrier. Researchers sought sponsorship to assist in cost coverage however were unsuccessful at the time. Many local organisations such as Headspace were unable to sponsor the event as they were already providing sponsorship to the Lismore's Local Rugby team Northern United. NSW Health Promotion was also contacted to sponsor the event with success, however by this time researchers were able to procure water for free. Ultimately, a company named We-Refill demonstrated suitability to supply the carnival. The company provided filtered water that generated 500 Litres of water per/hour with a selection of room temperature, chilled and sparkling water (We-Refill, 2017).

Initially, the company requested a discounted coverage rate of \$1500, for the 2 day carnival. However, the company later agreed to provide services for free due to lack of funding, instead negotiating for students to do social media coverage including advertising in Tourism Lismore, Lismore Aboriginal Rugby League Facebook page and at our North Coast Academy of Sport (NCAS) nutrition education session (Appendix G). The outcome of this case study was successful, with participants commenting about their appreciation of free chilled and sparkling. Researchers observed athletes and attendees lining up at the We-Refill station throughout the day. Despite the positive outcome, researches also observed extensive purchasing of SSB, particularly canned soft drinks. This case study demonstrated the ongoing limitations to public water access. Water provision at public sporting events is not always a priority and in this case received no budget, warranting concerns for the health of participants.



Figure 4.1 Photo of Nutrition & Dietetics Student and attendees refilling from the We-Refill Drink Station at the Lismore Aboriginal Rugby League Knockout Carnival (15/09/18)

5.0 Discussion

5.1 Population

Population could be a potential influential factor in the availability of public water outlets.

As identified by research, the mapped locations vary in Urban Centre and Localities (UCL's) as well as the broader Local Government Area (LGA) populations. As described by the Australian Bureau of Statistics (ABS), UCL's embody the areas of concentrated urban development with populations of 200 people or greater (ABS, 2016b).

Local Government Areas are the broader legally designated sections of a state, that are the responsibility of the same local council (ABS, 2016c). Ballina has the highest population of all mapping sites, with 7 291 residents in the Ballina Island UCL area alone (ABS, 2018). The broader Ballina Shire region houses 43,457 individuals (ABS, 2017a). In terms of water outlets, Ballina had the highest availability with a total of 47. Kyogle, on the other hand was the minority, with only 14 water supplies and the smallest UCL population at 2 751 residents (ABS, 2017b). However, Kyogle's broader LGA had 8940 residents in 2016, minorly smaller than Casino's LGA of 10 914 (ABS 2017b; ABS 2017d). As far as Casino's UCL population no information was available. Casino had a total of 28 water outlets. Lismore's LGA features 43 905 residents, of this population 27,569 live within the urban centre (ABS 2017d). Lismore has a larger UCL's and LGA but has less public drinking water than Ballina. Overall, the association between public water outlets and population is weak. The results prove that larger UCL's and LGA's do tend to have greater amount of water outlets, however this isn't proportional, as seen when comparing Lismore and Ballina.

5.2 Location

Of the locations mapped, Ballina was the only mapping site considered a rural coastal region (Ballina Shire Council, 2016). However, due to the low sampling pool the correlation between water outlet availability in coastal versus inland NSW regions remains inconclusive.

5.3 Policy

Local councils have strict policy and procedures regarding water quality and safety. Yet, there is a lack of public policy relating to installation of public drinking water outlets. However, an

increase in public expectations appears to be influencing councils to move towards installation of more water outlets.

Kyogle Council members stated that construction of any applicable open spaces (i.e. parks, sports grounds) in the future will aim to include bubblers with the capacity to refill bottles. As stated by a Kyogle Council member, although there is no mandatory policy, they are “moving with the times” and public water outlets are “what people expect”. Additionally, a recently approved Lismore City Council motion is to provide, at the lowest possible price, water tanks for use at events to replace single use water bottles (Lismore City Council, 2018a). As highlighted by the LARLKC Case Study, there is a definite necessity for cheap water provision at public events. Furthermore, the local Lismore community has been lobbying for installation of static and portable water stations to enable the refilling of water bottles (Lismore City Council, 2018a).

In spite of these recent actions Lismore, Richmond Valley, Ballina and Kyogle councils currently have no mandatory requirements or procedures regarding installation of public water outlets. Lack of policy could lead to popular public open spaces like parks or sports grounds without sufficient public water. Overall, this potentially contributes to adverse outcomes such as dehydration, higher rates of SSB consumption and increased purchased bottled water (Kidney Health Australia, 2017; Seigny, 2017).

5.4 Cost

Expenses and council budgets are another factor to consider in the discussion of limited water outlets. The approximate cost for a high quality outdoor, freeze resistant drinking fountain is \$2500 and chilled water outlets can be over \$4000 (Ellsbury, 2015). Furthermore, there are additional costs due to installation. These installation expenses are highly variable, depending on many factors such as cost of manual labour, construction in high traffic public places (e.g. local street) and energy to generate chilled water.

Additionally, many council budgets do not account for cost of sustainable, high quality water fountains or bubblers. According to Lismore Council’s Parks Coordinator, council budget is an important factor preventing installation of more public water outlets in Lismore. According to Lismore Council’s Mid-Year Progress Report, many local outdoor areas are undergoing

redevelopment including Albert Park and Oakes Oval. Lismore Oakes Oval is undergoing a \$3 million dollar renovation whilst Albert Park has funding of \$4.95 million, however neither ground has specific funding allocated to the installation of public drinking water outlets (Lismore City Council, 2018b; Lismore Electorate Office, 2017). As highlighted in the case study, the only water outlet was one tap located near the fence and dumpster at Oakes Oval.

Richmond Valley's 2018 quarterly budget has accounted for the addition of a single bubbler for Razorback Lookout (Evans Head), valued at \$1818 (Richmond Valley Council, 2018). However, no further funds have been allocated for Casino water outlets. Richmond Valley's Operations Coordinator of Open Space and Facilities has stated installation of public bubblers and fountains is "dependent on council and the assets department." Although, Kyogle Council members have spoken about the necessity of future water outlets, there appears to be no funding. According to the latest budget review a total of \$30, 000 has been spent on Parks and Gardens, however, the specific usage of these expenses remains unidentified (Kyogle Council, 2018).

To summarise council budgets, expenses and lack of policy can hugely influence installation of public water outlets. Of the councils that have accounted for installation of future bubblers, it remains unclear if bubblers will meet the general public's standards (ie. chilled, aesthetically pleasing, refillable capacity).

5.5 Perception of Acceptable Public Water Outlets

Research shows that a significant barrier to water outlet usage is public perception.

Approximately 85% of Australians distrust water from bubblers due to smell and appearance (Bottled Water Alliance, 2009). Other factors dissuading public water consumption are concerns regarding chemicals in water such as chlorine and fluoride (Etale, Jobin, & Siegrist, 2018).

Social fears regarding water treatment indicates a lack of education, as chemicals added to water follow strict adherence to guidelines and promote hygiene (New South Wales Government, 2018). These perceptions were confirmed by survey respondents stating they avoid public water and prefer filtered water (Table 3.4).

Additionally, purchasing of bottled water has increased in the last decade (Doria, 2006). In 2015, 5.3 million Australians on any given day would drink bottled water (Australian Food News, 2016). Plastic bottled water has major consumer appeal, advertised as a healthy beverage and increasingly, as a safer option to public drinking water (Roy Morgan, 2016). The imagery of clean, natural sources displayed on bottled water packaging is more appealing than that of dams, pipes and taps (Steen, 2018). The common perception is that bottled water is healthier than tap water, despite that Australian Drinking Water Guidelines are of a higher standard than the Bottled Water Guidelines (University of Queensland, 2018).

