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# Preference for sustainable, liveable and resilient features of the neighbourhoods and homes

Sorada Tapsuwan, Claire Mathot, and Iain Walker

Contributed presentation at the 60th AARES Annual Conference, Canberra, ACT, 2-5 February 2016

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# Preference for sustainable, liveable and resilient features of the neighbourhoods and homes

Sorada Tapsuwan, Claire Mathot, and Iain Walker 3 February 2016

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## **Research questions**



#### 1. What are sustainable, liveable and resilient (S-L-R) features of the neighbourhood and home?







#### **GREEN BUILDING LABELS 101** an inhabitat guide to 3rd party environmental certifications





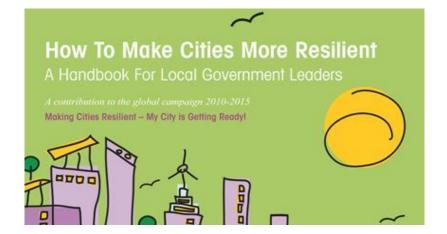


#### THE LIVEABLE CITY

EXHIBITION AND SEMINARS 20-27 NOVEMBER









#### 2. What do people look for in a (S-L-R) neighbourhood and home?











3. How do people trade-off between (S-L-R) features and other

features?



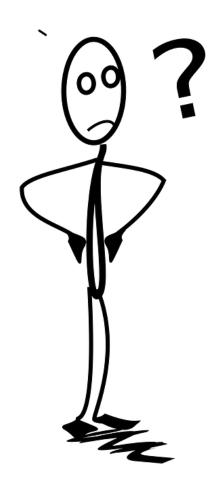








#### 4. What will our future homes and neighbourhoods look like?





What is Sustainability, liveability, and resiliency (S-L-R)?





#### Literature review

- Keywords: sustainability, resilience, liveability, green home, green building, sustainable house, WTP, house & satisfaction
- Identified 65 relevant papers (out of 180+ papers reviewed)
  - 6 on resiliency
  - 8 on sustainability
  - 5 on liveability
  - 16 on willingness to pay for home and neighbourhood characteristics
  - 17 on preferences for household and neighbourhood characteristics
  - 7 on post-occupancy of green buildings, and
  - 6 on social psychological factors affecting preferences



#### Sustainability

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Commission, 1987).

Within the context of sustainable buildings and homes (Cole, 2000):

"...Reducing resource use and environmental impact that is beyond typical practices, while still offering appropriate indoor environmental quality..."



### Liveability

"The degree to which a place supports quality of life, health and well-being" (Lowe et al., 2015; Major Cities Unit, 2012).

"A liveable neighbourhood or city should be peaceful, safe, harmonious, attractive, affordable, high in amenity, environmentally sustainable, and easily accessible" (Lowe et al., 2015).



#### Resiliency

"The ability to withstand and respond to shocks and stresses.

- Shocks e.g. earthquakes, fires, floods, etc.
- Stresses i.e. something that weakens the fabric of the city on a day to day or cyclical basis e.g. high unemployment; chronic food and water shortages

By addressing both the shocks and the stresses, a city becomes more able to respond to adverse events, and is overall better able to deliver basic functions in both good times and bad, to all populations." (100 Resilient Cities)



#### Literature review findings

- No clear distinction between S-L-R
- Preference studies only focus on one feature S or L or R
  - -> Offers little insight into trade-offs between S-L-R and other features
- Indicators of S-L-R are often set up by government/policy makers
  - -> Consumer preferences are conducted *ex-post* by researchers
- Private sector (market research) information not available



#### Findings: From Australia & NZ

- A gap between concern for sustainability and behaviour (Christie) et al. 2009)
- People are not ready to invest in, or not aware of sustainable homes (Arman et al. 2009; Bryant and Eves 2012)
- Liveability is an important factor in purchasing a sustainable house (Raisbeck and Wardlaw 2009)
- Most developers are small scale (<10 houses/yr) and have no</li> incentive to build sustainable homes (Low et al. 2005)

