

OUR FOOD FUTURE

THE GREENS' PLAN FOR AUSTRALIA'S FOOD SECURITY



**THE
GREENS**



OUR FOOD, OUR CHOICE

As Australians we love our food. We have embraced dining out, café culture, community gardens, farmers markets and TV cooking shows with great enthusiasm. Chefs are now celebrities, with Master Chef replacing soapies in casual conversation. We are lucky to have a multicultural community which has generated a global food culture which is the envy of the world. We have access to an abundant and diverse supply of fresh food. So much so that we have become complacent. Because Australia usually exports far more food than our population consumes, we think we will never be at risk of running out of the food that underpins a healthy diet.

But our food system is about much more than producing and exporting a large amount of a limited range of crops and food and beverage products and assuming that we can always import food for our own consumption.

Australia's food security - ensuring that every Australian has access to a nutritious and adequate diet - rests on growing enough of a wide variety of food through the best and worst of times.

The world has changed. In 2007-2008 as a result of extreme weather events and opportunistic speculation in commodity futures markets, food prices soared and some countries reacted by banning the export of grain to keep their domestic prices down. Major food importing countries like China and Saudi Arabia reacted by buying land and water in other countries to grow food for themselves, effectively bypassing the world trade regime and opting to outsource food production.

This is the new era described by leading US academic and environmentalist, Lester Brown, as the "new geopolitics of food scarcity" in which it is every country for itself; an era in which:

With world grain stores dropping from an average of 107 days of consumption a decade ago to 74 days in recent years, it is clear that feeding hungry people around the world and feeding ourselves now depends on adopting new policies.

This is an opportunity to rethink our relationship with food and where and how it is produced. This is a stitch in time. Just as we are becoming more obese and subject to diet-related chronic disease such as type 2 diabetes, our farmers are struggling to make a living and stay on the land. This is not a good outcome for anyone.

Nor is it acceptable that many Australians are unable to access healthy food and the number of hungry people is rising. Each year we import more cheap processed food, replacing healthier local produce such as fresh fruit and vegetables.

Under the pressure of cheap imports, local food processing jobs are under intense pressure and it's a tragedy that brands that are so ingrained in our national consciousness, such as Rosella, have gone. Most farming families struggle to make a living from their farm alone, and increasing numbers are abandoning farming altogether. The impacts of prolonged droughts, a changing climate, and extreme weather events are adding to the pressure. Regional Australia risks being hollowed out.

Approximately 30% of Australia's agricultural land is degraded, many rivers and groundwater systems are over-allocated, and our rare pockets of prime agricultural land and water are being lost to urban expansion, mining and coal-seam gas.

These issues are urgent, interrelated and of enormous consequence. Our food system has reached a crossroads, and we must now make a choice.

² Food is the new oil and land is the new gold.¹



We can choose to continue the way we are and accept a future growing, processing and eating far less of our own fresh and healthy food; a future in which we will rely on access to imports and risk escalating prices and availability; a future in which most of us will struggle to eat a healthy diet.

But this is unsustainable, meaning *“sooner or later it must collapse”*.²

We have a better choice. We can stop taking our food for granted and change.

We can choose to give our farmers a fair price and ensure we are self-sufficient in nutritious food. We can understand that our food security and regional economies will be weakened by the loss of local food manufacturing and take steps to support it. We can recognise that our farmers are the vital custodians of our landscapes, and support them in adopting sustainable techniques that restore our landscapes and adapt and anticipate changes in the climate. We can ensure that every Australian has access to nutritious and affordable food at all times. And at the same time produce what we can for the world.

This is the Greens' vision for our food system, one that is healthy, prosperous, fair, sustainable and Australian.

To make that vision a reality, we need government to put our people, our farmers and the environment at the heart of our food system; and we need to boost public investment in research and development to ensure we have the information we need.

As a nation we have the resources and capacity to create a food system that is not only the best in the world but which can share information, technology and intellectual property with the nations that need it most. Many of our farmers, communities, businesses, and researchers are already actively committed to transforming how and what we grow and distribute in

Australia, and how we contribute to achieving the right to food for everyone on the planet.

What is lacking is the political will and selection of priorities that align with the challenges we face.

The current priority looks outwards, radically expanding our food exports without looking at the problems and risks we face in the changed geopolitics of food scarcity and trade. While historically Australia has done well out of focussing on the export of food and fibre, continuing to do so without addressing the risks to our own access to the food we need for a healthy diet is short-sighted.

It is time to get on with restoring more than 100 million hectares of degraded land, stopping the exodus of farmers, and ensuring we can produce a healthy and affordable food supply for all Australians while still exporting what we can into global food markets.

Given our close proximity to Asia, and reputation as a producer of quality food, opportunities to diversify and increase food exports will develop simultaneously with securing a sustainable base for Australian agriculture.

So, let's work together this election to adopt new policies to improve our health and that of our land and water systems, and at the same time help the people on the land to feed us and be rewarded for it. It is time for optimism and change. There is no time to lose.

A handwritten signature in black ink, which appears to read 'Christine Milne'.

Christine Milne
Leader of the Australian Greens



KEEPING FARMERS ON THE LAND

The Greens understand that without farmers Australians will not have true food security or sustainable landscapes.

The Greens will:

- fund a national network of 180 agricultural extension officers at a cost of \$76.5 million over the forward estimates.** These will be based in the Natural Resource Management (NRM) regions, and their work in each region will be determined by a regional steering committee with representatives from the NRM region, Landcare, local agricultural industry groups and research institutions. **Agricultural extension services** ensure that farmers have access to and can collaborate with researchers to accelerate the adoption of sustainable and productive farming practices
- restore a fair market place** by reforming competition policy. The Australian Competition and Consumer Commission (ACCC) will be given new divestiture powers so it can break up market monopolies and market dominance, and anti-competitive price discrimination will be prohibited. Australian consumer law measures dealing with unfair contract terms will be extended to farmers and small businesses
- shift from free trade to fair trade**, by ensuring that all new trade agreements contain mechanisms that reflect the cost to Australian farmers of meeting the highest environmental and labour standards compared to trading partners
- reconnect local communities and farmers** by funding regional food hubs, farmer's markets, farmer's cooperatives and other innovative solutions that help farmers sell direct to the public and local institutions such as hospitals, restaurants, hotels and education providers. We will invest \$85 million in a grants program over four years to help farmers sell direct.
- investigate the implementation of a government local procurement policy.** Well-designed local procurement policies can leverage government's significant buying power to offer stable demand for local producers, and keep public funds circulating for the greatest effect to support our economy
- lower on-farm costs by investing \$100 million to help farmers make the switch to renewable energy and greater energy efficiency.** With key farming sectors needing to be energy intensive to maximise irrigation efficiency and control the temperature and hygiene of food during harvest, grants will be made available to invest in upgrading the energy efficiency of equipment and for the installation of renewable energy systems
- maintain recent reforms to drought assistance** and ensure it is adequately funded and appropriately targeted.



GOOD FOOD ON EVERY TABLE

Every Australian has the right to healthy, affordable food.

The Greens will:

- **increase Newstart and Youth Allowance by \$50 per week** to provide a fairer level of income support for people reliant on social security. We will provide an extra payment of \$40 per week for single parents on Newstart with children under 16, a total increase of \$90 per week for single parents.
- **end the failed, expensive and punitive income management regime**
- **ensure that origins of our food and fibre are embedded in the national curriculum** for primary and secondary education. **We will fund up to 800 new school kitchen garden projects by investing an additional \$35 million**, prioritising funding for schools in low socio-economic areas, and boost funding for adult nutrition education programs
- **fund the production of an Australian version of the US' Food Environment Atlas**, including developing and monitoring national measures on the cost and accessibility of healthy and unhealthy food, food insecurity, and community nutrition characteristics
- **reduce food waste through a \$20 million investment** in identifying avoidable food waste, a national campaign to educate the community, simplifying food date labelling and working to relax cosmetic standards for fruit and vegetables so that good food is not wasted and **increase funding for food emergency relief organisations that specialise in fresh food rescue and distribution.**
- **support the implementation of regulatory means to reduce the consumption of junk food** that are shown to be effective and do not unfairly disadvantage Australians on low incomes
- **ban junk food advertising during children's television**, on websites aimed at children, and via text message. The ban will cover free-to-air and pay TV channels dedicated to children. We have campaigned with public health experts for this action as the Greens understand that junk food is targeted at children to hook them for life
- **reform food labelling so that it provides clear information** on nutrition, country of origin, palm oil and all genetically engineered (GE) ingredients
- **introduce consistent, ethical national standard definitions of 'free range'** for eggs, poultry and pigs to remove the confusion and misuse of voluntary standards
- **lead by example on aid by lifting Australia's contribution to 0.7% of Gross National Income.** We will prioritise investment in small-scale agriculture, particularly to support women farmers to build local food security and end hunger in developing countries
- **use Australia's international standing as the new chair of the G20** to make global food security a priority. We will push for new food reserves to be established and an end to the subsidisation of crops for biofuels. We will put re-regulation of the international food commodities market on the G20 agenda to end damaging food price speculation.



PROTECTING OUR LAND, WATER AND BIODIVERSITY

If we are to protect and restore our irreplaceable soil, water and biodiversity, a major new effort must begin now.

The Greens will:

- **stop the expansion of unconventional gas and coal mining on agricultural land.** We will legislate the right of farmers to refuse entry to their properties by mining companies; reject new coal mining and unconventional gas projects; and apply the new national protection for water to all unconventional gas developments, including recently approved major coal and coal-seam gas projects
- **map prime agricultural land** at an appropriate scale to inform local and state planning, taking into account current food production needs and future climate change scenarios. We will **prioritise the conservation of prime agricultural land as part of the National Urban Policy**, and only fund state and local infrastructure and development requests that comply with this directive
- **improve consideration of foreign ownership of our agricultural land and water.** We will lower the threshold from \$248 million to \$5 million for consideration of the national interest purchases of agricultural land and water, including cumulative purchases. We will legislate a mandatory national interest test and maintain a live register of foreign ownership of agricultural land and water assets to track overseas purchases
- **establish an independent National Biosecurity Authority and Biosecurity Commission**, funded at \$10 million a year, to provide statutory, science-based and transparent coordination and oversight to keep Australia free of exotic pests and diseases
- **maintain current funding levels for the Biodiversity Fund, Carbon Farming Initiative and Caring for our Country** programs as vital support for regional NRM and sustainable farming
- **identify appropriate mechanisms for paying farmers for the restoration and maintenance of ecosystem services** based on identified bioregional environmental stewardship standards
- **instigate long-term, bioregional scale monitoring of landscape health** based on the work of the National Land and Water Resources Audit.