5.6 Photos from Water Mapping Days

Lismore



Casino



Ballina



Kyogle



6.0 Limitations

6.1 Sample Size

During data collection only a sample size of four, out of a possible seven Northern NSW locations were mapped. Research shows that smaller samples sizes increases the risk of assuming a false premise as true (Faber & Fonseca, 2014). Therefore, this smaller project sample size may not be representative of the entire Northern NSW region and the availability of public drinking water. Additionally, Ballina was the only featured coastal rural location.

6.2 Survey Sampling Bias

Convenience sampling was employed to guarantee instant survey responses, allowing for project researchers to work in accordance with the project schedule. This resulted in a specific and small sample size (N=45), creating sampling bias (Lavrakas, 2011). Survey's respondents included a large portion (more than 50%) of Allied Health tertiary students. The remainder were LARLKC attendees. Research shows that individuals with higher education levels engage in healthier behaviours including physical activity and healthier food choices (Zimmerman, Woolf, & Haley, 2015). Additionally, as Allied Health students, it indicates these individuals have a personal interest in physical and mental health. Thus, responses relating to water, SSB consumption and preference is potentially an inaccurate reflection of the general public.

6.3 Technological Inaccuracies

Water mapping relied upon usage of both Google and local council maps, coordinates and addresses. Throughout data collection and analysis, discrepancies were identified with some map coordinates approximately 1- 2 m off the actual water outlets location(s) according to Google Maps.

6.4 Location of Water Outlets

Water outlets within the CBD, sports grounds and parks listed on local council websites or within a 1km radius of the CBD were mapped. Thus, only water outlets according to this criteria were included in the project. Potentially popular parks or sports grounds were missed and the overall outcome is that water outlets with high usage potentially remain unidentified.

7.0 Recommendations

7.1 Public Water Outlets Design and Functionality

Manly Council's Water Fountain project states the key elements in promoting drinking water appeal include fountain design, visible signage and filtered water (Bottled Water Alliance, 2009). This is further supported by survey responses with the highest preference for chilled water bubblers with signage and refillable capacity. Water outlets should also be designed to enable people to refill drink bottles (Bottled Water Alliance, 2009). Thus, recommendations for the future installation of public water outlets are to comply with those aforementioned preferences. Implementing this particular criteria will likely encourage greater usage.

7.2 Maintenance of Current Public Drinking Water Outlets

Two thirds of people state they would drink less bottled water if there were better water fountains within the community (Bottled Water Alliance, 2009). Currently installed water outlets require renovation and improvements to aesthetic. One of the biggest barriers preventing public water outlet usage was the perception around hygiene. Images collected from water mapping show many water outlets are not maintained to an acceptable standard, giving the appearance of being potentially contaminated sources (Appendix H). This statement is further supported by results from surveys, as the majority of respondents would not drink from any taps (Table 3.4).

7.3 Installation of New Water Outlets in High Usage Areas

Focus on location of new water outlets is priority. Research shows that adolescents are the age group with the greatest soft drink consumption. Furthermore, older adolescents have the highest participation rates in organised sports including soccer, netball and running (ABS, 2015; Australian Sports Commission, 2013). Therefore, popular sporting grounds (such as those listed on council website's) should feature at least a single chilled water bubbler.

7.4 Council Policy

One of the key findings of this project relates to local council policy. There are no policies, guidelines or specific budgets covering costs of high quality, maintainable public drinking water outlets for any of NSW Councils researched. It is recommended that councils implement policy using recommendations from this report and install water outlets in high usage areas. This includes popular sports grounds, ovals, parks as well as high traffic CBD areas including: town squares, libraries and transit interchanges. It is advised that, at minimum, local councils implement a Local Government Action Guide similar to Victoria Health's Guide: Provision of Drinking Water Fountains in Public Areas (VicHealth, 2016).

7.5 Recommendations for future research and health promotion projects:

Future Research

1. Extend water mapping project to more Northern NSW locations including Byron Bay and Tweed Heads, to enable more comparisons to be made between Local Health Districts and public water outlets.
2. Future research should include public water consumption trends, sugar sweetened beverage trends, environmental influences of beverage choice across the Northern NSW LHD. This will support council policy development regarding water and beverages.
3. Consumer research should be attained through online surveys with a wider sample set to improve data validity. Ideally, this would include a larger respondent rate, equal sample sizes of gender, individuals from varying socio-economic status (ie. postcode, income, education) and varying ethnicities

Health Promotion Projects

1. Increase public awareness of environmental impacts of bottled water through advertising and policy implementation
2. Increase public awareness around safety of public tap water consumption
3. Enable councils and public health authorities to provide maps of drinking water outlets in CBD, popular parks and sports grounds
4. Develop policies including budget allowance for water outlet installation in high traffic CBD, parks and sports grounds

8.0 Conclusion

This community project aimed to map the availability of public water outlets amongst four Northern NSW towns: Lismore, Casino, Ballina and Kyogle. The main project findings showed that current public water outlets are insufficient in both quality and quantity. Only 23 out of 119 public water outlets are considered intentional water outlets (ie. bubblers and drinking stations). The majority of water outlets (80%) are taps and/or part of toilet blocks, which a significant portion of the general public do not perceive as drinking sources. These perceptions around drinking water are a combination of social perceptions, including fears around hygiene of public bubblers, chemicals added to tap water as well as visual appeal. Results showed that design, signage and filtered water are important factors influencing usage. The most socially desirable public water outlets are chilled water bubblers with signage and refillable capacity. Therefore, future water outlets should ascribe to this criteria. Furthermore, water bubblers should be installed in areas of high traffic, especially sports grounds which are currently lacking in sufficient public water outlets. Finally, local councils currently lack budget management or policies regarding installation of public water outlets impeding public water availability as well as maintenance of current outlets. Future studies should explore wider locations and populations, with emphasis on further understanding of the socio psychological influencing of beverage choice.

