RAISING STORMWATER'S PROFILE: OUTCOMES OF THE 2022 WORKSHOP

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ABSTRACT

While flooding and water quality preoccupy the public and regulatory bodies, the wider picture of land use decisions, rainfall and runoff – stormwater – as part of the water cycle is not widely appreciated, nor its connectivity to drinking water.

At the 2022 Stormwater Conference, the authors set up a workshop that aimed to raise the profile of stormwater in water, infrastructure, and resource management reforms. The context was the principle of Te Mana o te Wai in the NPS:FM, the three waters legislation, the principle of Te Oranga o te Taiao (health of the environment) in the RMA reforms, and intimate yet largely misunderstood and undervalued role of stormwater in infrastructure. The work of stormwater practitioners encompasses all such reforms.

The purpose of last year's workshop was to:

- identify and coordinate actions at the national, regional, local or individual level to raise awareness of the role stormwater plays in New Zealand's water future.
- generate information that attendees can take back to their region on:
  - who to target
  - key messages
  - techniques and methods to use
  - existing available resources
  - who to connect with nationally
- possibly also identify nationally-focused actions for Water New Zealand and/or other organisations.

The highly engaged attendees generated a number of key messages to reframe our language into strong positive messaging around stormwater as a taonga and the basis for all planning. Simple and effective visuals are also a key element of this communication.

We identified five key audiences; practitioners, policy-makers, politicians, polluters and the public. There is a great deal of information out there from various councils and other sources, but it is a big job to collate and leverage them. We therefore came up with the following actions:

- find partners
- find funding
- identify channels and collateral information for key audiences
- support a national communications strategy.

This paper discusses the workshop's results with the aim of encouraging the sector to use and refine the information in our various spheres of action.

KEY WORDS

Stormwater, three waters, climate change, infrastructure, governance, information, awareness, education, communication

PRESENTER PROFILE

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Linda Norman joined ACH Consulting in 2006. Achieving degrees in Chemistry, geology and an advanced degree in oceanography / marine geophysics, she has worked for NASA, Woods Hole Oceanographic Institution and the US Geological Survey. As scientist and engineer, she brings multidisciplinary experience to stormwater design.

1 INTRODUCTION

While flooding and water quality preoccupy the public and regulatory bodies, the wider picture of land use decisions, rainfall and runoff – stormwater – as part of the water cycle is not widely appreciated, nor its connectivity to drinking water.

At the 2022 Stormwater Conference, the Stormwater Committee's Education and Training Subgroup (the E&T Subgroup) set up a workshop that aimed to raise the profile of stormwater in water, infrastructure, and resource management reforms. The context was the principle of Te Mana o te Wai in the NPS:FM, the three waters legislation, the principle of Te Oranga o te Taiao (health of the environment) in the RMA reforms, and intimate yet largely misunderstood and undervalued role of stormwater in infrastructure.

As shown in Figure 1 (1), the work of stormwater practitioners encompasses all such reforms.