REFOCUSING GOVERNMENT PRIORITIES

The Greens understand that government must take the lead in re-prioritising the way we approach our food system.

The Greens will:

- **reverse the decline in public research and development in agriculture and our food system by increasing Commonwealth funding by 7% per year.** We will invest an additional \$300 million over the forward estimates including creating a new Centre for Sustainable Agriculture, tasked with investigating solutions to complex cross-disciplinary issues that affect our food system
- **establish a National Food Policy Ministerial Board to coordinate national food policy**, one that is chaired by the Minister for Health and addresses the key challenges to our food system, such as climate change
- create an **independent Food Advisory Council** to provide expert advice to government on how to achieve the key objective of a healthy, sustainable and prosperous food system
- **appoint an independent Food Commissioner**, with the core function of holding the government to account for the implementation of sustainable national food policy
- support the **creation of regional food councils** to maximise community participation in our food system.

TABLE OF POLICY COSTINGS

All initiatives have been costed by the Parliamentary Budget Office.

REFOCUSING GOVERNMENT PRIORITIES (start date for each is 1 July 2014)	COST over the forward estimates
Increase Commonwealth funding for agricultural research and development by 7% per year	\$300 million
Fund a national network of 180 agricultural extension officers	\$76.5 million
Grants to rebuild local food systems connecting communities to their farmers	\$65 million
Lower on-farm costs by funding the switch to renewable energy and greater energy efficiency	\$100 million
Establish an independent National Biosecurity Authority and Biosecurity Commission	\$30 million
Run a national food waste reduction campaign, increase funding for food emergency relief; and provide funding for research into financial mechanisms to avert avoidable post-harvest food waste	\$20 million
Fund up to 800 new school kitchen garden projects and increase funds for adult nutrition education programs	\$35 million

[greens.org.au/food](https://www.greens.org.au/food)

REFERENCES

¹ Brown, L 2013, *Full planet, empty plates: the new geopolitics of food scarcity*, Worldwatch Institute.

² Pollan, M 2006, *The Omnivore's dilemma: a natural history of four meals*, Penguin Press.



Chapter One

IS THE WORLD FACING A FOOD CRISIS?



ONE CRISIS OR THREE?

Many experts fear we are on the cusp of a major food crisis, specifically that we will not be able to produce enough food for our growing population.

The key facts commonly cited are that by 2050 there will be more than 9 billion people to feed, which must be achieved in a world where already nearly 1 billion people go hungry.³

For prosperous nations like Australia, this statistic tends to make a global food crisis seem distant and focuses us on our role as a major good exporter.

As a result, when it is suggested that the answer is to find ways to enhance agricultural production by as much as 70% or face a world where millions will go hungry, it tends to reinforce our view of the food system that the key challenge is enough food supply.⁴

However, this feels remarkably like déjà-vu. In the 1950s and 1960s the world was gripped by the quest to end global famines and hunger, and was convinced that the key was significantly increasing the amount of food produced, and lower food prices. Countries like Australia responded enthusiastically by embracing industrial agriculture and maximising production for export.

Globally, we learnt some important and hard lessons from focussing solely on increasing food production as the answer to hunger, the most important of which was that it doesn't work.⁵

This is evident from the situation today. Not only are 1 billion people still going hungry, it is happening in a world where we produce enough food for 11 billion people; more than 1 billion of us are overweight or obese; and collectively we are wasting at least one-third of the food we produce.⁶

Clearly, other factors, not least of which is persistent and widespread poverty, are just as influential when looking at the causes and solution to global hunger; and while we are rightly concerned about those going without enough food, the 1 billion

people overweight and obese are another health crisis in part caused by our current food system and needs urgent attention.

We now also know that our current industrialised methods of agricultural production, invented to radically increase crop yields, carry a heavy price in terms of environmental degradation. They contribute to our consumption of as much as 1.5 earths to supply our needs and wants, and to our global greenhouse gas emissions, causing climate change.⁷

Putting all this information together, it is clear that, as Professor Olivier de Schutter, the United Nations Special Rapporteur on the Right to Food, explained:

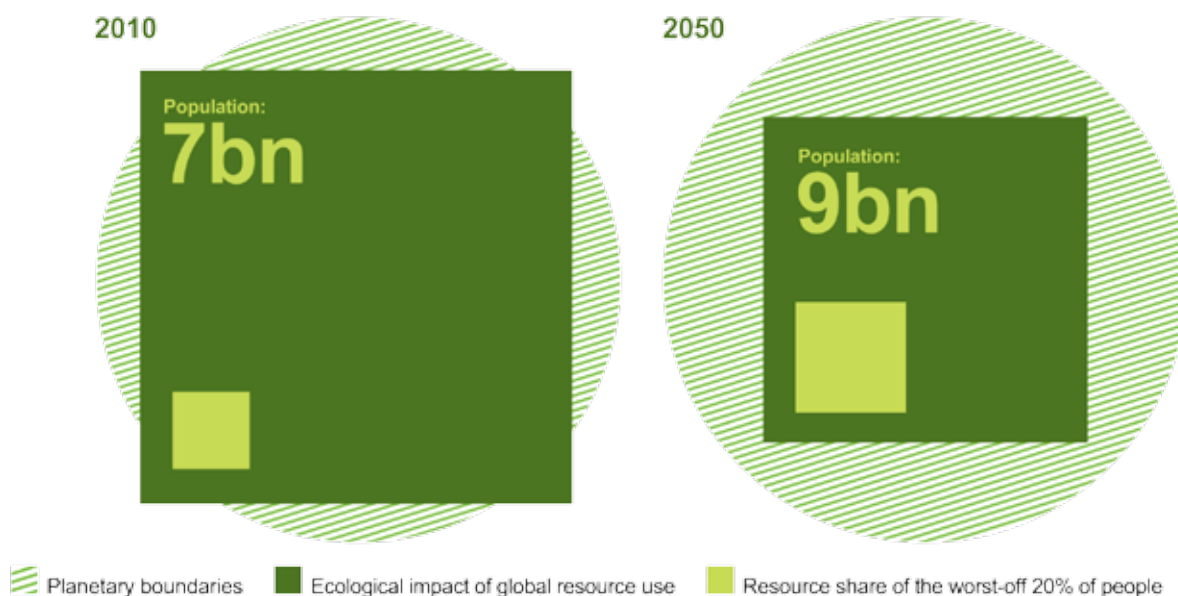
We are not facing a food crisis. We are facing three crises, poverty, environment, and nutrition.⁸

This perspective is critical, as it acknowledges that our food system is both a key part of the cause of global hunger, inequity and unsustainability; and a key part of the solution to these challenges. Without this understanding, we risk repeating the mistakes from the 1960s, of solely focussing on increasing agricultural production, and in doing so exacerbating the problems we are trying to solve.

Our failing food system has not developed overnight, nor will it be righted instantly. However, the threat of climate change now makes action urgent. Our current food system is both a direct contributor to human-induced climate change, and particularly vulnerable to its consequences.

Already climate change is causing greater rates of disruption to global agricultural production because of the increased intensity and frequency of droughts, floods, and other natural disasters along with the quieter but no less devastating diminishment of crop yields due to changing seasons, increased weeds, pests and diseases and shifting fresh water availability. These impacts are only expected to worsen considerably if the world continues to warm by more than 4°C or beyond, as it is currently on track to do.⁹

FIGURE 1 – THE FOOD SYSTEM CHALLENGE



While the picture painted above may feel bleak, in many ways it is a cause for hope, because fixing the food system will contribute markedly to avoiding catastrophic climate change, providing global equity and prosperity and restoring the biosphere.

This can be achieved by looking at not just how much food we need to produce, but also how we produce and distribute it, and perhaps most importantly, *why*.

For this reason, people no longer talk simply about hunger, but food security.

FOOD SECURITY

The Food and Agricultural Organisation provides one of the most commonly used definitions of food security. It defines it as:

*When all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.*¹⁰

Food insecurity therefore exists when people do not have adequate access to food as defined above; and it can be caused by other factors besides simply not growing enough food.

In essence food security packages up three key questions:

- Supply – is there enough food to feed everyone all the time?
- Demand – are we ensuring that all people eat first, and that we are providing the right kinds of food to ensure everyone has good health?
- Access – can people afford, and easily and fairly obtain, enough nutritious food?

The next section examines in brief the state of the global food system in terms of these three questions, and what they tell us about how our food system must change.

CHALLENGES TO GLOBAL FOOD SUPPLY

SOIL, WATER AND BIODIVERSITY

Our planet has a finite amount of land suitable for agriculture, and similarly a static supply of freshwater. As the two pivotal resources for agriculture and food production, how we treat our land and water resources has major implications for global food supply now and into the future.

Topsoil takes thousands of years to form from the breakdown of rocks and incorporation of organic matter and living organisms. Partly driven by agricultural practices, the world has for some time been losing soil faster than it can be replaced as a result of erosion caused by loss of vegetation cover and soil structure to protect it from being washed or blown away. Similarly, significant amounts of soil resources have become contaminated and sterile through pollution and poor management.¹¹ Soil loss has now reached crisis point with some experts estimating that the world has just 60 years supply left.¹²

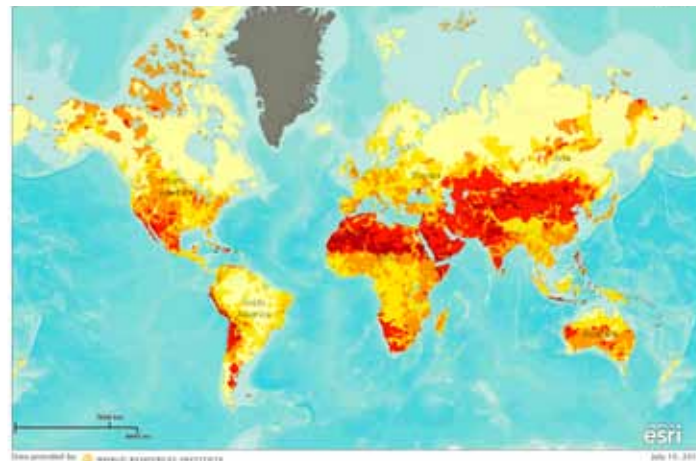
Agriculture is the world's biggest user of freshwater resources, accounting for 70% of global consumption, driven by an increasing reliance on intensive irrigation practices.

