

Climate Change Adaptation and New Migrants

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21st century challenges

- Climate change
- Greenhouse gas (GHG) emission
- Increasing population
- Increasing consumption

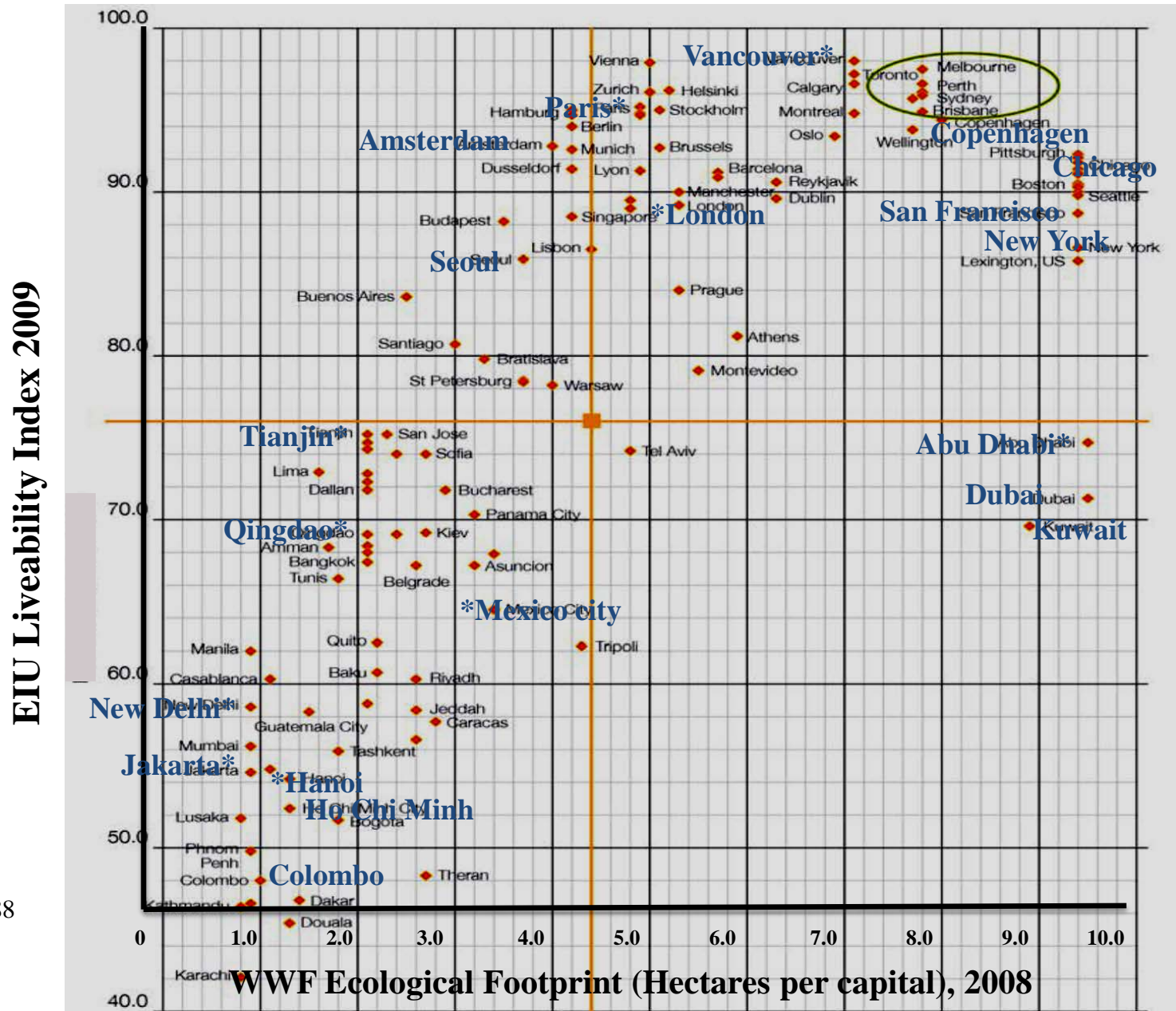
Climate change

- A global phenomenon
 - But impacts are localised
 - Which affects the physical environment
 - and local communities' socio-economics processes
- there is thus a need to build the local residents' resilience and understanding of climate change and variability within the local context

Climate change

- According to Flint (2012, p.197), to involve the local community, there is a need:
- to ‘**re-codify** and **translate** the language of their assistance into **meaningful** and **useful terminology** that can be understood, consumed and deployed locally’
- and ‘to **transfer the knowledge** and **information** that is desired and not to overload or send signals that may confuse or alarm local people’
- Question: Does a one-for-all approach work in multi-cultural countries like Australia?

Figure 1: Liveability-sustainability nexus for cities in 2010



Source: Newton 2012, p.88

Table 1: Ecological footprint (in global hectares, gha) of selected countries in 2010