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- identify and coordinate actions at the national, regional, local or individual level to raise awareness of the role stormwater plays in New Zealand's water future.
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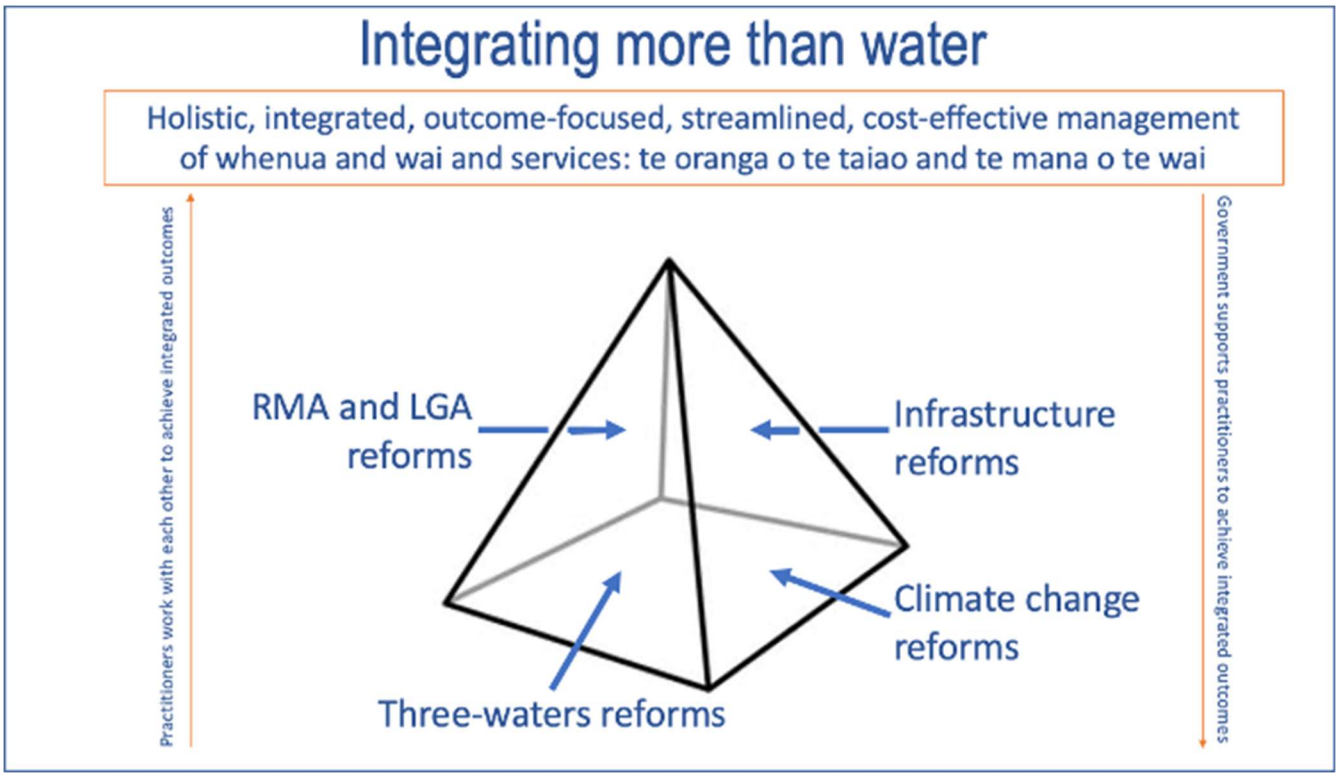

Figure 1: The Pyramid of Integration: how stormwater permeates many reforms

The Auckland Anniversary Weekend floods and the extensive devastation of Cyclone Gabrielle have highlighted flooding in the public mind and how land uses interact with runoff. However there is more work to be done to inform and sustain ongoing discussions.

2 THE FINDINGS

The highly engaged attendees generated a number of key messages to reframe our language into strong positive messaging around stormwater as a taonga and the basis for all planning. Simple and effective visuals are also a key element of this communication.

These messages support the development of locally-specific communications and resources form the basis of a nationally consistent approach.

All attendees received a full summary of the workshop outputs and the E&T Subgroup now wishes to make this information available to al members of Water New Zealand.

This part of the paper simply presents the workshop's results with the aim of encouraging the sector to use and refine the information in our various spheres of action.

Figure 2 summarises the findings that are presented below.

