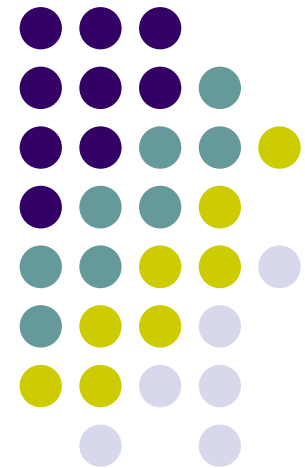


Urban Development and Climate Mitigation Imperatives



NUI MAYNOOTH
Ollscoil na hÉireann Má Nuad

Brendan Gleeson
SUME
Vienna
April 2011



Central Propositions

- ***Global warming is a manifest and rapidly unfolding emergency***
- ***Mitigation requires a massive immediate cut in emissions***
- ***Warming is a crisis of overproduction not overconsumption***
- ***The underlying problem and therefore brake on solutions is an economic system hard wired to growth***
- ***Reducing or greening consumption runs counter to fundamental economic forces (valorisation – expansion) and raises equity risks (whose consumption?)***
- ***Ecological modernisation (decoupling economic growth from material use) has not worked and will not work***
- ***The solution is crisis: massive rationing as prelude to new economic dispensation***

Urban propositions

- ***Built environment change is slow and contested***
- ***Even if planning could effect rapid change, it is unlikely that this would reduce energy consumption at the scale needed***
- ***The relationship between energy use and urban morphology is complex, multivalent and context dependent***
- ***The main greenhouse problem is the energy embodied in (and indirectly consumed through) goods and services***
- ***Planning is not a frontline mechanism for mitigation***
- ***It **is** a frontline mechanism for adaptation – in quest for urban resilience***

*'Good cities, in which humanity and nature, resilience and evolution
work together, are possible. This book should be read by
everyone who cares about our urban future.'*
JULIANNE SCHULTZ

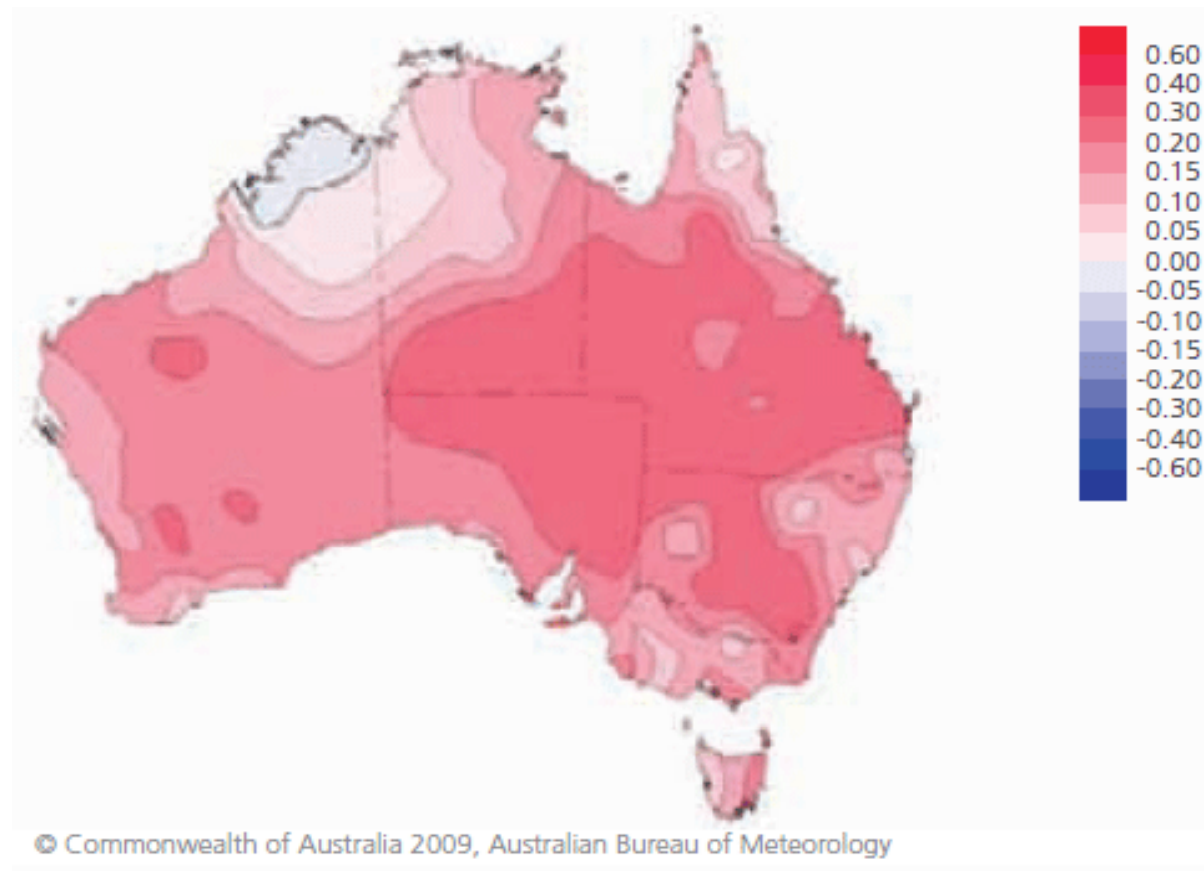
A red lifeboat with white rope is centered on a background of a city skyline. The lifeboat is a bright red ring with white rope laced through it. The background is a textured, sepia-toned image of a city skyline with various skyscrapers.