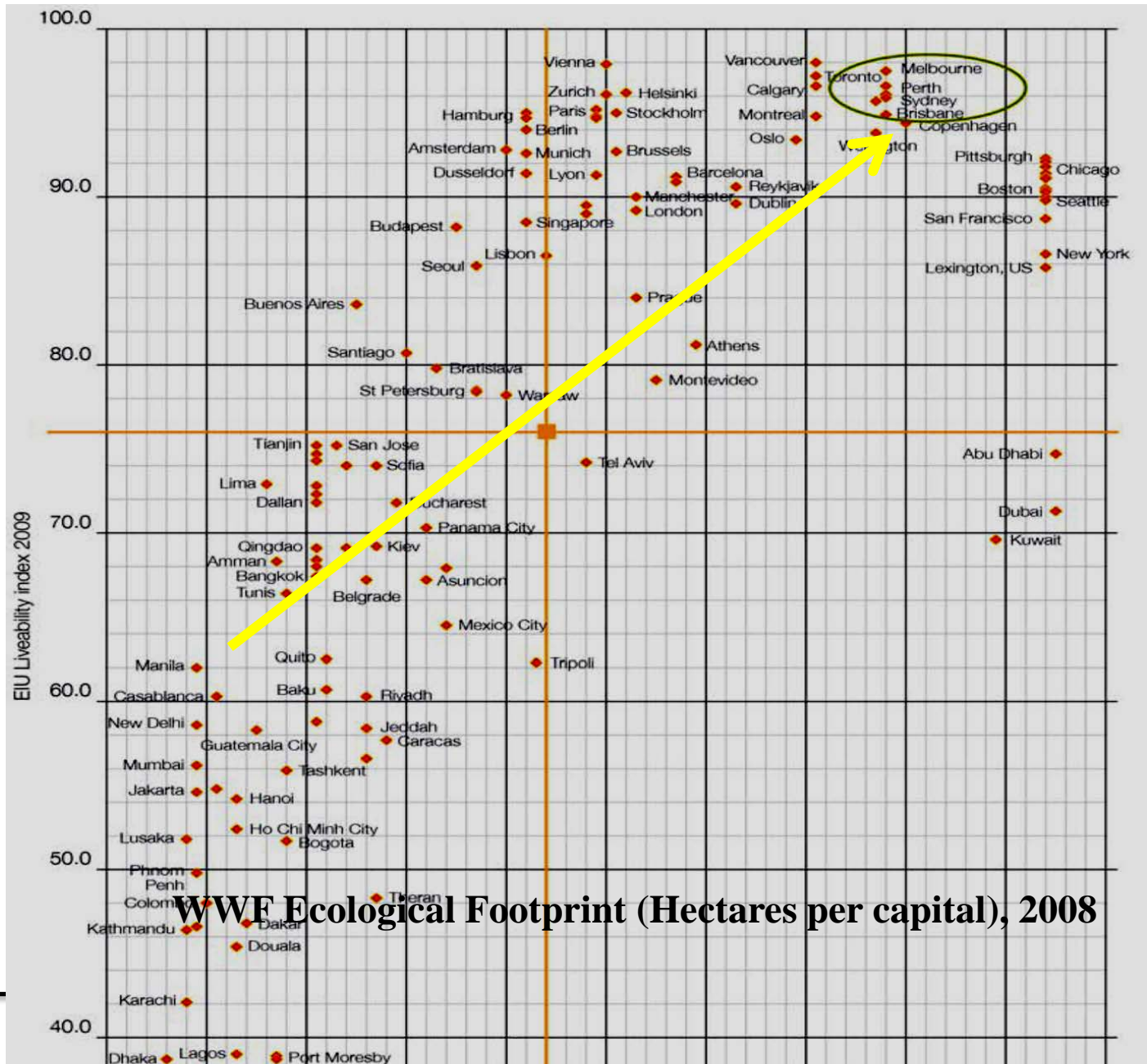
Country ¹	Ecological footprint (gha) per person ²
Australia	6.3
China	2.1
India	0.8
Italy	4.4
New Zealand ³	3.0
United Kingdom (including England)	4.3
Vietnam	1.5
<i>World</i>	2.5

Note:

1. Selected countries based on the most common countries of birth of migrants to Australia (ABS 2013h)
2. Estimated values taken from Living Planet Report 2014 (WWF 2014)
3. The EF of New Zealand varied across the years. It was ranked relatively high in 2005 and 2007 with 7.7 gha and 4.9 gha respectively (Global footprint Network 2011) and in 2013 it was smaller at 3.5 gha (Lawton & Lawton 2013).



Figure 2: Liveability-sustainability nexus for cities in 2010



EIU
Liveability
Index 2009

WWF Ecological Footprint (Hectares per capita), 2008

Source: Newton 2012, p.88

Table 2: Overview of Australian-born and overseas-born residents (percentage) from 1966 to 2011

Year	1966	1971	1981	1991	1996	2001	2006	2011
Country of birth								
Australia-born	81.6	79.8	79.1	75.5	77.2	76.9	76.0	73.0
Overseas-born	18.4	20.2	20.9	24.5	22.8	23.1	24.1	27.0
Total population	100	100	100	100	100	100	100	100

Source: derived from data supplied by Australian Bureau of Statistics (ABS 1966-2013)



Table 3. Top six countries of birth for migrants, by year and percentage (in proportion of total population)