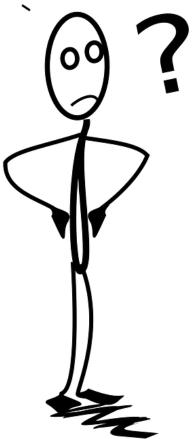


#### Findings: Post-occupancy evaluation

- Sustainable homes increase well-being and are more liveable (Buys et al., 2005)
- People are more tolerant with the performance of green homes (Leaman and Bordass, 2007)
- People like the use of natural lighting, and that they are promoting a healthy environment (Buys et al., 2005; Zalejska-Jonsson, 2012)
- Sustainable homes need to improve the overall thermal comfort during both winter and summer (Leaman and Bordass, 2007; Zalejska-Jonsson, 2012)
- A change in behaviour is required to achieve sustainability (Gill, 2010)



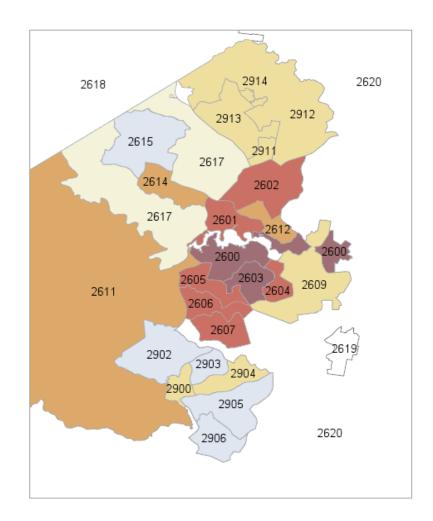
## What do people look for in a (S-L-R) neighbourhood and home?





## Survey design

- Surveyed n=300 Canberra residents
- November 2015
- Online research panel





#### Questionnaire

- Part 1 Buying experience and intentions
  - Owner-occupier Investor
- Part 2 Neighbourhood design preferences (60+ features)
  - Environment Social/Community Economic
  - Health - Access - Safety
- Part 3 House features (30+ features)
  - Building design Construction material Landscaping
  - Lifestyle & comfort Use of renewable resource
- Part 4 Social psychological characteristics
- Part 5 Demographics





- Preferences for neighbourhood design
  - Top 5 most important neighbourhood features

Rank	Owner-occupier (88%)	Investor (12%)	
1	low crime rate	low crime rate (1) Safety and	
2	cleanliness	Cleanliness (1) health env	
3	access to local broadcast signal such as free tv and radio	good quality road surfaces (1)	
4	fortnightly garbage collection	access to public transport services (2)	
5	good quality road surfaces	parks and open spaces are integrated into the urban structure (2)	



• Preferences for home design

Top 5 most important house features

Rank	Owner-occupier (88%)	keeping	(12%)
1	is affordable factor		nt to severe storms (1)
2	stays warm in the winter without the use of heating	is afford	able (1)
3	stays cool in the summer without the use of air conditioning	will incre	ease in value (1)
4	saves on future electricity bills thanks to green features	stays wa use of he	Thormal
5	ensuring that new buildings are built to last	·	ol in the summer would the conditioning (3)



- Investors rated the following features much higher than owner occupiers
  - Fetch high rental values
  - Employment opportunities in the neighbourhood
  - Childcare facilities/Children's playground
  - Primary School/Secondary School
  - Off-road cycle paths





- Least popular features
  - Shared bins rather bins for individual homes
  - Green walls/Green roofs



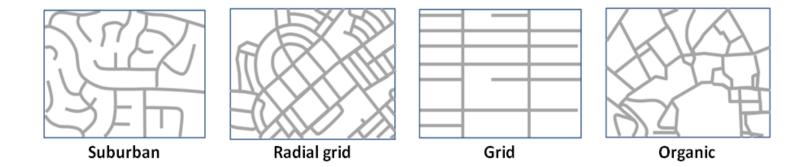


- Differences between low and high income respondents
  - a diversity of religious organisations
  - a good balance of low, medium, and high cost housing
  - employment opportunities in the neighbourhood

