CRC for
Water Sensitive Cities

Room for Improvement: Influence of Statutory Land Use Planning on the Adoption of Water Sensitive Urban Design Practices in Australia

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INTRODUCTION TO THE RESEARCH

- **Objective: to *meet the challenge* of understanding how statutory land use planning facilitates, or hinders, the adoption of water sensitive urban design (WSUD) practices**
- **The research will improve knowledge about how statutory land use planning influences the implementation of WSUD.**
- **This will assist reforms to statutory land use planning systems, so they better support the implementation of WSUD**

INTRODUCTION TO THE RESEARCH

- **WSUD: 'an approach to urban planning and design that integrates the management of the total water cycle into the land use and development process' (SA Department of Environment Water & Natural Resources 2013)**
- **'statutory land use planning': statutory regulation of land use and development, to meet public policy objectives.**
- **Includes**
  - **primary land use planning legislation**
  - **regulations and statutory policies**
  - **development approvals process**
  - **approvals for individual developments**

METHOD

- Surveyed staff from government, water utility, private & research sectors
- The sample population consisted of water resource management & urban planning staff from bodies affiliated with Cooperative Research Centre for Water Sensitive Cities (CRCWSC)
- Questionnaire examined the influence of statutory land use planning on the adoption of WSUD practices. Questions asked for ratings on five-point scales (quantitative data) and comments about ratings (qualitative data)
- Invitation distributed by CRCWSC on 18/8/2015, responses collected from 18/8/2015 to 13/10/2015

METHOD

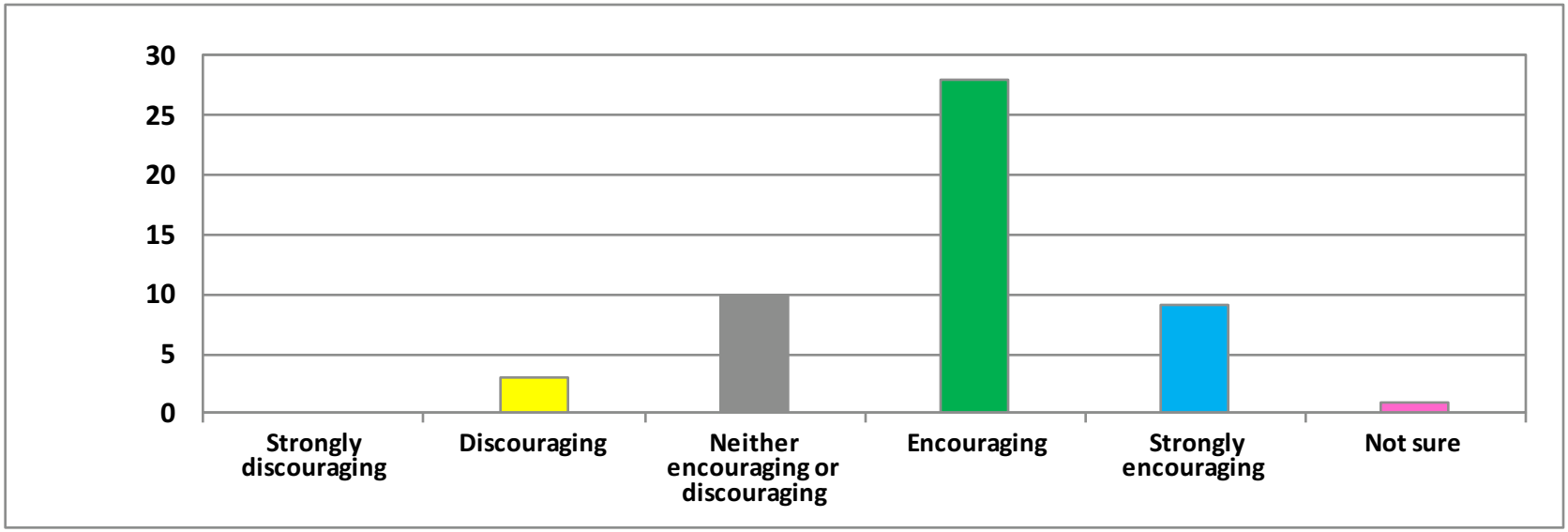
- Survey also examined how statutory land use planning influences specific 'components' of WSUD practice
- Components = set of outcomes, or results, which should be present when WSUD has been implemented:
  - Urban stormwater component
  - Urban water cycle component
  - Urban water infrastructure component: combination of centralised and decentralised infrastructure
  - Urban design component