LIFEBOAT CITIES

BRENDAN GLEESON

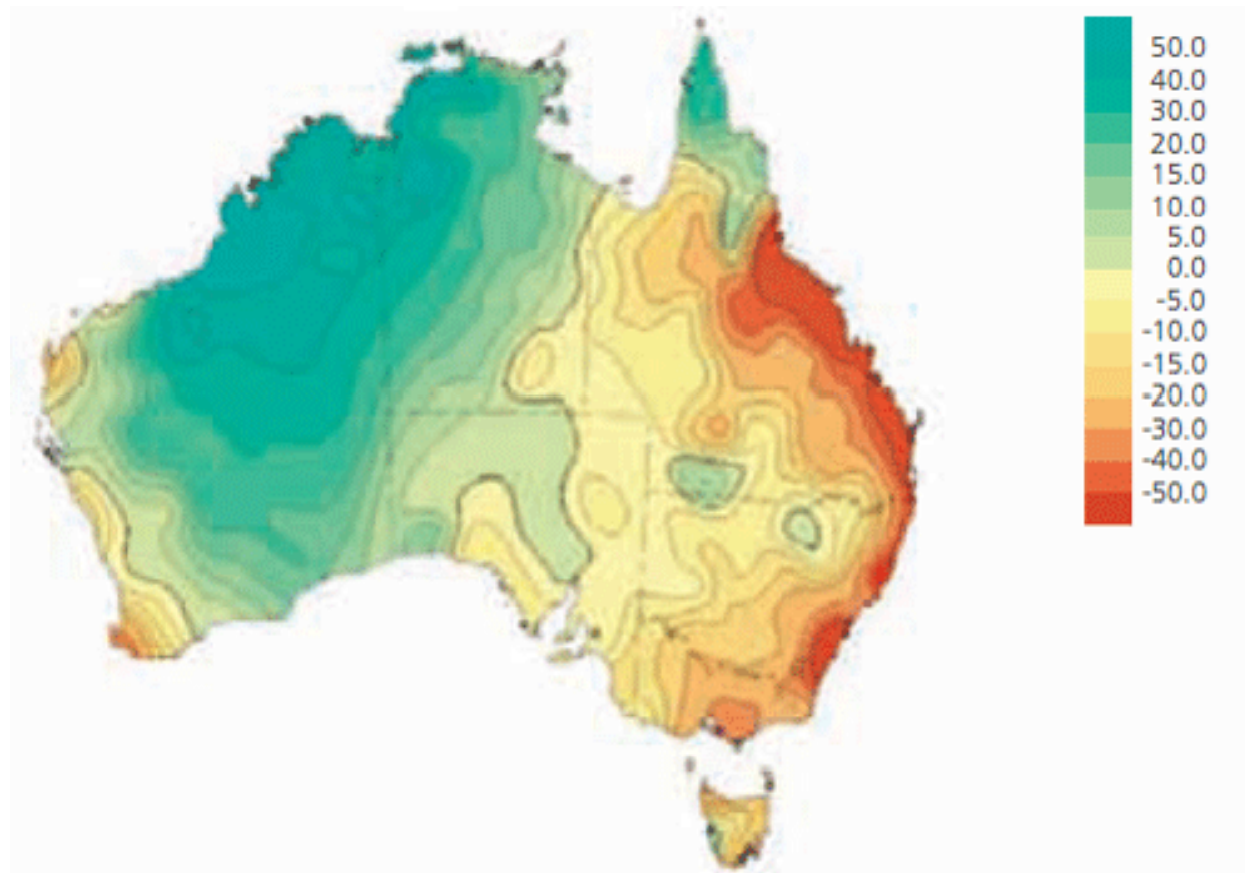


A warming continent...



Trend in annual mean temperature, 1950 - 2008, C per decade

Rainfall variable and shifting



© Commonwealth of Australia 2009, Australian Bureau of Meteorology

Trend in annual total rainfall, 1950 - 2009, mm per decade



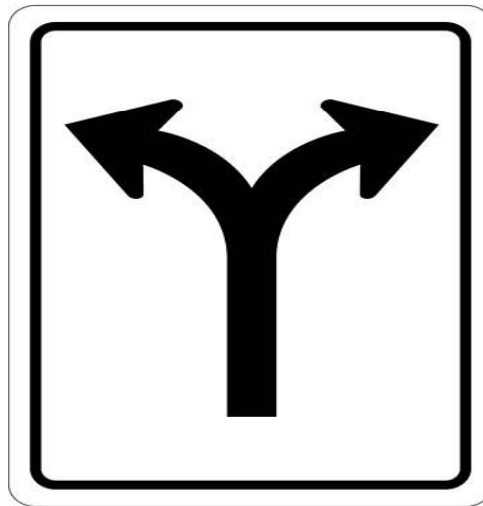
A Crisis of Overproduction?

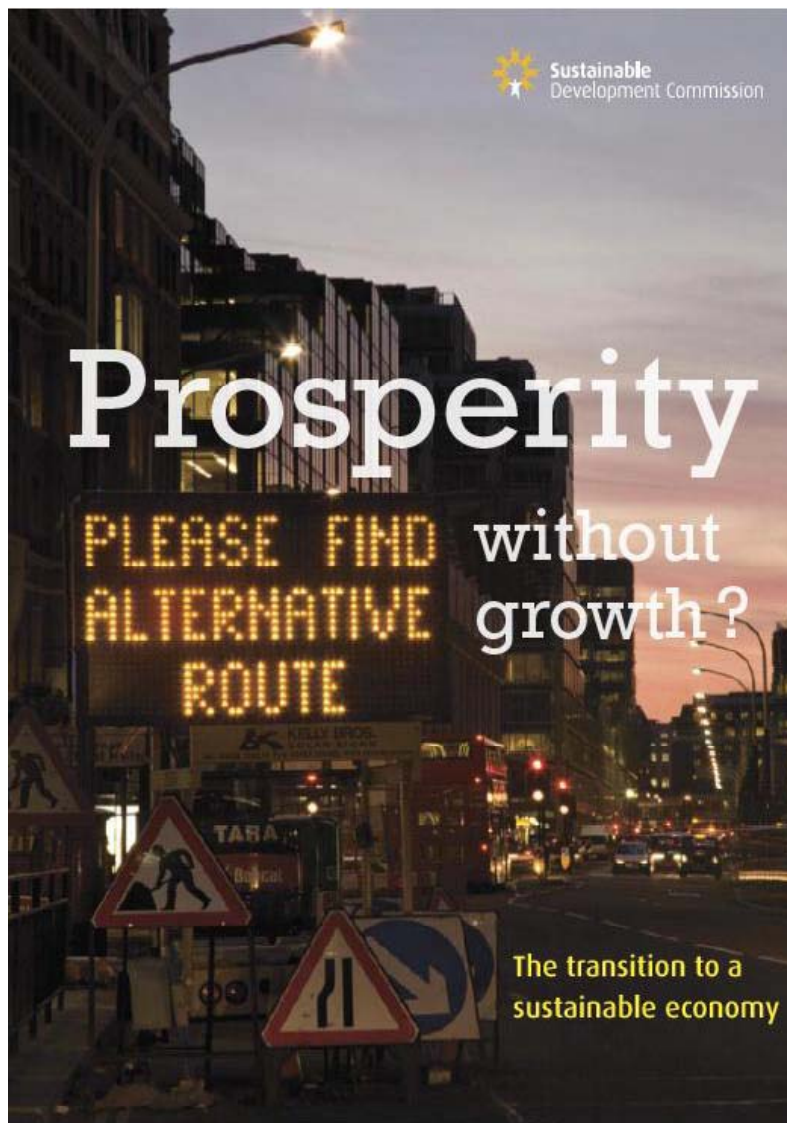




BUY
MORE
SHIT
OR
WE'RE
ALL
FUCKED

Decoupling to the Rescue?





