CRC for Water Sensitive Cities

Tranche 2 Project Development

Cluster 3: Integrated Planning and Implementation (Coordinated and aligned decision-making)

Cluster Outline

Nominated Cluster Leader: Darryl Low Choy (Griffith University)

1. Cluster Title:

Integrated Planning and Implementation (Coordinated and aligned decision-making)

2. Aims and Objectives:

This Cluster aims to: *understand and demonstrate collaborative practices and mechanisms for integrated planning and implementation that bridges across sectors, disciplines, institutional arrangements and agencies in order to achieve horizontal and vertical coordinated and aligned decision-making in water sensitive city-regions*

This Aim will be pursued through the following objectives:

- to understand why integrated planning and implementation is not currently happening;
- to prove the concept by demonstrating what integrated planning and implementation entails and how integrated planning approaches realise public benefits;
- to incorporate integrated planning and approaches into mainstream planning processes, procedures and tools that:
  - conceptualises and operationalises a holistic planning, design and evaluation process
  - maximises the value of the Water Sensitive City approach;
  - reduces the risk and deals with uncertainties in decision-making; and
- to build capacity to make integrated planning and implementation mainstream practice.

3a. Identified Transition Needs:

The series of city/region-based Needs and Opportunities workshops conducted during the second half of 2015 highlighted a range of needs around the themes of integration, alignment, holistic approaches, improved coordination, collaboration, connectivity, and multiple values and benefits. In terms of the combined industry needs and opportunities associated with these themes, this Cluster will seek to address the following:

Enabling Structures

#1 Shared vision & narrative for WSC that connects with community values and drives decision making

#2 Strengthening & aligning policy, legislation & regulation in support of WSC

#3 Robust and inclusive decision making frameworks

#5 Governance frameworks that enable coordination & collaboration across agencies and sectors

#6 Holistic evaluation frameworks to support WSC investments

On-ground Practices

#7 Guidance on how to develop context-specific solutions and asset management regimes

#8 Achieving multiple values through integrated planning, and design of water systems & urban form

Social Capital

#13 Influencing WSC outcomes through leadership, collaboration and networks

#16 Building community and industry connection and engagement

#17 Building capacity to deliver a WSC

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This Cluster will also have significant links between the activities and outputs of the following Needs and Opportunities:

Enabling structures

#4 New economic & financial models and incentives that recognises the values and benefits of WSC

On-ground Practices

#9 Next generation flood risk assessment frameworks and tools for a WSC approach
#10 Monitoring & evaluation for improved system design and performance
#11 Efficient & effective operations & maintenance systems to achieve WSC outcomes
#12 Coherent understanding of groundwater systems & interactions with surface waters

Social Capital

#14 A culture of learning and innovation
#15 Translation and sharing of WSC knowledge

3b. Research Gaps:

Consideration of the combined industry needs and opportunities has highlighted a range of research gaps which will need to be addressed across sectors and disciplines. The answer to these needs and opportunities cannot be addressed through a single sector or discipline approach. Essentially, these research gaps align with a number of key challenges related to the Cluster's aims and objectives and include:

- a lack of:
  - tools and processes to operationalise integration
  - integration evaluation frameworks
  - national standards to drive integration consistently across states and territories
  - baseline knowledge on why integrated planning and implementation is not occurring
- an absence of / immature consideration of risk and uncertainty when discussing integration
- an understanding of the question of scale – at what scale (eg national, state, regional or local) is integration the most effective?
- a lack of understanding and learning from the causes of failure in the past.

4a. Context:

To address the Cluster's aim and objectives and to identify and develop practically relevant solutions in an integrated manner and in appropriate settings, a range of different contexts has to be considered. These include:

Environmental:

- geographic situation
- climatic conditions and expected variations/extreme events
- geological and environmental constraints and opportunities
- hydrologic conditions (groundwater, stormwater, flooding, etc.)
- ecological values and benefits

Social, Cultural and Economic:

- demographic situation and expected changes
- socio-economic conditions and developments
- social coherence and community structures
- political, legal and jurisdictional situations
- institutional and governance arrangements
- statutory and non statutory planning and management arrangements

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- industrial and professional capacity
- historic and cultural significance
- infrastructure and technology changes/developments

Scale:

- spatial scale (local green/grey/brownfield sites to regional/catchment)
- urban density (neighbourhood to city)
- organisational / institutional scale (vertical and horizontal)
- temporal scale (short-term to strategic)

4b. Research Opportunities:

The overarching generic themes of the Cluster's aim and objectives have been explored in scholarly research from many dimensions although not from a specific water sensitive cities perspective. This Cluster will draw from this work whist seeking specific solutions to the research questions which are explicit to the water sensitive city concept.