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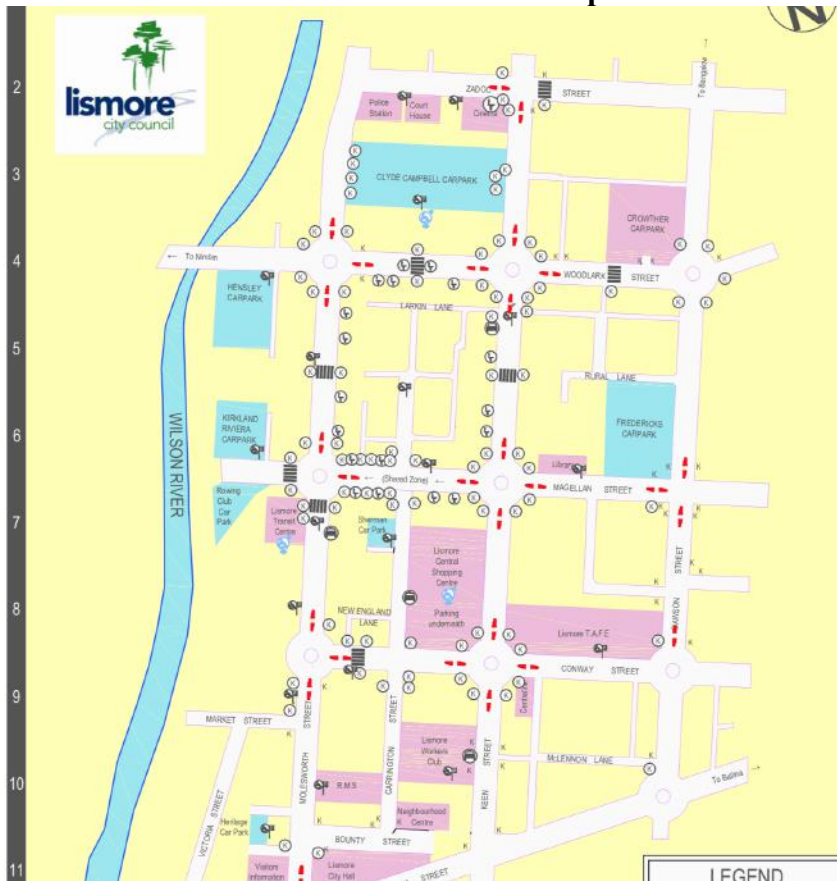
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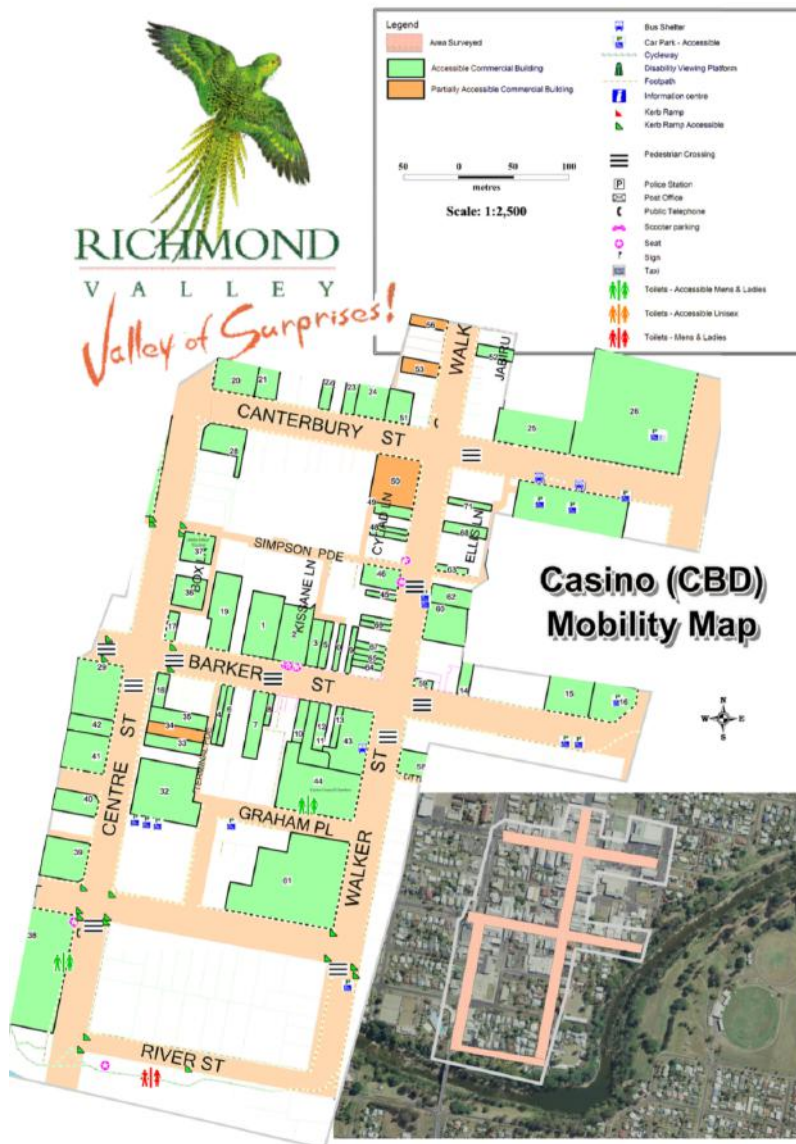
10.0 Appendices

Appendix A. Central Business District Maps of NSW Water Mapping Locations

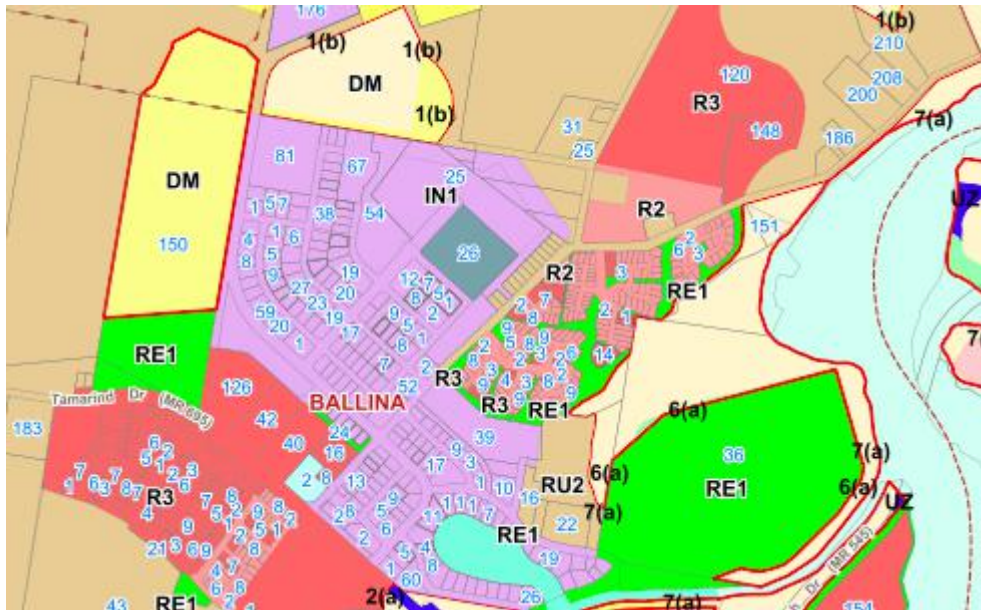
1. Lismore Central Business District Map



2.Casino Central Business District Map

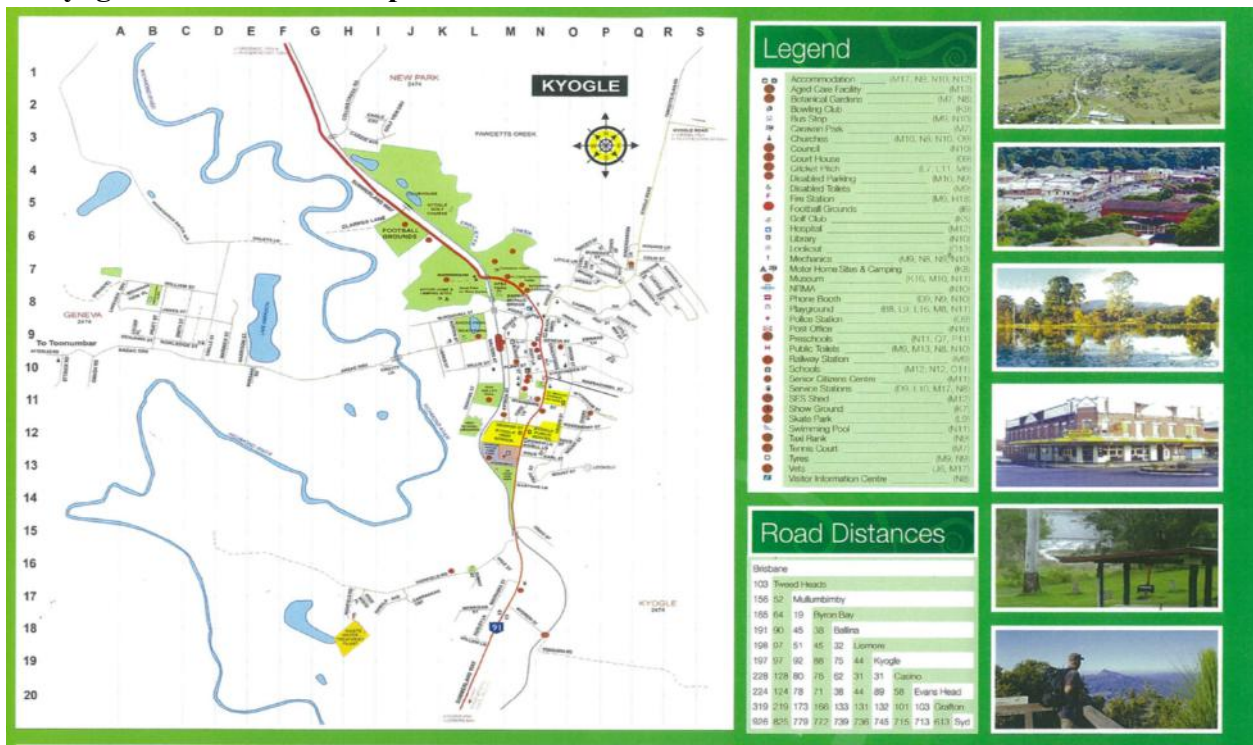


3. Ballina Central Business District Map



(Sections in pink are the CBD Districts)

