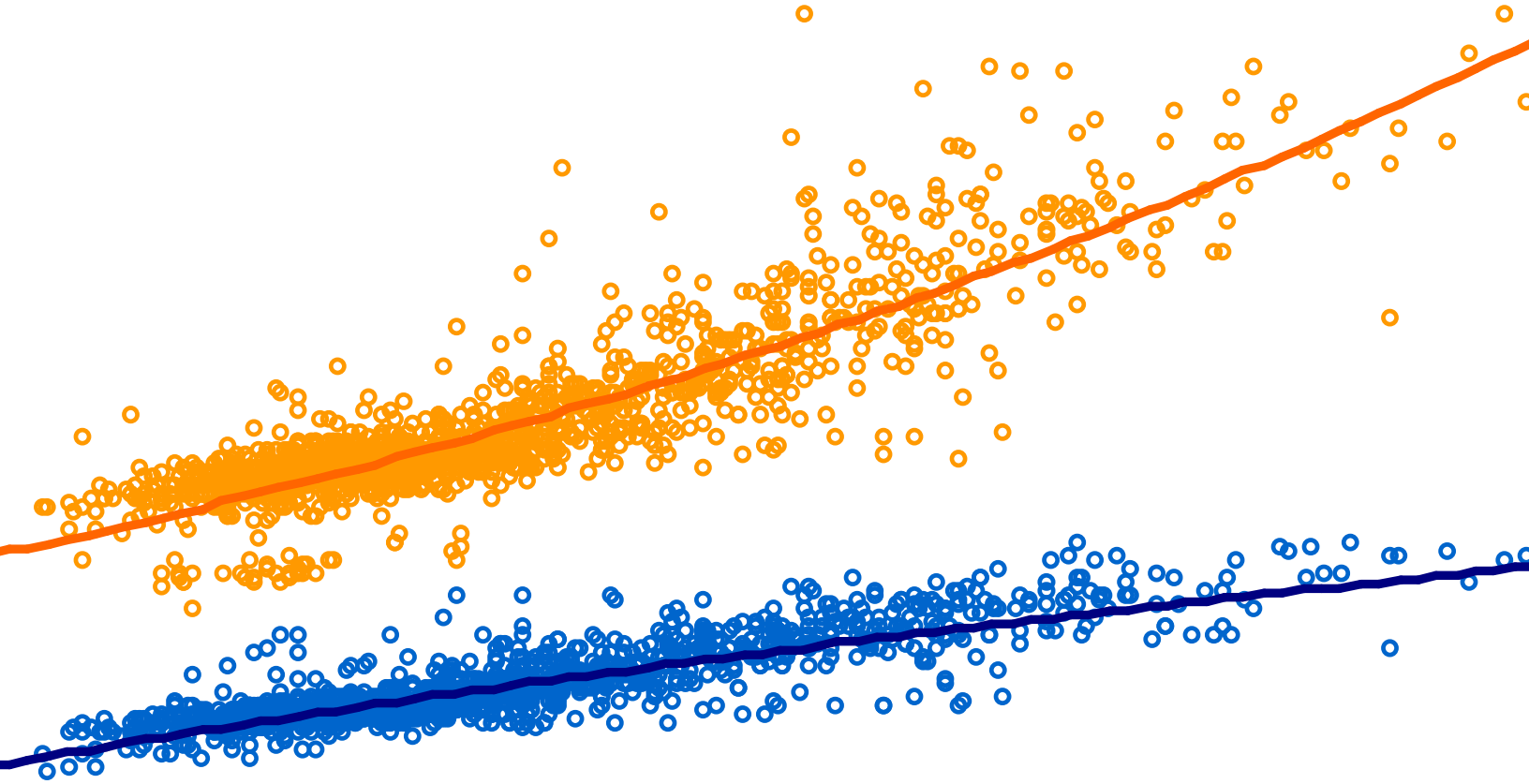
CONSUMING AUSTRALIA

Main findings



AUSTRALIAN CONSERVATION FOUNDATION

The University of Sydney
Integrated Sustainability Analysis ™

NSW Environmental TRUST

our environment it's a living thing

Consuming Australia: Main Findings

This report is based on data collected and analysed by the Centre for Integrated Sustainability Analysis at the University of Sydney.