This Cluster will provide opportunities for the further development and enhancement of existing and emerging CRC research, including a variety of tools and techniques to facilitate integration. This research includes for example:

- Literature reviews and comparative analysis of regulation
- Dance4Water and other models
- Issue specific tools such as urban heat tools
- Conceptual regional planning processes and water balance frameworks
- Multi objective optimisation algorithms
- Elwood co-design case study

5. Targeted End-user Groups:

The nature and scope of the activities of this Cluster will provide opportunities to engage a very wide and diverse range of end-user groups as active participants in, and beneficiaries from, these activities and their outputs. The key end-user groups that need to be engaged, include:

- State and Local government urban and regional planners (strategic and statutory planning)
- Water planners and asset managers
- Design Professionals (including Urban Designers, Landscape Architects and Architects)
- Professional Peak Bodies
- State government agencies (eg Treasury, Planning, Infrastructure, Water, NRM, Environmental departments etc)
- Local government (namely State Local Government Associations)
- Regional Natural Resource Management bodies
- Community based organisations (CBOs) and Non Government organisations (NGOs) who participate in water cycle decision making (including for example: co design and participatory planning initiatives etc)
- Land and property developers
- Consultants involved in the design and planning of urban developments and water assets
- Political decision makers

6. Research Questions and Approach:

Research Question 1: *What processes facilitate integration of planning and implementation and what tools will best aid the implementation of these processes?*

1a What are the preconditions for integration?

Research Question 2: *At what scale is integration the most effective?*

2a What role can national guidelines and codes play in harmonising approaches to integration (and lifting practice to a minimum level)?

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2b How can bottom up and top down processes of integration be aligned and "joined" (Is it better to lead integration from the top or bottom?)
2c What strategies most effectively intervene to achieve integration?
2d How and when should different actors have the most influence?
2e How do local/context specific needs best inform integrated planning and implementation?

Research Question 3: *How can the intent to integrate (eg via planning and innovation) be assured in on ground implementation?*

3a What are the constraints and blockages to effective integration in implementation of the Plan's intent?
3b What will influence a change?
3c Who is best placed to lead or be responsible for integration (including relevant governance model)
3d How are decisions of risk made?
3e How can multiple benefits be planned for in practice?

Research Question 4: *What financial models make integration effective?*

4a Is there an appropriate model suitable for common use that will be universally accepted?
4b What incentives work to drive integration?
4c How can this financial model utilise market based instruments?
4d How can financial investment be linked / aligned with planning / policy intents and actions?
4e Is there a role for infrastructure funding, transferable development rights etc?

Research Question 5: How does risk allocation and risk sharing influence integration?

5a How do different user groups define and process "risk", "benefits" and "uncertainty" in decision making?
5b Can a common agreement of risk be developed and facilitated?
5c How can flexibility and adaptive planning be operationalised?

Consideration of the combined industry needs and opportunities, identified research gaps and research questions have highlighted the imperative to adopt a multi-disciplinary approach inclusive of a diverse range of industry practioners.

The preferred approach is to use case studies, including cases that what worked and ones that did not. These case studies should be understood in terms of 'why' they worked and what caused failures. They should also demonstrate the context and preconditions for integration and the ingredients that made integration happen.

The background to this Cluster's suite of activities will be the continuation of the development and refinement of existing and emerging CRC modelling and decision making tools (eg Dance4Water). This will provide opportunities to:

a. Test and validate CRC tools in different contexts
b. Scale existing tools up
c. Broaden tools to include the latest CRC research
d. Build industry capacity to use these tools
e. Bring the multiple CRC (and other?) tools together
f. Complete a gap analysis to identify what else is needed in these tools to enable integration/multiple benefit to be realised?

This work will need to capture and learn from what CRC industry partners and other stakeholders are currently doing.

7. Intended Cluster Outcomes and Adoption Pathways:

The translation/adoption pathways that this Cluster seeks to facilitate, relate to the following outcomes:

Outcome #1- Integration of the following:

- Decision making tools and models
- Governance processes to make aligned decisions and reach integrated outcomes

- Institutional frameworks and design
- Legislation and sub ordinate planning instruments
- Systems and physical infrastructure across water cycle, urban form, biodiversity, climate, community
- Different scales, noting that the catchment scale is seen to best lend itself to integration of water management issues - requires confirmation
- Polices – along with standards, design and technical guidance

Outcome #2- Planning is influences to include:

- Statutory, non-statutory and strategic planning across different levels of governments
- Operational water sector planning across water supply, stormwater, waste water etc
- Urban design
- Long term water management planning and policy development (including exploratory and scenario based approaches to prepare for possible crisis and disruption)
- Co-design and engagement processes to involve community within the planning and implementation processes
- Strategic objective setting – defining what's possible in a WSC and linked to a narrative/vision
- Linking science to policy, including science-informed planning
- Linking industry and community
- Linking planning to markets
- Integrated evaluation and assessment (adaptive management)

8. Key skills and Capacities Required:

Combination of University-based researchers and industry practioners ….etc etc