4. Kyogle Council Local Map



Appendix B. Water Mapping Checklists

1.Lismore

Lismore Central Business District Streets

- Dawson St
- Woodlark St
- Zadoc St
- Magellan St
- Carrington St
- Molesworth St
- Keen St
- Conway St
- Bounty St

Sporting Fields, Local Grounds and Parks

- Oakes Oval

Address: 144 Magellan St

- Crozier Field

Address: Cathcart St

- Heaps Oval

Address: Uralba St

- Jolley field

Address: Uralba St

- Lismore Park

Address: Uralba St

- Humbly Oval

Address: 144 Magellan St,

- Jim Roder Oval

Address: Brewster St, Trinity Catholic College sports ground

- Barry davidson oval

Address: 60 B62,

- Heritage Park

Address: 195 Molesworth St,

- Lismore Skate Park

Address: Victoria St

- Spinks Park

Address: 137 Molesworth St

2. Casino

Casino Central Business District Streets

- Walker St
- Centre St
- Barker St
- Canterbury St

Sporting Fields, Local Grounds and Parks

- Colley Park

Address: Farley St, Pratt St and Jersey St

- Albert Park

Address: Johnston St

- Crawford Square

Address: Centre St

- Queen Elizabeth Park

Address: Hartley St, Casino (footbridge from the Casino CBD)

3. Ballina

Ballina Central Business District(s) Streets

- River St and Riverfront
- Holden Lane
- Tamar St
- Cherry St
- Kerr St
- Moon St

- Martin St
- Grant St
- Bangalow Road
- Cherry lane and St
- Fawcett road and Lane
- Winston Lane

Sporting Fields, Local Grounds and Parks

- Saunders Park

Address: 144/146 Tamar St

- Kingsford Smith Park

Address: Lot 1 Kingsford Smith Dr

- Ballina Skate Park

Address: River St

- Missingham Playground

Address: Kingsford Smith Dr

- Commemoration Park

Address: Bentick St (near River St)

- Meldrum Park

Address: 83 Norton St

- Fawcett Park

Address: Fawcett St, Ballina

- Cawarra Park

Address: 19 Cawarra St

- J Kearney Park

Address: Catherine Crescent

- Riverview Park

Address: Brunswick St

- Treelands Park

Address: Bangalow Road

- Vera St

Address: Vera St & Clavan Court

- Wigmore Park

Address: Swift Street & Webster Lane

- Fripp Oval

Address: 31 Canal Rd

4. Kyogle

Kyogle Central Business District Streets

- Summerland Way
- Groom St
- Geneva St
- Bloore St
- Stratheden St
- Crockfords St
- Wyrangarie St
- Ettrick St
- Roxy Lane

Sporting Fields, Local Grounds and Parks

- Kyogle Turkey's Club

Address: Summerland Way

- Alcorn Park

Address: 6 Summerland Way

- Apex Park

Address: 3 Summerland Way

Don Gulley Oval

Address: Anzac Drive

- Amphitheatre

Address: Anzac Drive (behind the Visitor Info Centre)

- Anzac Park

Address: Anzac Drive

- Showground

Address: 43 Summerland Way

Appendix C. Water Mapping Data Collection

Inclusion Criteria <i>Drinking Water Supplies to Assess at most popular local sporting grounds, parks and CBD's :</i> Taps (waist and ankle height) Bubblers Amenity blocks (toilet blocks and/or public sinks) Paid water dispensers Water stations	Exclusion Criteria <i>Drinking Water supplies in non CBD areas, recreational grounds</i> Indoor Water Supplies: local stores, businesses Schools/Sports Clubs National Parks/Hiking Tracks Faulty/non-working/sealed taps Water supplies on private property
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Data Collection per Mapping Site

Northern NSW Region: Lismore

Date of Mapping: 13/08/18

Site Type	Street Number	Location and Description	Water Supply Type	No. of Water Outlet	Water Supply Temperature	Water Supply Colouring	Water Supply Taste	Google Map Co-ordinates	Signage
CBD	70	Woodlark Street Poor water flow difficult to get water out of bubbler	Bubbler Tap	1 single 1 tap	Un-chilled	Clear	Typical	Latitude: -28.80712 Longitude: 153.27842	Filtered water sign
CBD	58	Woodlark Street Poor water flow difficult to get water out	Bubbler Tap	1 single 1 tap	Un-chilled	Clear	Typical	As above	Filtered water sign

CBD	<i>No public water supply available</i>	Zadoc Street	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>
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CBD	1/119	Magellan Street	Paid Public Water Dispenser	1	Chilled	Clear	Typical	Latitude: -28.810 Longitude: 153.279	Signed
CBD	<i>No public water supply available</i>	Carrington street	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>
CBD	137	Molesworth Street - Spinks Park	<i>Refer to parks</i>	<i>Refer to parks</i>	<i>Refer to parks</i>	<i>Refer to parks</i>	<i>Refer to parks</i>	<i>Refer to parks</i>	<i>Refer to parks</i>
CBD	86	Keen Street - Public Toilet Block Near Roundabout	Toilet Sink and Tap	1 tap	Chilled	Clear	Typical	Latitude: -28.807 Longitude: 153.279	Toilet Sign
CBD	11	11 Rural St, Lismore NSW 2480- Lismore Regional Gallery Tap	Tap	1	Chilled	Clear	Typical	Latitude: -28.80967 Longitude: 153.2793	No sign
CBD	<i>No</i>	Bounty Street	<i>No</i>	<i>No</i>	<i>No public</i>	<i>No public</i>	<i>No public</i>	<i>No public</i>	<i>No public</i>

	<i>public water supply available</i>		<i>public water supply available</i>	<i>public water supply available</i>	<i>water supply available</i>	<i>water supply available</i>	<i>water supply available</i>	<i>water supply available</i>	<i>water supply available</i>
CBD		Clyde Campbell Carpark- Public Toilet Block Behind Woodlark Street Along Molesworth Street and Keen Street	Toilet Sinks	2- Female tap with sinks 2- Male tap with sinks 1 tap with sinks Disabled (5 total)	Chilled	Clear	Typical	Latitude: -28.806 Longitude: 153.278	Toilet Signs
CBD	<i>Refer to Oakes Oval</i> 131	Dawson Street - Public Toilet Block Technically apart of Oakes Oval BP Petrol Station 131 Dawson Street/Conway Street	<i>Refer to Oakes Oval</i> Taps	<i>Refer to Oakes Oval</i> 2	<i>Refer to Oakes Oval</i> Un-chilled	<i>Refer to Oakes Oval</i> Clear	<i>Refer to Oakes Oval</i> Typical Tap	<i>Refer to Oakes Oval</i> Latitude: -28.813 Longitude: 153.278	<i>Refer to Oakes Oval</i> Water sign

