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# Christchurch Water Festival – Changing domestic water use behaviour

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To make recommendations about possible ideas that can be used in the festival and to suggest a number of points to consider when deciding on strategy implementation.

### 1.7 Future Research

To obtain feedback as to how the recommendations for the water festival would be received.

Continued assessment of perceptions based on demographic or geographic location.

# 2. Introduction

## 2.1 Purpose

This report investigates possible recommendations and points to consider for the organiser's of Christchurch's first ever water festival. Data on people's perceptions and behaviour was collected and then the findings were discussed. Our findings have assisted in the development of our recommendations, as understanding perceptions and behaviour can expose gaps in understanding. Therefore the research group was able to recommend ideas that were accurate and targeted different demographics.

## 2.2 Background

### 2.3 Scope

Research shows that there are a number of factors that contribute to poor water quality in the urban waterways. Factors include domestic water use, wildlife population, road usage and sewage overflows (CCC, 2015). The aim of this study concentrates primarily on domestic water use. Whereby, understanding perceptions and behaviours surrounding domestic water use is important before recommendations regarding behavioural change can be made.

## 3. Literature Review

### 3.1 "The urban stream syndrome"

Understanding our urban waterways and the process of stormwater discharge was used as a starting point for our research. Walsh et. al (2005) defines the term "urban stream syndrome", which relates to how streams which drain urban land become ecologically degraded over time. Increased impervious surfaces such as roads and carparks prevent water from being absorbed into the surface and instead is piped into stormwater drainage systems. Furthermore, in urban areas rainwater is also collected from roofs and this water is drained through the system. Throughout this process harmful contaminants are washed from the surface and transported through the network into nearby waterways, contaminating the water.

In Christchurch, the Avon and Heathcote catchments (and in particular the Haytons and Curletts Road streams) are the most polluted as a result of the syndrome (CCC, 2016). In the most recent monitoring report in 2016, significant contaminants are said to include heavy metals such as zinc and copper, sediment loads, and waterfowl (CCC, 2016).

While a range of factors contribute to stormwater and waterway contamination, an Environment Canterbury (ECAN) report on stormwater quality confirms that domestic activities can pollute the water (ECAN, 2010). Car washing for example, is a contributor of petroleum hydrocarbons and zinc, and water runoff from roofs is known to have a high zinc content (ECAN, 2010). Use of outdoor cleaners, littering

obtaining statistically valid data. For these reasons it was decided that focus groups would be the preferred method to collect data.

Dunk et. al (2011), used focus groups to address possible methods to raise awareness about the increase in stormwater pollution due to incorrectly installed domestic, wastewater piping. The article highlights the importance of carefully selecting your groups and to develop a list of pre-prepared questions to ensure that each group was lead down the same pathway (Dunk et al, 2011). Furthermore, questions that were phrased with "what" or "how" were better than "why" as it was felt that these were more challenging to answer.

The impacts of subjectivity when conducting focus groups was laid out in Hay (2010). Subjectivity involves the influence of personal opinions and characteristics

personal attachment as they would have during an interview. There was also the opportunity for the researchers to respond to the participants' comments.

### 4.1.2 Group recruiting

Following with a careful assessment of the diversity of those who are likely to have the greatest impact on the water quality, the group decided to organise a discussion with a group of students and young professionals, experts, garden club members and homeowners. School children were added following feedback from the garden club discussion. There were to be two homeowner groups as the research felt that this was

contacted. It was envisaged that each group would contain between 4 to 10 participants with a mix of male and female. Where it was possible we over-recruited by 2 to 3 participants in the chance that somebody could not attend. Lastly, the research group preferred the groups to be 'natural'. According to Flowerdew and Martin (2005), a group maybe 'natural' or 'assembled', each with different implications. A 'natural' group contains participants familiar to each other and 'assembled' is a group of members who don't know each other. 'Natural' groups were preferred, as would encourage participation during the discussions.

### 4.1.2 Procedures

The group decided that the discussions would be "semi-structured". Each session begun with a 'warm in' period which included an introduction and the distributing of an information sheet to ensure participant confidentiality. This was also done to provide each participant with some insight as to the purpose of our project, and what we hoped to achieve (Appendix 1).