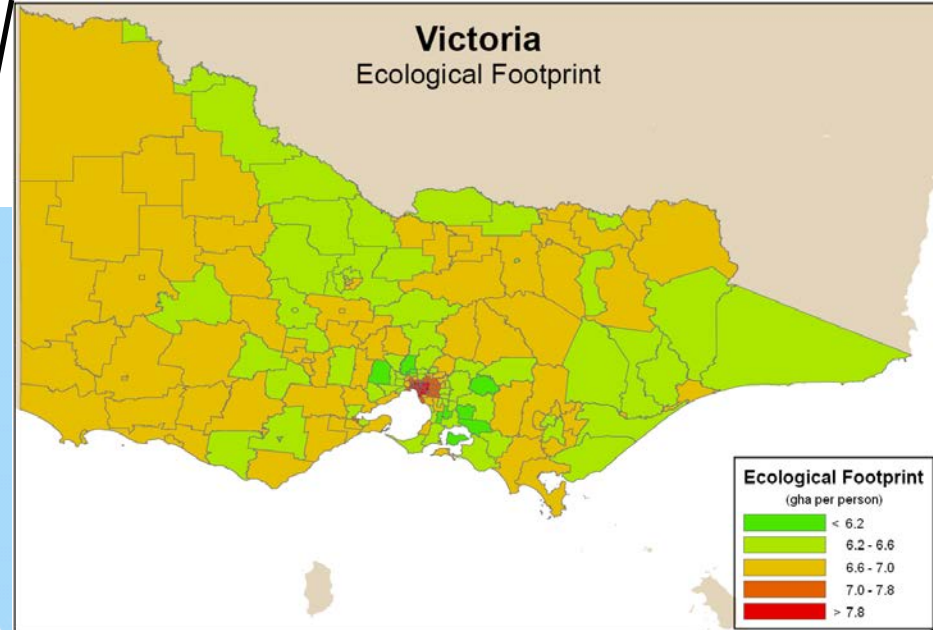
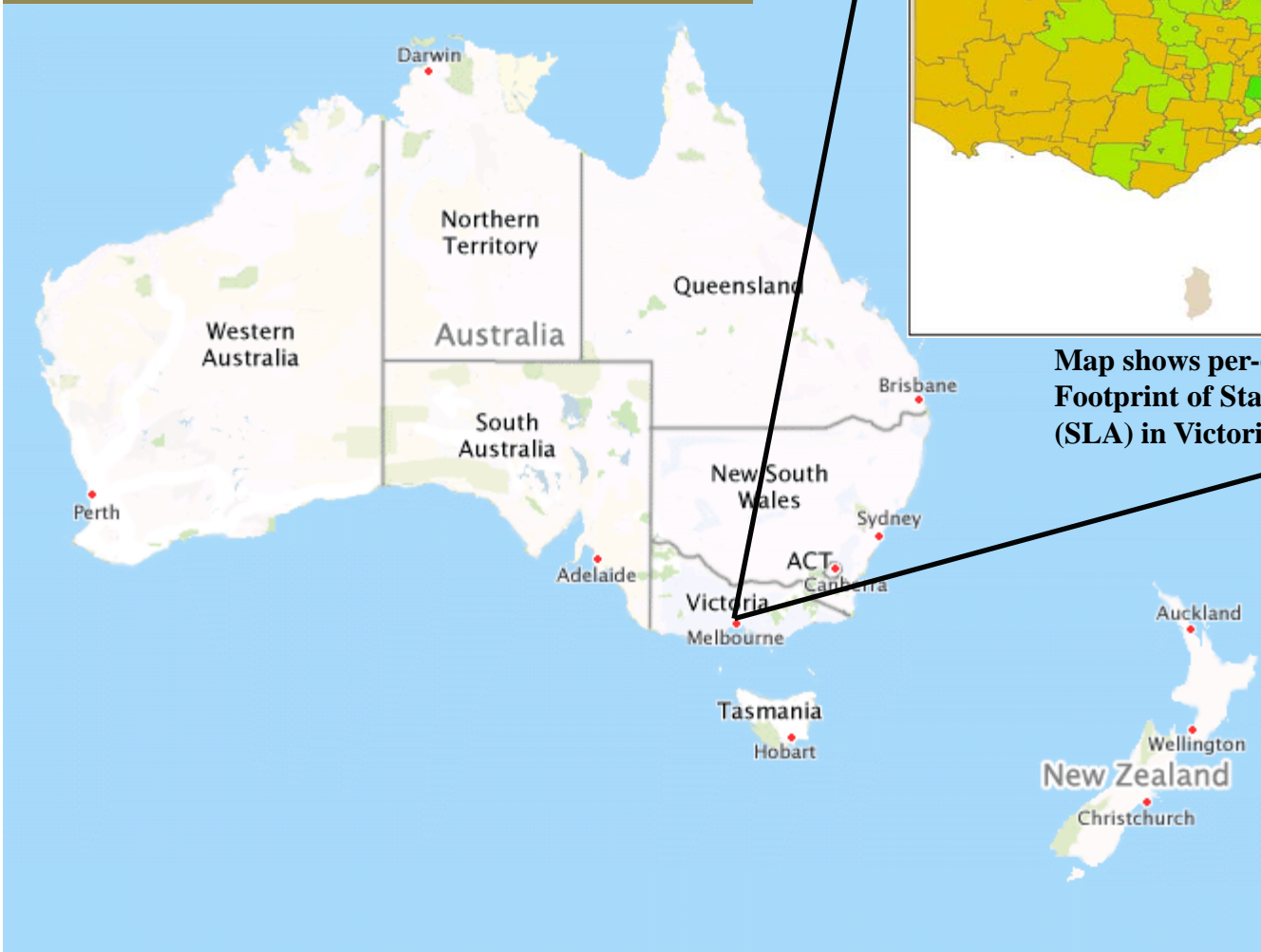
1966	1971	1981	1991	1996	2001	2006	2011
England 5.3	England 6.6	United Kingdom 5.6	United Kingdom 6.6	United Kingdom 6.0	United Kingdom 5.5	United Kingdom 5.2	United Kingdom 5.1
Italy 2.1	Italy 2.3	Italy 1.7	New Zealand 1.6	New Zealand 1.6	New Zealand 1.9	New Zealand 2.0	New Zealand 2.2
Scotland 1.2	Greece 1.3	New Zealand 1.4	Italy 1.5	Italy 1.3	Italy 1.2	China 1.0	China 1.5
Greece 1.1	Scotland 1.3	Scotland 1.0	Yugoslavia 1.0	Vietnam 0.9	Vietnam 0.8	Italy 1.0	India 1.4
Germany 0.9	Germany 0.9	Yugoslavia 1.0	Greece 0.8	Greece 0.7	China ^b 0.8	Vietnam 0.8	Italy 0.9
Netherlands 0.8	Netherlands 0.8	Greece 0.9	Italy & Vietnam 0.7	China 0.6	Greece 0.6	India 0.7	Vietnam 0.9

Note: a. United Kingdom includes England, Scotland, Wales, Northern Ireland, Channel islands, Isle of Man, and United Kingdom, not further defined b. China (excludes SARs and Taiwan Province)