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Introduction: Living beyond our means

The environmental impacts of household consumption in Australia

Each year, the average Australian generates nearly three tonnes of greenhouse pollution through electricity use in their home, and uses around 120,000 litres of water in their home. However, these figures are only the tip of the iceberg. Most of our impact on the environment actually comes from the pollution created and the water and land used in the production and distribution of the goods and services we purchase.

Consider, for instance, the fact that 200 litres of water are used on average to produce a single 150g serve of meat in Australia. This means that more water might go into a single steak at dinner than an individual uses during an entire week of showers.

In fact, our own personal electricity and petrol use accounts for less than a quarter of the total greenhouse gas pollution resulting from our lifestyle. More than six times our average household water use is embodied in the food and other products we buy. We are, in environmental terms, living well beyond our means.

Thus, even though it is vital to reduce use of energy and water in our own homes, if we really want to tackle our impact on the environment we must as a society begin to address the indirect impacts of our consumption patterns.

This report describes some of the main aspects of the environmental impacts of our consumption and analyses some of the important trends in Australian consumption patterns. It concludes by suggesting some ways for individual households and governments to lighten the burden on Australia's environment by shifting towards a smart consumption society.

Consumption Atlas: Summary and Methodology

This report, *Consuming Australia*, is a complement to the Consumption Atlas, an interactive online tool developed in partnership with the Centre for Integrated Sustainability Analysis at the University of Sydney.

The Consumption Atlas maps patterns of consumption and environmental impact across Australia. It illustrates how much water and land is needed, and how much greenhouse pollution is created, to support household consumption patterns across Australia.

The Atlas and this report are based on (1) input-output analysis (a macroeconomic approach) of the complicated interdependencies and material flows between Australian industries; and (2) household expenditure data collected by the Australian Bureau of Statistics. By matching the expenditure data with the results of the input-output analysis for various categories of goods and services, the Centre for Integrated Sustainability Analysis was able to assess the per capita environmental impacts of household consumption at the level of local statistical areas in Australia.

The Consumption Atlas is accessible at:
www.acfonline.org.au/consumptionatlas

A complete statement of the methodology behind the Atlas and this report is also available on the website.

I. Profile of environmental dimensions of consumption in Australia

The following three pages show profiles of the environmental impacts of consumption across three critical cross-cutting dimensions: greenhouse gas pollution, water use, and eco-footprint (a measure of how much land is disturbed to sustain our lifestyle).

In each category, a breakdown of the direct and indirect contributions to these environmental impacts for the average Australian household is given.

Key finding: indirect impacts of consumption outweigh direct household use of energy, water and land

The environmental impacts that occur in the production and distribution of the goods and services we buy and consume far overshadow our direct household impacts.

To be sure, our own direct use of electricity and water might be the most visible and most discussed areas of personal impact on the environment. But while many Australians are increasingly aware of the need to conserve water and reduce energy use, information about the hidden environmental costs of many products and services is much harder to come by. In fact, direct household and person use accounts for only 30 percent of our total greenhouse gas pollution, 23 percent of our total water use, and just 10 percent of our total eco-footprint.

The profiles on the following pages are challenging, for individuals as well as governments and organisations seeking environmental change. They suggest that even drastic measures to reduce direct personal water and energy use may not have the desired effects, unless they are complemented by strong action to reduce the environmental impacts associated with the food we eat, the clothes we wear, and all of the other products we buy.

Greenhouse gas pollution

Sensible consumption is as important as turning out the lights

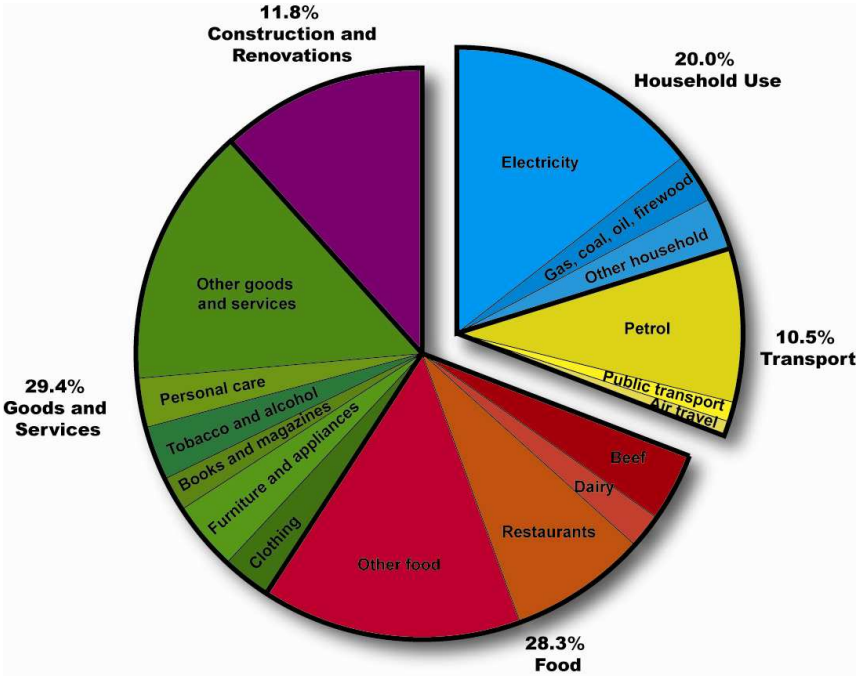
Burning fossil fuels for energy accounts for most greenhouse pollution in Australia. This energy is used mainly in the production and distribution of goods, with household electricity and personal transport being important secondary components. The direct use of energy and the goods and services consumed by an average Australian in one year result in the generation of about 19 tonnes of greenhouse gas pollution.

The areas where a household has relatively direct control – such as their own electricity, gas, and transport use – account for less than a third of total emissions.

In fact, if every Australian household switched to renewable energy and stopped driving their cars tomorrow, total household emissions would decline by only about 18%.

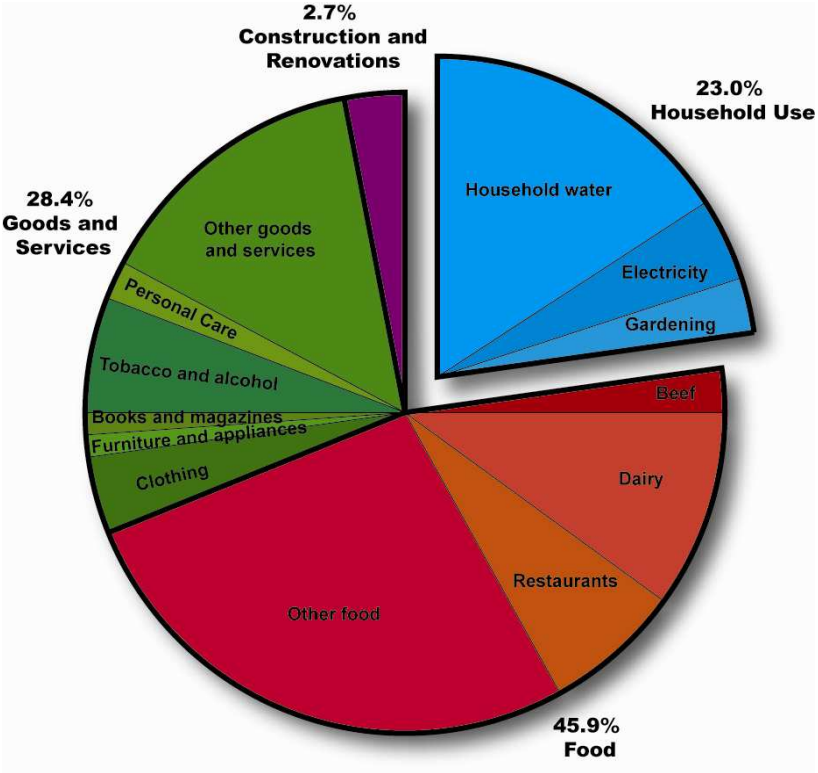
The emissions generated from producing the food we eat and the goods we purchase are together more than four times the emissions from our own personal use of electricity. This suggests that for households to make a serious dent in greenhouse emissions, they must go well beyond merely reducing energy and petrol use.

Fig 1. Average household profile: greenhouse gas pollution



Water use

Fig 2. Average household profile: water use



Water used to produce food and other goods is much greater than direct household water use.

Australians use a lot of water – on average 722,000 litres per person, per year, including the water used to produce the food we eat and the goods we purchase. That's nearly enough to fill an Olympic-sized swimming pool.

Direct water use in the household accounts for only just over 16% of total water use. The water used to produce the food and other goods and services we buy is more than six times greater than our direct water use at home.

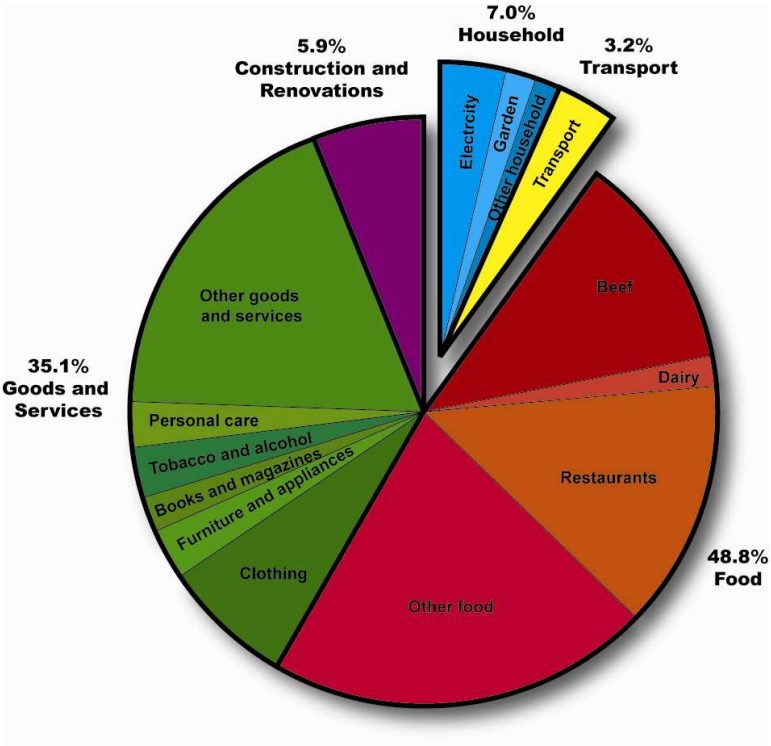
Production of dairy and beef products is particularly water-intensive; the dairy sector alone accounts for one out of every ten litres of total household water use.

Some might also be surprised at the amount of water (3.6 per cent of the total) used by power plants to generate electricity for household use.

More than half of land disturbance is due to food production

The eco-footprint is a measure of the total amount of land required to supply all the resources a person's lifestyle demands. This includes direct land disturbance through agriculture and other activities, as well a component to account for a person's greenhouse gas pollution. At an average of 6.4 hectares per person, Australians have the fourth highest eco-footprint in the world.[i]

Fig 3. Average household profile: eco-footprint



As this figure shows, nearly half of an average household's eco-footprint is attributable to food production. Cattle grazing in particular is very land-intensive in Australia. On average it takes three times as much land to raise an equivalent amount of livestock in Australia than in any other OECD country except for Iceland, and countries such as New Zealand and Germany raise more than 10 times the amount of livestock per hectare as the Australian average.[ii]

Because direct household and transport contributions to land disturbance are relatively small, the best way for most individual households to meaningfully reduce their impact on land is to alter their patterns of consumption of food, clothing, and other goods.

II. Key trends

Wealth and environmental impact

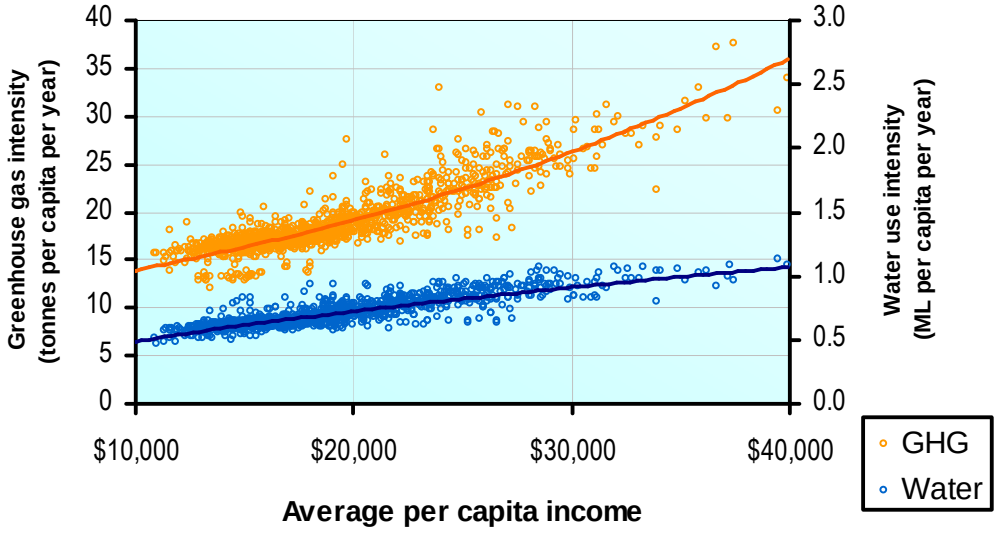
Affluent areas have higher environmental impacts

All of the things that we buy add up, and in general households with higher incomes are buying and consuming more things than less affluent households. Whether rich or poor, we tend to spend most of what we earn, so as income increases so does our level of expenditure and our impact on the environment.

As Figure 4 shows, there is a close correlation between increasing wealth and increasing greenhouse pollution and water use. This is due to increased direct use of electricity and water, as well as increased consumption of goods and services across the board.

While high income households spend more on high cost, low impact activities such as entertainment and other services, they also spend more on electricity and most other categories of goods. Some activities with high greenhouse impacts, such as air travel and construction and renovation, tend to be concentrated in high income groups.

Fig 4. Wealth versus greenhouse and water use impacts



The correlation between wealth and environmental impact may be reduced to the extent that increased expenditure on some categories of goods does not always lead to increased environmental impact. For instance, an expensive designer hat might cost five times as much as another, but the environmental impacts of production of the two hats

may be similar. However, in the household expenditure data on which this analysis is based, all hats are aggregated in the single category of "clothing." The use of per-dollar environmental impact data may therefore tend to accentuate the impacts of relatively expensive items within each category.

Nevertheless, the steady increase in consumption of goods such as household water, electricity and petrol as wealth increases gives firm support to the correlation between wealth and environmental impact.

Interestingly, as wealth increases water use tends to level off substantially after an initial increase. Production of food tends to be very water intensive, and above a certain level of affluence average expenditure on food reaches a plateau. However, greenhouse gas pollution appears to rise indefinitely as wealth goes up, even at high income levels. This indicates a relative shift in consumption as households become more affluent to greenhouse-intensive products and services like vehicles, air travel, electronics and appliances.

Do we have to be more affluent to protect the environment?

Affluent societies and individuals do have the means to be environmentally responsible, and in theory increased wealth could enable individuals to purchase higher quality, more environmentally sound products. To the extent that well-off people also have high levels of education, one might expect an increased awareness of the environment and capacity to seek out a sustainable lifestyle.

However, in practice the opposite trend is observed. Increased wealth is leading to more spending, more consumption, and ultimately higher environmental impacts.

Far from enabling a sustainable lifestyle, increases in wealth appear to go hand-in-hand with greater environmental stress. Aside from the sheer increase in expenditure, it may be that well-off individuals are "time poor" and thus more likely to take consumption short-cuts rather than pursuing sustainable lifestyle options. For instance, households with higher incomes tend to waste more food than those on lower incomes.[iii]

This is not to say that wealth as such is a bad thing – it's not how much you earn, but how you spend it that determines your impact. In Australia wealth is not currently being utilised in an environmentally sound way. More of our individual and national wealth could be used to enable us to lead fulfilling, sustainable lives rather than just consuming more, and to invest in environmental protection and sustainable economies.

Urbanisation

Inner cities are consumption hotspots

Urban living patterns offer many opportunities for efficiency and reduced environmental impacts, compared to more dispersed populations. For example, access to public transport, as well as shops and facilities within walking distance, help make inner city dwellers less car dependant. Further, the prevalence of more compact housing such as apartments in urban centres could lead to lower per person electricity and heating costs.

Yet despite the lower environmental impacts associated with less car use, inner city households outstrip the rest of Australia in every other category of consumption. Even in the area of housing, the opportunities for relatively efficient, compact living appear to be overwhelmed by the energy and water demands of modern urban living, such as air conditioning, spa baths, down lighting and luxury electronics and appliances, as well as by a higher proportion of individuals living alone or in small households.