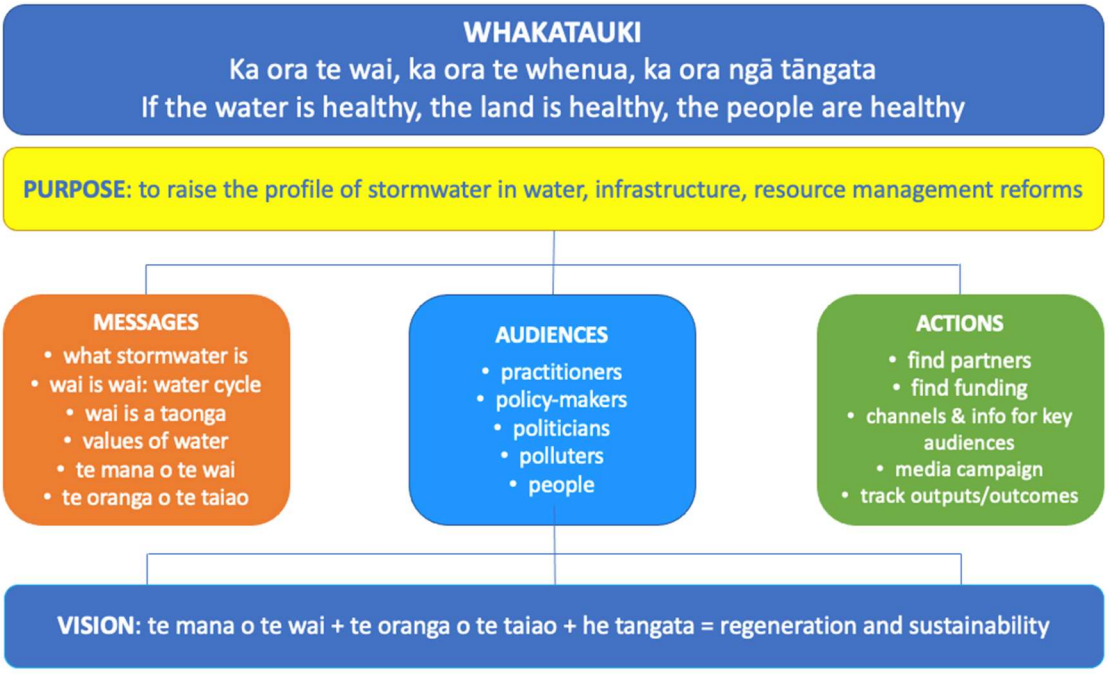

Figure 2: Summary of workshop findings

2.1 WHAT OUTCOMES SHOULD THESE MESSAGES DELIVER?

All audiences in their complementary roles:

- understand the water cycle: comes from the air, ends up in aquifers, lakes, and sea
- understand our relationship and reconnect with stormwater:
  - wai is wai – it's all connected, all one water, water is life
  - "stormwater" is all about land use and its impacts on water
  - what we do on our land matters – connectivity
- understand the impact of climate change on wai and what we need to do
- feel supported to take responsibility for/stewardship of our various roles in the water cycle
- water has mauri: it's alive; it has different states; it's beautiful & sacred everywhere
- all planning starts with water
- the many values to many people of water as a taonga; ecological, cultural, social, economic
- focus on receiving environments and their health: it's about mauri/ecology: more than just planning for/reacting to extreme events: living waters: clean, healthy streams, groundwater, lakes, wetlands, bathing beaches
- stormwater management is driven by ecological/biodiversity outcomes
- policy makers better understand the vital role of stormwater and are able to support greater national consistency in how we manage land use and stormwater and minimise pipes, stopbanks, coastal defences and more
- politicians and stormwater-related professionals gain similar understandings
- good stormwater management supports our clean green healthy lifestyle
- improved water-related equity between wealthy and poorer neighborhoods
- policy-makers, politicians and practitioners align to better national bottom lines
- successfully rebrand our industry's terminology: "rainwater"; "rainfall events", risk framed better than return periods and AEP
- appreciate how stormwater infrastructure (green & grey) protects all above ground assets.

2.2 IDEAS FOR MESSAGES

2.2.1 IMAGE IDEAS

- the natural vs the urban water cycle (see old Auckland City Council images)
- Māori terms for wai (Troy Brockbank's posters fopr Water New Zealand)
- word cloud of key terms
- Chris Slane's diagrams from the Upper Waitemata Harbour Catchment StudyLAWMAP Report
- posters: "I only drain rain", says the stormwater grate; and "A Grate Ending", from the legacy Auckland Regional Council
- fish icons on stormwater grates
- the journey of a raindrop

2.2.2 IDEAS FOR MESSAGE CONTENT

- ka ora te wai, ka ora te whenua, ka ora ngā tāngata: if the water is healthy, the land is healthy, the people are healthy
- water is the basis for all planning: te mana o te wai and te oranga o te taiao
- value water: reframe language around stormwater as a taonga/resource
- stormwater is a taonga – it's only runoff for a short period of time; then rejoins water
- wai off the whenua doesn't belong in pipes
- water is a lot more than flooding
- contaminants we put on the ground end up in our streams and rivers
- money invested in clean stormwater is money saved at water treatment plants and increases the value of our natural capital with flow on benefits e.g. to fisheries, recreation
- when you litter or pollute into stormwater you are fouling your own nest
- it's everybody's problem and we are all the solution

2.2.3 POSITIVE MESSAGES

A strong case was made for positive messaging on all aspects of stormwater:

- consistent and positive language that connects people to water
- hopeful language not fearful
- language that connects with people
- positive and easy to digest
- engineers need help with communication
- start early in schools
- maintain communication and programs through future generations
- meet people where they are.