Source: Australia Bureau of Statistics

Location of sample area

Map of Australia and its capital cities ^a



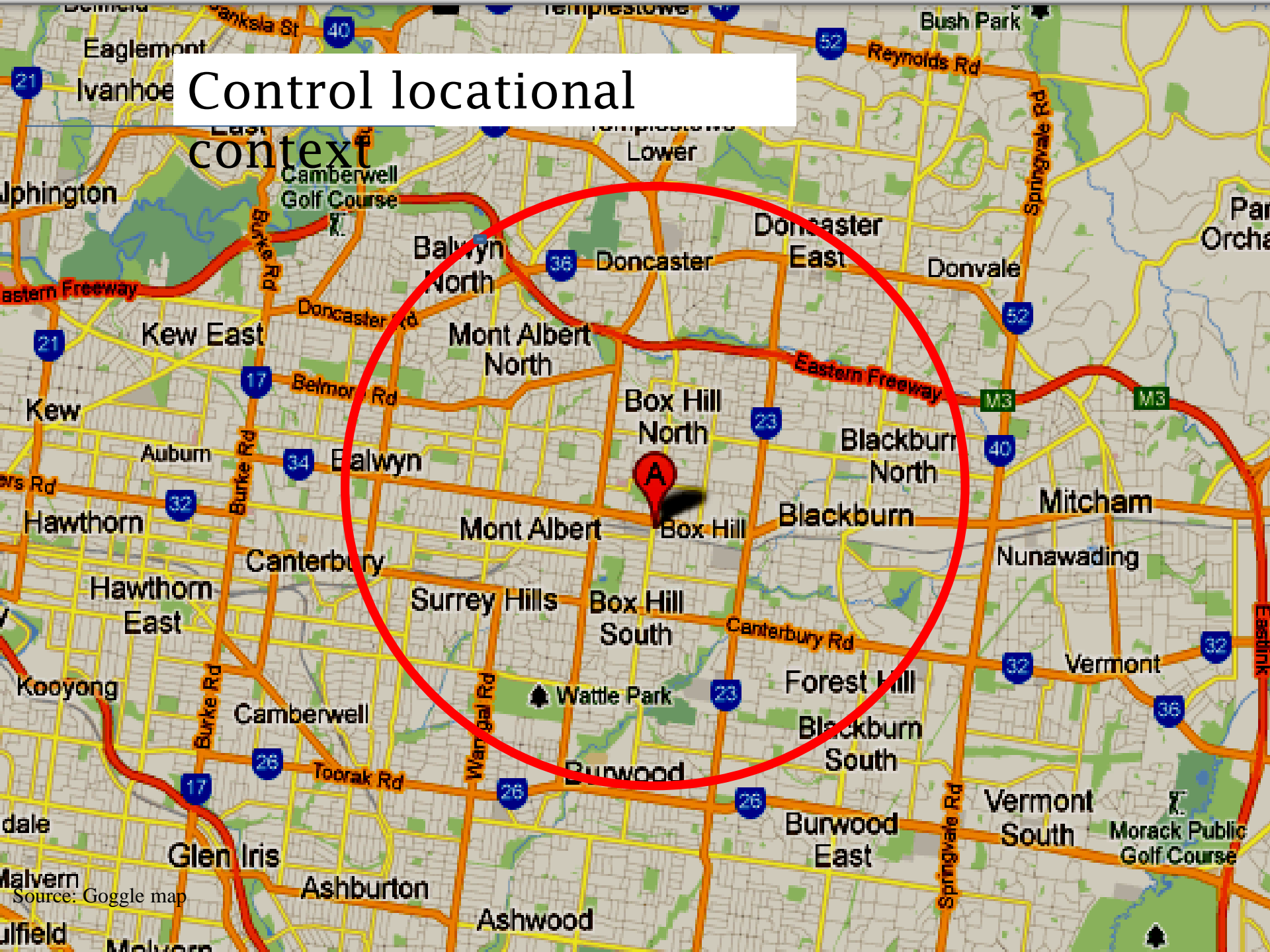
Map shows per-capita Ecological Footprint of Statistical Local Areas (SLA) in Victoria ^b

Sources: ^a http://www.street-directory.com.au/sd_new/home.cgi

^b Wiedman et al 2011



Control locational context



Source: Goggle map

Demographics of study area and sample area

- Sample size: 72 Australia-born and 61 China-born participants

Table 4: Comparison of percentage of male and female between study area and sample area

Gender	Study area ^a (%)	Sample area (%)	Australia-born (%)	China-born (%)
Male	44	29	35	22
Female	56	71	65	78
Total %	100	100	100	100

Table 5: Comparison of percentage of age groups between study area and sample area

Age group	Study area ^a (%)	Sample area (%)	Australia-born (%)	China-born (%)
18-44	47	44	41	48
45-64	33	34	32	35
65 and over	20	22	27	17
Total %	100	100	100	100

Note: ^a Percentage calculated based on Australian Bureau of Statistics (2006)