Groundwater and surface water are being extracted at rates that greatly exceed replenishment. A significant proportion of available freshwater is now heavily polluted, with agriculture contributing contamination from the runoff of pesticides and fertilisers into waterways and groundwater.¹³

By 2025 nearly 2 billion people will live in countries with permanent water scarcity and two thirds of the world will face regular water stress.¹⁴

The increased scarcity of land suitable for agriculture has been a key cause of increased rates of native vegetation clearance to create new farming land. These practices continue to drive the loss of habitat and biodiversity globally. Land clearance also significantly reduces the natural benefits to agriculture that are derived from being part of a healthy landscape, such as natural pest control and protection of soil and water.

FIGURE 2 – GLOBAL WATER RISK



Intensive farming has also caused a major loss of agricultural biodiversity. Increasingly, modern farming practices have come to focus on using just a few breeds of animals and crop varieties. This process began during the 1950s when concerted effort was put into providing genetically uniform and high-yielding breeds as part of the first push to eliminate hunger through increased production.

A further contraction of the number of agricultural plant and animal breeds has been pushed by a handful of multinational companies as they have commoditised and patented crop varieties, and seek to control their profits by ensuring as many farmers as possible use only their seeds. Just four multinational companies control more than half of all commercial seeds, and also own and sell genetically modified crop varieties.¹⁵

Three quarters of the world's food is generated from just 12 plants and five animal species. We have lost 75% of plant genetic diversity, and around 30% of livestock breeds are at risk of extinction.¹⁶

Countries are now actively working to protect and re-introduce agricultural biodiversity, as it is widely recognised that such diversity will be one of our best chances of identifying and developing strains of crops and animals able to cope with the extremes that climate change will bring.¹⁷

Intensive agricultural techniques using commercial high-yield breeds typically rely heavily on pesticides and the application of fertilisers. Both have had a heavy impact on natural biodiversity including plants and animals that directly benefit agriculture.¹⁸ For example heavy pesticide use kills insects that help manage pest species as well as the pests themselves, and takes a heavy toll on crucial pollinator species such as bees. The recent crisis in Europe and the US as bee populations collapse, in part because of pesticide use, is a salutary reminder that without pollinators, much of our food supply would also collapse.¹⁹

The identification of common pesticides in the decline of bee populations in the northern hemisphere is a phenomenon that Australia would do well to take heed of, while we still have healthy bee populations and the ability to proactively respond.

To ensure global food supply, our agricultural practices must curtail their heavy reliance on freshwater, reverse the trend of topsoil loss, stop the loss of agricultural and natural biodiversity, and cease to be a source of environmental pollution.



PHOTO: Potato diversity - Global Crop Diversity Grust

WHY BIODIVERSITY MATTERS FOR AGRICULTURE

There are at least 30,000 edible plants and 8,300 breeds of domestic animal that humans can eat, but we rely on just 5 crops and 14 domesticated animals for nearly all our food.

The incredible diversity of edible plants and animals that we have yet to fully explore offer many species that can grow in marginal lands and the adverse conditions that we now face due to a changing climate.

Conserving and researching agricultural biodiversity is one of the most important actions we can take to sustainably feed the world.

CLIMATE CHANGE DISRUPTION TO AGRICULTURAL PRODUCTION

Direct reliance on the biophysical environment means that agriculture is particularly vulnerable to the negative impacts of climate change. Changes and disruptions to rainfall patterns combined with higher overall temperatures will increase the rate of seasonal crop failures and longer term declines in overall production. All aspects of agriculture are likely to face new threats from weeds, pests and diseases as organisms respond to changing conditions.

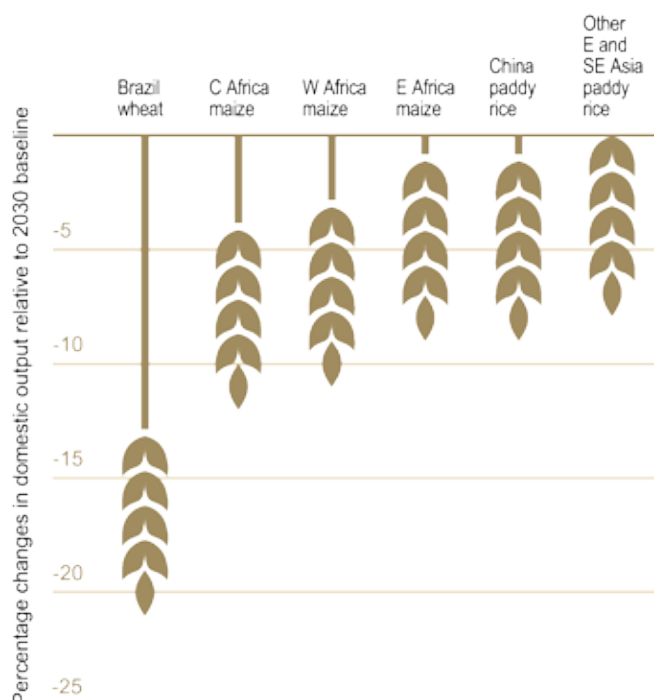
The International Food Policy Research Institute has forecast particularly negative impacts on crop production in Africa, Central and Latin America and Asia, including significantly reduced yields of wheat and rice. It observed:

Although there will be gains in some crops in some regions of the world, the overall impacts of climate change on agriculture are expected to be negative, threatening global food security.²⁰

The more the world warms beyond 2°C, the far greater the frequency and severity of extreme weather events and natural disasters that destroy crops, arable land and agricultural infrastructure. Other impacts will be less sudden but no less significant, such as greater failure of plant germination and increased loss of soil moisture due to warmer overnight temperatures; and permanently changed seasonal rainfall and frost patterns.

Some agricultural regions will be abandoned due to these changes dramatically reducing their productivity and this will see the mass movement of peoples in search of food security. Many experts fear this will cause new conflicts, driven by contested access to arable land and water.

FIGURE 4 – PREDICTED IMPACT OF CLIMATE CHANGE ON REGIONAL STAPLE FOOD PRODUCTION



SOURCE: reproduced with permission from Oxfam Report *Growing a Better Future: Food justice in a resource constrained world* - www.oxfam.org.uk

FOSSIL FUEL RELIANCE

Oil and gas provide the fuels for agricultural machinery and transportation, and most of the nitrogen fertilisers and pesticides used in agricultural production are derived from oil.

Typical modern agricultural practices are now so reliant on fossil fuel inputs to boost soil fertility and control pests they run at an energy deficit: it takes five or more units of fossil fuel energy inputs to produce one unit of energy in the form of food.²²

There has been growing concern that cheap oil reserves have been depleted to the point that we have reached “peak oil” – where demand for oil exceeds available global supplies, resulting in scarcity and significant price rises. Its heavy reliance on oil therefore makes agricultural production highly vulnerable to oil shortages and price shocks.

However, climate change has forced the recognition of another kind of peak oil – one in which we acknowledge that the vast majority of known fossil reserves must stay in the ground to avoid a catastrophic rise in global temperatures.²³

As a significant user, changes in agricultural practices to reduce the reliance on fossil fuels will contribute to climate change mitigation.²⁴ Removing the reliance on artificial fertilisers and pesticides would significantly increase the stability of global food production, and reduce negative impacts to biodiversity, soil health and water quality from these agricultural inputs.

PHOSPHOROUS GLOBAL SUPPLY LIMITS

Lesser known but of equal concern is the fear that the world is approaching “peak phosphorous”. An essential and naturally sourced element for growing food, agricultural demand for phosphorous is such that scientists fear that the readily available sources will be depleted within 30 to 40 years.²⁵ Some significant agricultural regions, such as the southwest of Western Australia, are only viable due to the regular application of phosphorous.

Phosphorous shortages have occurred due to the breakdown of recycling of plant and waste practises that returned it to agricultural soils, accompanied by a large increase in demand. It is another example of the need for global agriculture to come to grips with its use of finite resources.

ACCESS TO FOOD

POVERTY & GENDER INEQUITY

Poverty and gender inequity remain the driving forces behind continued global hunger, and highlight the deficiencies in focussing solely on increasing supply and trade as the answer to food insecurity.

This inequality is strongly rooted in the treatment of women. There are severe gender inequities in the valuing of labour, land rights, and access to education. In the global south, women and girls comprise nearly 50% of the agricultural workforce producing 60–80% of the food, yet own less than 20% of the land, and comprise 60% of those suffering from malnutrition and hunger.²⁶

One of the most significant contributions wealthy nations like Australia can make to ending global hunger and inequity is to invest in women farmers in developing countries.²⁷ Recently the Food and Agriculture Organisation (FAO) estimated that if women in the global south were given the same access to resources and decision-making as men it would increase local food production by 20–30%, enough to feed another 150 million people.²⁸

The most important aspect of this potential increase in production is how it would reduce reliance on food imports and strengthen local food security, reducing the exposure of some of the world’s poorest people to global food price increases and volatility. It is estimated that 80% of the roughly 1 billion people going hungry on our planet are directly involved in food production.²⁹

This illustrates the reality of inequitable access to food, and it occurs when poverty, discrimination and other human right violations are embedded in the food system. Despite the right to food being a central tenet in several key international treaties, it is not sufficiently embedded in government and private sector decision-making frameworks to address the inequities of global hunger. This is a key reason why the United Nations appointed a Special Rapporteur on the Right to Food.

