

This case study is an example of what can be achieved with an existing home, a little money and a lot of commitment over a period of time. It demonstrates how our lifestyle choices can yield substantial, cost effective reductions in environmental impact.

Building Type:	Existing Home retrofit.
Climate:	Warm Temperate
Topics Covered	Success Level
Sustainable Lifestyle	Excellent
Low cost alterations	Good
Reduce Water Consumption	Excellent
Greywater recycling	Good
Reduce Energy Use	Excellent
Renewable Energy Use	Excellent
Passive Design	Good
Landscape – food production	Good
Transport	Good
Waste minimisation (operational)	Excellent
Greenhouse Gas Reduction	Excellent

The EcoHome project in the Newcastle suburb of New Lambton is an initiative in sustainable urban living that has been running for six years. The residents, three adults and one child, live in the house and illustrate how thoughtful choices about lifestyle can significantly reduce ecological impact and improve quality of life.

One measure of success is that the residents of the EcoHome have reduced greenhouse gas emissions by 90 percent from both direct and indirect sources.



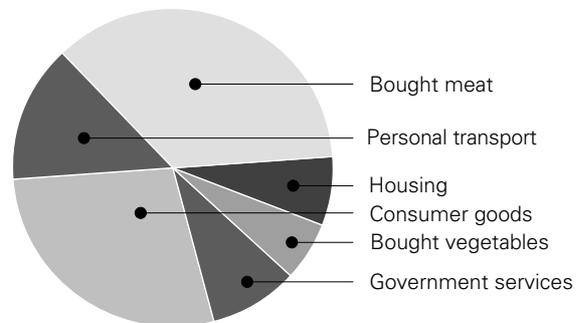
A grape vine covered pergola provides passive shading in summer, sun in winter and grapes in autumn.

The EcoHome has been simply retrofitted to allow a more sustainable lifestyle.

The householders make conscious decisions about lifestyles with the aid of a spread sheet model (listed with the web sites at the end of this fact sheet). It helps them to minimise the ecological impact of lives lived in our industrial society.

The model estimates “ecological footprint”, a rough estimate of the land area required to maintain or sustain the supply of goods and services used in everyday life.

Australians and others from industrialised societies use far more than a sustainable share of global resources. Such excess causes pollution, depletion and ecological destruction on a global scale. The aim of the EcoHome project has been to develop and design consumption patterns with an ecological footprint 20 percent of the Australian average. this approximates a sustainable and equitable level of resource use globally.



The chart above is an approximate breakdown of where the ecological impact of an average Australian household occurs (Simpson, et al 1998)

## SUSTAINABILITY - A LIFESTYLE CHOICE

Many people have made lifestyle choices of voluntary simplicity in order to live more sustainable lifestyles and gain more quality time in their lives.

The EcoHome project grounds this philosophy in the science of sustainability by monitoring the “ecological footprint” and identifying where major gains are possible and what areas are of less importance.

The household has an ecological target and budgets for this in a similar way to managing household finances.

Over time, a number of key lifestyle decisions have been made in the EcoHome in order to stay within their ecological budget while maintaining or increasing their over all standard of life:



*Bananas that will not have to be transported from Queensland to Newcastle.*

**Eating your own vegetables.** Food production, processing and transportation have a large ecological impact in Australia. Meat production is particularly intensive. The residents enjoy a predominantly vegetarian diet with meat eaten on special occasions. Purchases of highly processed food is also minimised. Some food is home grown, with a focus on resource intensive items such as eggs, chickens, tomatoes, bananas, herbs, and greens that are easily produced.

**Don't over use your car.** Walking, cycling and public transport are preferred by the householders. The location in New Lambton helps, as does organizing their lives to minimise the need for routine car journeys. One car is shared between the three adults in the EcoHome and pooling of car journeys is routine.

**Use your leisure time productively.** Productive use of leisure is maximised. Time is spent in the garden, preparing food or other fulfilling activities rather than watching television or engaging in resource intensive pursuits. Residents of the EcoHome read books, play games and spend time with friends.

**Balance income and expenditure.** A conscious choice has been made by the householders to increase their leisure time. A decision was made to balance outside workload and income with household expenditure. As their ecological budget does not have room for excessive purchases of goods there is no need to earn the money to buy them.

## Non-material ways are found to satisfy non material needs.

### HOUSE AND CONTENTS

Housing and consumer goods account for approximately 30 percent of Australians' "ecological footprint". A number of water, energy and waste saving appliances were installed in the EcoHome at its inception to minimise resource use. More importantly, resource saving habits have been cultivated by the residents.

### ENERGY USAGE

The EcoHome uses 100 percent SEDA green power.

Water is heated by solar power with a gas booster. Boosting is minimised by showering at night after a full day of sun, rather than in the morning.

**The northern face** of the house uses a passive solar design to warm the main living space. The need for heating and cooling is minimised via simple passive design elements such as the grape vine covered pergola and efficient insulation.



*Solar hot water and passive shading.*

### WATER USAGE

The EcoHome is connected to Newcastle's mains water supply. Indoor water use is minimised by using efficient AAA rated appliances and fittings.

**Rainwater** is directed to a small corrugated iron rain tank on the side of the house and used for garden watering.

**Greywater** is also diverted directly to the garden from the shower and laundry. A large volume pipe provides 200 litres of storage and feeds the leach field situated between two fruit trees.