2.3 AUDIENCES

Below we discuss the broad categories of audiences, which fall into two main groups; decision-makers and the general public:

- Decision-makers
    - Practitioners
    - Policy-makers
    - Politicians
- General Public:
    - Polluters

- People

2.3.1 PRACTITIONERS

People who regularly attend the Stormwater Conferences have had their conceptions of stormwater stretched over very many years, including by LIUDD (low impact urban design); WSUD (water sensitive urban design); te reo Māori; te ao Māori; mātauranga Māori and te mana o te wai.

However there are many other practitioners, including compliance and enforcement staff, who regularly interface with stormwater professionals. These people also need to embrace a more accurate view of stormwater's place And importance in the water cycle and its intimate interface between land use and terrestrial & aquatic ecological outcomes, as well as public health and safety.

The Stormwater E&T Subgroup is planning a series of panel discussions and exchanges of conference presentations with these related professionals, including planners, surveyors, landscape architects, terrestrial and aquatic ecologists and many, many more.

The key messages coming out of this work will be invaluable for informing the debates we can have with our colleagues in other disciplines.

2.3.2 POLICY-MAKERS

Peolicy makers, regulators, commissions and their advisors (e.g. resource management lawyers, ecologists) at national, regional and local level will benefit from a deeper understanding of how stormwater interrelates with every aspect of peoples' lives and the economy.

2.3.3 POLITICIANS

Elected representatives at central regional and local government level will benefit from having a wider and deeper understanding of the role of water in the land use and other decisions that they make, including the (re-electable) benefits of good water management. Information for them could include an elevator pitch heading up a two page guidance document that sets out actions they can take for better stormwater management that delivers better outcomes across all wellbeings.

2.3.4 POLLUTERS

Several Councils have developed information resources and compliance programmes for industries with high and sometimes sector-specific stormwater compliance needs. We need to remind people to refer to those resources, which may not always be still in use.

2.3.5 PEOPLE

Key audiences among the wider public identified in the workshop were:

- students of all ages
- local communities with a geographic interest e.g. due to infrastructure issues or receiving environment values
- the wider business community
- groups focused on healthy waters outcomes (many of which are under-funded)
- the wider public.

Councils in the past have disseminated much information to households, especially about stormwater quality, and there is likely to be a large historical and contemporary resource out there.

3 ACTIONS

There is a great deal of information out there from various councils and other sources, but it is a big job to collate and leverage them. We therefore came up with the following actions:

- find partners
- find funding
- identify channels and collateral information for key audiences
- support a national communications strategy.

3.1 FIND PARTNERS

Our first partners are internal: our colleagues in the Stormwater Committee and its Friends, other Special Interest Groups (SIGs) and in Water New Zealand's staff and Board.

Water New Zealand is already working closely with other agencies including Taumata Arowai and others. These external partners may also be interested in supporting the purpose of our work; *"to raise the profile of stormwater in water, infrastructure, resource management reforms."*

That purpose statement indicates other potential external partners amongst Government and sector bodies. Others include the EnviroSchools programme (which provides a single point of contact to access schools all over the country), Stormwater 360's litter programme, CCNZ's EP!C initiative and the Tertiary Education Commission's "Inspiring the Future Aotearoa" programme (2) that aims to connect students aged 7-13 with volunteers from the world of work.

There will be other partners that people and firms wanting to support this purpose will find in their own geographical and other spheres of influence.

3.2 FIND FUNDING

One of the problems with stormwater is that has become a tragedy of the commons: rain falls everywhere, but the focus on its progress into and effects on ultimate receiving environments is comparatively recent. Hand in hand with this is the fact that public and private investment in ("costs of") better stormwater management and outcomes delivers many wider ecological, social, cultural and economic benefits that are not always captured. For example, investment in preventing contamination of and treating stormwater reduces the costs of treating surface and underground drinking water sources.

This potentially makes it more difficult for Water New Zealand itself to fund the work needed to fulfill our purpose.