RESULTS

- No. responses = 51
- Participants from a range of:
  - Jurisdictions
  - Employment sectors
  - Professional training/experience
  - Water cycle management roles
- Diverse set of participants means that the survey's findings should be robust

RESULTS

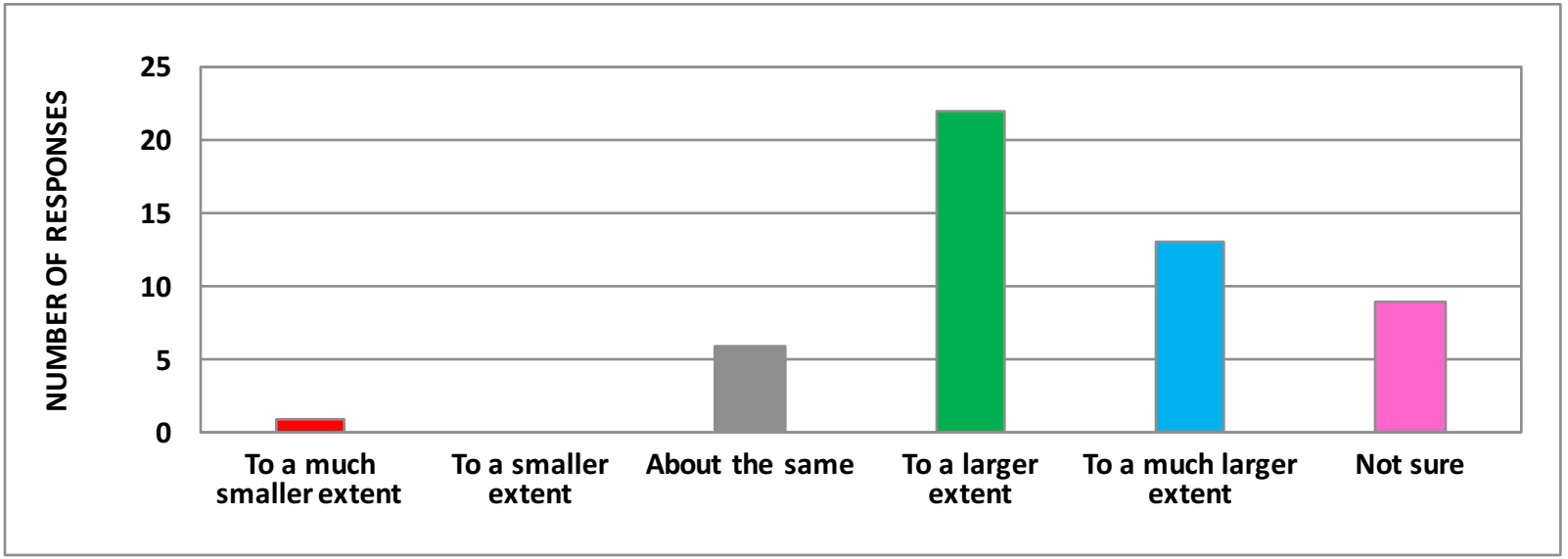
- **QUESTION:** ***Influence of statutory land use planning on the adoption of WSUD practices in residential developments?***



- **Ratings and comments indicate statutory land use planning DOES materially encourage adoption of WSUD practices**

