Activating water sensitive urban design for New Zealand

WELCOME TO THE CHRISTCHURCH WORKSHOP!

Building better homes towns and cities science challenge
About us ... the research team

National Science Challenges

Activating WSUD Aotearoa NZ

Manaaki Whenua Landcare Research

NIWA Taihoro Nukurangi

Batstone Associates

Koru Environmental Consultants Ltd

BUILDING BETTER HOMES, TOWNS AND CITIES

Ko ngā wā kāinga hei whakamāhorahora
principles of engagement
About you ... the WSUD community

• your name

• your role and organisation

• how involved have you been in WSUD over the last few years?
  • scale of 1-5
  • 1 = hardly at all
  • 5 = extensively

• your burning WSUD issue: 20 words
Your photos: the good, the bad, the ugly

wall of fame
Programme

• why has this research been funded? Overview
• why have this workshop? Purpose
• what did you tell us? Survey
• walking tour
• debrief
• implementing WSUD – where do we stand?
• working groups: what are the barriers to becoming a water sensitive city?
• wrap up: what we’ve done today
• where to from here?
• close at 3pm
Why has this research been funded?

- WSUD’s value proposition
- New Zealand is the right place
- Now is the right time
WHAT are we planning to do?

EAG

Discovery Phase

Research Response

Action Research Plan

Capacity Building

NZ WSUD value case

Better WSUD implementation
HOW will this research make a difference?

• active, capable, engaged NZ community of practice
• knowledge to address barriers
• longer term strategic research plan
• helping the National Science Challenge to achieve its objectives
Where have we come from? Where are we going?

A design approach...
What did you tell us? Survey results

What barriers to WSUD do you find in your work?

What barriers have you most recently experienced in a WSUD project?

What 'activating factors' were effective in your most recent WSUD experience or project?

As at 7 December 2017
What did you tell us? Survey results

• I consider the ability for local government, consultants, planners and constructors to become market leaders in WSUD/WSC is paramount to changing relationships with water through design.

• If there was a requirement to do WSUD there would be guidance, specifications, training and funding to make WSUD happen and work.

• Missing incentives. A targeted rate on impervious areas would start a thinking process how much impervious is really required and how this can be offset on site by using WSD.
WSUD walk: Christchurch

Key

- Dotted line indicates route
- Numbers indicate sites of interest
- Arrows show direction of travel
- Red arrows indicate road crossings – please take extreme caution

Start
Implementing WSUD – where do we stand?
Urban Water Transitions Framework

Cumulative Socio-Political Drivers

- Water supply access & security
- Public health protection
- Flood protection
- Social amenity, environmental protection
- Limits on natural resources
- Intergenerational equity, resilience to climate change

Service Delivery Functions

- Water Supply City
  - Supply hydraulics
- Sewered City
  - Separate sewerage schemes
- Drained City
  - Drainage, channelisation
- Waterways City
  - Point & diffuse source pollution management
- Water Cycle City
  - Diverse, fit-for-purpose sources & conservation, promoting waterway protection
- Water Sensitive City
  - Adaptive, multi-functional infrastructure & urban design reinforcing water sensitive values & behaviours

Brown et al 2009, Water Science and Technology
7 Goals

- Ensure good governance (7)
- Increase community capital (5)
- Achieve equity of essential services (4)
- Improve productivity and resource efficiency (5)
- Improve ecological health (4)
- Ensure quality urban space (3)
- Promote adaptive infrastructure (6)

Promote adaptive infrastructure

Ensure good water sensitive governance

Increase community capital

Improve ecological health

Achieve equity of essential services

Improve productivity and resource efficiency

Ensure quality urban space

CRC for Water Sensitive Cities

watersensitivecities.org.au
## 7 Goals

### Ensure good governance (7)
- Knowledge, skills & organisational capacity
- Water is key element in city planning & design
- Cross-sector institutional arrangements &
- Public engagement, participation
- Leadership, long-term vision & commitment
- Water resourcing & funding to deliver broad societal
- Equitable representation of perspectives

### Increase community capital (5)
- Water Literacy
- Connection with water
- Shared ownership, management of water assets
- Community preparedness & response to extreme events
- Indigenous involvement in water planning

### Achieve equity of essential services (4)
- Equitable access to safe & secure water supply
- Equitable access to safe sanitation
- Equitable access to flood protection
- Equitable access to amenity values of water-related assets
- Water-related business opportunities

### Improve productivity and resource efficiency (5)
- Benefits across other sectors bc of water-related services
- Low GHG emission in water sector
- Low end-user potable water demand
- Water-related business opportunities
- Maximised resource recovery