Prof Tim Jackson
Surrey University

Economics
Commissioner

UK SDC

March 2009

Jackson: Decoupling is a Myth

Since 1970s, energy intensity has been declining for many materials

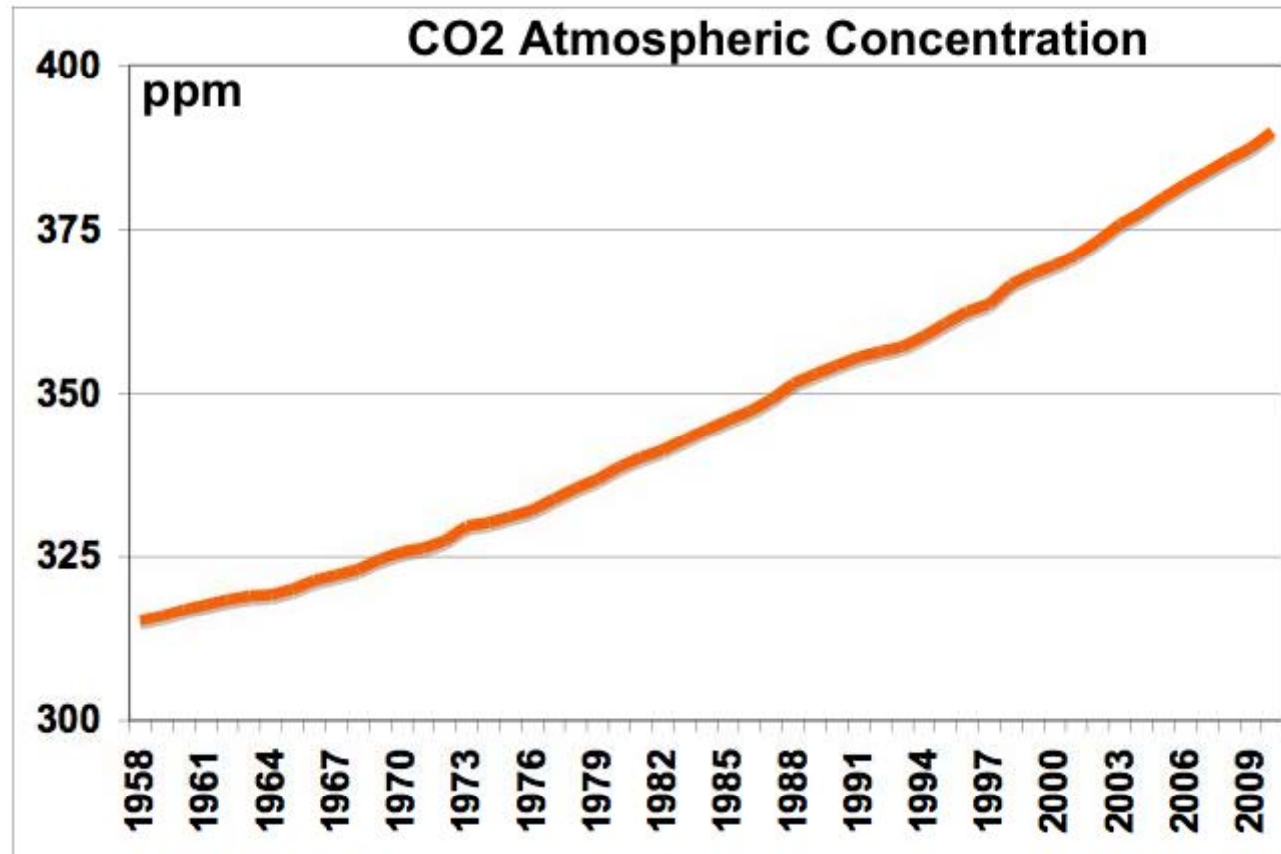
Why? Better technology, regulatory pressure, market pressure and declining supplies drive greater efficiency in energy use

ie relative decoupling occurring in many (but not all) resource areas

However...

- “The improvements in energy (and carbon) intensity...were offset by increases in the **scale** of economic activity over the same period”.
- Larger and larger world economy, more extensive and expanding markets driving massive increase in materials and energy use.
- Energy use and emissions rising not falling as required

CO2 Levels



Source: National Oceanic and Atmospheric Administration

What Can Planning Do?

Climate target is not radical enough - study | Environment | The Guardian - Windows Internet Explorer

http://www.guardian.co.uk/environment/2008/apr/07/climatechange.carbonemissions

ate target is guaranteed catastrophe

File Edit View Favorites Tools Help

guardian.co.uk

Search: guardian.co.uk Search


News Sport Comment Culture Business Money Life & style Travel Environment Blogs Jobs A-Z

Environment Carbon emissions

Climate target is not radical enough - study

Nasa scientist warns the world must urgently make huge CO2 reductions

Ed Pilkington in New York
The Guardian, Monday April 7 2008
Article history



Dr James Hansen. Photograph: AP Photos/The Daily Iowan/Melanie Patterson

The following correction was printed in the Guardian's Corrections and clarifications column, Thursday April 10 2008

The report about the need to reduce CO2 limits that James Hansen, head of the Nasa Goddard Institute for Space Studies in New York, co-authored with eight other climate scientists is posted on the arXiv.org website - not the Archive website as we said in the article below. This has been corrected.

One of the world's leading climate scientists warns today that the EU and its international partners must urgently rethink targets for cutting carbon dioxide in the atmosphere because of fears they have grossly underestimated the scale of the problem.

In a startling reappraisal of the threat, James Hansen, head of the Nasa

larger | smaller

Environment
Carbon emissions ·
Climate change

Science
Climate change

World news
United States

James Hansen NASA

10 years left for radical action

Massive cuts in emissions

Latest news on guardian.co.uk

Last updated less than one minute ago

News
'Vote Mugabe or you die'

Sport
Birmingham City shares suspended

Environment

Start

https://mail04....

(10 unread) Ya...

Climate targ...

https://mail04....

G:\

Microsoft Powe...