RESULTS

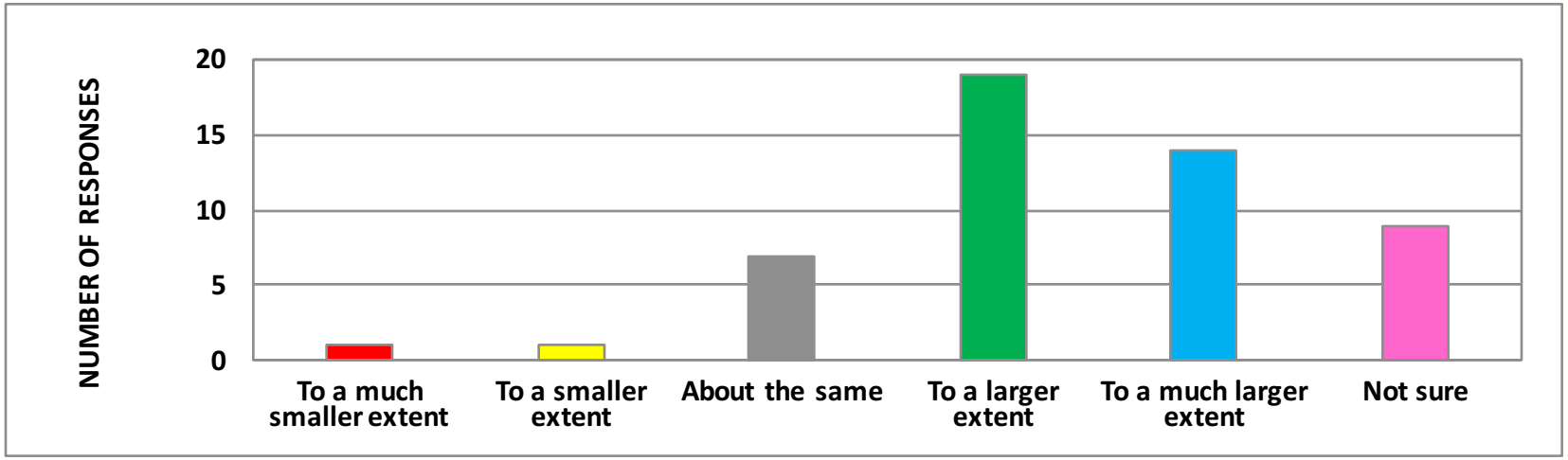
- **QUESTION:** ***Influence of controls that include specific quantitative targets, compared with controls without specific quantitative targets?***



- **Ratings and comments indicate that controls with specific quantitative targets encourage adoption of WSUD practices to greater extent than controls lacking targets**

RESULTS

- **QUESTION:** ***Extent to which statutory land use planning encourages WSUD practices at greenfield developments, compared with infill developments?***



- **Ratings and comments indicate that statutory land use planning encourages WSUD practices to a greater extent at greenfield developments, compared with infill developments**

RESULTS

- **QUESTION:** ***Influence of statutory land use planning on the components of WSUD practice?***

Component	Strongly discouraging	Discouraging	Neither	Encouraging	Strongly encouraging	Not sure	No answer
Urban stormwater component	1	3	4	19	19	1	4
Urban water cycle component	2	10	15	17	2	1	4
Urban water infrastructure component	0	10	23	8	2	4	4
Urban design component	1	5	20	14	6	1	4

RESULTS

- **Urban stormwater management most influenced by statutory land use planning, compared with other components. Results for urban stormwater management differ from those for other components, at 5% and 1% significance levels (Wilcoxon signed ranks test)**
- **Results for urban design component, compared with those for urban water infrastructure, differ at the 5% significance level. Other differences not statistically significant.**
- **The ratings, and supporting comments, indicate statutory land use planning systems concentrate on influencing urban stormwater management and do not adequately consider other components of WSUD practice**

RESULTS

- **QUESTION:** ***Importance of components of WSUD practice?***

Component	Unimportant	Slightly Important	Moderately Important	Important	Very Important	Not sure	No answer
Urban stormwater management	0	1	2	9	35	0	4
Urban water cycle	0	0	6	13	28	0	4
Urban water infrastructure	0	3	6	18	14	6	4
Urban design	0	0	2	14	31	0	4

- **Ratings, and the supporting comments, indicate that all components of WSUD practice are important, with infrastructure component of slightly lesser importance than the others**

CONCLUSIONS AND RECOMMENDATIONS

- **Reforms of statutory land use planning, to better support adoption of WSUD practices, should consider:**
  - **Changes to ensure that controls for infill development include WSUD requirements similar to those applicable to greenfield development.**
  - **Recognise the whole urban cycle, and its links with urban design, in statutory planning tools, such as state planning provisions, structure plans and development approvals: include requirements, that relate to all components of WSUD practice in planning tools**

CONCLUSIONS AND RECOMMENDATIONS

- **Urban stormwater, urban water cycle and urban water infrastructure components relate to tangible physical elements ⇨ in principle, quantitative targets can be set for these components and compliance with such targets could be assessed by technical procedures**
- **'Urban design' is a more elusive concept. Possible approaches to statutory recognition :**
  - **Identify examples of sound urban design outcomes, and codify such outcomes in guidelines or codes of practices**
  - **Use specific targets, where possible: for example, a hypothetical urban design objective could be to *mitigate the urban heat island effect*, with a target of reducing the 95 percentile maximum temperature by at least *x* degrees**

CONCLUSIONS AND RECOMMENDATIONS

Suggested process for statutory land use planning to encourage the implementation of a broad interpretation of WSUD, which recognises the urban water cycle and its links with urban design: