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Vegetarian Victoria,
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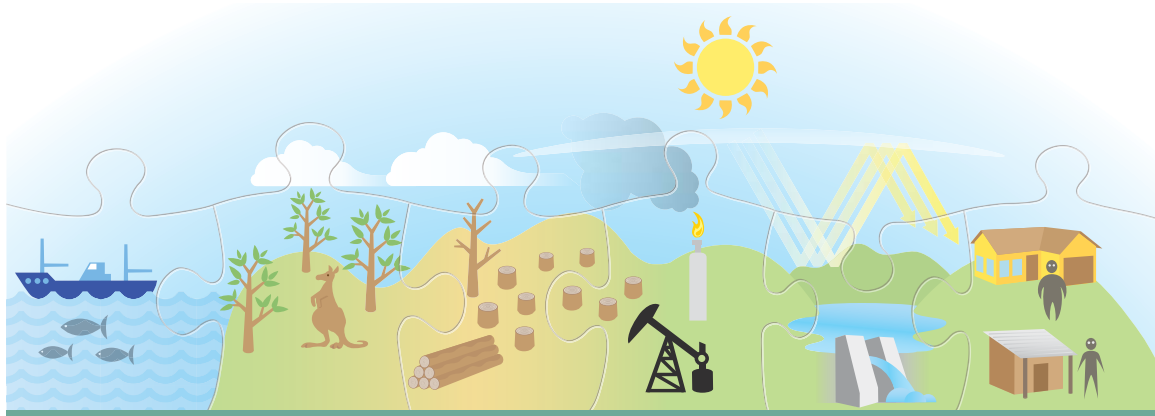
EATING UP THE WORLD



the environmental consequences of human food choices

Contents

It is now clear that we are using the Earth's resources at an unsustainable rate.

our fragile planet

Our planet faces serious environmental challenges. Water shortages, global warming, land degradation, deforestation, ocean degradation, food shortages and species extinction are just some of these important issues.

It is now clear that we are using the Earth's resources at an unsustainable rate. The problems we face as a result have an impact at all levels: on our planet, our cities and towns, our families and ourselves.

Many Australians understand the fragile nature of our environment and are taking action to reduce their personal impact. We are reducing car usage, using energy efficient light globes, taking shorter showers and implementing other important actions. While these initiatives have some benefits, they fail to address one of the biggest causes of our environmental problems… what we eat.

This booklet highlights some of the key problems that are facing our planet and us, shedding some light on the current condition of the environment and what the future holds. Most importantly, effective solutions are offered that can easily be implemented to make significant improvements to the wellbeing and sustainability of our environment.

plants + animals

Many species are facing extinction.
The number of animal species in Australia is declining at a higher rate than any other country except the USA[1]. In Australia there are 1,249 plant species and 347 animal species that are endangered at some level. This includes insects, frogs, fish, reptiles, birds and mammals.[2]

The biggest contributing factor to this endangerment is habitat destruction caused by clearing of land for animal pasture.[3]

Animal industries are the major cause.
In 2006 the Food and Agriculture Organization of the United Nations released a report called *Livestock's Long Shadow.* This report states that animal industries are one of the 'most significant contributors to the most serious environmental problems, at every scale from local to global.'[4]

Australia's animal industries negatively impact bio-diversity through:

- habitat destruction
- climate change
- pollution
- the introduction of non-native species
- increased competition for food and water.

... animal industries are one of the 'most significant contributors to the most serious environmental problems'...

water

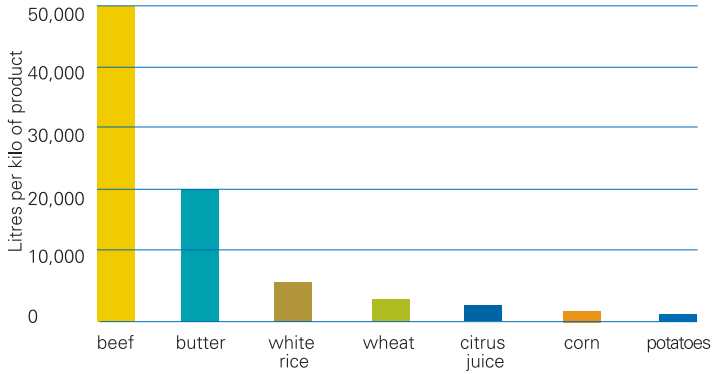
It takes between 50,000 and 100,000 litres of water to produce 1 kilogram of beef...

Australia is currently facing significant fresh water shortages, primarily due to waste and misuse. This is compounded by the fact that Australia is the driest inhabited continent on Earth.

Raising animals for food requires enormous amounts of water.

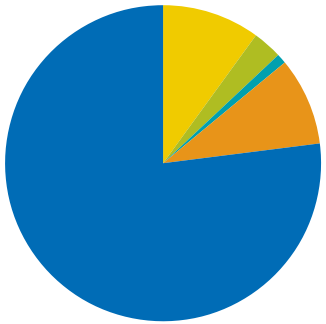
It takes between 50,000 and 100,000 litres of water to produce 1 kilogram of beef compared to only 2,500 litres to produce 1 kilogram of white rice, and much less for most fruit and vegetables.[5]

Litres of water required per kg of product



In Victoria, 77% of agricultural water is used for pasture and hay production for grazing animals raised for meat and dairy products. In comparison, only 10% is used for the production of fruit and vegetables for human consumption.[6]

Water use on Victorian farms

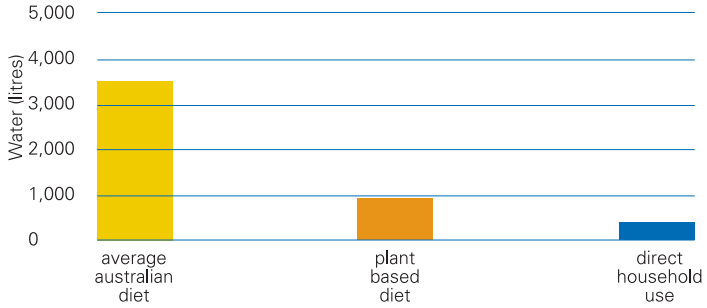


	Percent
Grapevines	9
Nurseries, flowers, turf	3
Cereal and broadacre crops	1
Fruit and vegetables for humans	10
Pasture for hay and grazing	77

Over 67% of water in Australia is used for agriculture whereas only 9% is for household use.[7]

Many people are surprised to learn that the amount of water used to produce food is much greater than that used directly in households. A 2004 Melbourne University study concluded, 'Water use through food consumption is 90% of a household's water use. This implies that for any water saving effort to have an effect, it should be concentrated on indirect water use'.[8, 9]

Water use per person per day



Wasteful production of animal products currently use more than 12 times as much water annually[6] as will be produced by the Wonthaggi desalination plant. Rather than expensive engineering solutions which drive the price of water up for all consumers, a more effective way to ensure water availability in Australia is to reduce the water being wasted in the production of animal products such as meat and dairy.

Animal industries have additional detrimental impacts on fresh water supplies.

- Grazing animals trample river edges and pollute the water
- Clearing of native vegetation for pasture reduces rainfall, whilst increasing runoff and soil erosion
- The manufacture of animal products (such as leather) pollutes rivers with toxic chemicals such as chromium, mercury and formaldehyde
- Fresh water fish-farms pollute riverine environments
- Factory farms in the US pollute rivers more than all other industries combined (currently more than 500 million tonnes of manure is produced each year).[10]

...a very effective way to reduce water use in Australia is by reducing the production of animal products such as meat and dairy.

air

Over 50% of global human-caused greenhouse gases… can be attributed to livestock and their by-products.

The world's animal industries produce a significant percentage of global greenhouse gas emissions.
Over 50% of global human-caused greenhouse gases, or at least 32.6 billion tons of carbon dioxide equivalent annual emissions can be attributed to livestock and their by-products. This is taking into account their direct emissions as well as their fuel consumption and energy use in production.[11]

Methane has far greater global warming potential than carbon dioxide.
Efforts to combat global warming must not be concentrated solely on reducing carbon dioxide (CO_2) emissions. Methane produced by animals is also a substantial contributor to climate change. Methane is much more dangerous in the short term than CO_2. Over a 20-year timeframe, methane has a warming potential at least 72 times that of carbon dioxide.[12]

Animals raised for food in Australia produce about 3 megatonnes of methane annually. Multiply this figure by 72 and you get warming equivalent to 216 megatonnes of CO_2. The annual output of all of Australia's coal fired power stations put together totals 180 megatonnes of carbon dioxide.[13]

Australia's livestock will produce substantially more warming over the next 20 years than all of our coal fired power stations put together![13]

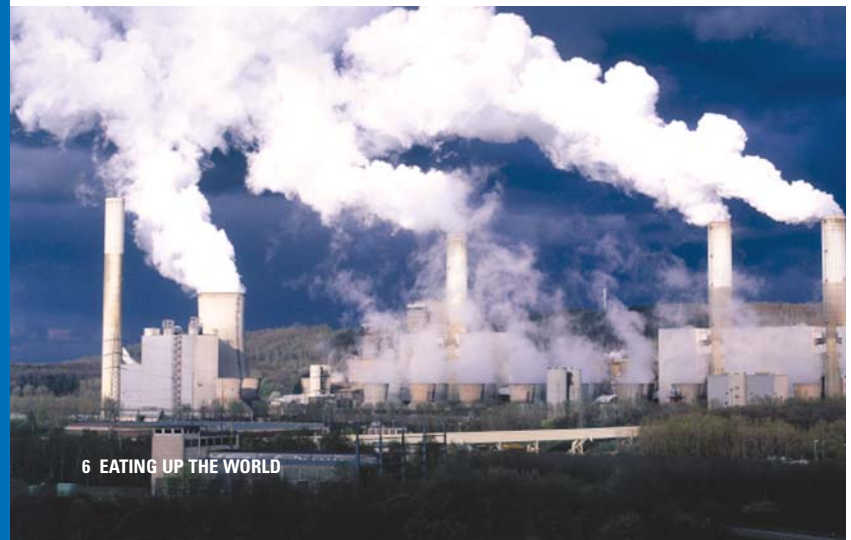


Image courtesy of GreenOptions.com, a service of Greenweb Inc

Animal agriculture degrades land that absorbs CO_2
Grazing takes up nearly 60% of the Australian continent.[14] We could be using some of this land to take up carbon either by growing forests, or improving the carbon content of the soil. If we planted just a small fraction of that land with native forests, we could 'soak up' Australia's carbon emissions in just a few decades.[15] In addition, the carbon credits generated from this activity could possibly be worth billions of dollars annually on the global carbon trading market.

The verdict is out
A June 2010 report by the United Nations Environmental Programme identified animal agriculture and food consumption as one of the most significant drivers of environmental pressures and climate change, stating that 'a substantial reduction of impacts would only be possible with a substantial worldwide diet change, away from animal products.'[16]

Given that the methane and carbon dioxide attributed to agricultural animals is a substantial contributor to climate change, avoiding meat and dairy consumption is a very effective way for individuals to make a real difference to reducing global warming.

World renowned economist, Lord Nicholas Stern, publicly stated in late 2009:

'Meat is a wasteful use of water and creates a lot of greenhouse gases. It puts enormous pressure on the world's resources. A vegetarian diet is better.' [17]

Avoiding meat and dairy consumption is the most effective way for individuals to make a real difference.

land

An enormous proportion of our land is used to produce animal products.

Clearing of forests and bushland for animal industries results in habitat loss.

Nearly 60% of the Australian continent is grazed by animals raised for human consumption[14]. This is in addition to the land that is cleared and used for the production of hay and other food for animals.

Clearing of forests and bushland for animal industries results in habitat loss throughout Australia, which is the major cause of wildlife species becoming threatened, endangered and extinct.

Clearing forests and bushland for animal production also results in:

- the removal of vegetative cover, which is the single most critical factor in preventing erosion
- loss of topsoil which is a critical factor in ecological productivity
- changes to the water table resulting in salinity problems across vast areas of Australia
- changes to our climate resulting in worsening droughts

In addition, animal grazing directly impacts the environment through:

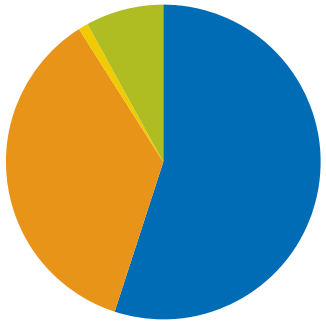
- compacting and acidifying our soils
- spreading weeds
- increasing to unsustainable levels the volume of manure and other by-products on our land and in our waterways

According to the CSIRO and the University of Sydney a massive 92% of all land degradation in Australia is caused by animal industries. Plant agriculture, mining, forestry, manufacturing, residential building and all other industries account for the small remainder.[18]

When the land is exhausted, society will suffer.
Increased numbers of agricultural animals, over-farming and over-grazing can lead to vicious cycles of deforestation, erosion and habitat destruction. Eventually this can lead to starvation prompted by the disappearance of plant food sources and societal collapse.[19]

The Australian Conservation Foundation make the point that 'Sustainable and healthy food systems would promote and enable a diet rich in fresh and minimally-processed foods – predominantly fruits and vegetables – as the mainstream choice.'[20]

Land disturbance (%)



	Percent
Beef	55
Sheep and wool	36
Dairy	1
All other industries	8

... a massive 92% of all land degradation in Australia is caused by animal industries.

ocean

... fishing techniques including dragnets, long lines, purse-seine nets and driftnets are destroying large parts of the ocean environment.

Our oceans are dying.
While most people are aware of the widespread devastation of our land, the amount of damage occurring beneath the surface of our oceans may be even greater.[21]

In order to cater to the growing worldwide market for fish, modern fishing methods have depleted populations to such a level that the industry is now 'fishing down the food web', targeting deep sea fish and species not previously taken. Our appetite for seafood has created 'dead zones' in the ocean tens of thousands of square kilometres in area.[1, 22] Furthermore, there are virtually no fish safe from contamination.[23] Besides concentrated amounts of mercury, lead and cadmium, the high levels of PCBs and dioxins make fish one of the most contaminated 'foods' on this planet. [24]

The destruction of fish populations is accelerating, with thirteen of the world's seventeen major ocean fishing zones already depleted or in serious decline, and the remaining four fully or over exploited. [25, 26] Not only are we sending fish populations into a spiralling decline, destructive fishing techniques including dragnets, long lines, purse-seine nets and driftnets are destroying large parts of the ocean environment in the process.

In addition, today's fishing techniques create enormous 'by-catch', which is the unintentional capture of sea animals such as non-target fish species, whales, dolphins, turtles, seals and sea birds like the albatross. Many of these species are facing extinction due to fishing.[4, 27]

Fish farming, where fish are raised in netted cages, also causes significant environmental damage. In particular fish farming concentrates faecal contamination in specific areas of the ocean and rivers, promoting the rapid spread of disease and parasites, to both captive and wild fish populations.

Fish farming can also result in non-native fish species escaping and damaging the surrounding environment. Worst of all, farmed fish eat fish – 5kg of wild fish is needed as feed to produce 1kg of farmed fish.