FOOD DEMAND, SUPPLY & ACCESS

FOOD TRADE MARKET FAILURES

The world has not regulated the trade in food within the context of upholding the right to food, including the necessity of maintaining global reserves to respond to sudden widespread disasters. This is despite the failure to eradicate persistent hunger and a savage increase in the number of food emergencies around the world from an average of 15 per year during the 1980s to more than 30 per year since 2000.³⁰

The failures of the market globally to address the crises driven by a broken food system can be illustrated by the rise of five interconnected trends: the undermining of local food security by free trade; the “financialisation” of food; the rapid rise of land and water grabbing; competition for food from non-food markets; and the impact of changing diets on demand and production.

As Australia takes the chair of the G20 group of nations in 2014, it will be in a unique position to influence these food security challenges, all of which challenge our traditional “business as usual” approach to food and trade.

INEQUITABLE TRADE LIBERALISATION & FOOD SECURITY

Free trade in food has commonly been seen as a universal good, helping it flow to those most in need, unhindered by local trading barriers. This assumption was made explicit as part of the 1996 World Food Summit, which included a statement that declared that trade liberalisation was a “key element” to achieving global food security.³¹

This spurred the pursuit of the inclusion of agriculture in multilateral free trade agreements, most importantly encapsulated in the Agreement on Agriculture and the creation of the World Trade Organisation in 1996. The theory was that dismantling government regulation and protections of domestic food systems would allow private ownership and capital to create a more efficient, effective and equitable trade in food, helping end hunger and increase the prosperity of farmers globally. As a result both industrialised and developing nations abolished public grain reserves and floor prices, resetting global food security to be fundamentally reliant on market forces.³²

However most developed nations kept subsidising their own industries and maintained trade barriers, entrenching market distortions rather than allowing fair trade with the global south. Developing nations therefore found they gained very little new market access as their key products.

Instead developing nations found themselves facing a flood of imports, often artificially cheaper than local production thanks to subsidisation, and this has created a vicious cycle of undermining local food production through deflated prices, which in turn necessitates more food importation to fill the local production gap.³³

Trade liberalisation also failed to address the concentration of private market power; in fact the exiting of governments led to further concentration. Today just three companies control 90% of the world trade in grain; and the globalisation of food supply and distribution has seen retail food multinationals expand hugely; Nestle post profits bigger than the GDP of more than 60 countries.³⁴

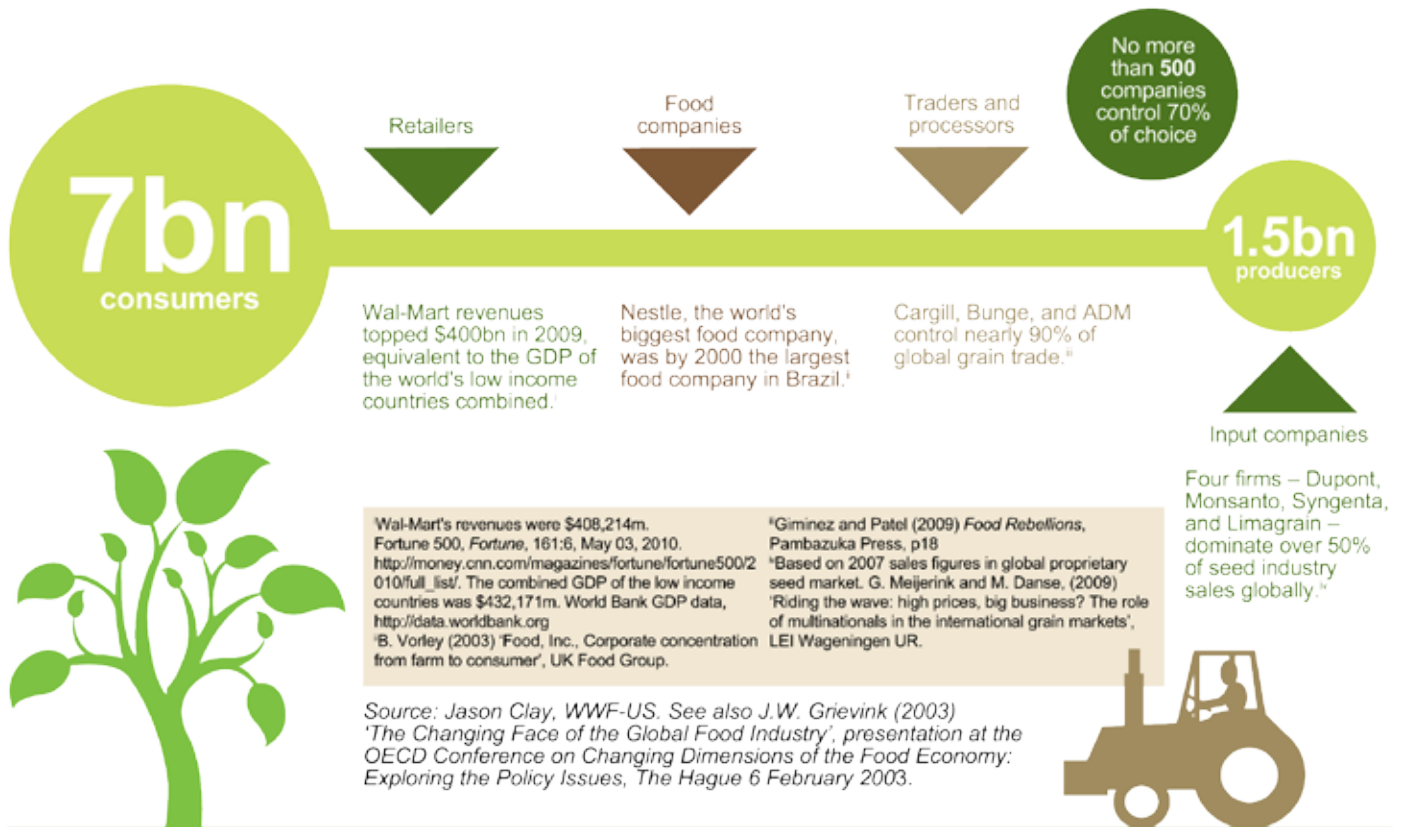
The combination of focus on cash crops for export and inequities in market power has left developing nations vulnerable to exploitation. Multinational corporations avoid the costs of providing fair working conditions and environmentally sustainable practices by accessing food and food processing to supply the global market from countries grappling with poverty, who agree to such conditions hoping they will help drive economic development.³⁵

With 80% of the world's hungry work directly in food production, it is hard to refute claims that the current trade settings for agricultural free trade have not delivered any meaningful gains towards ending global food insecurity and hunger.³⁶

The exploitation of cheap labour and goods in the global south also undermines local food systems in wealthy countries like Australia. Our farmers do not receive subsidies yet find themselves competing against cheap imports from developing nations without the same labour and environmental standards as ourselves, and subsidised imports from other developed nations. Since 2004, Australia has become a net food importer as companies including the two dominant supermarket chains bring in cheap imports, undercutting local farmers and food processors.³⁷

The failure of trade liberalisation to deliver the promised level playing field and increased prosperity in the global south has been one of the key reasons that global trade liberalisation talks through the World Trade Organisation have stalled, as developing nations have held firm for the original promises made by the EU and US in particular to drop their protection of their agricultural sectors. As a result efforts have increasingly

FIGURE 5 – WHO CONTROLS THE FOOD SYSTEM?



switched to bilateral and regional free trade agreements. There are strong views that these too undermine local food security.³⁸

The 2008 and 2011 global food price crises were a fateful demonstration of the vulnerability of countries reliant on trade for food security. A combination of factors including widespread failure of crops across the world in the face of severe weather events, the lack of grain reserves to moderate price and competition from biofuels saw the cessation of exports by key supplier countries and soaring food prices.³⁹

The result was that import-dependent poorer nations struggled to secure the staple cereal crops necessary to feed their populations. Food riots and civil disruption occurred in over 40 countries, to the point that the global food crisis is cited as one of the driving forces triggering the Arab Spring.⁴⁰

FINANCIALISATION OF FOOD, LAND & WATER GRABBING

Normally ignored as an asset class, the fragility and collapse of traditional investment sectors surrounding the global financial crisis has seen a rapid increase in the number of financial actors investing in food commodity trading and assets, and with it, a rise in food price speculation.

Such speculation focussed on profit maximisation has added to food price volatility and separated food prices from real supply and demand.⁴¹

There has also been a re-evaluation of the value of concrete assets associated with the food system, as major private investors wake up to the shrinking supply of arable land and freshwater and the implications of climate change. Willem Buiter, chief economist at Citigroup, epitomised the new attitude from the financial industry when he stated:

*Water as an asset class will, in my view, become eventually the single most important physical-commodity based asset class, dwarfing oil, copper, agricultural commodities and precious metals.*⁴²

The rapid accumulation of land and water by the financial sector, concentrated in the developing world, is now causing significant concern. The purchased agricultural land is being used for growing food for export to other markets; as part of the food security of wealthy countries reliant on food imports that now see trade exposure as an unacceptable risk; and to grow crops to meet other demands such as biofuels.⁴³

Because of the loss of access to local land and water increasing food insecurity, sometimes through the forceful removal of local farmers, this trend in the global south has been termed land grabbing.

Oxfam has shown that in the last decade an area of land eight times the size of the UK has been sold off through this new interest from financial markets, enough land to feed 1 billion people.⁴⁴

While blatant land grabbing is not occurring in Australia, what is happening is a significant surge in purchasing of our agricultural land and water by foreign companies and countries. Recent senate inquiries have heard from sovereign companies such as the Hassad Australia Company of Qatar, who explained that

as a country wholly reliant on food imports they now have a specific policy of acquiring land and water in countries like Australia, in order to grow food and send it home.⁴⁵

Australia's policy settings do not reflect the new reality of foreign purchases of agricultural land and water for both domestic food security, and asset speculation purposes. We do not maintain a register of foreign agricultural land and water purchases; there is no mandatory application of a national interest test to such purchases; and the threshold for any consideration of potential implications is for sales over \$248 million.⁴⁶ It has been persistent efforts by the Greens, who understand the new geopolitics of food, that has put this vulnerability for Australia on the agenda.⁴⁷

BIOFUELS

The subsidisation of domestic biofuel production and international demand for biofuels from the developed world are now important contributors to continued food price increases.⁴⁸

The United State of America's mandated ethanol fuel levels have seen up to 40% of its corn crops diverted to domestic fuel production as a result of increased biofuel targets and demand, rather than being sold on global grain markets for food. As one of the world's biggest grain exporters this has had both a chronic, and in combination with other pressures, acute impact on global food prices, particularly as it forges a direct link between oil (energy) and food prices.⁴⁹

The EU's demand for biofuel has also been shown to be a key driver for land and water grabbing particularly in Africa.⁵⁰

CHANGING DIETS

An area receiving increasing attention is the impact of changing food consumption patterns on demand and production methods.