In each state and territory, the centre of the capital city is the area with the highest environmental impacts, followed by the inner suburban areas. Rural and regional areas tend to have noticeably lower levels of consumption.

These trends in are closely correlated with wealth. Higher incomes in the inner cities are associated with higher levels of consumption across the board.

Under-consumption afflicts some remote areas

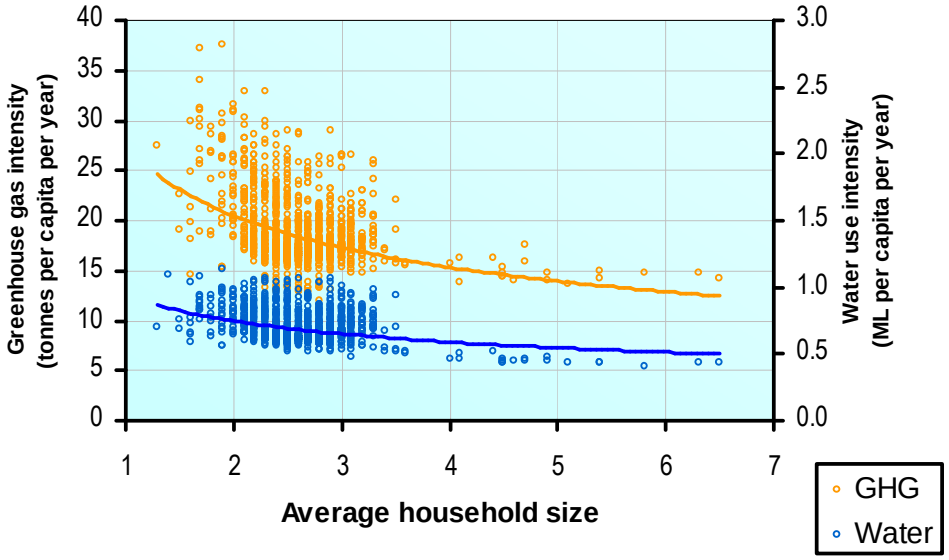
While high levels of consumption are characteristic of most Australian urban centres, in general remote areas – many of which have significant indigenous populations – show strikingly low levels of consumption. For instance, per capita water consumption in areas such as Palm Island, Arnhem Land, Tanami and Tennant Creek is less than half that of most urban centres.

The low levels of consumption in remote areas may be offset to some degree by non-monetary or traditional economic activities, which are not reflected in the data. Nevertheless, the data are also consistent with a range of studies finding conditions of severe hardship in many remote communities.

Bigger is better

On average, single-person and small households have greater environmental impacts than larger households. As this graph shows, areas with higher average household size also tend to have markedly lower levels of greenhouse gas pollution per capita, and smaller but still clearly lower levels of water use per capita.

Fig 5. Household size versus greenhouse and water use impacts



There are several plausible explanations for this correlation. In larger households, people tend to share common living areas, which will lower the per-person heating and electricity bills. In addition, larger households can share items such as furniture and appliances, whereas a person living alone must own a full suite of such items. It is also reasonable to think that larger households are more likely to cook together, resulting in more efficient purchasing patterns and lower levels of food waste.

In short, communal living is, in many respects, more efficient than single-person or small households. Unfortunately, in Australia things are moving in the other direction: household sizes are getting smaller, even while the size of the average house is on the rise.

The efficiency of larger households has important implications not only for personal lifestyle choices, but also for what kinds of housing governments should foster through planning, funding and regulatory processes.

Differences among the States and Territories

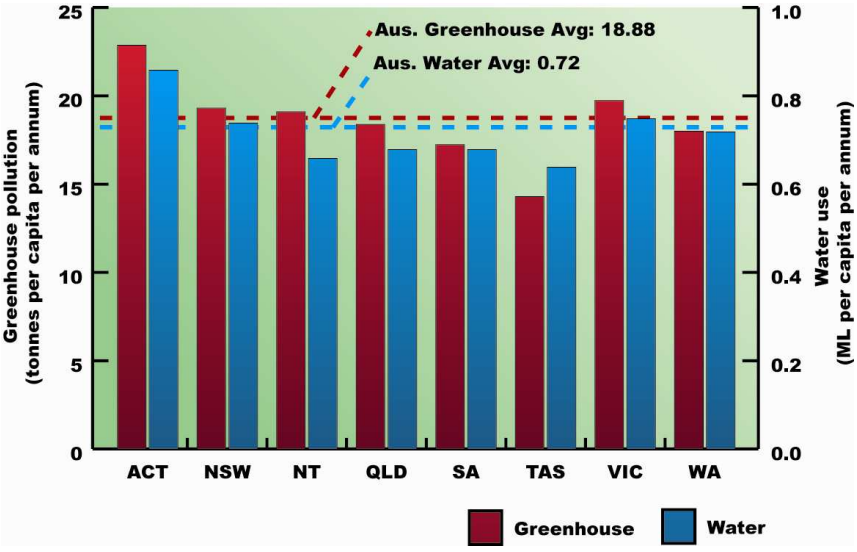
Sources of power generation strongly influence pollution