All this destruction doesn't come cheap! The United Nations Food and Agriculture Organization (UN FAO) estimated that over US$ 20 billion annually is used to subsidise global fishing industries. [28]

energy + materials

It takes a great deal more fuel to produce a kilogram of beef compared to a kilogram of grain or vegetables

Virtually all economic activity and every aspect of our lives is dependent on the availability of energy and materials.
Australia's oil production peaked in the year 2000 and is now in decline. From a position where we once produced all our own oil, we now import 30%, and our dependence on imports is increasing every year. Some predict 80% of our oil will need to be imported by 2020.[29]

This fuels the need for ever deeper and riskier drilling operations, and greater numbers of oil tankers travelling our waterways, with often tragic environmental consequences.

It takes a great deal more fuel to produce a kilogram of beef compared to a kilogram of grain or vegetables.[30, 31]

In addition, the raising of animals for food uses significant amounts of energy for:

- transport of feed and livestock
- operation of livestock facilities (including lighting, heating, cooling and slaughter)
- packaging, constant refrigeration and cooking

A reduction in animal industries would lead to increases in land available for native vegetation and sustainable forestry.
The beef, sheep and dairy industries account for 92% of forest clearance and land degradation in Australia and use up 60% of our entire continent.[14, 18]

If we reduced or eliminated these industries, we could regain abundant land, some of which could be used for reforestation, forestry and the production of plant-based fuels, materials and fabrics.

people

Most edible grain is used to feed animals for meat, dairy and egg production

Poverty and malnutrition are widespread.
790 million people in the world are chronically undernourished.[32] About 27,000 children under 5 die of poverty and starvation every day.[33]

Most edible grain is used to feed animals for meat, dairy and egg production.
We grow enough edible grain to provide 50% more than is required for every person in the world.[4] Most of this edible grain is used to feed animals for meat, dairy and egg production. As a result, the price of grain has risen by hundreds of percent in recent years, pricing poor people out of the market for basic foods.

The world's cattle alone consume enough food to feed 8.7 billion people – more than the entire human population.[34]

'Feeding millions of tonnes of grains to animals and raising billions of animals to feed humans is callously indifferent to the undernourished people in the world, whose sustenance depends on the same basics (wheat, soybeans, vitamins and materials) as the food fed to factory animals.'
United Nations, Food and Agriculture Organization [35]

Plant-based foods are a more effective way to feed people.
It takes many kilograms of plant protein fed to a cow to produce a single kilogram of beef protein. 80-95% of food energy and protein available in plants is wasted when converted to meat for human consumption. It is much more efficient for people to consume foods lower in the food chain (i.e. to consume the plant foods directly). Protein from plant-based sources is also healthier than the protein in animal sources and does not contribute to problems such as heart disease or cancers.[36]

Human Health.
Studies show that vegetarians outlive their non-vegetarian counterparts by between 5 and 10 years.[37] The China Study, the largest peer reviewed scientific study conducted on human diet, concluded that people on a plant-based diet had far less incidence of heart disease, cancers, diabetes, multiple sclerosis and many other diseases.[36]

Image courtesy of USDA NRCS

the bottom line

If we want to preserve and restore our environment in Australia, we must make changes to our diet. The food we eat has a major effect on our waterways, the quality of the air we breathe and on the environment around us.

Eating fish and other sea life is killing our oceans, agricultural industries are polluting our waterways, and vast areas of land are wasted with the grazing of animals. These practices are unsustainable and the global impacts are being felt more than ever before.

By adopting a vegetarian diet you can make a significant contribution towards improving your health as well as that of the planet.

The significant environmental benefits that can be made by adopting a vegetarian diet include:

- enabling fresh water to be redirected to more efficient uses and to restoring healthier river flows and aquatic habitats
- allowing the rehabilitation of grazing land into bushland which would greatly reduce land degradation and the loss of Australia's biodiversity
- reducing the drivers for climate change, including carbon dioxide and methane, and increasing the capture and storage of gases by the environment
- reducing oil consumption and dependence on foreign sources of energy and materials
- enabling our oceans to revert back to the vibrant ecosystems that they once were and allowing fish populations to recover to normal levels.

Animal industries are eating up the world.
It is up to us to save it!

If we want to preserve and restore our environment in Australia, we must make changes to our diet.

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