All discussions were conducted in locations familiar to the participants. It was also important that the locations were free from distractions and relatively quiet to ensure that the recording could be replayed. The students at a student flat, the garden club at a members home, the school children at their school the homeowners at their local residential community centre. It maybe important to note that one session was conducted at a nature reserve before the participants were to participate in a tree planting. However this location was quiet and reasonably comfortable with the participants.

### 4.1.3 Analytical preparation

The recorded transcripts were transcribed through a simplified coding structure in order to identify the key themes. While Strauss (1987) recommends researchers to use different categories the research group simplified this structure and used different columns (Appendix 2). The first column is for the transcript where the others are for commentary and themes. This method allows the research to group to break down the transcript which made it easier to identify the key themes.

## 4.2 Interview

It was intended to conduct a discussion with a group of waterways experts however due to participant availability a solo interview was arranged. A format similar to the structure use

limited understanding or awareness of where stormwater ends up. A greater understanding of the impact that household contaminants and stormwater discharges have on nearby waterways, may effectively encourage individuals and groups to take action, and formulate collective responsibility among water users.

### 5.2.1. Recommendations and points to consider for the Water Festival

The above results were helpful in gaining an understanding of people's knowledge and awareness of water quality issues within Christchurch's urban waterways. Moreover, the results provided an insight into people0 50 0 0Tm /TT2 1 nto 0.2 (f) -0.5(f) -0.5 (e) 0.p

# 7. Conclusion

The objective of this report was to provide a number of recommendations to the organisers of the water festival as to strategies that could be used to change people's behaviour surrounding their use of water. In order to make these recommendations the current situation had to be addressed, as well as understanding the perceptions, attitudes and behaviours of people from different demographics.

Initial investigation about the quality of the urban waterways was carried out during the literature review. This found that heavy metals and sediment loads were the most significant contaminants and that 42 out of 43 testing sites failed on at least one parameter. This confirmed that state of the waterways as well as its precarious position.

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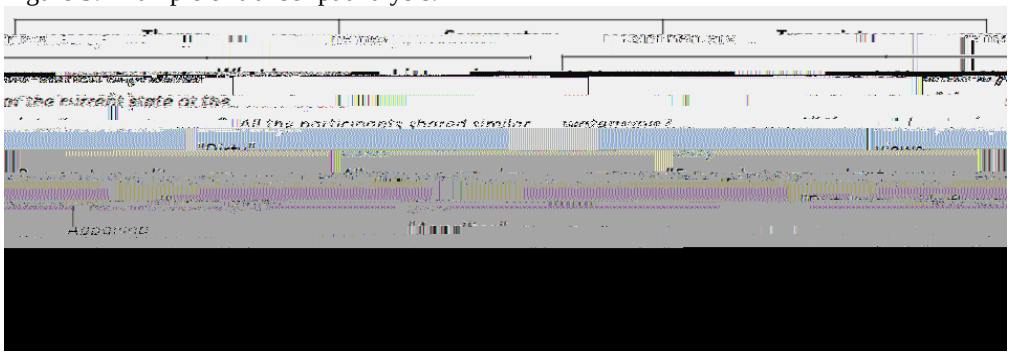
# 10. Appendices

## Appendix 1

Figure 2: Information and confidentiality letter.

## Appendix 2

Figure 3: Example of transcript analysis.



## Appendix 3

Source: https://www.ccc.govt.nz/assets/Documents/Environment/Water/Monitoring-Reports/Water-Quality-Summary-Infographic-CIT9039-WEB.pdf

Figure 4: This image was taken from a CCC brochue and outlines the sources of contaminants in the city's waterways

## Appendix 4

Source: https://www.ccc.govt.nz/assets/Documents/Environment/Water/Monitoring-Reports/Water-Quality-Summary-Infographic-CIT9039-WEB.pdf

Figure 5: Another image which effectively displays what containments are having the greatest effect on each major waterway.

## Appendix 5

Source: http://files.ecan.govt.nz/public/consent-projects/ccc-stormwater/02_CRC160056_Application_Avon_Stormwater_Management_Plan.PDF