Globally, food consumption is now characterised by the sharp disparity between the nearly 1 billion people who under-consume, and the 1.5 billion who over-consume. Both over- and under-consumption of food are unsustainable, and drive negative health and environmental impacts.⁵¹

For the first time in human history the number of people over-consuming food outnumbers those who do not have enough; and over-consumption is no longer confined to the developed world. For example the number of overweight people in China has increased rapidly from less than 10% to 15% in just three years. Over-consumption is increasingly acknowledged as a key threat to global food security and health.⁵²

The rise in over-consumption is driven by three inter-linked trends: the rise in global population; rising urbanisation; and rising income. Rising population, concentrated almost entirely in developing nations, has been accompanied by a marked increase in the movement of people to urban areas.

Urban living has generally delivered greater economic opportunity and disposable income, a welcome development in terms of reducing global poverty. However an unintended consequence from rising urban populations is that enormous pressure is being placed on the global food system from far greater access to nutrient-dense foods through the globalised

food chain. The result of this convergence is known as the 'nutrition transition', with people shifting to eating increased amounts and proportions of saturated fats, sugar and refined foods — often referred to as the "western diet" — most of which are much more resource-intensive to produce.⁵³

Global agribusiness has capitalised on rising incomes and urban populations by promoting resource-intensive diets because they are highly profitable. However they have adverse consequences for global food security the global poor.

Less poverty has meant rising demand for meat and dairy-based food. From 1950 to 2009 global consumption of meat and dairy doubled, and is now on track to increase four-fold by 2050. This rapid rise in demand has driven the use of increasingly resource-intensive farming methods such as animal feed-lotting. Now approximately 35% of global grain harvest is fed to animals.⁵⁴

Feeding cereals to animals to provide meat is highly inefficient. It is estimated that it takes between three to six kilograms of grain to produce one kilogram of meat.⁵⁵ The United Nations Environmental Programme (UNEP) estimates that even accounting for the energy value of the meat produced, feeding cereals to animals instead of people eating cereals directly represents the annual calorie needs for more than 3.5 billion people.⁵⁶

The rise of over-consumption of resource-intensive foods therefore reduces the accessibility of food for the global poor. In 2008 the developed countries comprised 18% of the global population, but consumed 39% of grain and 41% of animal protein supplies. Competition for grain staples for animal feed also contributes to price rises. With impoverished households spending as much as 70% of their budget on food, even small price rises for basic cereal crops have enormous consequences.⁵⁷

The rise of resource-intensive diets is also exacerbating pressure on the natural resources available for agriculture, and on global fisheries. Rising demand has led to the adoption of increasingly unsustainable intensive farming practises. For example the UNEP points to the rapid rise of demand for meat as a key driver of the clearance of intact forests in the tropics for either growing animals for meat directly, or to grow grain crops to supply intensive animal feedlot operations.⁵⁸

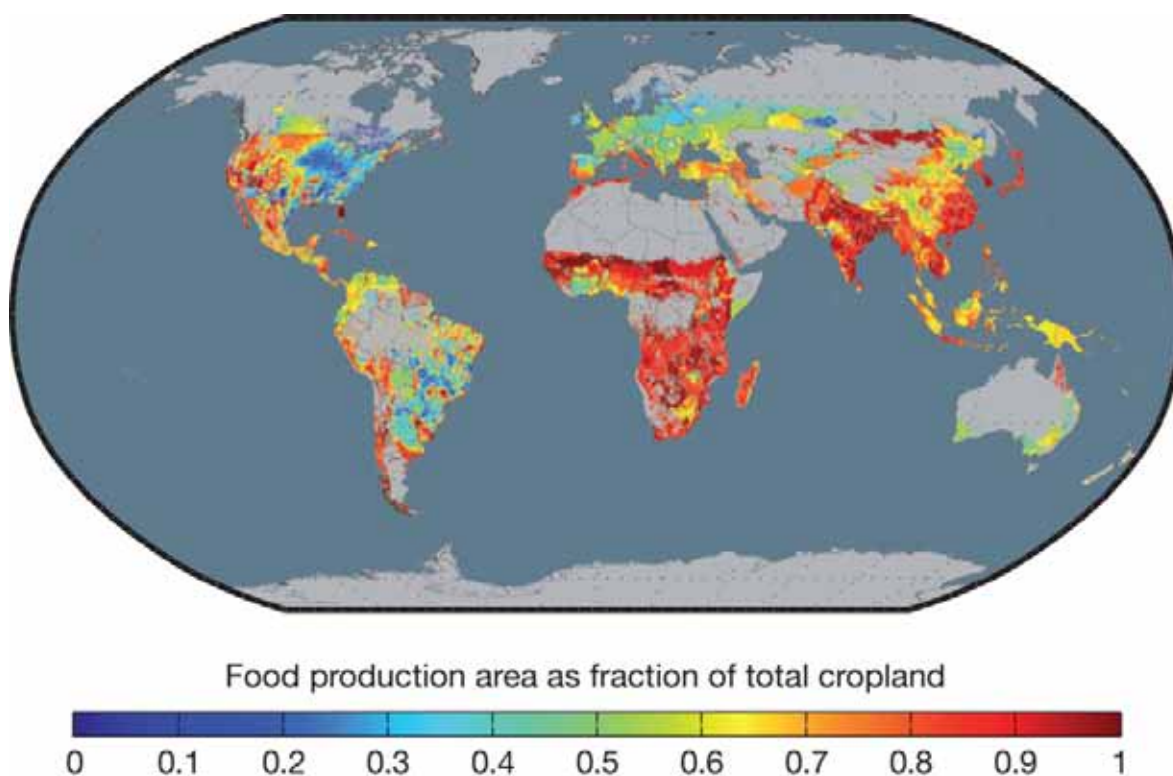
By intensifying the use of land and water to supply resource-intensive diets, we are consuming the irreplaceable assets that future generations will need, particularly given rising population.

The spread of resource-intensive diets is also contributing to the global rise of obesity and associated chronic poor health from diet-related diseases. Disturbingly obesity is also now found in combination with micronutrient malnutrition – that is, people are eating more calories than they need, but not getting enough essential minerals and vitamins and other nutrients for good health.⁵⁹

The cost of addressing obesity-related health problems is a growing burden for public health systems. In the US total healthcare costs attributable to obesity are set to double every decade and Australia faces a similar challenge.⁶⁰ Productivity losses are also significant; but least quantified and arguably most important is the loss of individual quality of life.

With these trends set to continue, there is an urgent need to shift populations onto sustainable and nutritious diets. Lifting people out of poverty must continue, but not at the cost of their personal wellbeing and future food security through the promotion of resource-intensive and unhealthy diets. We must reduce the global footprint of food production, secure public health, and address the consumption disparity between the affluent and poor.

FIGURE 6 – MAP OF THE GLOBAL CROPS DIVERTED INTO BIOFUELS AND ANIMAL FEED



SOURCE: JA Foley et al. *Nature*, 1-6 (2011) doi:10.1038/nature10452

WHAT ABOUT FISH?

An extensive discussion of fisheries and aquaculture in the context of global food security is outside the scope of this policy document, but this in no way diminishes their importance.

What is the state of our fisheries globally?

Seafood is the main source of animal protein for approximately 1 billion people around the world. However, over fishing, pollution, and loss of habitat have all caused serious harm to the marine environment, and severely depleted fish stocks. It is estimated that two thirds of the world's fishery stocks are below sustainable levels; yet overfishing continues in half of them.⁶¹

Accelerating climate change is now one of the greatest risks to global fish stocks. Marine scientists have warned that we face the collapse of entire marine ecosystems and unprecedented mass extinctions in our oceans unless catastrophic climate change is stopped.⁶²

HOW ARE AUSTRALIAN FISHERIES FARING?

Some of Australia's fisheries historically have suffered from over-fishing, but now our marine resources are comparatively well-managed. There has been a focus on rebuilding depleted stocks and implementing sustainable catch limits. Recent work to create a network of Commonwealth marine reserves is a significant major step towards ensuring that we have viable future fisheries.

Climate change is a major threat to Australia's marine biodiversity and fisheries, and the effects are already being observed. The expansion of the range of South Eastern Australian sea urchin into Tasmanian waters due to warmer waters has devastated giant kelp forests and hurt the local rock lobster industry. The unusually warm ocean in 2011 of the WA coast (dubbed the Ningaloo Nina heatwave) may well have been caused by climate change. The Great Barrier Reef is showing stress from rising ocean temperatures and acidity.⁶³

WHAT DOES THE FUTURE HOLD?

Both globally and in Australia, aquaculture is the fastest growing fisheries sector.

Sustainable aquaculture has the potential to take significant pressure off wild fish stocks and make a valuable contribution to global food security. However to do so, it must end its reliance on fish meal for food which exacerbates over-fishing of wild stocks, by moving to plant and algae-based foods. Ocean-based aquaculture may need to move on land to control its water and waste cycle, and control water temperature as climate change takes hold.⁶⁴

Whilst rare in Australia, small and medium scale inland freshwater aquaculture is increasingly being combined with agriculture with great success. For example fish can be grown with rice, where the fish feed on plant material and pests, and their waste provides nutrients for the rice crop.⁶⁵

GOVERNMENT RESPONSES

Some countries' view of food has undertaken a quantum shift in the last few years. The 2008 global food crisis, in which natural disasters saw several major food exporters cease all export, combined with the marked increase in food price speculation and diversion of cereals to other demands such as biofuels, led to rapid spikes in food prices that caused severe social disruption and hunger.⁶⁶

The crisis led some countries to radically rethink their approach to food trading, particularly those heavily reliant on food imports because they do not have the natural resources to be self-sufficient. These nations rapidly redefined food as an issue of national security. As a result they too have been investing through sovereign companies in arable land and water in other countries to bolster their own food security.⁶⁷ Such investments, while understandable, threaten to distort global food trade and demand, and negatively impact on local food security in the countries where they are investing.