That said, Water New Zealand and its SIGs achieve a great deal from their voluntary work. And many of our potential partners, including councils and the media, may be willing to spread the messages we develop as part of their own work.

Central government commitment to water-related public information has been intermittent, and is currently in abeyance. That said, if we can track our progress and demonstrate the results of our work, showing how much more could be done with more support, companion programmes may be re-started. Tracking project outputs and outcomes will be very helpful.

3.3 IDENTIFY CHANNELS AND COLLATERAL INFORMATION FOR KEY AUDIENCES

Channels identified for spreading our message include:

- schools at all levels, including by integrating stormwater learning into NCEA standards
- tertiary education, both technical and academic
- community newspapers
- environmental interest groups
- social media including leveraging news stories e.g. re-scooters out of Wellington Harbour
- events such as "Stormwater Week" at all scales
- targeted engagement campaigns e.g. "Adopt a drain"
- media campaigns built on the success of initiatives such as pollution hotlines, 0800 SMOKEY, Don't be a Tosser, Keep New Zealand Beautiful, the Drain Game
- gamification of key concepts and solutions e.g. Sim City, Minecraft
- a green tick programme
- data, case study and information sharing platforms.

3.4 CENTRALISED MEDIA CAMPAIGN

A national communications strategy spearheaded by the Ministry for the Environment was also suggested. If this programme develops sound collateral and a group of active supporters, this could be a major communication channel to the wider public. This could include a strategy of, for example:

- media releases by Water New Zealand
- sustained social media posts on a planned series of topics plus responses to timely events
- in-depth media interviews with stormwater experts (who would need media training)
- opinion pieces in leading newspapers
- a series of videos.

4 WHAT ELSE? WHAT NEXT?

The E&T Subgroup will make this material a standing agenda item for discussion and more detailed action planning and implementation. We and the rest of the Stormwater Committee will do what we can, ably supported by staff of Water New Zealand as and whe they can.

We'd love you to do what you can in your own places as part of your local and regional initiatives – including by joing the Stormwater Committee!

We challenge you to consider the information in this paper:

- What do you think of this summary of **Actions**?
- What **key messages** do you most like, want to change or want to add?
- What **key audiences** do you think are most important, or want to add?
- What other **actions** can we take or encourage others to take?
- What else do you want to tell us?
- What else do you want to do?

Click here to tell us! We encourage you to use and refine this information in our various spheres of action.

5 APPENDIX: TRANSCRIPT OF THE WORKING GROUPS' NOTES

Below are the transcripts of the working groups' flip chart notes from the workshop at last year's Conference. They are very inspiring!

5.1 KEY MESSAGES

PUBLIC	DECISION-MAKERS
What is Stormwater? Water cycle… Understand our relationship with Stormwater	Water is a lot more than flooding
Stormwater is a taonga - it's only runoff for a short period of time; then becomes water	Not just plan for and react to extreme events
The way we manage stormwater supports our lifestyle	Water as the basis for all planning
Wai is wai	
Te mana o te wai and te oranga o te taiao	
Value water	
Reframe language around stormwater as a taonga/resource	
National bottom lines	
Supporting people to take responsibility for their role in the water cycle	

Missing information:

1. What is stormwater?
2. Interaction with land use
3. Water is stormwater – to a 10-year old?
4. Let's call it water
5. Public knowledge of water cycle and role of stormwater

Key channels

- simple explanations
- visual tools to illustrate
- social media campaigns
- gamification!
- make space for water
- resilience versus design storms
- te mana o te wai – what does it mean?
- positive language:
  - get away from fear/flooding - community funding
  - is everyone's responsibility
  - project engagement
  - what is water
  - scrap the term stormwater
  - rename it
- what is relative cleanliness of stormwater
- how clean is my stream or lake or bay
- visibility of data
- visual communications team e.g. the journey of a raindrop
- include it in the school curriculum at an early stage and at all later stages in more depth
- Stormwater week:
  - water cycle
  - contaminants
  - what can families do
- how to fund
  - Amenity/recreational values
  - link storm water to waterway health
  - Encourage wow, support experts doing outreach
- media campaigns
  - moral compass developed around age 11-13 years
  - Continue this education across the educational system
  - History, maths, science sciences can all contribute
  - breakdown silos
  - good examples: 0800 SMOKEY; Don’t be a tosser
- open public data sharing - more than just flood maps