Internet

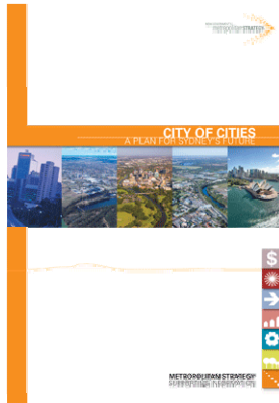
100%

15:01

The climate window: 10, 15, 20
years? For radical change

The planning horizon: 20, 25,
30 years for incremental
adjustments

Time Frame of Modest Action Typically 25-30 Years



**Sydney
Metropolitan
Strategy 2030**



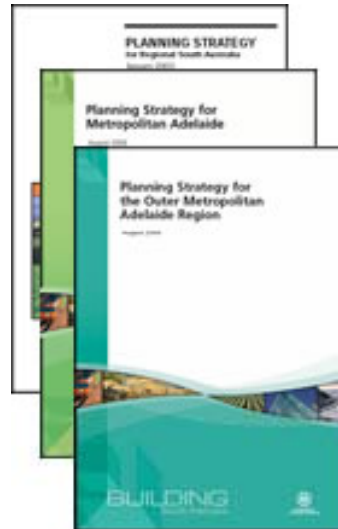
**Melbourne
2030**



**SEQ Plan
2026**



**Canberra
Spatial Plan
2034**

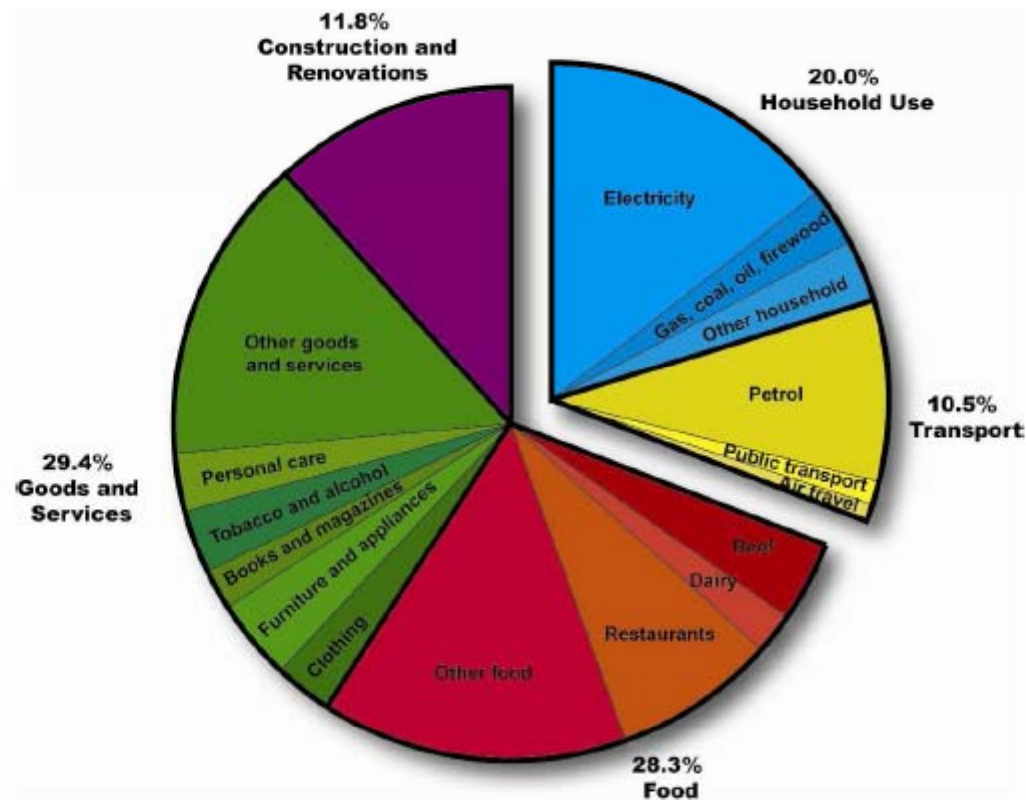


**Adelaide
Planning
Strategy 2022**



**Perth Network
City 2026**

Fig 1. Average household profile: greenhouse gas pollution



Household
energy
consumption

30% Direct

70% Indirect



AUSTRALIAN
CONSERVATION
FOUNDATION

CONSUMPTION ATLAS



Home

Greenhouse Pollution

Water Use

Eco-footprint

postcode: 4000

GO

or

state

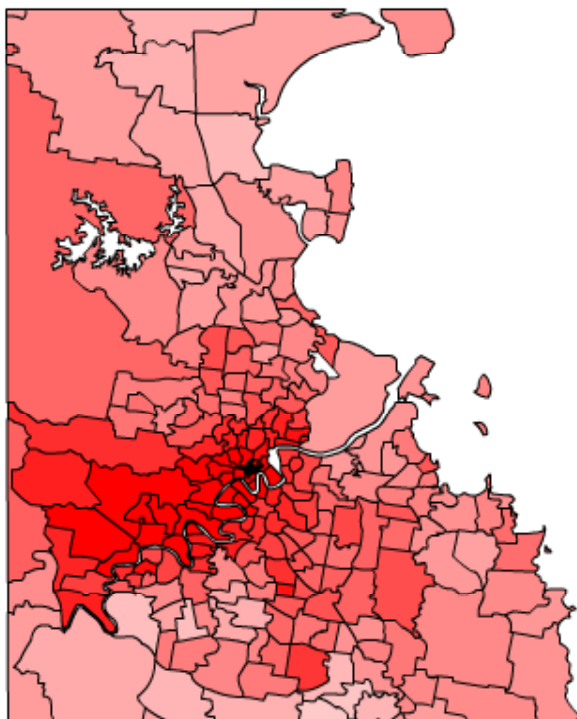


GREENHOUSE POLLUTION IN QUEENSLAND

Burning fossil fuels for energy accounts for most greenhouse pollution. This energy is used mainly in the production, transport and retail of our goods and services. The goods and services consumed by an average Australian create a total of nearly 19 tonnes of greenhouse pollution a year. That's about the same amount created by 9 round car trips from Perth to Melbourne.

The consumption patterns of households in Brisbane and surrounding areas account for the highest greenhouse pollution levels created by Queensland residents. Other greenhouse pollution hot spots include the Sunshine Coast and Surfers Paradise, as well as wealthier regional centres such as Toowoomba. Lower levels of consumption in the predominantly Aboriginal areas around the southern Gulf of Carpentaria, as well as in Hervey Bay and some western suburbs of Brisbane, such as Inala and Wacol, result in the lowest levels of greenhouse pollution. Overall, greenhouse pollution in the state is about 3% lower than the national per capita average.

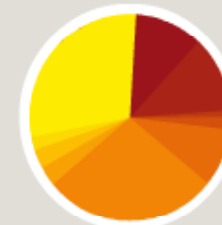
HOW DO
I RATE?



CONSUMPTION PROFILE

QLD Capital

What types of consumption are having the biggest impact in this area? Click on items below for more information.



Construction & renovations	11.5%	Food	28.2%
Electricity	12.8%	Clothing & fabrics	3.3%
Gas & firewood	1.6%	Furniture & appliances	3.3%
Other household operations	2.3%	Books & magazines	2.1%
Transport	9.0%	All other goods & services	25.3%

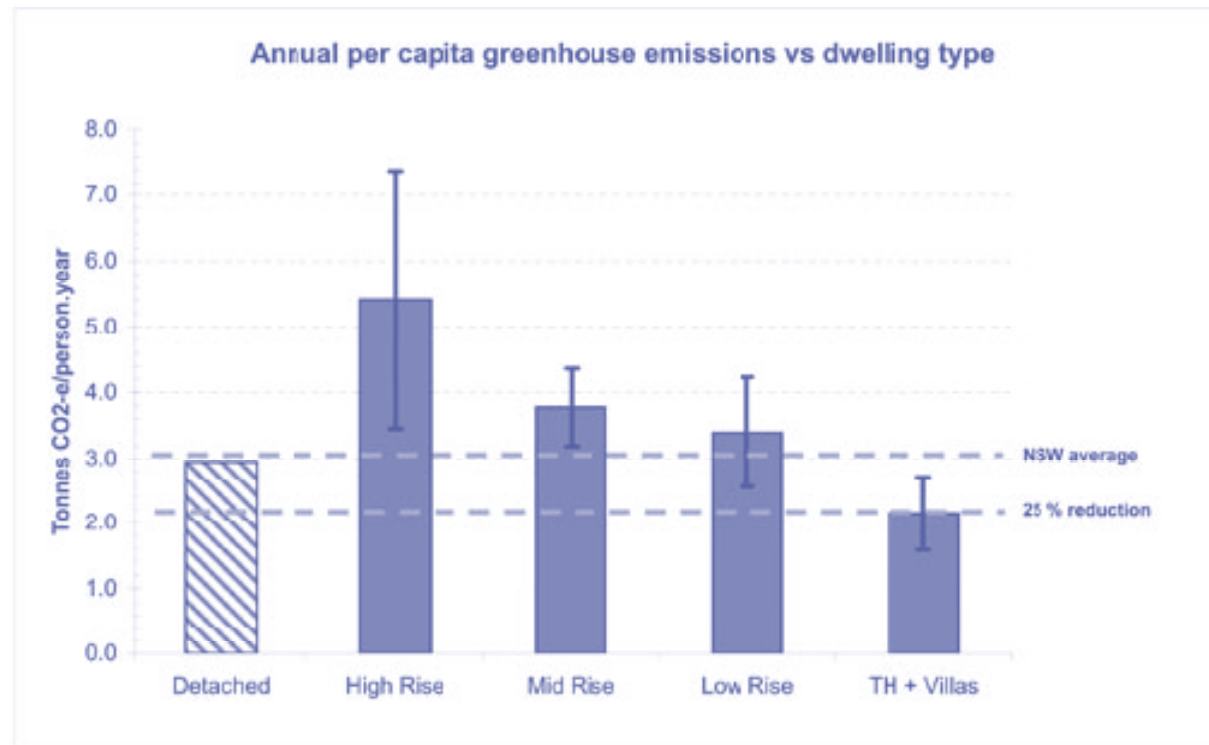
FAQ

- How does what I buy impact on the environment?
- Which products have the most impact?
- Who has the most impact?
- What can I do about it?
- What's the science behind the Consumption Atlas?

[View answer](#)
[View answer](#)
[View answer](#)
[View answer](#)
[View answer](#)

DID YOU KNOW?

Goods demand materials



Multi-Unit Residential Building Energy & Peak Demand Study
By Paul Myors, EnergyAustralia, with R. O'Leary and R. Helstroom, NSW Department of Planning (October 2005).

BRISBANE

Vulnerability Index for Petroleum Risks and
Expenditure (VIPER)

High vulnerability in:

Outer areas

Low socio-economic status areas

Areas with poor PT

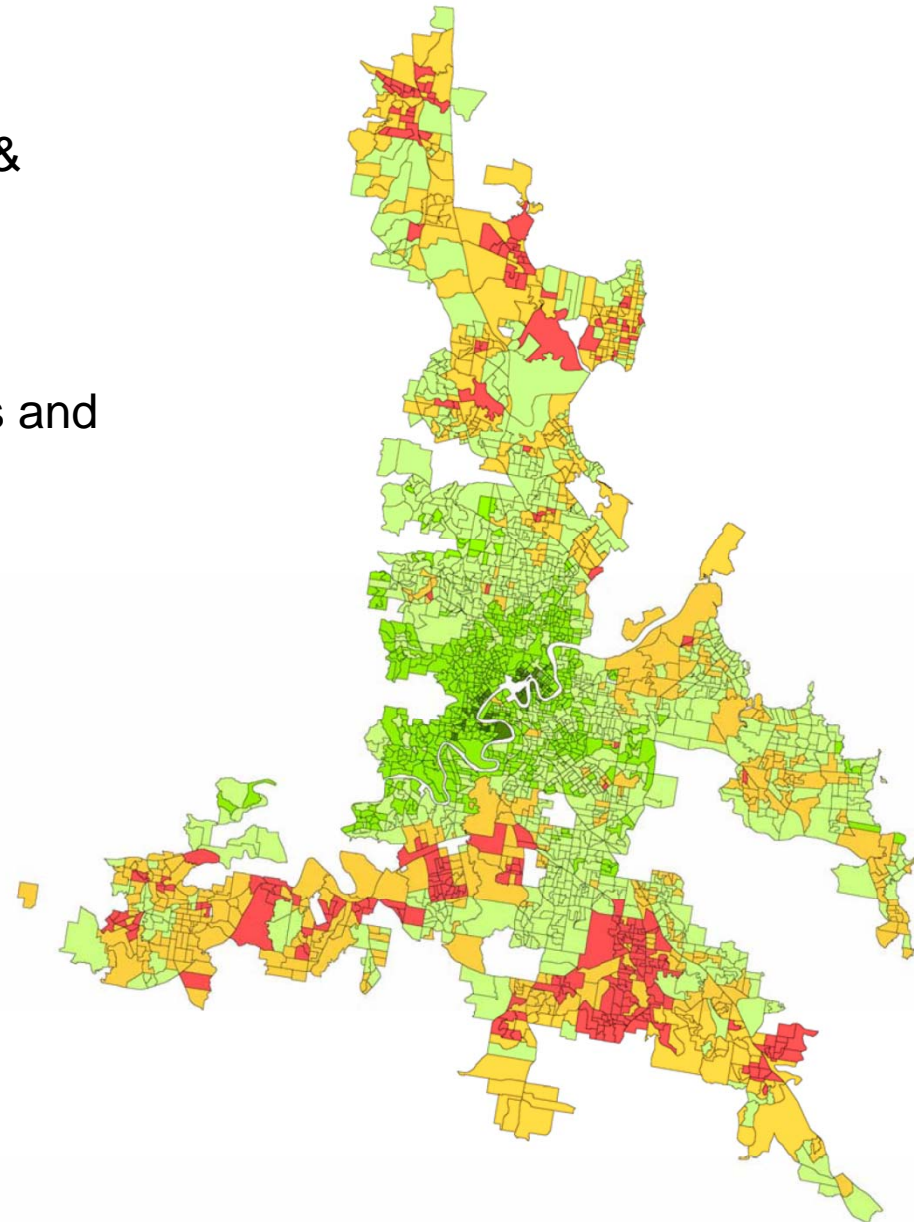
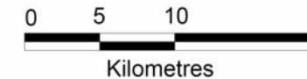
Low vulnerability in:

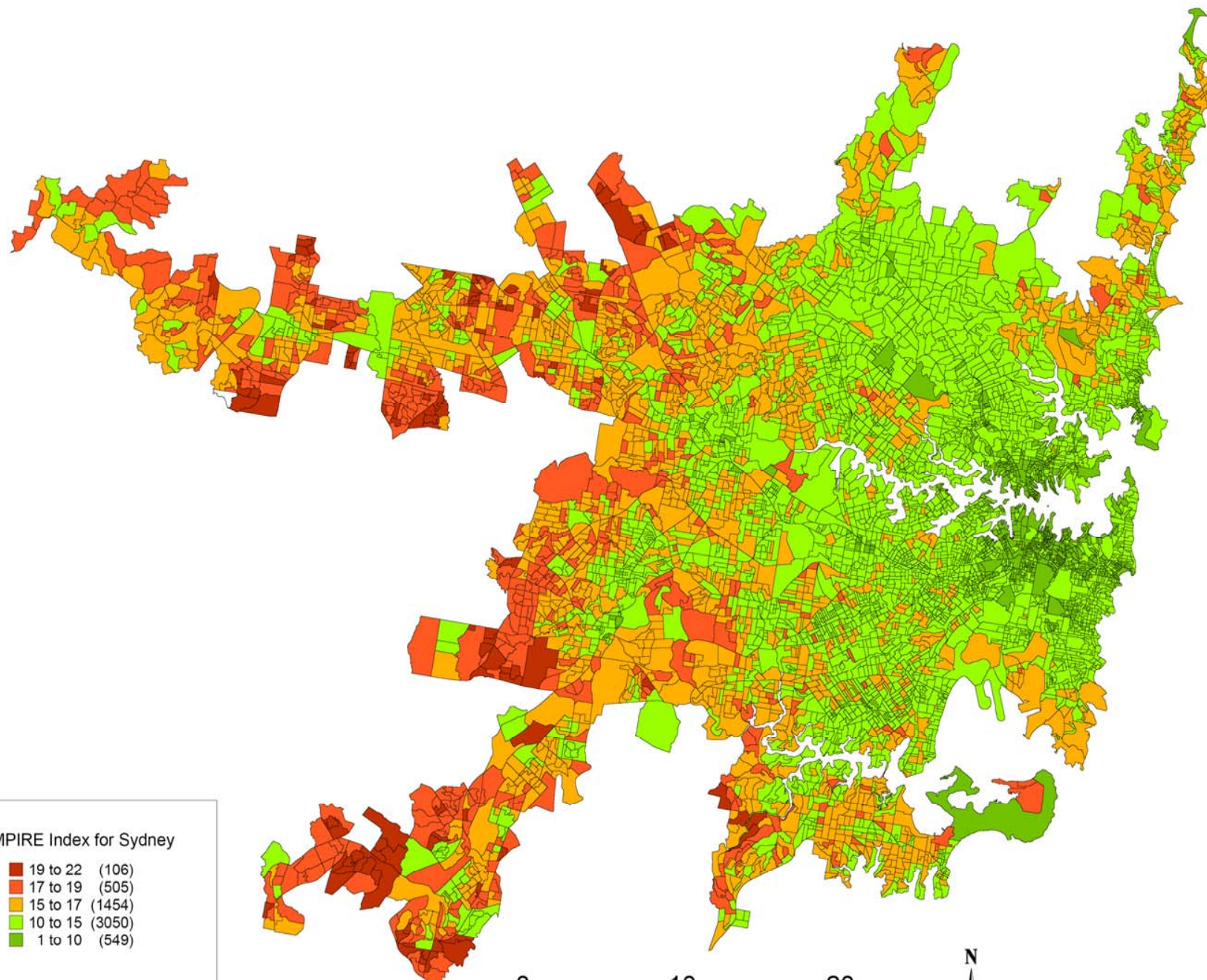
Inner areas

Higher socio-economic status areas

Better PT services

Oil Vulnerability Index for Brisbane





VAMPIRE Index for Sydney

19 to 22	(106)
17 to 19	(505)
15 to 17	(1454)
10 to 15	(3050)
1 to 10	(549)

0 10 20
kilometres



ELLEN DUNHAM-JONES AND JUNE WILLIAMSON

RETROFITTING URBAN DESIGN SOLUTIONS *for* REDESIGNING SUBURBS SUBURBIA





CSIRO SUSTAINABILITY NETWORK

Reprinted from the Newsletter of the
CSIRO Sustainability Network, Update
49, 31 March 2005 pp 1- 9. See:
www.bml.csiro.au/SNnewsletters.htm

Retrofitting the Suburbs for Sustainability

David Holmgren¹, co-originator with Bill Mollison of the Permaculture concept,² is an innovative environmental design consultant based at Hepburn Springs in central Victoria, where he maintains one of Australia's best-known permaculture demonstration sites. David has written several books, conducted numerous workshops and courses on sustainable living, and developed several properties himself using permaculture principles. The following feature is adapted from a public lecture given at the Aldinga Arts EcoVillage in Adelaide in January 2005. You can check David's website at: www.holmgren.com.au and contact him at: holmgren@netconnect.com.au.



The suburbs of our Australian cities have, in the main, become sterile wastelands, lacking in any true spirit of community, impoverished of local resources, and filled with fearful people whose daily efforts are focussed elsewhere. What has happened to the Australian "suburban dream"?