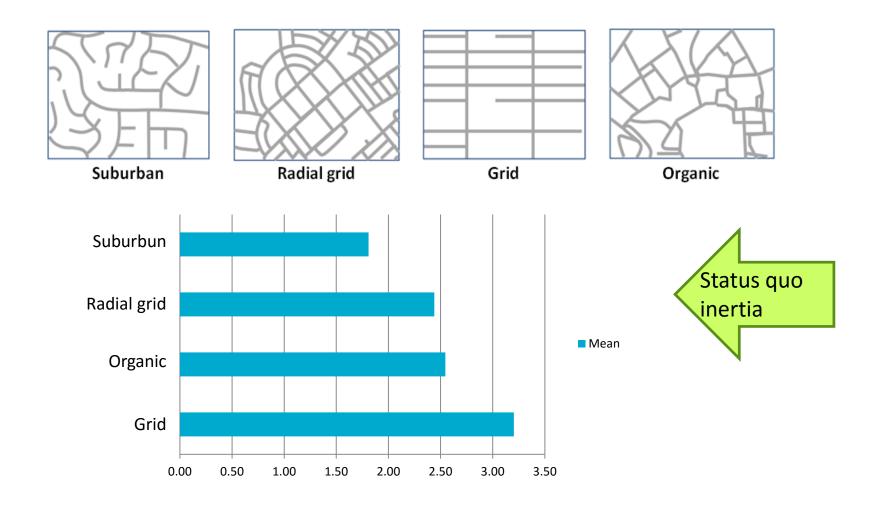




Please rank (from 1=most preferred to 4=least preferred) your most preferred suburb street design.



#### Please rank (from 1=most preferred to 4=least preferred) your most preferred suburb street design.





#### Where to from here?

- Examining the correlation between socio-economic/psycho-social factors and preferences
- Design a choice experiment survey to examine trade-offs
  - Various features of S-L-R
  - Between S-L-R features and other non-S-L-R features
- Inform the design of future sustainable cities



# Thank you

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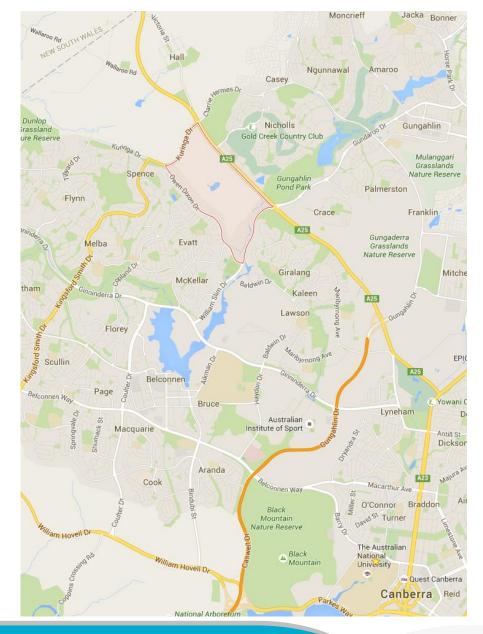




## **Ginninderra Project**









#### **Questionnaire: Neighbourhood design**

#### Rate the level of importance of 60+ features (1=Not at all important to 7=Extremely important)

- employment opportunities in the neighbourhood
- integrated parks and open spaces into urban area
- diversity of religious organizations
- aged-car facilities
- a good presence of bus stops
- well-lit footpaths



<sup>\*</sup> Items were randomized

#### **Questionnaire: House features**

- Rate the level of importance of 30+ features (1=Not at all important to 7=Extremely important)
  - high ceilings to allow for ample light
  - built with certified environmentally friend material
  - has a lot of plants in the garden
  - is cheap and easy to maintain
  - Is affordable