5.2 FLIPCHART NOTES FROM WORKING GROUPS

5.2.1 ACTIVITY 1: KEY MESSAGES

Chart 1

PUBLIC	DECISION-MAKERS
Water is water: it's all connected	Rebrand: "rainwater"; "rainfall events"
it picks up contaminants: runoff is not as pure as you'd think	Closely related; direct connection to land use; rainwater in urban & rural areas
Most runoff is not treated	Don't obstruct overland flow paths
what you do on your land matters - connectivity	don't build on floodplains freeboard levels if built on; risk/hazards
water is a resource not a waste	roads are secondary
Water has mauri: it's alive; it has different states	
Water is beautiful and sacred everywhere	
Water doesn't belong in pipes	

Chart 2

- what ***is*** stormwater?
- Water is a resource
- 10 year-olds are drawn to water
- climate change impacts
- Stormwater: it's not going to solve flooding
- ~~manage flooding~~: is a utility
- Get away from flooding
- is it clean
- Land use > contamination > flooding
- it's in pipes due to past health drivers
- just call it water?

Chart 3

DECISION-MAKERS: start with water

PUBLIC: value water

CURRENT PERCEPTIONS	NEW VIEWS
Flooding	learning to live with Water
"Problem"	Stormwater is a resource not an issue!
lack of awareness of future issues	full catchment water cycle understanding
cycle of funding/awareness	land use focus
awareness of climate change	Interconnection
more than stormwater "management"	six values (Christchurch City Council)
viewed as an "event"	Local/regional split of responsibility

"stormwater" is an outdated concept/word	It's all water: replace "stormwater" with a focus on the full water cycle

Chart 4

- The climate is changing: please understand
- Understand the water cycle: life line circle
- Stormwater is gold: a big resource
- Stormwater cannot be treated separately: need a holistic approach and look at land use with water usage etc as well
- Stormwater needs to be treated by land
- Stormwater is a taonga and important for river recharge and ecosystem health
- Mahinga kai gathering outcomes
- Stormwater not only affects us all but we are all responsible & accountable for its effects
- Education about stormwater: it gives us life, but kills other life if we don't treat it
- It's only "storm" water temporarily: it is every other water at any given time
- Extreme events- modelling
- Accountability + maintenance

Chart 5

<table>
<tr><th>PUBLIC</th><th>DECISION-MAKERS</th></tr>
<tr><td>it ends up in our rivers and the sea</td><td rowspan="3">Education:
• the carrot: invest money to support people everywhere to take responsibility; stormwater infrastructure protects all the existing above ground utilities
• the stick: national consistency - standards</td></tr>
<tr><td>eventually becomes what we drink</td></tr>
<tr><td>"I only drain rain", says the stormwater grate</td></tr>
<tr><td>it supports your life and lifestyle</td><td>Manage it at source</td></tr>
<tr><td>contaminants we put on the ground end up in our streams and rivers</td><td>money invested in clean stormwater is money saved at water treatment plants</td></tr>
<tr><td>stewardship</td><td>minimize pipes</td></tr>
<tr><td>When you litter or pollute into stormwater you are crapping in your own back yard</td><td>focus on receiving environments: % removal not enough to protect env't</td></tr>
<tr><td colspan="2">stormwater generally discharges to rivers untreated</td></tr>
<tr><td colspan="2">it's everybody's problem/solution</td></tr>
</table>

Chart 6

PUBLIC	DECISION-MAKERS
relationship between themselves and stormwater (the water cycle)	very limited in their assessments - stormwater is more than flooding
it's not just pipes and flooding: public need to understand what public assets do	stormwater management gets mixed in with wastewater & water supply management
connection with what they do and how the life out there in water	maybe stormwater needs to be managed by ecology
lack of clarity in the term "stormwater"	accumulation is the issue

What is stormwater? it's the water cycle:
• turn the conversation to the water cycle
  • stormwater affects all waters
  • stormwater sustains life force
  • Stormwater is more than flooding	

Stormwater relationships	
How do we bridge the disconnect between people and water	
People understand the water cycle but not their impact on it	

5.2.2 ACTIVITY 2: KEY CHANNELS AND RESOURCES

Chart 7

Education and media campaigns

- education is big at primary school and drops off at intermediate school
- 11-13 years old is when moral compass is developed
- integration across the syllabus
- 7 touchpoints - need to hear it seven different ways
- community good news stories
- fishing e-scooters out of the ocean (Wellington harbour)
- media campaigns e.g.:
  - 0800 SMOKEY
  - Don't be a Tosser
  - Keep New Zealand Beautiful
- Ministry for the Environment - national communication strategy
- Open and public data sharing
- we have flood maps: what about the rest?

Chart 8

- make "rainwater" visible

- local stories of connection to water
- accessible information about te mana o te wai (in place)
- Water quality
- Flooding
- rural runoff
- water quantity - story of flow rates and volumes
- social media
- bigger infrastructure isn't the solution to climate change response
- adaptable designs
- taking responsibility for change
- space for surface water
- resilience - beyond the design storm

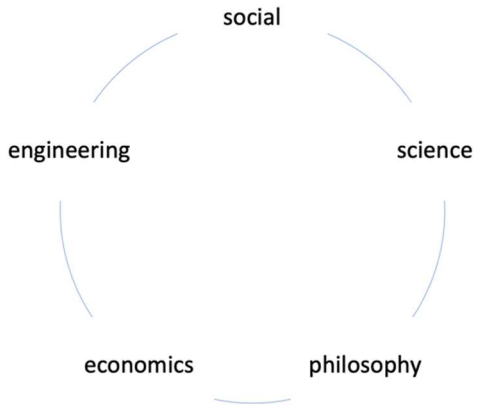

Chart 9

Resources

- Fish on storm water grates
- Data
- visibility of data
- scale of water quality

Ideas

- Make it visible
- make it personal
- make it a public health issue
- this is what good water looks like
- Relativity of cleanliness and contamination
- communicate visually
- follow the journey of a raindrop
- ownership of the problem
- sharing information

Chart 10

- simple explanation of complex concepts
- visual, attractive information and summaries
- public investment and drive for change made obvious with social media
- use more modern methods to get people involved like gamification of their education
- incentives for making improvement:
  - decision makers getting re-elected
  - public having nicer, safer spaces
- incorporating more values into stormwater:
  - cultural
  - ecological
  - recreational

Chart 11

LOCAL/PUBLIC	DECISION-MAKERS
Stormwater Week - at all scales	stormwater and link to drinking water
signage around facilities	healthy waters groups > integrated approach; amenity, recreational
integration into NCEA and unit standards	regulations can't be prohibitive to innovation
	no money
3 waters = 1 water	
Fines and response	
Real time monitoring at outfalls	
Technical experts doing outreach	

Chart 12

Audiences

- community
- politicians
- regulators
- industry/business

Resources

- information is available region wide
- get the community involved e.g. adopt-a-drain
- community groups are underfunded and under resourced

How we communicate

- we are lacking good engagement communication and information
- consistent and positive language that connects people to water
- hopeful language not fearful
- language that connects with people
- positive and easy to digest
- engineers need help with communication
- Start early in schools
- maintain communication and programs through future generations
- Positive reinforcement e.g. a green tick
- Equity between wealthy and poorer neighborhoods
- share case studies
- meet people where they are

Messages

- Wai is Wai
- value in “clean” water
- we have to manage the people on the land and how they interact
- stormwater is an open system which is much more challenging to regulate
- water is everyone's responsibility not just councils
- clean water = LIFE
- what you do on your land matters: your actions impact clean water
- social media of good and bad stories

ACKNOWLEDGEMENTS

"[Click here to type Acknowledgements]"

REFERENCES

1. B. Carter, D. Young (Zealandia Consulting) & C. Feeney (Environmental Communications Ltd) (2022) Three waters: practitioner-focused solutions for te oranga o te taiao and te mana o te wai. A paper presented to the Water New Zealand Stormwater Conference 18-20 May 2022 at Te Pae, Christchurch, New Zealand

2. See https://www.stormwater360.co.nz/assets/Uploads/3.-An-Applied-Stormwater-Education-Programme.pdf, https://civilcontractors.co.nz/EPIC-Careers-in-Infrastructure/10929/ and https://www.tec.govt.nz/news-and-consultations/inspire-the-future-for-national-volunteer-week/