CBD	16	Ballina Street - <u>United Petrol Station</u> Also corner of Keen Street, across from RSL club	Water Station Tap	1	Un-chilled	Clear	Typical Tap	Latitude: -28.813 Longitude: 153.275	Sign
CBD	220	Cnr Keen street/McLennan Ln Lismore Ambulance Block	Tap	1	Chilled	Clear	Tap	Latitude: -28.812 Longitude: 153.276	No sign
Local Sporting Grounds and Parks Key : SG (Sporting Ground) P(Park)									
Site Type	Street Number	Location and Description	Water Supply Type	No. of water supply	Water Supply Temperature	Water Supply Colouring	Water Supply Taste	Google Map Co-ordinates	Signage
SG	144	Oakes Oval <i>Magellan St/Dawson St, Lismore NSW 2480</i>	Toilet and sink	2 taps in Female 2 taps in Male (4 total)	Chilled	Clear	Metallic	Latitude: -28.809 Longitude: 153.281	No sign
SG	<i>No public</i>	Jim Roder Oval	<i>No public</i>	<i>No public</i>	<i>No public water supply</i>	<i>No public water</i>	<i>No public water</i>	<i>No public water</i>	<i>No public water</i>

	<i>water supply available</i>	<i>Brewster St; Lismore, New South Wales 2480.</i>	<i>water supply available</i>	<i>water supply available</i>	<i>available</i>	<i>supply available</i>	<i>supply available</i>	<i>supply available</i>	<i>supply available</i>
SG	144	Crozier Field Magellan Street Unable to access	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>
SG	144	Heaps Oval Magellan Street	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>
SG	144	Jolley field Magellan Street	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>
	49	Lismore Park Uralba Street	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>
SG	144	Humbly Oval Magellan Street	<i>Toilets locked</i>	<i>No public</i>	<i>No public water supply</i>	<i>No public water</i>	<i>No public water</i>	<i>No public water</i>	<i>No public water</i>

				<i>water supply available</i>	<i>available</i>	<i>supply available</i>	<i>supply available</i>	<i>supply available</i>	<i>supply available</i>
SG	60 Lot B62	Barry Davidson Oval	Tap Toilet sinks	1 1 sink in female 1 sink in male	Chilled	Clear	Slightly Metallic	Latitude: -28.80 Longitude: 153.3	No sign
P	195	Heritage Park Molesworth Street	Bubblers	3	Chilled	Clear	Tap water	Latitude: -28.812 Longitude: 153.27	No sign
P		Albert Park Keen Street	Toilets locked	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>
P	210	Riverview Park Union Street	Toilets locked	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>
P		Lismore Skate Park Victoria Street	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>

P	137	Spinks Park 137 Molesworth Street	Bubblers Tap	4 1	Chilled Chilled	Clear Clear	Typical	Latitude: -28.089 Longitude: 153. 275	No sign Engraved writing in stone?
P	<i>No public water supply available</i>	Gloria Mortimer Oval	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>
SG	51	Blair Oval Brewster Street	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>
SG	48	Richards Oval 48 Brewster Street	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>	<i>No public water supply available</i>

Inclusion Criteria <i>Drinking Water Supplies to Assess at most popular local sporting grounds, parks and CBD's :</i> Taps (waist and ankle height) Bubblers Amenity blocks (toilet blocks and/or public sinks) Paid water dispensers Water stations	Exclusion Criteria <i>Drinking Water supplies in non CBD areas, recreational grounds</i> Indoor Water Supplies: local stores, businesses Schools/Sports Clubs National Parks/Hiking Tracks Faulty/non-working/sealed taps Water supplies on private property
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Data Collection per Mapping Site

Northern NSW Region: Casino

Date of Mapping: 14/08/18

Site Type	Street Number	Location and Description	Water Supply Type	No. of water supply	Water Supply Temperature	Water Supply Colouring	Water Supply Taste	Google Map Co-ordinates	Signage S= Sign NS= no sign
CBD	71	Walker Street Public Toilet	Toilet Sink and Tap	1	Chilled	Clear	Typical	Longitude: -28.86403 Longitude: 153.04868	Toilet sign
CBD	94	Caltex Petrol Station Bruxner Highway	Tap	1	Chilled	Clear	Typical Tap Water	Latitude: - 28.865 Longitude: 153.045	Water/air sign

CBD	<i>No public water supply</i>	Barker Street	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
CBD	171	Canterbury Street Caltex	Tap	1	Chilled	Clear	Typical	Latitude: -28.86545 Longitude: 153.04517	Tap signs
	150	Canterbury Street Civic Hall	Toilet sinks and tap Tap Male toilet	2 1 2 1	Chilled	Clear	Typical	Latitude: -28.86266, Longitude: 153.04771	No sign
CBD	3	River Street “Webb Park” Toilet was off putting smelling of bleach and faeces	Tap Toilet sinks and tap	1 3	Chilled	Clear	Metallic	Latitude: -28.868 Longitude: 153. 046	No tap sign
CBD	4	Graham Place - Outside the Library	Tap	1	Chilled	Clear	Typical	Latitude: -28.86624, Longitude: 153.04632	No sign

<p style="text-align: center;">Local Sporting Grounds and Parks</p> <p>Key: SG (Sporting Ground) P (Park)</p>									
Site Type Key	Street Number	Location and Description	Water Supply Type	No. of water supply	Water Supply Temperature	Water Supply Colouring	Water Supply Taste	Google Map Co-ordinates	Signage
SG	30	Casino Cobra's Club Farley Street	Tap	1	Chilled	Clear	Typical Tap water	Latitude: -28.85748 Longitude: 153.0420	NS
P		Farley Street Colley Park	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>

P	12	Short Street Albert Park	Tap Tap Toilet sinks and tap Male toilet	1 1 2 2	Chilled	Clear	Tap water	Latitude: -28.861 Longitude: 153.059	No sign
P	74	Lennox Street Coronation Park	Tap Taps inside toilets Toilet sinks	1 2 2	Chilled	Clear	Tap water	Latitude: -28.86876 Longitude: 153.04284	No sign
P	34	Hartley Street Queen Elizabeth Park	Tap	1	Chilled	Clear	Tap water	Latitude: -28.8664 Longitude: 153.0539	No sign
P		<i>Centre Street Memorial Park</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	Latitude: - 28.865 Longitude: 153.047	<i>No public water supply</i>

P	1	Bruton Street Riverview Park (Toilet locked)	Taps	2	Chilled	Clear	Typical tap water	Latitude: -28.853037 Longitude: 153.029056	No sign
P	31	Light Street Crawford Square Park	Tap Toilet sink in female Toilet sinks sink in male	1 1 1	Chilled	Clear	Typical tap water	Latitude: -28.8741 Longitude: 153.0447	No Sign

Data Collection per Mapping Site

Northern NSW Region: Ballina

Date of Mapping: 27/08/18

Inclusion Criteria <i>Drinking Water Supplies to Assess at most popular local sporting grounds, parks and CBD's :</i> Taps (waist and ankle height) Bubblers Amenity blocks (toilet blocks and/or public sinks) Paid water dispensers Water stations	Exclusion Criteria <i>Drinking Water supplies in non CBD areas, recreational grounds</i> Indoor Water Supplies: local stores, businesses, in door bathrooms apart of shopping complexes Schools/Sports Clubs National Parks/Hiking Tracks Faulty/non-working/sealed taps Water supplies on private property
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Site Type	Street Number	Location and Description *CBD Border	Water Supply Type	No. of water supply	Water Supply Temperature	Water Supply Colouring	Water Supply Taste	Google Map Co-ordinates	Signage
CBD	273	River Street Shell Petrol Station	Tap	1	Un-chilled	Clear	Typical	Latitude: -28.868 Longitude: 153.555	Sign (next to ads for bottled water and red bull)
CBD	<i>No public water supply</i>	*Holden Lane	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
CBD	<i>No public water supply</i>	Tamar St	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
CBD	<i>No public water supply</i>	Cherry Street	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
CBD	271	Kerr Street Caltex Petrol Station	Tap	1	Chilled	Clear	Did not try	Latitude: -28.858 Longitude:	Sign saying water

	273	Corner of Kerr and River Street Shell Petrol Station	Refer to River St	Refer to River St	Refer to River St	Refer to River St	Refer to River St	153.560	"non potable" Refer to River St
CBD	<i>No public water supply</i>	Grant Street	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
CBD	59	Moon Street Hampton Park	Tap	1 1	Chilled Un-chilled	Clear Clear	Typical Typical	Latitude: -28.865 Longitude: 153.562	No sign No Sign
CBD	1	Moon Street	Tap <i>Public toilet Locked for construction</i>	1	Chilled	Clear	Typical	Latitude: -28.870 Longitude: 153.558	No sign Public Toilet Sign
CBD	20	Bungalow Road Kentwell Community Centre	Bubbler Tap	1 1	Chilled Chilled	Clear Clear	Typical Typical	Latitude: -28.859 Longitude: 153.564	No Sign
CBD	<i>No</i>	Winton Lane	<i>No</i>	<i>No</i>	<i>No public</i>	<i>No public</i>	<i>No public</i>	<i>No public</i>	<i>No public</i>

	<i>public water supply</i>		<i>public water supply</i>	<i>public water supply</i>	<i>water supply</i>	<i>water supply</i>	<i>water supply</i>	<i>water supply</i>	<i>water supply</i>
CBD	<i>No public water supply</i>	Cherry Lane	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
CBD	<i>No public water supply</i>	Fawcett Street *	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
CBD	<i>No public water supply</i>	Fawcett Lane	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
Local Sporting Grounds and Parks SG (Sporting Ground) P (Park)									
Site Type Key	Street Number	Location and Description	Water Supply Type	No. of water supply	Water Supply Temperature	Water Supply Colouring	Water Supply Taste	Google Map Co-ordinates	Signage
P	144/146	Saunders Park, Tamar Street Taps on light poles directly opposite each	Tap Tap	1 1	Chilled Chilled	Clear Clear	Typical Typical	Latitude: -28.866 Longitude: 153.554	No Sign

		other on the sports field Toilet Block (1x male, 1x female) <i>Also encompasses Ballina Sports Club - Toilets Locked</i>	Toilet tap and sink	4 (2 female 2 male)	Chilled	Clear	Typical	Latitude: -28.865 Longitude: 153.555	No Sign
P	Lot 1	Kingsford Smith Park, Kingsford Smith Drive Tap featured a dog bowl (catching excess water from water dispenser)	Bubbler	4	Chilled	Clear	Typical	Latitude: -28.869 Longitude: 153.572	No Sign
			Tap	1	Chilled	Clear	Typical	As above	No Sign
P	Lot 2	Missingham Playground Kingsford Smith Drive	Tap	3	Chilled	Clear	Typical	Latitude: -28.869	No sign
			Toilet tap with sink	4	Chilled	Clear	Typical	Longitude: 153.575	Toilet sign
			Tap	1	Chilled	Clear	Typical	Latitude: -28.870 Longitude: 153.574	No sign

								Latitude: -28.869 Longitude: 153.575	
P	70	Ballina Skatepark, Kingsford Smith Dr (Adjacent to Missingham park) Bubbler and Tap were together (refer picture) Featured Dog Bowl (catching excess water from water dispenser)	Bubbler Tap	2 1	Chilled Chilled	Clear Clear	Typical Typical	Latitude: -28.869 Longitude: 153.575	Sign Sign
P		Commemoration Park, Bentinck St (corner of Bentick St and Kingsford Smith Drive) 1 tap inside toilet block 1 tap outside toilet block	Tap Toilet tap and sink	1 2 (1- male, 1- female)	Chilled Chilled	Clear Clear	Typical Typical	Latitude: -28.868 Longitude: 153.574	No sign No Sign

P	83/85	Meldrum Park, Norton St, Ballina NSW 2478 Intersection of Fox Street & Norton Street Toilet Block	Tap Bubbler Toilet tap and sink	1 1 4 (2- female, 2 male)	Chilled Chilled Chilled	Clear Clear Clear	Typical Typical Typical	Latitude: -28.864 Longitude: 153.570	No sign No Sign Toilet Sign
P	34	Fawcett Park , Fawcett St, Ballina NSW 2478	Bubbler Tap	1 1	Chilled Chilled	Clear Clear	Typical Typical	Latitude: -28.871 Longitude: 153.560	No sign No Sign
P	No public water supply	19 Cawarra Street & Cherry Street Cawarra Park <i>Locked toilets- potential water supply</i>	No public water supply	No public water supply	No public water supply	No public water supply	No public water supply	No public water supply	No public water supply
P	8	J Kearney Park Catherine Crescent Bubbler and tap were together w	Bubbler Tap	1 1	Chilled Chilled	Clear Clear	Typical Typical	Latitude: -28.857 Longitude: 153.557	No sign No Sign

		dog bowl (water catchment for bubbler/tap)							
P	6	Riverview Park Brunswick Street	Tap Toilet tap and sink	2 2 (1-female, 1 male)	Chilled Chilled	Clear Clear	Typical Typical	Latitude: -28.867 Longitude: 153.549	No sign No Sign
P		Bangalow Road Treelands Park No clear sign for treelands park and unable to identify on map	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
P		Vera Street Reserve between Vera Street & Clavan Court	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
P		Wigmore Park between Swift Street & Webster Lane <i>basketball hoop - technically could be</i>	Tap	1	Chilled	Clear	Typical	Latitude: -28.868 Longitude: 153.564	No sign

		<i>conserved apart of kingsford park adjacent to park</i> <i>Locked toilet block</i>							
SG	10-24	Canal Road Fripp Oval No water supply - Locked Toilet Block	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
P	15	Bagot Park - Bagot Street (within 1 km radius of CBD)	Tap	1	Chilled	clear	Typical	Latitude: -28.863 Longitude: 153.549	No sign

Data Collection per Mapping Site

Northern NSW Region: Kyogle

Date of Mapping: 10/09/18

Inclusion Criteria <i>Drinking Water Supplies to Assess at most popular local sporting grounds, parks and CBD's :</i> Taps (waist and ankle height) Bubblers Amenity blocks (toilet blocks and/or public sinks) Paid water dispensers Water stations	Exclusion Criteria <i>Drinking Water supplies in non CBD areas, recreational grounds</i> Indoor Water Supplies: local stores, businesses, in door bathrooms apart of shopping complexes Schools/Sports Clubs National Parks/Hiking Tracks Faulty/non-working/sealed taps Water supplies on private property
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Site Type	Street Number	Location and Description	Water Supply Type	No. of water supply	Water Supply Temperature	Water Supply Colouring	Water Supply Taste	Google Map Co-ordinates	Signage
CBD	<i>No public water supply</i>	Summerland Way	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
CBD	<i>No public water supply</i>	Groom Street	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>

CBD	5	Geneva Street	Tap and toilet sink	4	Chilled	Clear	Typical	Latitude: -28.619 Longitude: 153.002	Toilet Sign
CBD	<i>No public water supply</i>	Bloore Street	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
CBD	133	Statheden Street Public toilets	Toilet sink and tap	2	Chilled	Clear	Typical	Latitude: -28.621 Longitude: 153.003	Toilet sign
CBD	<i>No public water supply</i>	Crockfords Lane	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
CBD	<i>No public water supply</i>	Wyangarie Street	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
CBD	<i>No public water supply</i>	Ettrick Street	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>