Other nations that do have the ability to be self-sufficient in food production have been also reassessing their approach to food security. The threat of climate change to local food production and the realisation that economic policy settings have left domestic agricultural systems struggling to survive has driven a new focus on local food security. Responses have included a renewed focus on strategies that ensure the right to food, rebuilding the economic, social and environmental resilience of local food systems, increased investment in agricultural research and development, and explicit government support for local procurement.⁶⁸

The new phenomenon of viewing food as a matter of national security may help bolster a renewed commitment to addressing the unsustainability and inequities in our current food system. It could also exacerbate them and increase serious conflict over food and agricultural resources.

Some regions such as the Horn of Africa are already known hotspots for conflict over land and water, exacerbated by the impacts of climate change. Conflict between Ethiopia and Kenya for water rights to Lake Turkana and the Omo River has been a living example for the last decade.⁶⁹ In recent times conflict over precious pasture lands in Somalia has recently displaced thousands.⁷⁰

COMMUNITY RESPONSES

The many failures of the global food system, particularly concerns about the adverse impacts of free trade agreements, have driven a new level of global activism by small agricultural producers, culminating in the formation of the Via Campesina movement in 1993. With representatives in over 70 countries and claiming to represent approximately 200 million small farmers, Via Campesina is widely regarded as one of the world's most important international community movements.⁷¹

The focus of the Via Campesina is the achievement of food sovereignty, defined as:

*The peoples' right to define their own policies and strategies for sustainable production, distribution and consumption of food that guarantee the right to food for the entire population.*⁷²

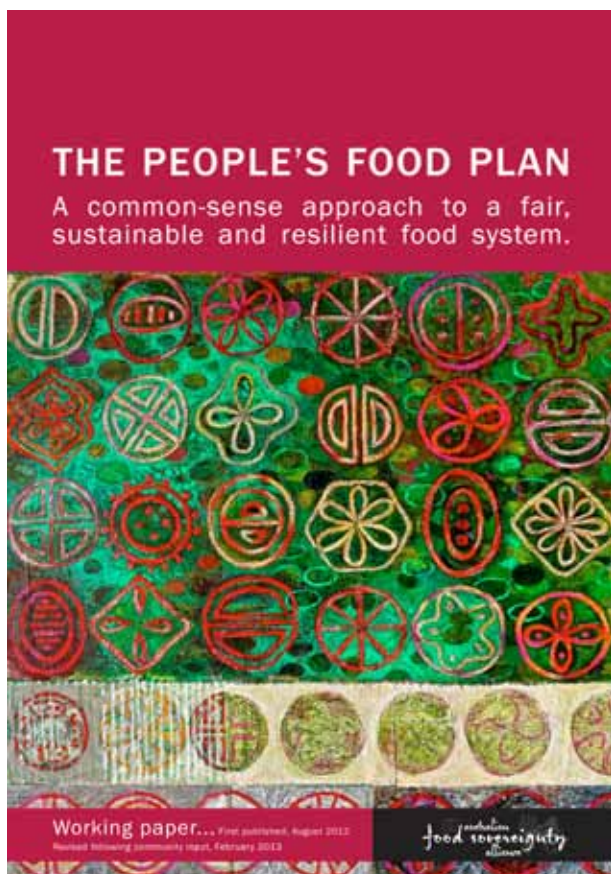
The movement for food sovereignty across the world is active in enshrining this goal into national and international food policy and law; and it has not just been confined to the global south. Farmers from Europe, Canada and the US were involved in the creation of Via Campesina, and food sovereignty organisations are growing across the world, including in Australia. In 2010 the Australian Food Sovereignty Alliance (AFSA) was formed. In defining the relevance of food sovereignty to Australia, founding member and National Coordinator for AFSA Nick Rose wrote:

*Food Security is concerned with ensuring adequate access to food for all, but it does not specify where food comes from, the agricultural production values with which it is produced or the social conditions of those producing it ... Food Sovereignty by contrast has a great deal to say about the means. Fundamentally it is about farmers, rural communities, individuals ... asserting democratic control over their food systems.*⁷³

In 2012 AFSA conducted workshops across the country attended by more than 600 people, culminating in the production of the People's Food Plan Working Paper. The working paper affirms the view that Australians have a collective right to food sovereignty, with an aim of achieving:

*[A] fair, diverse and democratic food system for the benefit of all Australians.*⁷⁴

The food sovereignty movement is providing a cohesive community voice for systemic change to our food system. In many countries, including Australia, the movement is in front of government in understanding that changing how we grow, distribute, value and eat our food would radically change the planet for the better.



ECOLOGICAL AGRICULTURE

Too many current agricultural practices such as industrial large-scale monocultures and intensive animal feed-lotting are causing significant environmental damage. They are dangerously reliant on non-renewable resources and ill-equipped to help ameliorate or adapt to the impacts of climate change, instead contributing as much as one third of greenhouse gas emissions.⁷⁵ Moreover, the focus on industrial farming systems has not been appropriate for Africa, Asia, and Latin and Central America, and has exacerbated disparities in diet and consumption. As a result we have not solved fundamental issues of global poverty, gender inequity and hunger.

The complex interplay of biophysical, social and economic challenges to the global food system demonstrates that a holistic response is essential. We need to rapidly identify and implement new approaches to farming that are sustainable, productive and resilient in the face of existing challenges, and the threat of climate change.

Equally importantly such new techniques must remove, not entrench, current inequities in food access and distribution. They must ensure that the world's rural poor and women in particular, are empowered to fully and equitably participate in the food system.

In response to this need for systemic change a suite of alternative farming practices are being identified and adopted because they can achieve transformation of the food system in both developed and developing nations. These farming methods are now identified under the umbrella term "agroecology", or ecological agriculture.

Ecological agriculture was recognised as the convergence of the disciplines of agronomy and ecology:

*As a set of agricultural practices [it] seeks ways to enhance agricultural systems by mimicking natural processes, thus creating beneficial biological interactions and synergies among the components of the [agricultural ecosystem]. It provides the most favourable soil conditions for plant growth, particularly by managing organic matter and by raising soil biotic activity.*⁷⁶

The core principles of ecological agriculture include:

- recycling nutrients and energy on the farm, and minimising external inputs
- integrating crops and livestock
- diversifying species and genetic resources in agricultural ecosystems over time and space
- focusing on interactions and productivity across the agricultural system, rather than focusing on individual species
- increasing carbon stores in soil to improve fertility, water retention and climate mitigation.⁷⁷

Ecological agriculture is highly knowledge-intensive, based on techniques that are generally not delivered top-down but developed on the basis of farmers' knowledge and experimentation. It encourages seed saving and crop diversification both in terms of species and breeding. Because it recognises the fundamental importance of empowering farmers, ecological agriculture has been adopted and driven by the food sovereignty movement.⁷⁸

Ecological agriculture has also been demonstrated to be highly effective at addressing the inequities within the food system. Investment in ecological agriculture involves direct investment and empowerment of farmers, including addressing gender inequity. It raises productivity, reduces rural poverty, improves nutrition and turns farming into a net climate change positive. The United Nations has recognised ecological agriculture as a critical pathway to achieving global food security.⁷⁹

Examples of successful ecological agriculture include the use of agroforestry to restore thousands of acres desert in Malawi to profitable and sustainable grazing lands;⁸⁰ incorporating ducks into rice farming in South Asia to provide a valuable animal protein crop and as a natural pest control; “do nothing” farming techniques in Thailand utilising effective soil micro-organisms;⁸¹ and the adoption of mixed farming systems in Pakistan, Bangladesh and Cambodia.⁸²

Nor has the take-up of ecological agriculture been confined to the developing world. In countries like Australia, while the terms “agroecology” or ecological agriculture are rarely heard, agricultural techniques that work with ecosystems are not – in fact Australia has often been the site of pioneering sustainable agricultural techniques. Practices such as conservation tilling, integrated pest management, agroforestry, dry land cropping, cell grazing and reseedling of native pasture, agricultural landscape regeneration programs such as Soils for Life, and permaculture are increasingly being adopted.

Globally, the widespread application of ecological agriculture has been identified as essential to reverse the trend of contamination

and loss of soil and freshwater; conserve the earth’s dwindling biodiversity including agricultural biodiversity; free agriculture from its overwhelming reliance on fossil fuels; and to ensure agriculture helps stop and adapts to climate change impacts.⁸³