Figure 6 shows the differences in average household greenhouse gas pollution and water use levels among the Australian States and Territories. To a significant extent, these variations reflect differences in income levels. Thus, per capita greenhouse pollution and water use are highest in the ACT in large part because higher income levels enable greater consumption in all categories of expenditure.

Differences in the source of power generation also play a role. The average Victorian household has a high greenhouse pollution intensity because Victoria relies heavily upon pollution-intensive brown coal-fired power plants for electricity generation. Tasmania, in contrast, utilises predominantly hydroelectric energy, which accounts in large part for the low levels of pollution in that state.

Differences in household water use reflect income differences as well, but also variations in climate. Where water is relatively plentiful, as in Tasmania and parts of the Northern Territory and Queensland, less water extraction is required for gardening and other uses.

Fig 6. State and Territory variations in household environmental impacts



III. Solutions

Moving towards a smart consumption society

If Australian households are to play a serious role in reducing impacts on the environment, we must go beyond the important but ultimately subsidiary role of direct household energy and water use. The Atlas demonstrates that the bulk of the environmental pressure that most Australians place on the environment is not through their direct use of power and water, but rather through consumption of other goods and services.

In theory, increases in wealth and urbanisation open up opportunities for reduced environmental impacts but in practice have led only to increased consumption and further environmental stress.

We must move beyond small incremental reductions in direct household impacts to a more general approach to developing a smart consumption society. This approach should enable us to reduce our environmental impact by:

- Shifting consumption from high impact goods to lower impact services;
- Consuming sensibly rather than carelessly, while enjoying life more;
- Cutting down on waste and unnecessary expenditure;
- Purchasing efficient and environmentally sound products.

This approach requires the strong support of Australian governments, through well-resourced and ambitious regulatory, funding, innovation and educational strategies.

The following three pages outline this approach in further detail.

Personal actions

What can I do about it?

There are many ways that we can reduce the environmental impact of our consumption. The goods and services that we buy each day make a significant contribution to our environmental impact, so smarter purchasing decisions can make a big difference. For more information about smart consumption, see ACF's Greenhome program at www.acfonline.org.au/greenhome.

Buy fewer things, enjoy life more

In general, expenditure on services like education, arts, and personal services is much smarter in environmental terms than the same amount of expenditure on high impact goods. Rather than engaging in a weekend of "shopping therapy," why not have a massage, see a movie or sports event with family and friends, or go to a museum or the beach?

Smart consumption doesn't mean denying ourselves the enjoyment of things we genuinely want or need. On the contrary, it is about being deliberate in what we choose to consume, and conscious and reflective of the environmental and financial implications of different patterns of consumption.

By focusing more of our time and money on enjoying life rather than acquiring things, we can be both better off and more environmentally responsible. Consider before purchasing something whether you really want or need it, and whether you'll still want it tomorrow.

Share more

Many goods are easily shared with friends, neighbours, family and even the general public. Sharing of less frequently used items such as power tools and gardening equipment with neighbours can save space as well as money. A library is a place where the public generally shares books – or you can swap books with friends and family. Some councils even run toy libraries. Car sharing through "flexi-car" arrangements is increasingly viable and available in many Australian urban areas. In general, sharing is not only environmentally sensible, but saves money as well.

Buy smart

In most categories of goods and services, we have a choice between more and less environmentally sound options. By choosing products that require fewer resources to produce, package and transport, we can reduce our contribution to climate change and water use.