Late 2000's Permaculture Retrofit

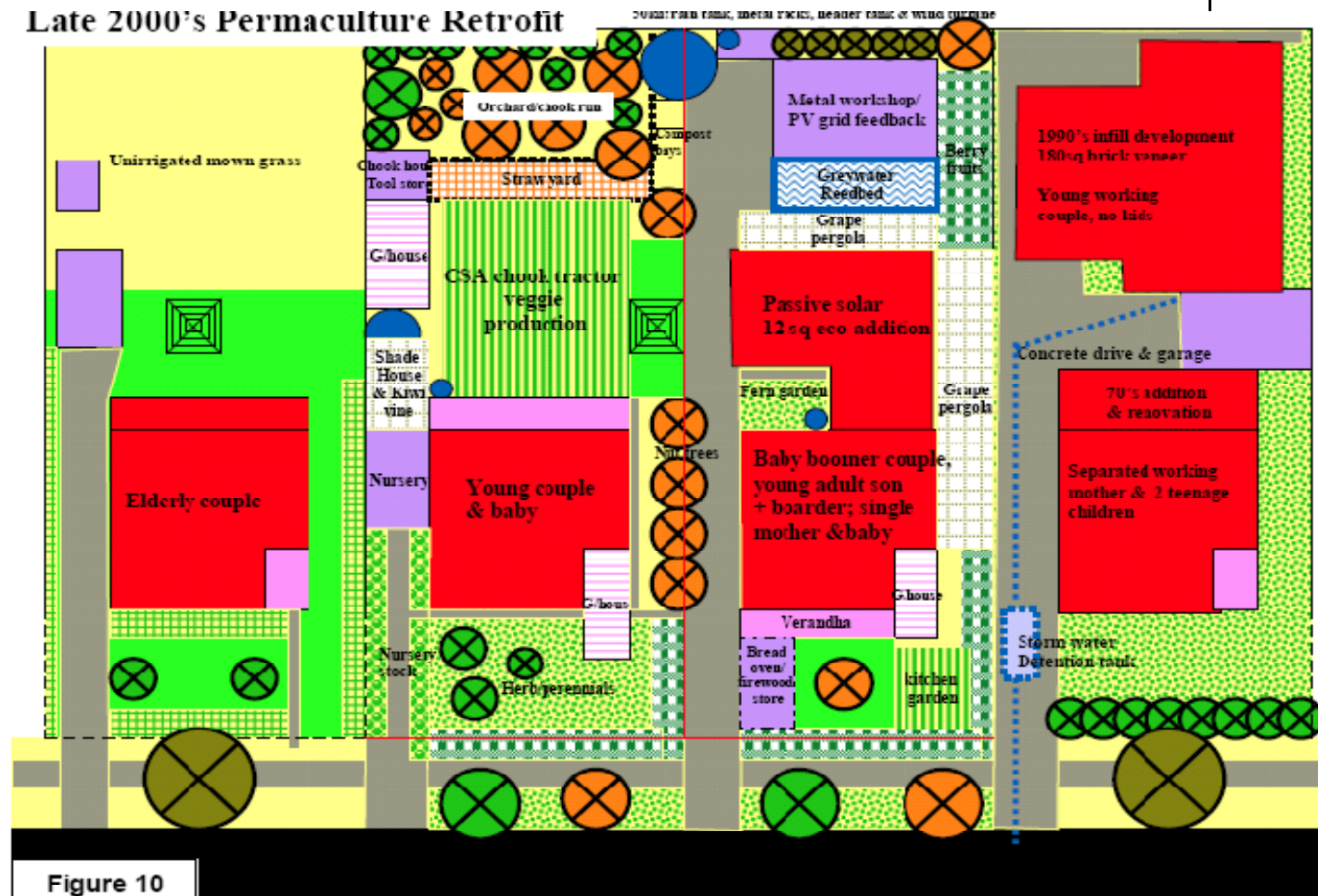


Figure 10

Nile Delta 2000

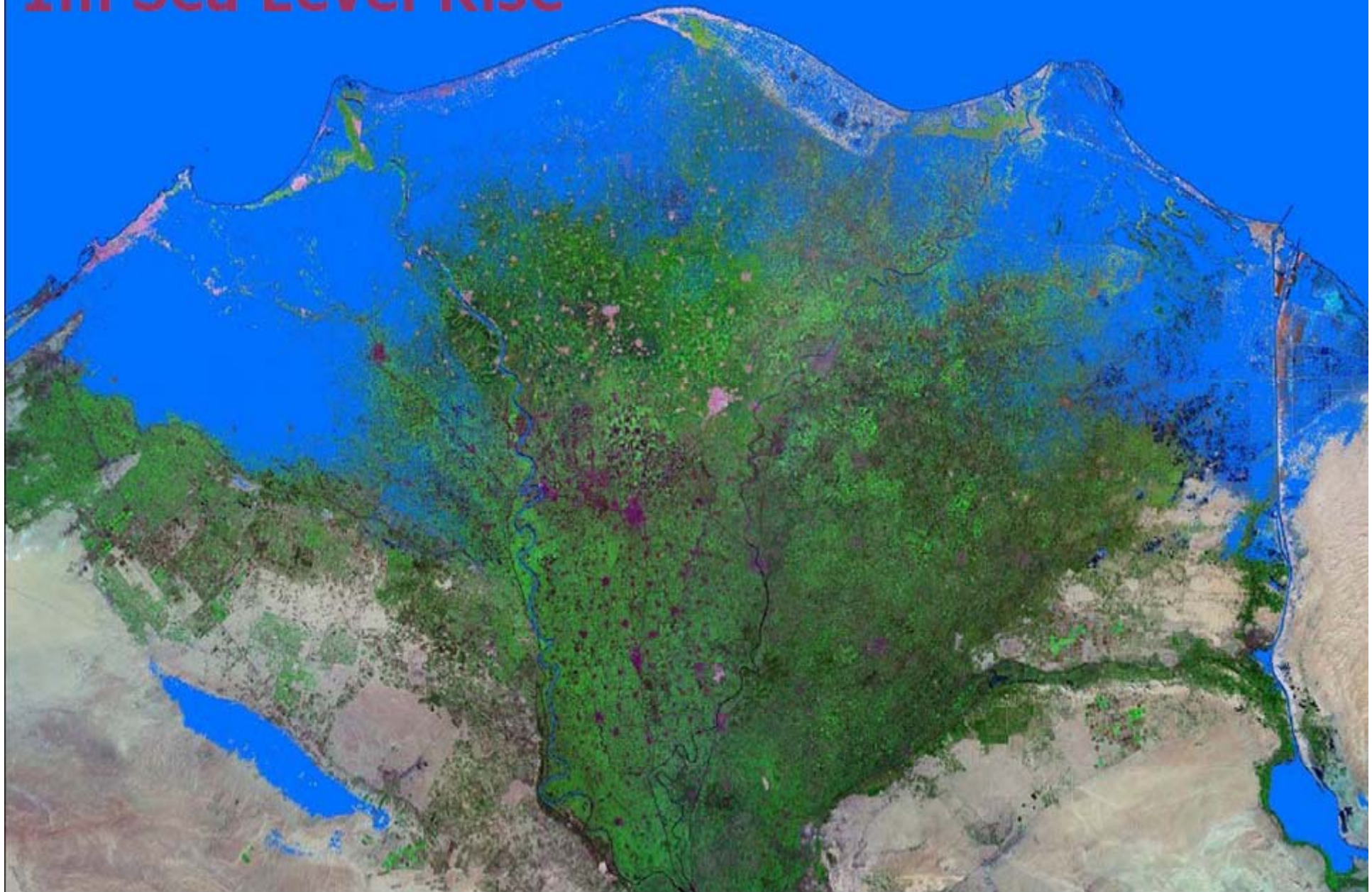
0 10 20 40 Kilometers



Nile Delta

1m Sea Level Rise

0 10 20 40 Kilometers



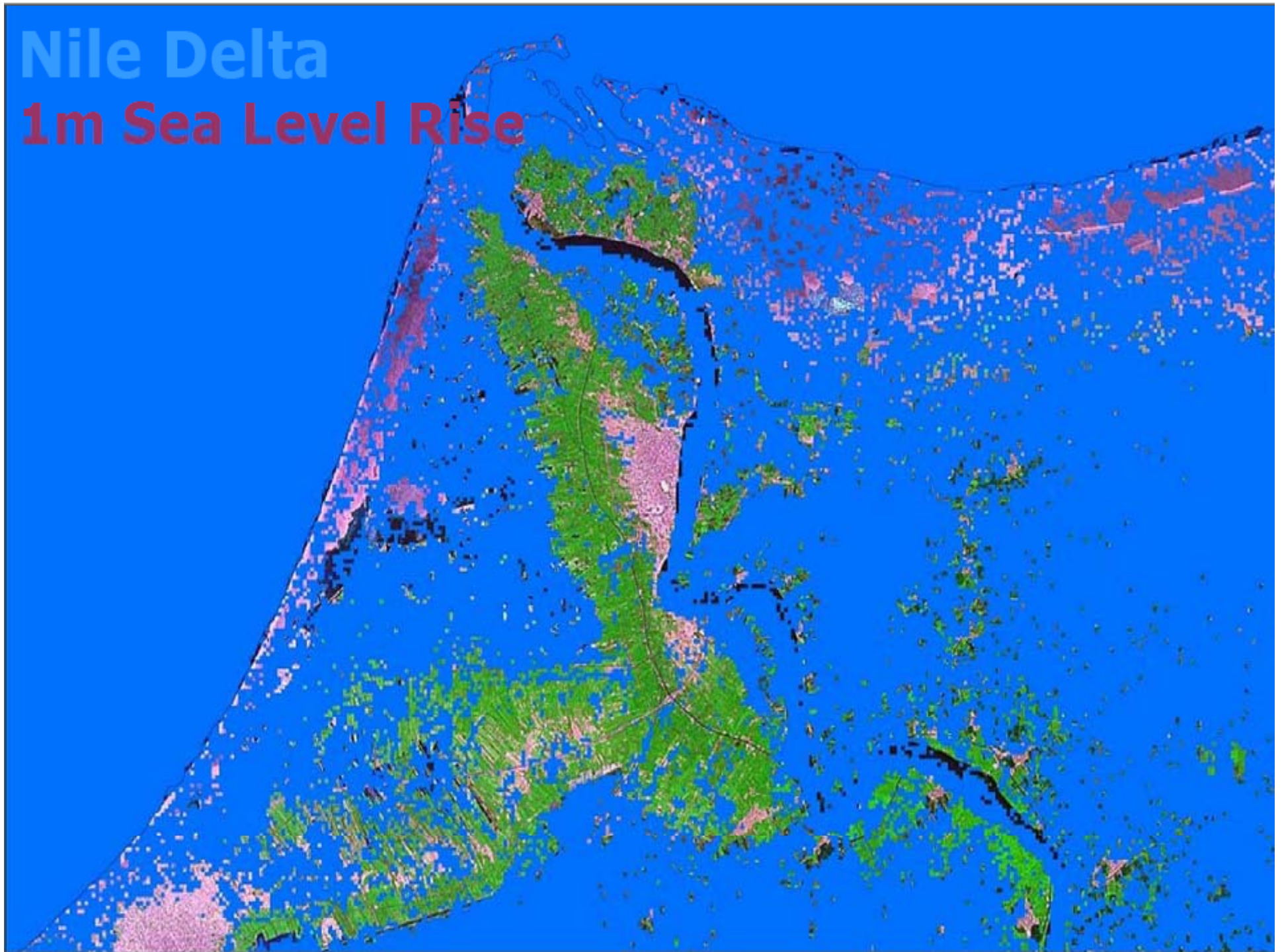
Nile Delta

2000

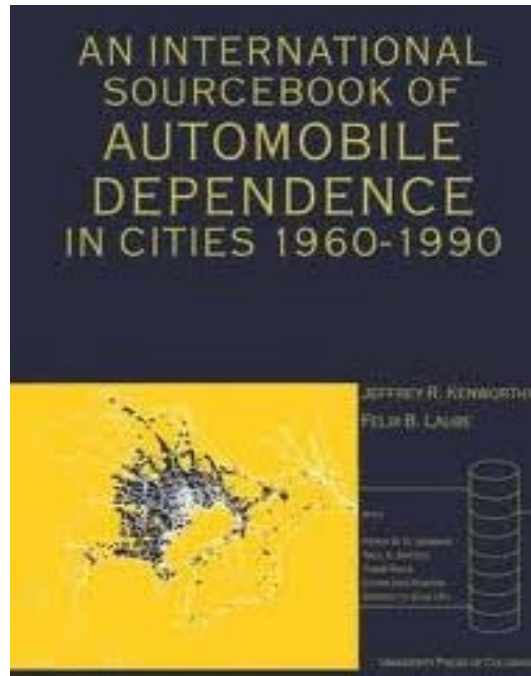


Nile Delta

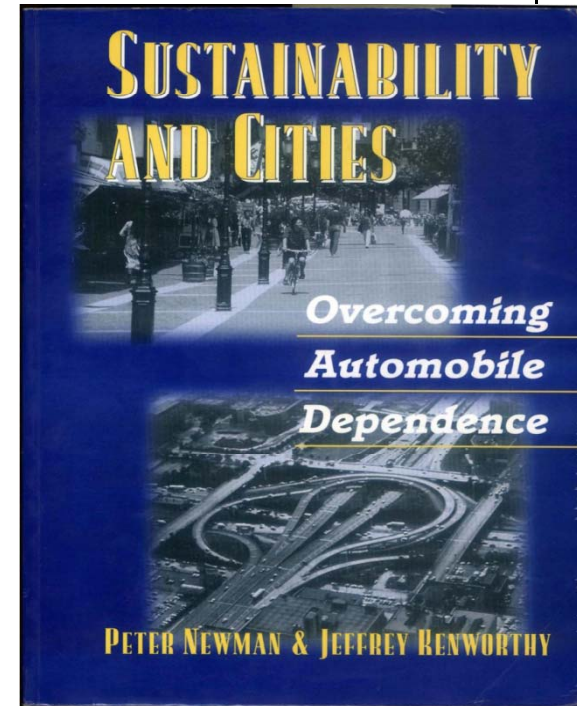
1m Sea Level Rise



Boost to Density Arguments by Scholars, Notably Australians



Newman &
Kenworthy 1989