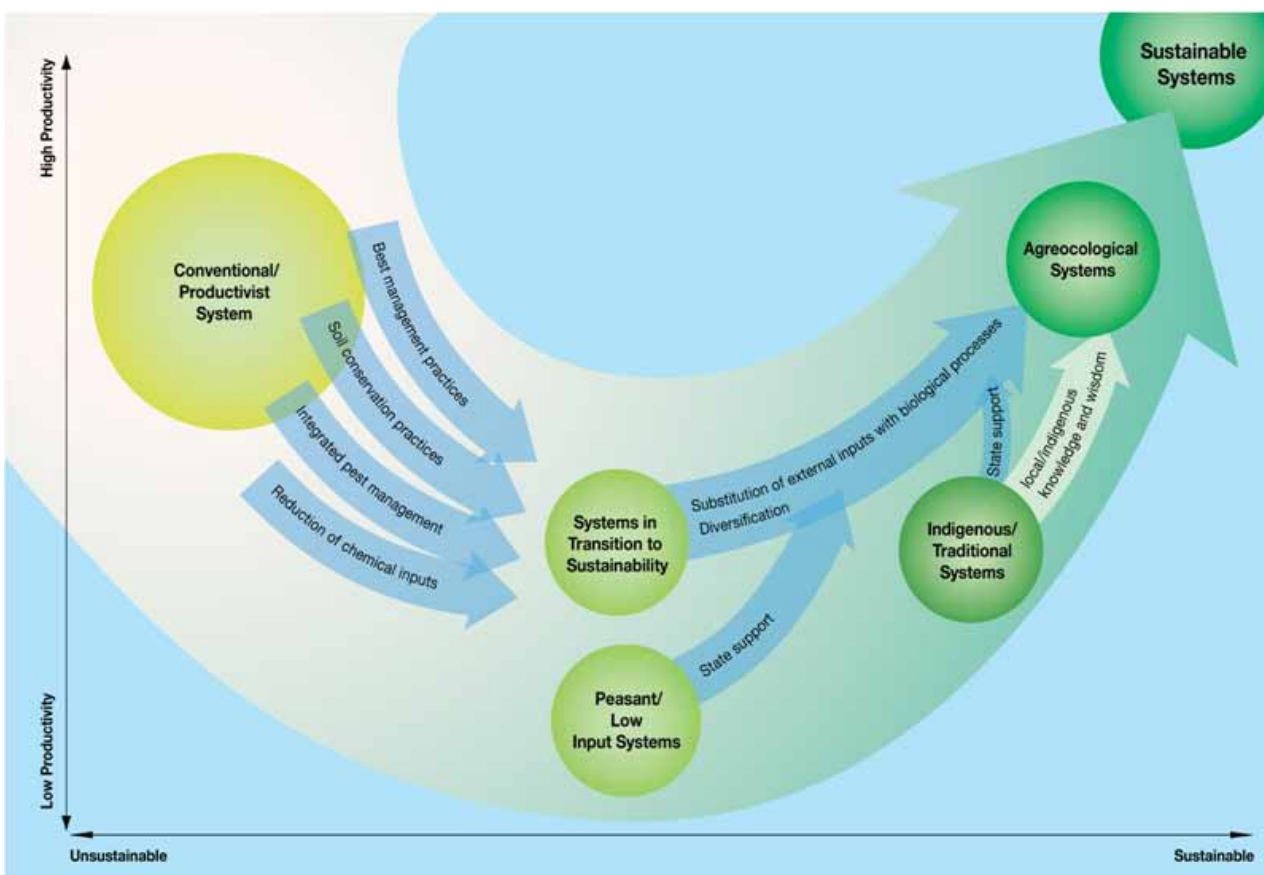
THE WORLD AGRICULTURE REPORT & ECOLOGICAL AGRICULTURE

In 2003 the state of the food system and the increasingly urgent threat of climate change resulted in the World Bank and the United Nations initiating an international evaluation of the situation.

The evaluation brought together over 400 scientists from every continent and a range of disciplines relevant to agriculture and food. Over four years of work they produced the International Assessment of Agricultural Knowledge, Science and Technology for Development, commonly known as the World Agriculture Report.⁸⁴

The conclusion was the business as usual for agriculture was not an option. The World Agriculture Report recommended that across the global farming needed to adopt ecological agriculture. For developed nations this would mean moving away from large-scale industrial monocultures reliant on fossil fuels and other inputs. For developing nations it would mean transforming subsistence and low-yield farming. The diagram below from the World Agriculture Report captures the transformation required across farming systems.

FIGURE 7 – THE TRANSITION TO SUSTAINABLE AND PRODUCTIVE FARMING



GENETICALLY ENGINEERED CROPS

Predictions that the world will need to produce 70% more food by 2050 to meet demand has seen the resurgence of claims that genetically engineered (GE) crops will be essential to meet this challenge. It is argued that GE crops are our best hope of creating varieties that can survive the impacts of climate change and radically increase yields.

We should not outright reject any technology if it can be shown to help overcome major obstacles to feeding the world in a sustainable and ethical way. However to date claims that GE crops are vital to food security do not hold up to scrutiny, and in fact many aspects of pursuing GE crops actively undermine the holistic transition to our agricultural practises we need to make.⁸⁵ Nor do they meet the public interest test, by privatising the biodiversity of the global commons to the detriment of the world's poor and future generations.

This is largely because GE research remains focussed on trying to improve yields in the existing few crops we rely on as grain staples globally. It has been noted that such yield gains are already approaching maximal limits; and reinforce a reliance on low crop diversity and industrial farming methods, both of which have been identified as a major barrier to future agricultural sustainability.⁸⁶

As noted by the World Agricultural Report, GE accounts for one small aspect of a wide range of modern biotechnologies being explored and developed with regard to agriculture and face a wide range of complex barriers that are unlikely to disappear in the near future.⁸⁷ While controversy over the value of GE crops continues, other biotechnological approaches combined with conventional plant breeding techniques are already delivering marked improvements.⁸⁸

Increasingly evidence confirms that our focus should be on implementing ecological agriculture, including the exploring the wealth of edible plant diversity we have available to us. Many indigenous plants already feature traits that allow them as to thrive in difficult growing conditions that cause conventional crops to fail.⁸⁹

LOW YIELDS & WEEDS & PESTS

While many claims were made about what GE crops would offer, current commercial varieties have focussed on improving yield and lowering pesticide use. Currently three crops make up the vast majority of commercially grown food GE varieties in the world: soybeans, canola and corn. Two GE traits dominate – herbicide resistance, pest resistance or a combination of both traits.

The US has the most widespread adoption of GE, with GE crops for corn, canola and soybeans dominating plantings. Recent longitudinal studies have shown no appreciable increase in yield compared to conventional farming techniques in Europe for these crops, and rather than a decline, there has been an increase in pesticide use in the US. Pesticide use has increased

because as feared, GE crops have created weeds and pest species now resistant to most chemical controls.⁹⁰

GE crops were hailed as the next “Green Revolution” for farmers in the developing world, but they have not delivered. The cost of the patented seeds and associated herbicides and the design of GE crops to suit large monocultures have proved a poor fit with the needs of small-scale growers who make up the bulk of farmers in Africa, Asia and Latin and Central America.

Commercial GE crops are privately patented and their use is accompanied by the prohibition of seed saving and farmer experimentation, practises that remain the foundation of small-scale farmers.⁹¹ In contrast new crop varieties during the 1960s push to end hunger were deployed with an explicit strategy of public good and thus were free, and on-farm experimentation was encouraged.⁹²

PRIVATE PROFIT VS PUBLIC GOOD

Throughout their development and deployment the first generation of GE crops have remained tremendously controversial and divisive within communities. The heart of the controversy is the private ownership and control of commercial GE crops by large multinational companies.⁹³

Through patents and rigid licenses GE companies have refused to give access to their raw research or allow full testing of their claims for their crop varieties. Such has been the restriction on independent research it led Scientific American to editorialise in 2009:

*Scientists must ask corporations for permission before publishing independent research on genetically modified crops. That restriction must end.*⁹⁴

While the outcry at the time did lead to some easing of restrictions on public research by the private GE companies, the situation has not changed enough to allay concerns. With GE crops for commercial use still being approved on the basis of research by the GE companies themselves, public concerns about the potential for long-term harm to human health and the environment has not allayed. The concerted, multi-million dollar lobbying efforts of companies like Monsanto to prevent independent research of their crops and the labelling of GE food in countries like the US has done nothing to convince the public that GE crops are safe.

Emerging research indicating serious human and environmental health impacts from glyphosate, the key herbicide used with herbicide-resistant GE crops has again highlighted the lack of proper independent research and transparency with regard to the risks associated with GE crops.⁹⁵

FUTURE OF GE CROPS & AGRICULTURAL RESEARCH

Less understood but of great significance is the negative impact GE research and deployment has had on research and development into alternative agricultural innovations, and agricultural biodiversity. GE companies and proponents have been very successful in securing public policy support and investment, to the detriment of investment in alternatives.⁹⁶

GE companies like Monsanto and Syngenta have aggressively purchased other seed companies and now dominate the commercial seed market globally, as well as the pesticide market. This combination has seen a loss of agro-diversity in crops world-wide, as well as an entrenchment of industrial agricultural practices.⁹⁷ It is therefore clear that GE research led by private companies is a threat to identifying new crops for food sustainability, not an asset.

There are signs that the lessons from the first generation of GE crops have been heeded. New methods of genetically manipulating plants are not necessarily relying on inserting foreign DNA for example, and there is a growing focus on a much greater variety of plant species and traits.⁹⁸

For the next generation of GE research on agricultural crops to be appropriate, it must be carried out by public institutions and removed from private patents and commercial controls. There must be full transparency to ensure that the value and risk of new traits is properly evaluated before any new GE crops or animals are released into the environment.

The damaging trend of GE crops reducing in-field agricultural biodiversity, and reducing resources focussed on developing alternative crops from the natural bounty of thousands of plant varieties already available, must stop.



Chapter Two

WHERE DOES AUSTRALIA STAND?



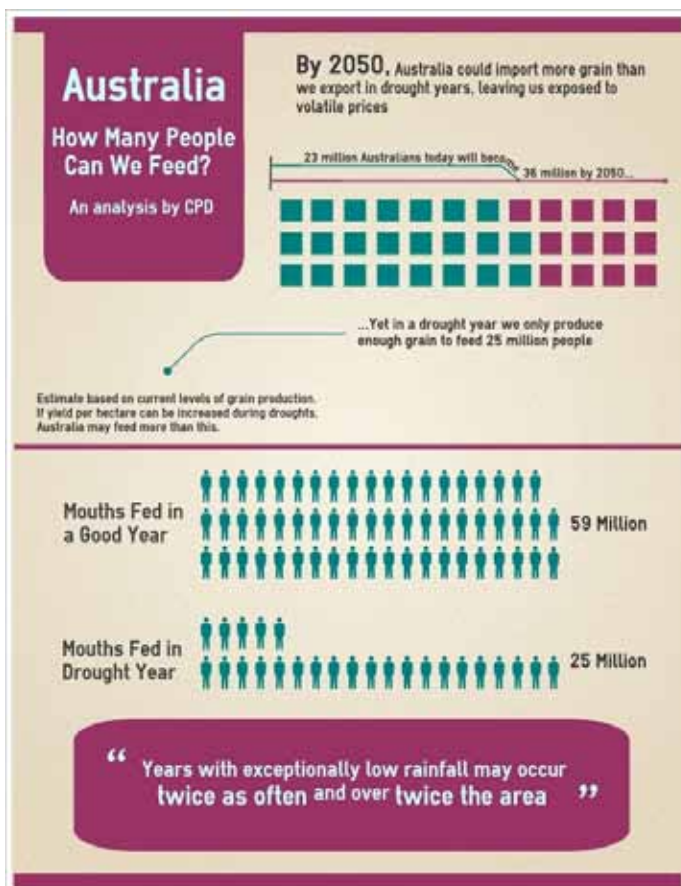
AUSTRALIA'S FOOD SYSTEM

It is easy to conclude that the global food security predicament is largely irrelevant to Australia. As a considerable net exporter of food, many will reasonably conclude that we are feeding ourselves and playing a small but admirable role in addressing global hunger.