CBD		*Corner of Stratheden Street and Roxy Lane	<i>Refer to Stratheden St</i>	<i>Refer to Stratheden St</i>	<i>Refer to Stratheden St</i>	<i>Refer to Stratheden St</i>	<i>Refer to Stratheden St</i>	<i>Refer to Stratheden St</i>	<i>Refer to Stratheden St</i>
CBD	<i>No public water supply</i>	Geneva Street	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>

Local Sporting Grounds and Parks (within 1 km radius of CBD and/or referenced on Richmond Valley Council Website) SG (Sporting Ground) P (Park)									
Site Type	Street Number	Location and Description	Water Supply Type	No. of water supply	Water Supply Temperature	Water Supply Colouring	Water Supply Taste	Google Map Co-ordinates	Signage
P	11	Clarkes Lane Kyogle Turkeys club Toilets locked	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>

P	6	Summerland Way Alcorn Memorial Park	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
P	5	Summerland way Apex Park	Bubbler	1	Chilled	Clear	Typical	Latitude: -28. 616 Longitude: 153.001	No sign
P	5	Summerland way New Park	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
SG	5	Chauvel Street Don Gulley Oval	<i>No public water supply</i> <i>Toilets locked</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
SG	13	Chauvel Street Kyogle Highschool Ground (locked access)	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>

Show ground	43	Summerland Way	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>	<i>No public water supply</i>
P	2	Anzac Drive	Bubbler	2	Chilled	Clear	Typical	Latitude: -28.618 Longitude: 152.999	Bubbler sign
		Anzac Park	Tap Toilet tap and sink	2 3	Chilled	Clear	Typical	Latitude: -28.618 Longitude: 152.999	

*parks not found on council website - neither was CBD. Email to CBD unsuccessful.

Appendix D. Public Drinking Water Perceptions and Drink Habits Survey

Survey: Northern NSW Water Mapping Community Health Project

Public Drinking Water Perceptions and Drink Habits Surveys

Q1. How many cups of water do you drink per day? _____

Q2. What are your reasons for drinking/not drinking water? _____

Q3. How many cups of sweet beverages do you drink per day? (Juice, fizzy/soft drink, sports drinks, cordial) _____

Q4. Do you drink water from public bubblers or taps? Yes / No

Why/why not? _____

Q5. How much bottled water do you buy per week? _____

Q6. Do you use a reusable water bottle? Yes / No

Q7. Would you drink from these taps? (Circle Yes or No)

a. Yes No

b. Yes No

c. Yes No



Q8. Would you drink from these water bubblers? (Circle Yes or No)



a. Yes No

b. Yes No

c. Yes No

Public Drinking Water Perceptions and Drink Habits Surveys

Who is conducting the research?

Primary Investigator (PI): Adam Guise

Councilor - Lismore City Council

Health Promotion Officer

NSW Health Promotion and Planning, 31 Uralba Street NSW 2480

Student Investigators (SI):

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CPHN Supervisor

Narelle Greenlees

Why is the research being conducted?

This project aims to map the public availability of drinking water throughout the New South Wales Towns and Cities in order to make this information publicly available. The project furthermore aims at increasing awareness of the availability and importance of drinking water as on average people are drinking significant amounts of non water beverages. In 2017, 62.3% of Australian children drink fruit juice/drinks at least once per day, 57.8% consumed soft drinks and 32.4% drank cordial. The results of this research will identify infrastructure gaps in the provision of public drinking water. This survey will contribute to our Community Health Project by evaluating people's perceptions of public drinking water and economic worth of providing more public drinking water supplies.

Your confidentiality

The results obtained in this research are strictly confidential. No names are included in the surveys. Your results will be kept electronically for data analysis. No publications or presentations of this study will identify you by name. Data will be presented in the form of group results.

Your participation is voluntary

Your participation

Appendix E. 8 CREATIVE STEPS of Data Analysis- Pitney & Parker (2009)

The Eight CREATIVE Steps of Data Analysis

Consider the study's research questions and purpose statement.

Read through your transcripts to gain a holistic sense of the data.

Examine the data for information related to your research questions.

Assign labels to these units of information that capture their meaning.

Thematize the data.

Interpret the emergent themes as they relate to the study's research questions and purpose statement.

Verify the trustworthiness of your findings.

Engage in the writing process to describe your findings.

Appendix F. CREATE STEPS (modified version of 8 CREATIVE Steps)

6 CREATE STEPS of Data Analysis	
Step 1.	Consider the purpose and survey questions
Step 2.	Read responses to obtain a comprehensive perspective of data
Step 3.	Examine data for information related to your community project
Step 4.	Assign labels to unit of information that capture their definitions
Step 5.	Thematised and discuss responses
Step 6.	Engage in writing process to describe results

Appendix G. We-Refill Social Media Coverage for Lismore Aboriginal Rugby League Knockout Carnival

1. Lismore Aboriginal Rugby League Knockout Carnival Facebook Page



WE-REFILL



**We-Refill are proud to be hydrating the
Lismore Aboriginal Rugby League
Knockout Carnival 2018**

Rethink the Sugary Drink
Bring your own Bottle - BYOB
FREE Refills of Filtered,
Chilled, Sparkling Water
Jazz it up with some lemon, mint or fruit!
#DrinkMoreWater #BYOB



2. Visit Lismore Website



lismore aboriginal rugby league knockout carnival

15-16 Sep 2018

lismore

Sat: 8am-8pm; Sun: 8.30am-4pm

Saturday: Adults \$10 & Under 12

Free; Sunday: Adults \$5 & Under 12

The Lismore Aboriginal Rugby League Knockout Carnival returns to Lismore in 2018.

This year has an increased health focus including food trucks and free access to chilled drinking water thanks to a generous donation from We-Refill. So bring your water bottles and sunscreen and get excited Lismore!

Live stream and updates are available on the website.

3. North Coast Academy of Sport: Adolescent Rowers Nutrition Education Session

Community Project: Lismore Aboriginal Rugby League Knockout Carnival

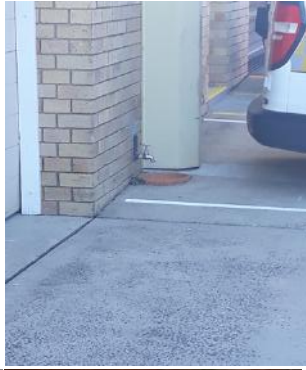
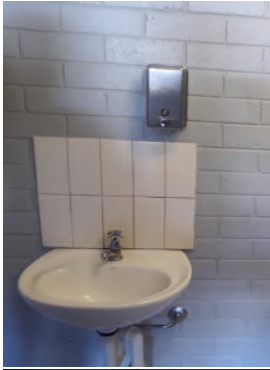


A Sydney based company named [We-Refill](#) donated filtered water from dispensers generating 500 L/hr with a selection of room temperature, chilled and sparkling water (originally at a discounted cost \$1500)

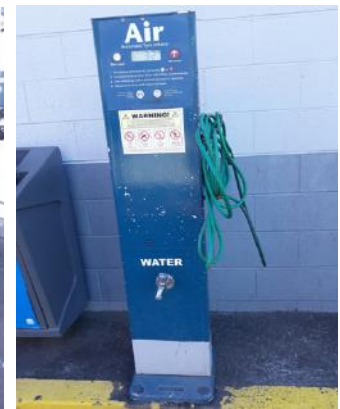
Appendix H. Photos of Public Water Outlets Mapped