- Buy recycled and recyclable – in general recycled products are much more environmentally sound that products made from new raw materials. Innovation in recycling is resulting in unexpected products, such as clothing made from recycled PET plastic bottles, or building materials made from old tyres.
- Buy quality – durable goods that won't have to be replaced in a year's time are more environmentally sound are far preferable to disposable or inexpensive items that will wear out quickly.
- Buy efficient – information is increasingly available about the emissions, energy and water efficiency of big ticket items like appliances and vehicles. Consider carefully not only the upfront costs of such items, but their running costs over the full life of the product.

Cut waste

Australians spend at least $10.5 billion each year on things they don't use, including about $5.3 billion per year on wasted food.[iv] Not only is this a waste of money, but it places great stress on our environment.

One out of every four Australians, for instance, admit to spending at least $100 per year on clothing that is never worn at all or only worn once. Aside from the financial waste, $100 of expenditure on clothes never worn also results in about 70 kg of greenhouse pollution and 3,000 litres of water use.

The large amount of food wasted in Australia is a serious environmental problem. A very conservative estimate is that 8 per cent of food goes uneaten in Australia.[v] The eco-footprint of this volume of wasted food is greater than the footprint of all household expenditure on transport combined.

Repairing clothing, appliances and other goods rather than simply replacing them also helps to cut down on waste.

The role of government

Government must enable households to consume sensibly

We can not rely solely on responsible consumers to shift to more sustainable consumption. Consumers may lack the information about the environmental profile of goods and services, or the incentives to act on that information – after all, who wants to scrutinise the water and greenhouse intensity of every bag of pasta and every pair of socks they purchase?

More fundamentally, in many areas of expenditure sustainable options are hard to come by or not available. For instance, it's difficult to shift to sustainable transport if your suburb isn't serviced by a reliable public transit line. It follows that government must play a central role in fostering the conditions in which households can realistically follow sustainable patters of consumption.

Appropriate regulation can foster innovation and progress

Governments should utilise a variety of strategies to ensure the development of sustainable systems of production, distribution and consumption, such as:

- Ensuring product labelling for key environmental impacts;
- Setting ambitious efficiency standards that encourage innovation; for example, Japan's "Top Runner" program identifies the best performing product in a given category, and mandates that other products meet that standard within a specified time period;
- Developing innovative financing strategies to leverage household investments in energy and water efficiency;
- Ensuring the proper pricing of environmental externalities, in particular by setting a price on greenhouse gas pollution and improving water and waste pricing structures;
- Developing educational and social change programmes for communities and businesses that foster sustainable consumption patterns;
- Investing in public transport, renewable energy, and other sustainable infrastructure projects.

Conclusion

Many individuals in Australia, as in other relatively wealthy nations around the world, may find that reducing consumption has financial and environmental benefits, and might just help them lead a more balanced and fulfilling lifestyle in the process.

For many in developing countries and some Australian communities, sustainable development will mean seeking to increase their standard of living. But while some should seek to reduce their consumption, and others will aspire to increase theirs, all of us must learn to consume smarter and more sustainably.

This report has highlighted the crucial relative importance of consumption of food and other consumer products, which far outweigh the direct impacts of energy and water use in the average Australian home. Further, it demonstrates the strong and troubling link between increased wealth and increased environmental impact.

If Australia is to shift to a smarter, more sustainable future, we must strive to break the link between increasing affluence and ecological degradation. Cutting waste, shifting to lower impact products and services, increasing the efficiency of our production and distribution systems, and improving sustainable transport and energy infrastructure each have a role to play, all facilitated and coordinated by an ambitious and effective framework of government regulation and support.

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[i] WWF-World Wildlife Fund for Nature, *The Living Planet Report 2006*, October 2006, page 14, available at www.panda.org/news_facts/publications/living_planet_report/footprint/index.cfm

[ii] OECD, Selected Environmental Data, available at www.oecd.org/dataoecd/11/15/24111692.PDF

[iii] Clive Hamilton, Richard Denniss, David Baker, "Wasteful Consumption in Australia", The Australia Institute Discussion Paper 77, March 2005, available at www.tai.org.au/documents/dp_fulltext/DP77.pdf.

[iv] Hamilton, Denniss & Baker, "Wasteful Consumption in Australia".

[v] Based on $5.3 billion in uneaten food in 2004 in Australia (from Hamilton et al.) and total retail food turnover in 2004 of approx. $70 billion (ABS Publication 8501.0, Retail Trade, Australia).