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dicksmith.com.au



Harvey Norman

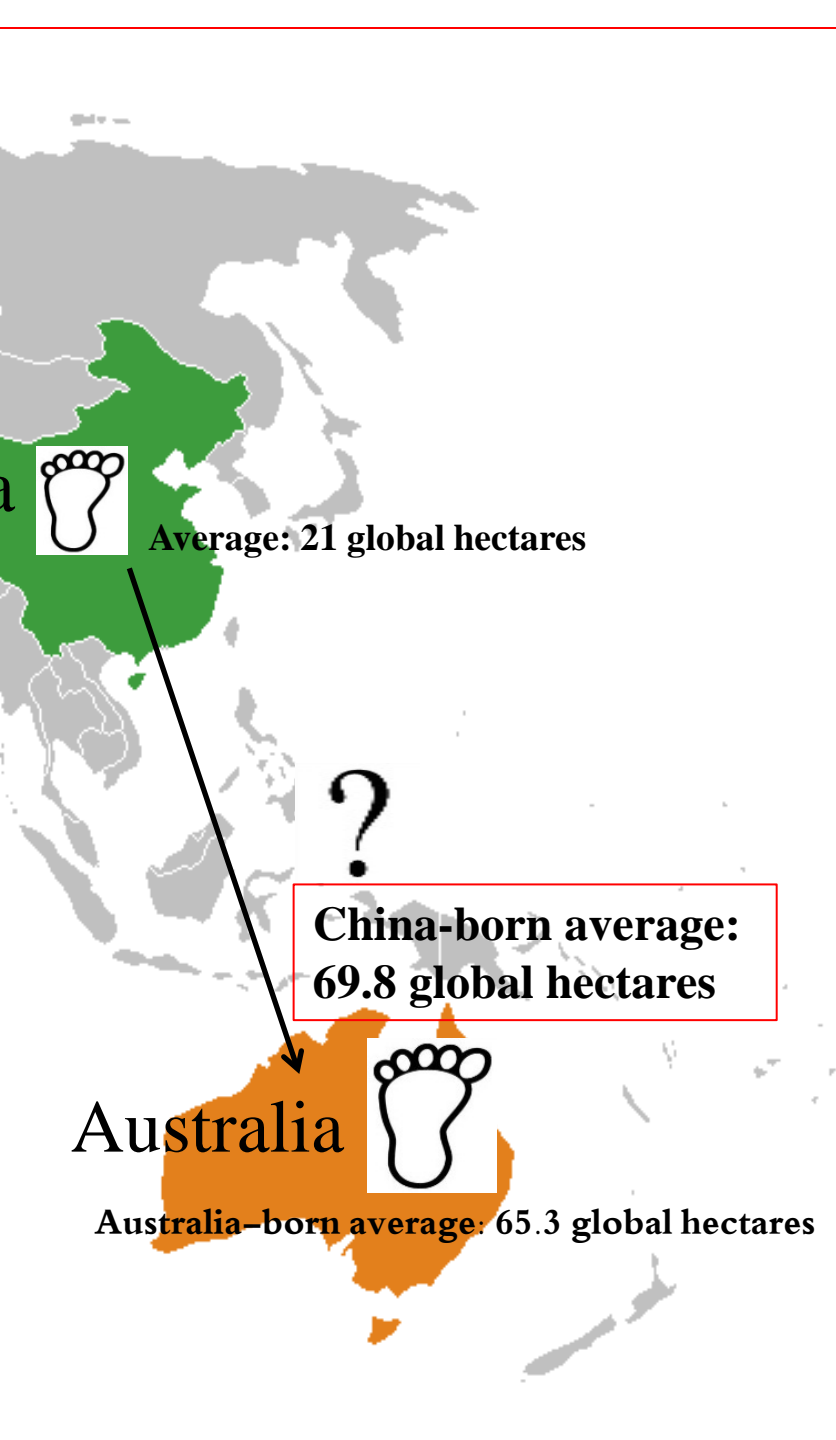
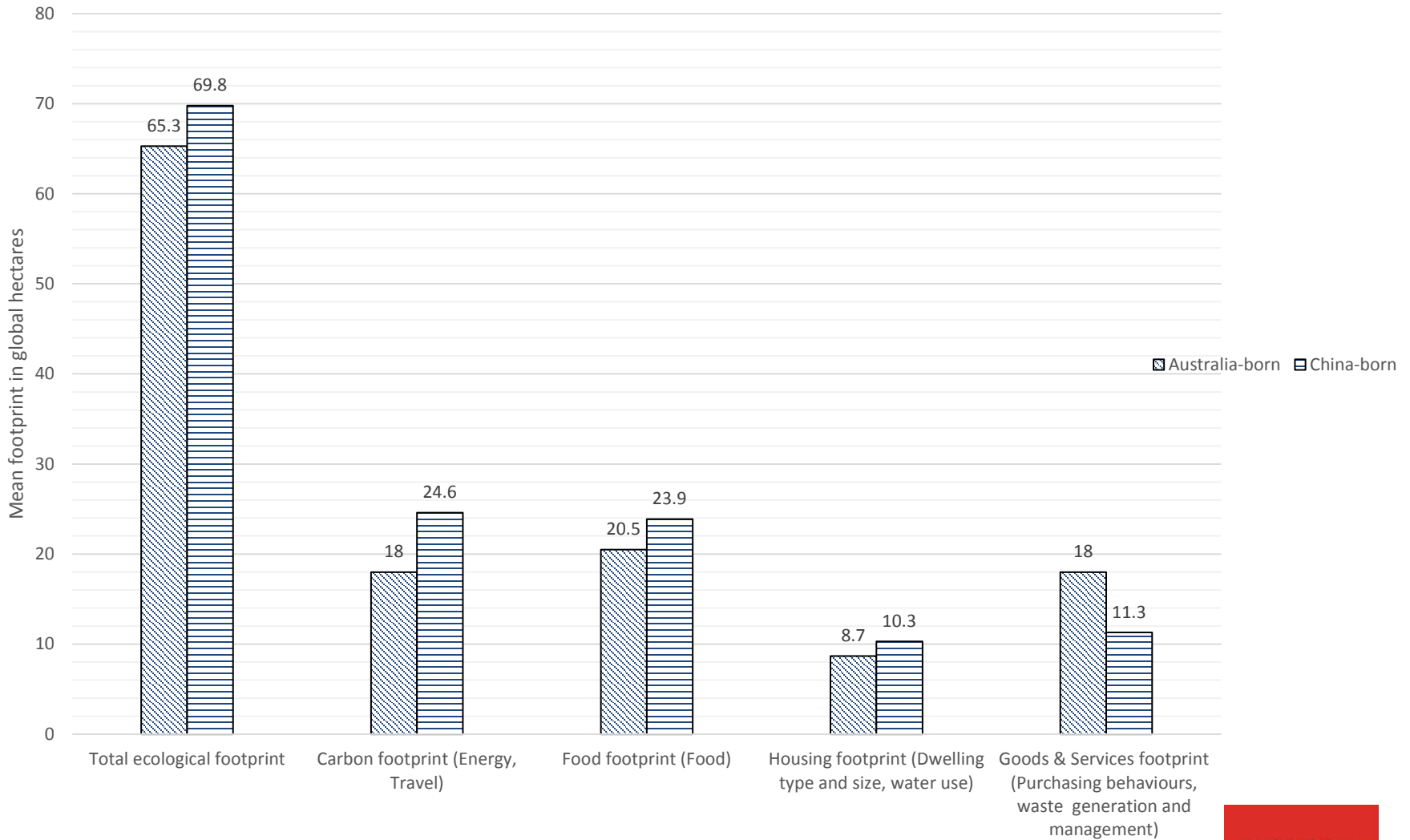


Figure 3: Mean of four footprint components and total ecological footprint of China- and Australia-born groups



Total ecological footprint and the four components of footprint



Adoption of resource-efficient technologies

Resource-efficient Technologies Index (REI):

❖ Comprise 11 items – examples in term of energy:

- Home insulation
- Solar photovoltaic (PV) panels & solar hot water
- Slow-flow shower heads

'Yes' = 1

'No' = 0

Figure 4: Resource-efficient Technologies Index (REI) score of China- and Australia-born groups