Lismore Water Outlets





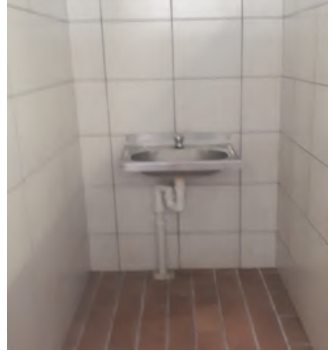
Casino Water Outlets





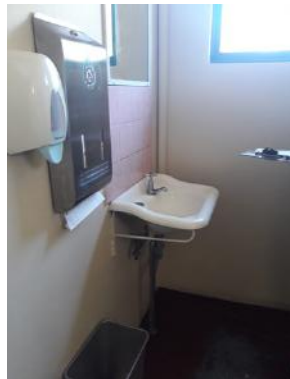
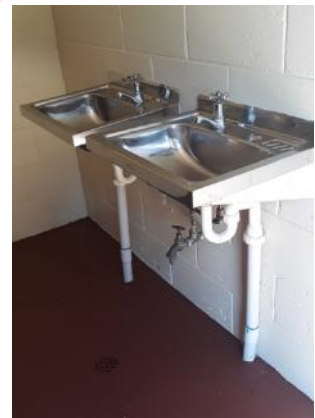
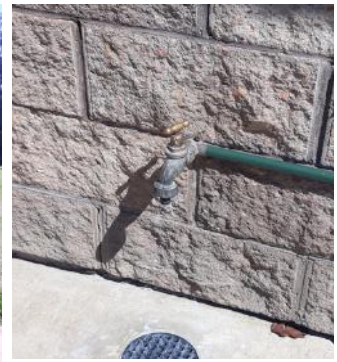
Ballina Water Outlets







Kyogle Water Outlets



Appendix I.

Summary Of Public Water Outlets Mapped in the Northern New South Wales

Region	Water Outlet Type	Number of Water Outlets
Total N= 119		
Lismore (Northern NSW City Town)	Taps (waist and ankle height)	6
	Amenity block taps (toilet blocks and/or public sinks)	11
	Bubblers	9
	Paid water dispensers	1
	Water Taps at Petrol Stations	3
Total Water Outlets in Lismore= 30		
Casino (Northern NSW Town)	Taps (waist and ankle height)	10
	Amenity block taps (toilet blocks and/or public sinks)	16
	Bubblers	0
	Paid water dispensers	0
	Water at Petrol Stations	2

Total Water Outlets in Casino= 28		
Kyogle (Northern NSW Rural Town)	Taps (waist and ankle height)	2
	Amenity block taps (toilet blocks and/or public sinks)	9
	Bubblers	3
	Paid water dispensers	0
	Water at Petrol Stations	0
Total Water Outlets in Kyogle= 14		
Ballina (Coastal NSW Town)	Taps (waist and ankle height)	19
	Amenity block taps (toilet blocks and/or public sinks)	16
	Bubblers	10
	Paid water dispensers	0
	Water Taps at Petrol Stations	2
Total Water Supplies in Ballina= 47		

Appendix J. Quantitative Survey Data Analysis

1. Survey Response: Cups of Water consumed per day

Survey Respondents Water Consumption Per Day		N=45
Cups of water	Number of respondents	
0	1	
1-2	2	
3-4	13	
5-6	10	
7-8	7	
More than or equal to 9	12	

2. Survey Response: Cups of Sugar Sweetened Beverages consumed per day

Survey Responses sugar sweetened beverage consumption per day		N=45
Cups of Sugar Sweetened Beverages	Number of Survey Respondents	
0	32	
1-2	12	
3-4	1	

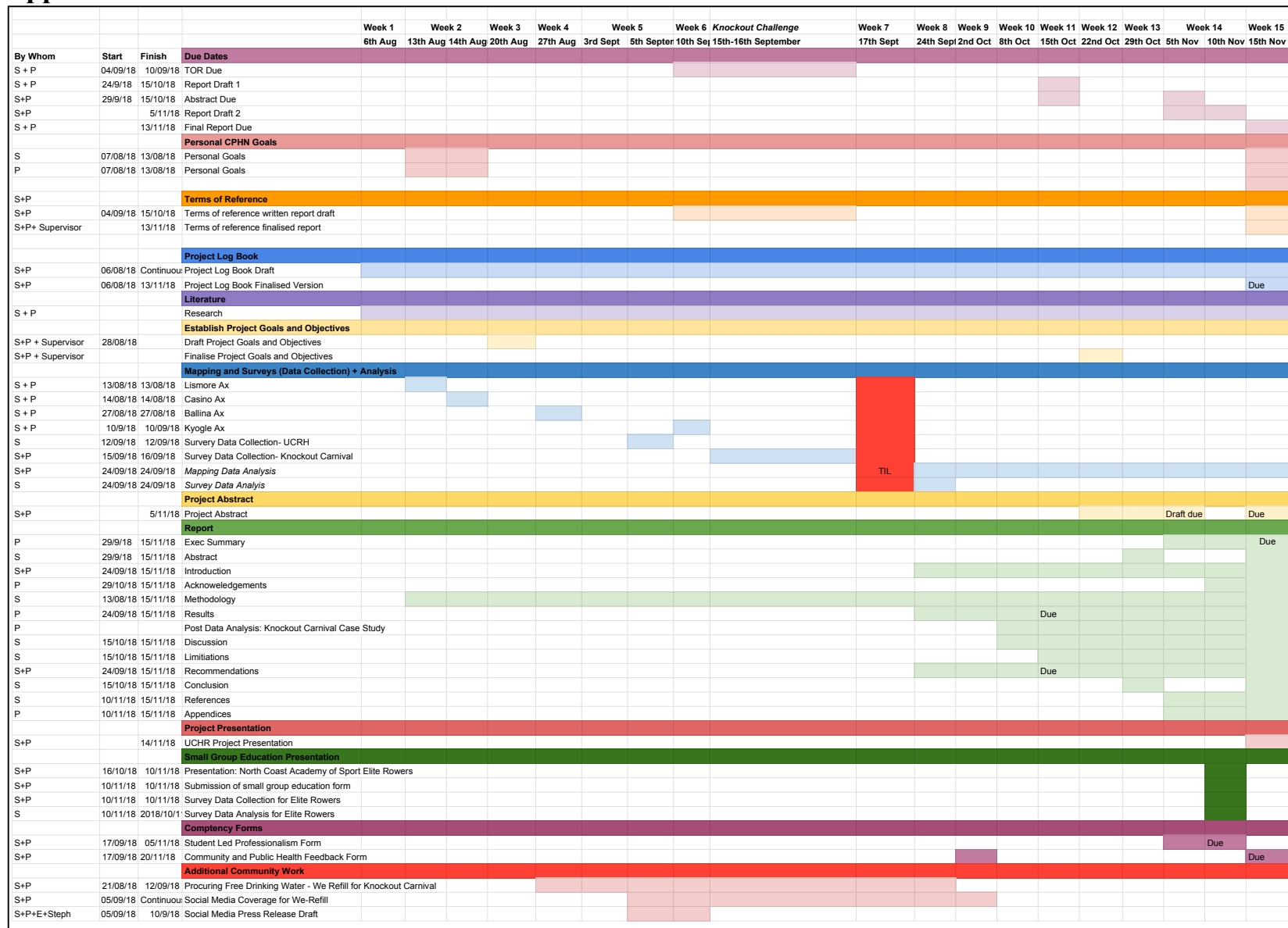
3. Survey Response: Participants and use of public bubblers and taps

Participants that drink from public bubblers or taps			
Participants Response	Yes	No	Non response
	28	15	2

4.Survey Response: Participants and bottled water purchased per week

Bottled Water Participants Purchased Per Week	Number of Participants
0	27
1-2	11
3-4	1
5-6	1
7-8	1
More than or equal to 9	1

Appendix K. Gantt Chart



Appendix L. Terms of Reference