**Chemical analysis of the soil has shown six years of direct greywater reuse has had no negative impact.**

**Stormwater:** Swales and mini dams control stormwater runoff from the site and direct water to plants with high water requirements.



*A garden built up beside the driveway soaks up stormwater, stops flooding and produces food.*

**Waste:** Large amounts of compost are regularly added to the garden. All kitchen and green waste are composted or fed to the worm farm to later boost food production. Containers are reused for food storage or insect traps in the garden before recycling.

### PROJECT OUTCOMES

The EcoHome's ecological impact has been estimated against a number of impact categories. The progress towards their aim of a fivefold reduction in their ecological footprint can thereby be assessed.

### A Low cost lifestyle allows more free time.

IMPACT CATEGORY	ECOHOME IN 2000	AIM
Greenhouse Gasses	10% of Australian Average	5%
Electricity Consumption	39% of Newcastle Average	20%
Landfill (by weight of bin)	47% of Newcastle Average	5%
Petrol (for car use only)	60% of Australian Average	5%
Water	90% of Newcastle Average	80%
Gas	100% of Newcastle Average	50%
Ecological Footprint	40% of Australian Average	20%

*From Newcastle City Council SOE Report 2000*

### OTHER BENEFITS:

**Stormwater** is retained on-site for productive use.

**Rainwater and greywater** sustain the large, productive garden which takes up nutrients.

**Increased fitness and wellbeing** is derived from walking and riding instead of driving.



*This garden produces food while soaking up the stormwater from the driveway.*

### WHERE TO FROM HERE?

The EcoHome folk soon realised that true sustainable living means much more than small housing footprints. To them it means celebrating daily living within the ecological constraints of the planet. That, to most people, means community, sense of place, right living and numerous things that require group interaction. From this thinking the Newcastle Urban EcoVillage was born.

The EcoVillage is located next to the spectacular Wetlands Australia, on about 0.6 of a hectare. Although, at this early stage, it comprises a paddock with an old farmhouse nestled inappropriately in suburbia, it is the site for some wonderful plans.

The EcoVillage is supported by a wide variety of people and organizations. The number of residents is expected to double in the first year and again in the following year. It is expected that all twelve housing lots will be occupied within three years.

Building on the EcoHome's trust and cooperation with the Council, the Water Board, the Health Department and the people of Newcastle, the Village will be able to trial some radical solutions. There are plans to compost and recycle human waste. Most human waste will be treated on site, to produce fertiliser. This in turn will lead to the production of flowers, vegetables, fish food and fish.

# eco home

## Newcastle

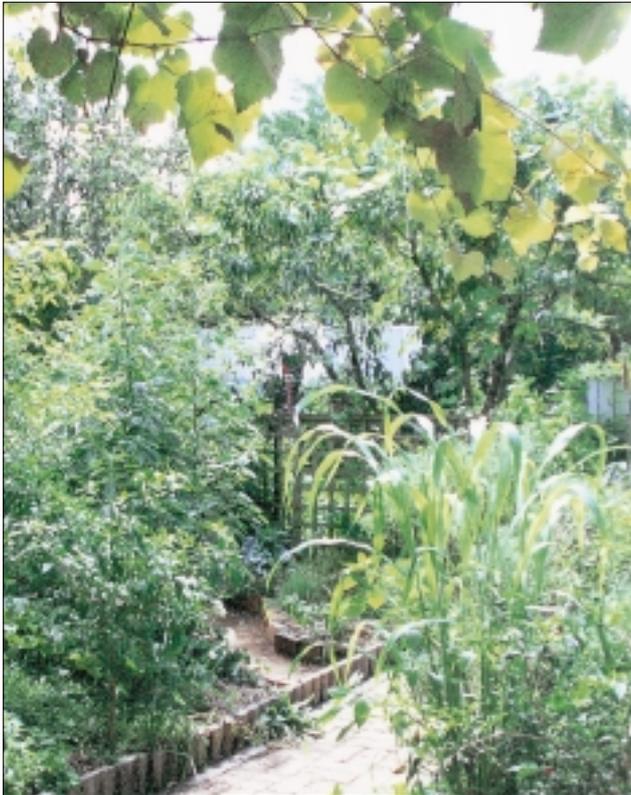
Design for lifestyle & the future

Home

The entire site will be joined in a 'soft grid' approach to power and water distribution. This is potentially a far more efficient way to distribute such services.

Most important of all, the village can foster the sharing of resources from the ground up. There will be significant opportunity for community cooperation through the car share scheme, the food cooperative and the local financial organization.

This is a village of people who wish to share their lives with others who experience the freedom of living within the planet's means.



### ADDITIONAL KEY REFERENCES

Newcastle City Council State of the Environment report. 2000

Simpson, Petroeschevsky, Lowe (1998) *The Ecological Footprint of Australia*, Preliminary Technical report; Griffith University.

Web: <http://www.rprogress.org/>

<http://www.lead.org/leadnet/footprint/intro.htm>

<http://users.hunterlink.net.au/~dgjmc>

Newcastle City Council, Hunter Water and Hunter Waste Board support and promote the EcoHome.

Contact the EcoHome on (02) 49574717

For more information on the Newcastle Urban EcoVillage, telephone John Campbell on (02) 49559636 or see the web site on

<http://users.hunterlink.net.au/~dgjmc>