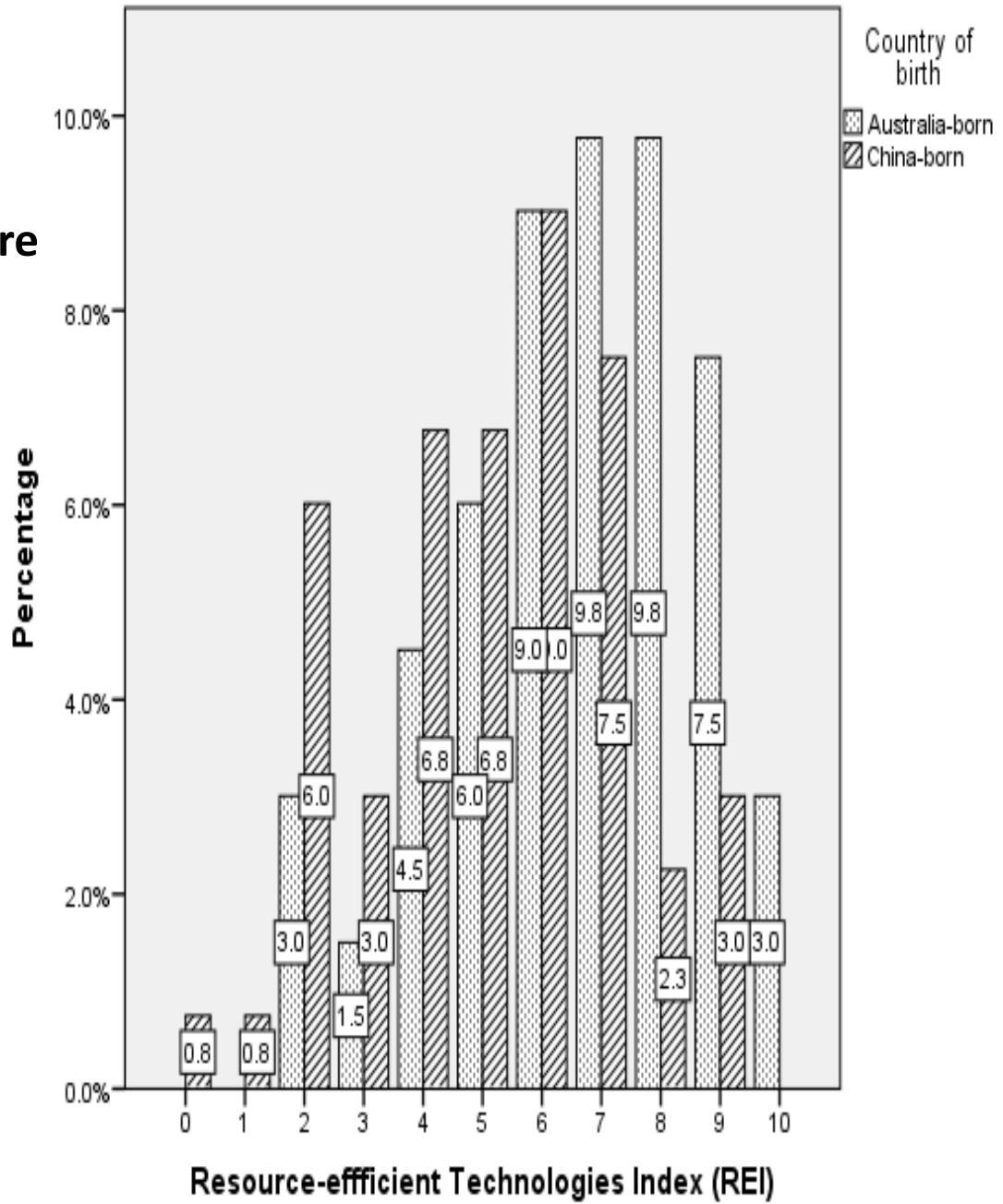
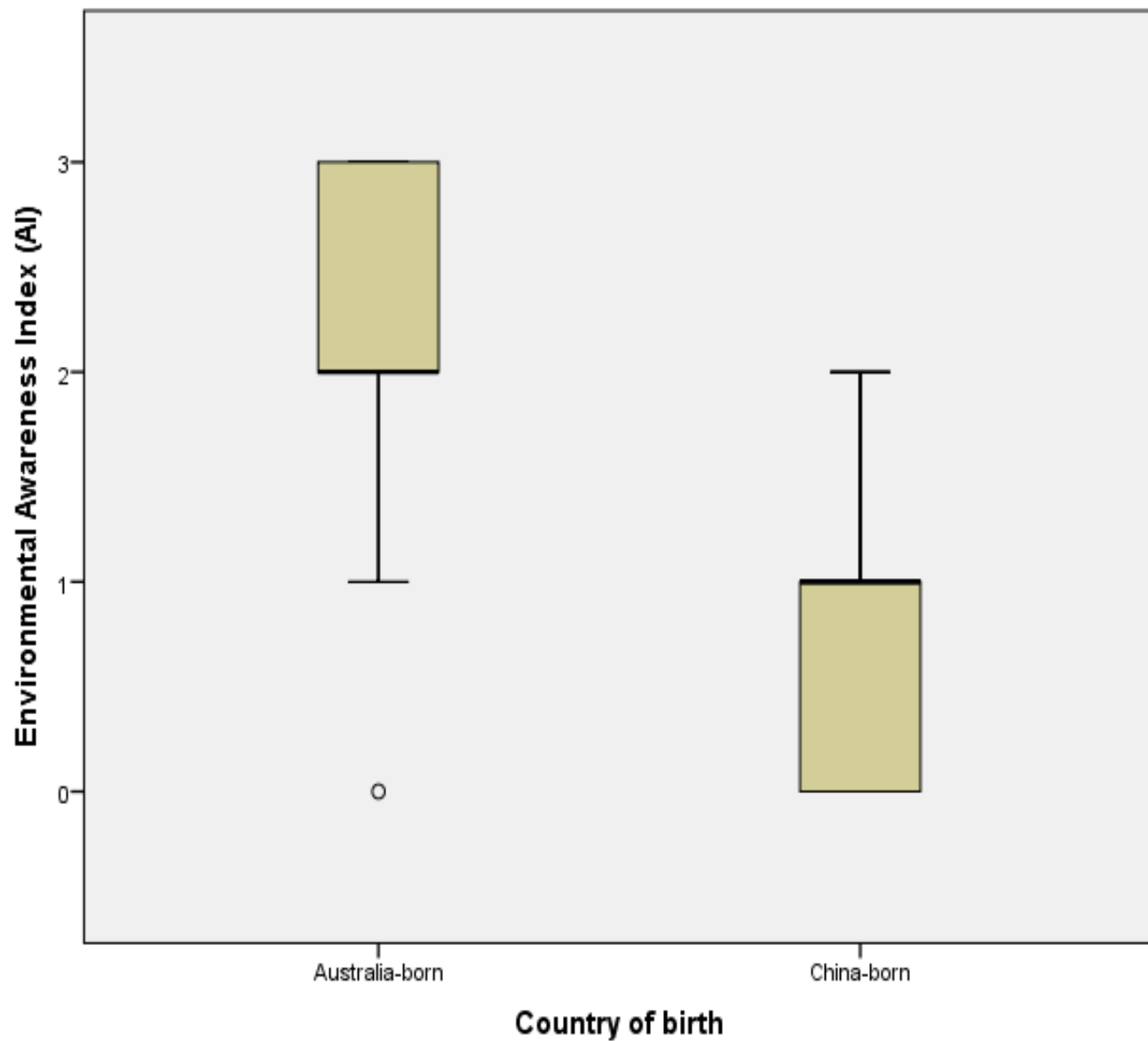