### Improve ecological health (4)
- Healthy and biodiverse habitats
- Surface water quality and flow
- Groundwater quality and replenishment
- Protect existing areas of high ecological value

### Ensure quality urban space (3)
- Activating connected urban green & blue space
- Urban elements functioning as part of the water system
- Vegetation coverage

### Promote adaptive infrastructure (6)
- Diverse self sufficient fit-for-purpose water supply
- Multi-functional water infrastructure systems
- Integration & intelligent control
- Robust infrastructure
- Infrastructure & ownership at multiple scales
- Adequate maintenance

## 34 Indicators
What are the barriers to becoming a WSC?

Transition Dynamics Framework

1. Issue emergence
2. Issue definition
3. Shared understanding & issue agreement
4. Knowledge dissemination
5. Policy & practice diffusion
6. Embedding new practice

WATER SENSITIVE CITY

Advocating narrative

WATER SUPPLY CITY

Contesting narrative

Transition Dynamics Framework

1. Issue emergence
   - Cause
     - Problem
       - OLD PRACTICE
   - Solution
     - Biased science
       - Too expensive
       - Does not work
       - No problem
     - 2. Issue definition
       - 3. Shared understanding & issue agreement
         - 4. Knowledge dissemination
           - 5. Policy & practice diffusion
             - 6. Embedding new practice
               - Solution too narrow
                 - Not feasible
                 - NEW PRACTICE

Advocating Narrative
- Prosperity & liveability
  - Multiple benefits
    - Responsibility
      - Solution

Contesting Narrative

Brown, Rogers & Werbeloff, 2016. Moving toward water sensitive cities. CRCWSC.
What’s an Advocating WSUD Narrative? Example

• water and land environments are healthy, protected and enhanced
• water is valued, used efficiently and resources are reused
• green-blue areas support beautiful urban spaces and healthy, safe, resilient communities
• New Zealand’s urban character reflects its unique landscape and water environments
• multi-functional water systems are well-maintained and resilient
• all communities have equitable, affordable access to water system services for their health and wellbeing
• communities are engaged and empowered to participate in water decision-making
• water professionals work across institutional and sectoral boundaries collaboratively, transparently and innovatively
• infrastructure planning & development are coordinated & integrated to deliver multiple benefits
• people express kaitiakitanga: they understand, cherish and protect their local water environments

Adapted from Australian work on WSUD vision/goals
<p>| Domains of Change         | Actors: Key networks of individuals | Bridges: (Semi) Formalised organisations, structures &amp; processes for coordination &amp; alignment | Knowledge: Research, science &amp; contextualised knowledge | Projects: Experiments, demonstrations &amp; focus projects | Tools: Legislative, policy, regulative &amp; practice tools |</p>
<table>
<thead>
<tr>
<th>Transition phase</th>
<th>Champions</th>
<th>Platforms for connecting</th>
<th>Knowledge</th>
<th>Projects and applications</th>
<th>Tools and instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Issue emergence</td>
<td>Issue activists</td>
<td></td>
<td>Issue highlighted</td>
<td>Issue examined</td>
<td></td>
</tr>
<tr>
<td>2. Issue definition</td>
<td>Individual champions</td>
<td>Sharing concerns and ideas</td>
<td>Causes and impacts examined</td>
<td>Solutions explored</td>
<td></td>
</tr>
<tr>
<td>3. Shared understanding &amp; issue agreement</td>
<td>Connected champions</td>
<td>Developing a collective voice</td>
<td>Solutions developed</td>
<td>Solutions experimented with</td>
<td>Preliminary practical guidance</td>
</tr>
<tr>
<td>4. Knowledge dissemination</td>
<td>Influential champions</td>
<td>Building broad support</td>
<td>Solutions advanced</td>
<td>Solutions demonstrated at scale</td>
<td>Refined guidance and early policy</td>
</tr>
<tr>
<td>5. Policy and practice diffusion</td>
<td>Organisational champions</td>
<td>Expanding the community of practice</td>
<td>Capacity building</td>
<td>Widespread implementation and learning</td>
<td>Early regulation and targets</td>
</tr>
<tr>
<td>6. Embedding new practice</td>
<td>Multi-stakeholder networks</td>
<td>Guiding consistent application</td>
<td>Monitoring and evaluation</td>
<td>Standardisation and refinement</td>
<td>Comprehensive policy and regulation</td>
</tr>
</tbody>
</table>
How can we steer a city’s WSC transition?