1999

Taken up by environmentalists and planners



NUI MAYNOOTH

Ollscoil na hÉireann Má Nuad

Urban Density (person/ha) and Private Transport use (*Direct Energy*)

- Lower private transport use in higher density cities
- But what about other influences? Cost of fuel, cars, avail of public trans.?

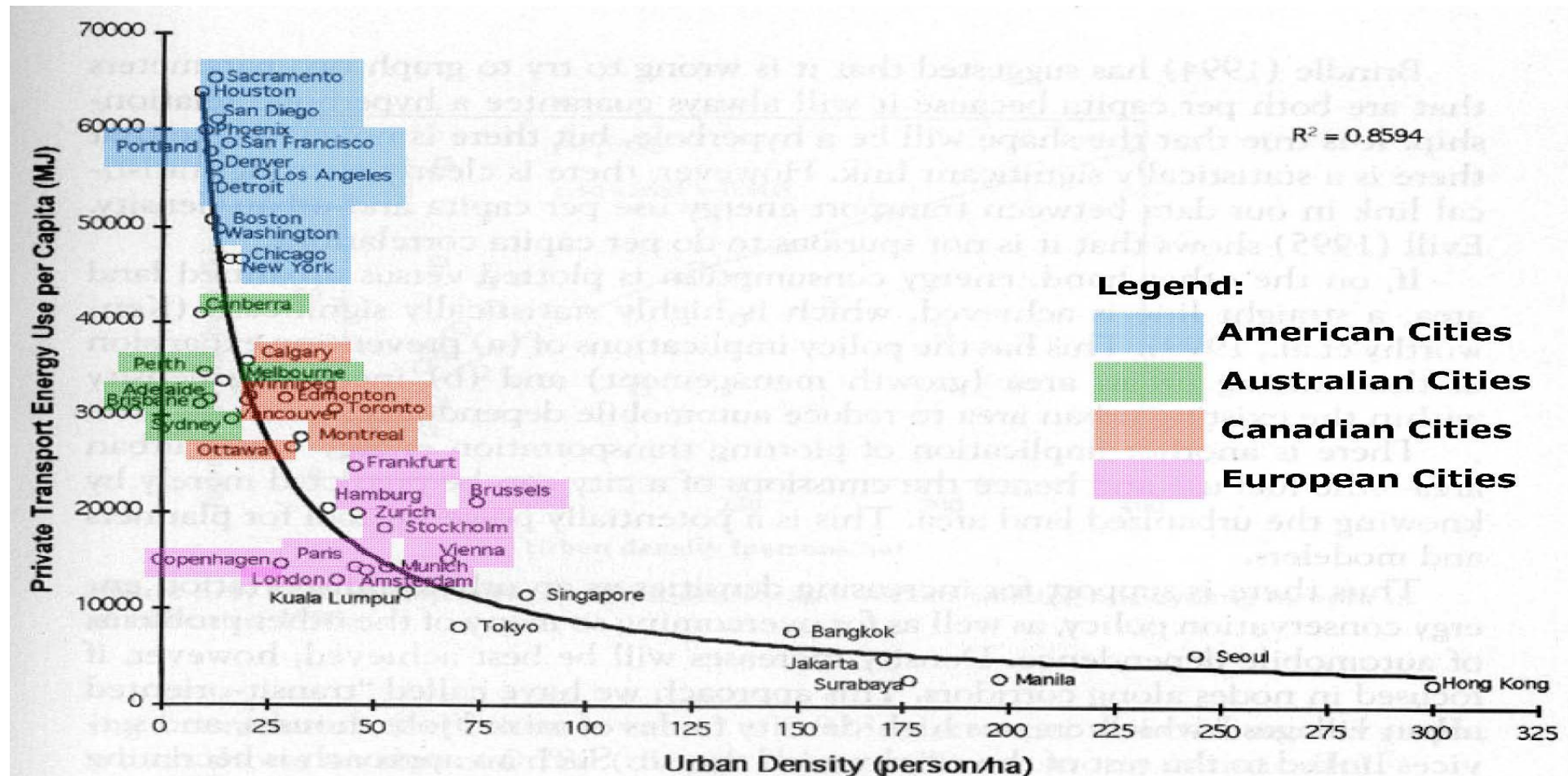
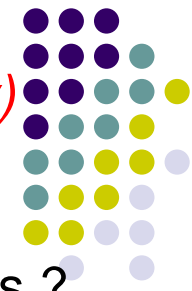


Figure 3.2. Energy use per capita in private passenger travel versus urban density in global cities, 1990.