Figure 5: Box plot for scores of Environmental Awareness Index (AI) among China- and Australia-born groups



Note: 1. 'o' indicates an outlier, which is more than 1.5 box-lengths from the edge of the box.

Why the China-born group installed few resource-efficient technologies and low environmental awareness?

- ❖ Migrants ‘encounter new rules, ... understandings and requirements for practical knowledge’ (Maller 2011, p.249)
- ❖ Which may result in their ignorance or lack of knowledge of the host society’s regulations and opportunities to adopt resource-efficient technologies
- ❖ These technologies can aid in reducing their resource consumption and CO₂ emissions.
- ❖ Lack of awareness and knowledge of their adopted country and its environment
- ❖ It is necessary for migrants to acquire knowledge of their new environment, and about the availability of resource-efficient technologies.

The CALD Index

- The adoption in this research is due to the unique reference to the ‘culturally and linguistically diverse’ (CALD) communities found in Australia today.

CALD Index = \sum Ethnicity + Language + Religion + Food + Festivals +
Social interactions + Cultural identity

- ❖ Ethnicity (country of birth) = Participant + Father + Mother
- ❖ Language = Language spoken at home + Spoken English proficiency
- ❖ Religion = Religious affiliation
- ❖ Food = Food preference
- ❖ Festivals = Participate in Australian cultural activities + community activities
- ❖ Social interaction = visit local library + Participate in local environmental activities
- ❖ Cultural identity = Relate to Australian culture and society

The CALD Index

- ❑ Score of '12' - strong connectedness with the host culture and '48' to Chinese culture
- ❑ The CALD Index measures 'individuals' connectedness with their ethnic culture.

Figure 6: Conceptual framework for exploring determinants of sustainable living and resource consumption among China- and Australia-born groups