- Path-dependant Lock-in: Adoption of only ‘efficiency’ innovations
- Backlash: Unsuccessful adoption of innovations
- System Breakdown: Continuation of 20th century ‘business as usual’ practice

Current System

CRC for Water Sensitive Cities
watersensitivecities.org.au
Acknowledgements

Thank you to the CRC for Water Sensitive Cities for sharing this information with us, and to Briony Rogers for her assistance and expertise.
Working groups: benchmarks and barriers

Overview

• 3 activities with separate instructions ahead of each one

BENCHMARKS
Activity 1: Benchmarking our WSUD stage:
  • your city or part of it against the urban water transitions framework
  • NZ in terms of phase of change in the transition dynamics framework
Activity 2: Ideas for Advocating Narratives:

BARRIERS
Activity 3: Brainstorming barriers to WSUD

• open discussion to wrap up
Activities 1 and 2: Benchmarking

Activating Water Sensitive Urban Design in New Zealand

BENCHMARKING AND BARRIERS GROUP ACTIVITY

ACTIVITY 1 – BENCHMARKING:
Circle the city which you believe represents 'your' New Zealand city. You may want to divide your city into 'green field' and 'brown field' or 'new' and 'old' parts of your city (please label!)

Urban Water Transitions Framework

City: ____________________________
Comments: ______________________

Handout pages 1-3
Activities 1 and 2: Benchmarking

In your groups:

- appoint a spokesperson – maybe a different one
- take 15 minutes to prepare a 2-minute presentation:

  For Activity 1 (handout pages 1 and 2), tell us what stage of WSUD your group thinks:
  - your city or part of it is in, against the urban water transitions framework
  - NZ overall is in, in terms of phase of change in the transition dynamics framework

  For Activity 2 (handout page 3), tell us what your group thinks about:
  - what would your Advocating Narrative for WSUD look like?
Activity 3: Barriers – what’s stopping us from getting to a water sensitive city?

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue awareness</td>
<td>1 - High priority</td>
</tr>
<tr>
<td>Issue management</td>
<td>2 - Medium priority</td>
</tr>
<tr>
<td>Issue resolution</td>
<td>3 - Low priority</td>
</tr>
</tbody>
</table>

**ACTIVITY 3 – BRAINSTORMING BARRIERS:**

Thinking about the wider design and 3 waters goals of WSSD, what are the key barriers to achieving a Water Sensitive New Zealand? The chart below will help you keep a broad, conceptual view of WSSD, beyond device and site-specific issues. Think about:

- What do you hear advocates of WSSD saying?
- What do you hear opponents of WSSD saying?
- What barriers are holding back further progress?

**TREATMENT phase**: Champions, Platforms for Governance, Knowledge, Projects and Experiences, Tools and Resources

- 3 year strategies
- 2 year strategies
- Issue awareness
- Issue management
- Issue resolution

**Across the > horizon**

- Influential champions
- Organizational champions
- Multi-stakeholder networks

- Developing a collective voice
- Solutions developed
- Solutions experimented with
- Solutions demonstrated at scale
- Refined policies and early policy
- New organisational strategies
- New organisational partnerships
- Comprehensive policy and regulation

- Knowledge exchange
- Sharing stories and experiences
- Building on existing knowledge

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</tbody>
</table>

Handout pages 4-5
Activity 3: Barriers

In your groups:

• appoint another spokesperson

• take 10 minutes to prepare a 2-minute presentation on what’s stopping us from getting to the water sensitive city

• if you wish, you can:
  • score the severity of each barrier
  • score how easy it may be to address it
Open discussion
Wrapping up
What did you tell us? Survey results

What barriers to WSUD do you find in your work?

- Economics: CBA cost, $$$
- Precedents / Evidence
- Innovation stance
- Process
- Organisational culture
- Value chain knowledge/training
- WSUD concepts & vision, design
- Incentives, regulation & outcomes

As at 7 December 2017

What barriers have you most recently experienced in a WSUD project?

- Maintenance
- Consenting
- Value chain
- Incentives, regulation & outcomes
- WSUD concepts & vision, design
- Process
- Organisational culture

What 'activating factors' were effective in your most recent WSUD experience or project?

- Economics: CBA cost, $$$
- Precedents / Evidence
- Innovation stance
- Process
- Organisational culture
- Value chain knowledge/training
- WSUD concepts & vision, design
- Incentives, regulation & outcomes
Where to from here?

• notes and handouts from workshop
  • emailed out to you
  • put on website www.landcareresearch.co.nz/wsud

• website and email information
  • survey results
  • information on WSUD resources

• next year’s research

• report-back workshops in 2018
Staying in touch and doing better
THANK YOU!

www.landcareresearch.co.nz/wsud

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