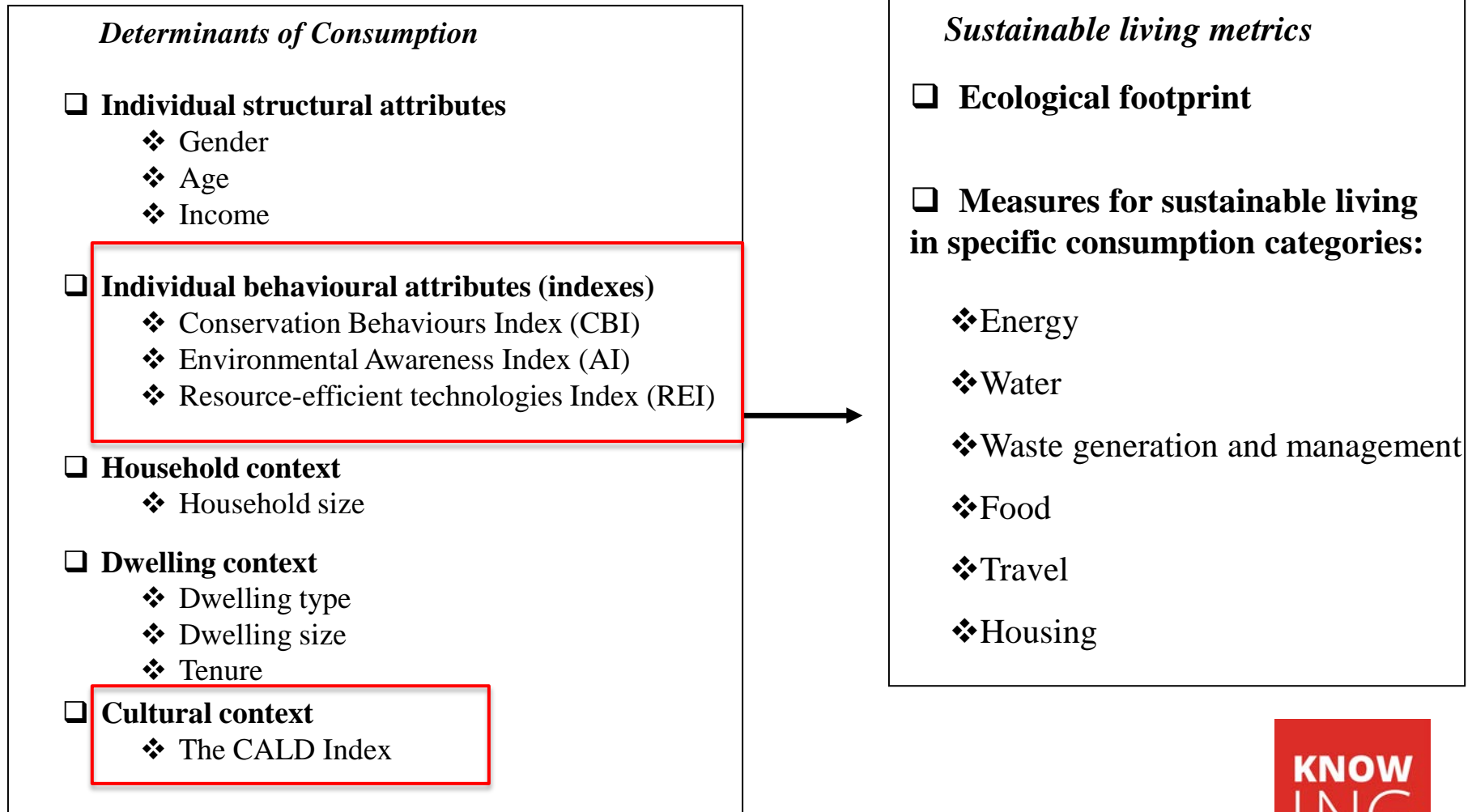


Table 6: Summary of relative strength of the predictors (Beta value) differentiating total ecological footprint measurements of China- and Australia-born groups

Total ecological footprint	Housing footprint	Carbon footprint	Good and Services footprint	Food footprint
Environmental Awareness Index (AI) (-0.314**)	Dwelling size (150 square meters or larger) (0.496***)	Environmental Awareness Index (AI) (-0.217*)	CALD Index (-0.484***)	Gender (Male) (0.307***)
Dwelling size (150 square meters or larger) (0.295**)	Environmental Awareness Index (AI) (-0.236**)	Resource-efficient Technologies Index (REI) (-0.201*)	Income (Low) (-0.295**)	Conservation Behaviours Index (CBI) (-0.254*)
Gender (Male) (0.196**)	Dwelling type (Detached dwelling) (0.227***)	Household size (-0.196**)	Environmental Awareness Index (AI) (-0.253**)	
Income (Low) (-0.192**)	Tenure (Home owner) (0.200**)	CALD Index ² (0.195*)		
Car ownership (0.192**)	Resource-efficient Technologies Index (REI) (-0.173**)	Car ownership (0.154*)		
Conservation Behaviours Index (CBI) (-0.189**)	Income ² (Low) (-0.170**)			
	CALD Index (0.167*)			
	Age ³ (45 years or older) (-0.136**)			
	Employment (Employed) (-0.130*)			

Discussion

- ❖ The China-born migrants' large Housing and Carbon footprints are also due to their acquisitions of energy-intensive possessions such as large and detached homes and car
- ❖ Adoptions of Australia's affluent lifestyle.
- ❖ These possessions are also symbolic of the migrants' financial ability to maintain aspects of the Chinese culture such as '*mien-tzu*' (saving face) and 'Chinese materialism' and to demonstrate their success in another country.
- ❖ These consumption behaviours illustrate their bicultural consumerism.
- ❖ Consumption behaviours are thus culturally-linked.
- ❖ A great deal of effort is required to alter these behaviours (Cogoy 1999).
- ❖ These findings demonstrate that it will be necessary to consider differences in the strength of ties with ethnic cultures along with socio-economic status and demographics of migrants from different ethnic groups.

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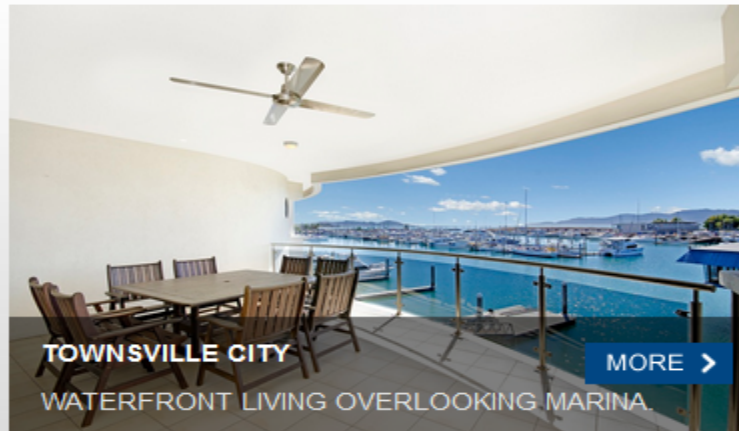
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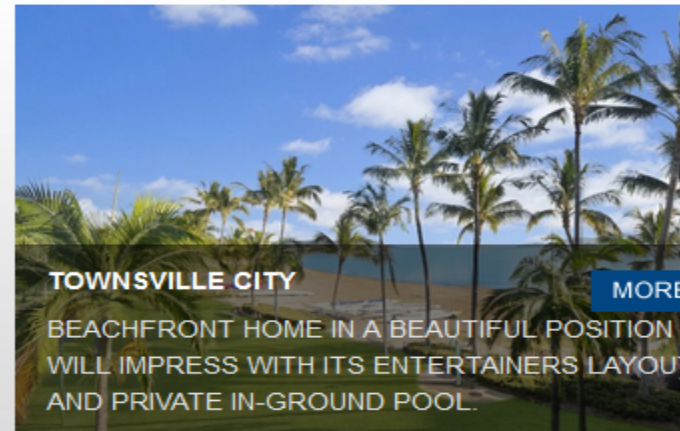
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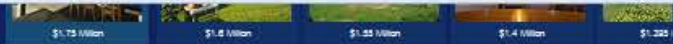
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Reference: 10215 Agent: Steve Wilshire

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Conclusion

- ❖ For government and service providers to encourage behavioural change that leads to sustainable living and climate change adaptation, there is a need to implement policies and regulations that encourage population groups
 - To reduce their GHG emissions
 - Such as adopting resource-efficient technologies
 - Have more awareness of the country's environment and the potential impacts of climate change on the environment and how these impacts may affect them
- ❖ These interventions must take into consideration both ethnic and host cultures
- ❖ And the interplay between individuals' retention of their ethnic culture and adoption of the host culture

Thank you

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