This is a dangerously inaccurate reading of Australia's own domestic food security. In fact Australia's own food system largely mirrors the challenges facing many other countries. There are too many Australians struggling to afford and access healthy food and too many overweight and obese. Our farming workforce is declining and ageing, and our local food manufacturing sector is under intense pressure as we import more processed food than ever before.⁹⁹

Extreme weather has always made a dramatic difference to our agricultural production; for example in a drought year Australian grain yields drop to around 25 million tonnes, compares to nearly 60 million tonnes in good years.¹⁰⁰ Climate change is already increasing the frequency and intensity of extreme weather events in Australia.¹⁰¹

FIGURE 8 – AUSTRALIAN EXPORTS, DROUGHT vs NON-DROUGHT



SOURCE: Courtesy of the Centre for Policy Development. See cpd.org.au/farming-smarter-not-harder

In spite of these known challenges, Australia lags badly behind other nations in developing a coherent and long-term national food security strategy that prioritises Australians' right to food and community well-being through the sustainable local production.

Instead, as exemplified by the recently released National Food Plan, there is a 'business as usual' focus on maximising economic returns from food export, leaving critical issues such as ensuring access for all Australians to healthy and affordable food, keeping farmers on the land and addressing land degradation largely to the private sector.

It is particularly concerning that acknowledgement of the right to food is absent from Australia's public discourse, despite its prominence in international human rights treaties that Australia has ratified. Recently the United Nations Special Rapporteur reported on food security in Canada, a country very similar to Australia in terms of agricultural composition, the presence of strongly disadvantaged Indigenous populations and a notable gap between rich and poor. His report showed the need for the right to food to be embedded in government strategies for the food system in industrialised countries.¹⁰²

The food system is complex and crosses over multiple traditional portfolios including but not limited to environment, agriculture, health, welfare, energy, climate change, transport and trade. Because it has not been treated holistically in Australia, we lack critical coordination across government, transparency and the ability for independent expertise and the community to adequately participate in setting and delivering Australia's food policy objectives.

Where other countries have recognised the need to increase democratic participation and local ownership of the food system, Australia has to date continued to let economic and trade considerations dominate and be driven centrally with minimal input. The National Food Plan development process was dogged by complaints that it was not transparent or inclusive.¹⁰³

The lack of holistic food policy coordination has also resulted in the absence of critical data to inform key decisions at all levels of government and the broader community. The last national study on levels of food insecurity in the Australian population took place in 2004; there are no comprehensive and regularly updated national datasets at appropriate temporal or geographic scales on soil and freshwater health; identification and tracking of prime arable land; climate risk and adaptation; food waste; or food environment indicators that affect access to nutritious and affordable food.

AUSTRALIA INTERNATIONALLY

As a wealthy nation we are well-placed to address the shortcomings in our own food system and assist other nations with less capacity to deal with theirs. However the approach we take to the challenges facing our food system also shapes our actions globally – if we think "business as usual" is going to work for our own farmers, we impose that view in our trade and aid dealings.

For example using our aid budget to support small-scale agricultural producers, most of them women, is one of the most potent steps Australia could take to bolster regional food security.¹⁰⁴ Tragically instead Labor and the Coalition are committed to reducing or diverting Australia's aid budget to other uses.¹⁰⁵

Internationally, Australia's stance on global food price speculation, rigid adherence to free trade liberalisation and lack of understanding of new issues such as land-grabbing has serious consequences for poorer nations as well as our own farmers and food manufacturers.¹⁰⁶

Australia's influence globally will soon be significantly magnified, as we will take the Chair and set the agenda of the G20 group of nations in 2014. To date, the G20 has failed to address the key global challenges to food security, instead persisting with policies that have created a broken food system and benefit the wealthiest nations.¹⁰⁷ Australia will have an unprecedented opportunity to turn this failure around.

FAILING TO KEEP FARMERS ON THE LAND

FARMER NUMBERS DECLINING & AGEING

Because of a consistently strong performance in food export, tied with a justifiable reputation for resilience and innovation, Australian farmers are assumed to be doing well. This complacency underpins the business-as-usual policy approach, which places the focus on export earnings and minimal government involvement in supporting agriculture.

However, the demography of Australian farmers tells a very different story. In the last 30 years there has been a 40% decline in the farming population, a loss of more than 100,000 farmers. Those farmers remaining are ageing; an alarming 47% are aged 55 or more; and with just 13% aged under 35 there is a clear succession crisis facing Australian farming.¹⁰⁸

It has been observed that "in general, systematic research and discussion on the succession and estate planning in Australia is very limited, especially in the farming sector".¹⁰⁹ The limited evidence available suggests that while the average farmer's age is now 55, half or more have given little or no thought to succession arrangements. Over half of farmers may not be succeeded by the next generation. The situation facing most farmers – especially smaller-scale operators, but by no means those exclusively – is particularly acute. One submission to the National Food Plan on behalf of "the family owned farm" points to the severe demographic crisis facing this country's farmers:

Our children see us working very hard, and they know the farm struggles to make ends meet...Why would any child growing up here see constant sacrifice and hardship as a great future?... Are you aware of the seminar being run called, "Handing on the Family Farm is Not Child Abuse?"¹¹⁰

The decline and ageing of Australia's farming population has been accompanied by an increase in farm size, as farmers have tried to maximise efficiencies of scale to retain viability, often referred to as the farm problem'.¹¹¹



SOURCE: Courtesy of Tammi Jonas

Why has farming become such a difficult prospect in Australia? A number of current challenges are explored below.

MARKET SETTINGS, FREE TRADE & LOCAL FOOD

Australian farmers' terms of trade have been declining over the last 40 years.¹¹² By 2000, an Australian farmer had to produce more than four times the volume of food to earn, in real terms, just over half of what they earned nearly 50 years ago.¹¹³ Recent research on farm viability Victoria showing that more than 70% of family farms do not earn enough to support the family on them, suggest that little has changed for the better.¹¹⁴

In part this is the result of the aforementioned "farmer problem" – agricultural productivity has seen a significant rise in yields, but food prices are largely inelastic, meaning a growing disparity between yield growth and prices.¹¹⁵

Of particular note in Australia is the impact of having one of the most concentrated supermarket sectors in the world on food prices. Coles and Woolworths dominate, together sharing around 60% of the market;¹¹⁶ in comparison in the US the biggest food retailers including global giant Walmart together share a mere 20% of the supermarket sector.¹¹⁷

The domination is such that it is both a duopoly and a duopsony — that is a concentration of both selling and buying market

power in the same two companies.¹¹⁸ The serious issues with Australia’s food system caused by the domination of the supermarkets have been a consistent subject of concern for many years, and the following series of issues has been persistently highlighted.

The lack of diversity and competition in the market has seen Australian farmers and food processors hamstrung as “price takers”, forced to accept lower prices in order to secure contracts, yet evidence suggests that Australians are paying higher food prices that comparative nations.¹¹⁹

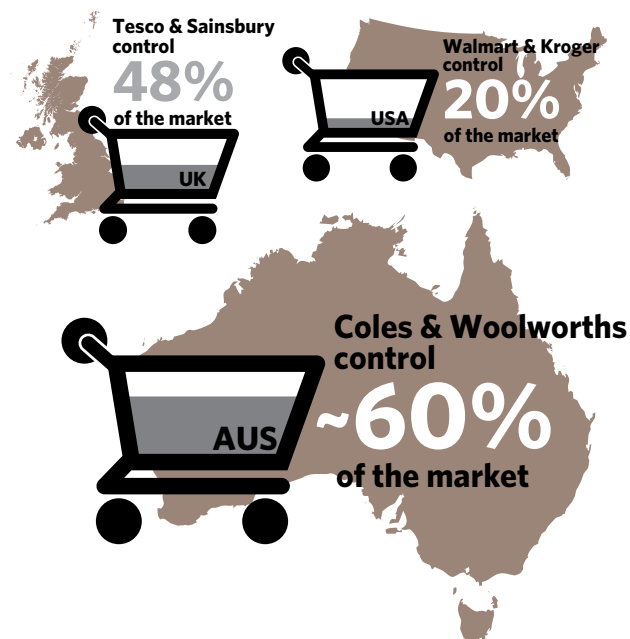
The supermarkets are also aggressively pursuing the replacement of private label products with their own generic brands, increasing their share of grocery profits and extending their control over the food supply chain. This tactic, combined with forcing private label brands to offer more retail discounts and absorb any costs have been particularly damaging to local food manufacturers.¹²⁰

It has also significantly increased the use of imported food, as Coles and Woolworths seek cheaper resources and products from overseas, undercutting local production. Despite an overwhelming desire for clear information, confusing labelling laws make it very hard for Australians to choose locally grown and made produce.

Poor food labelling also stops Australians from being able to identify and reward particular standards they are willing to pay more for such as free range and organic produce; or avoid unsustainable ingredients such as palm oil.¹²¹

At the same time Coles and Woolworths have pursued the creeping acquisition of smaller rivals, and accumulated potential supermarket retail sites while leaving them vacant or signing restrictive covenants with site owners to prevent competitors from establishing.¹²² This has accelerated the centralisation of Australia’s food retail market, undermining local food economies where there are shorter supply chains, typified by local small businesses selling produce from the region’s farmers.

FIGURE 9 – AUSTRALIAN SUPERMARKET SHARE



CONCENTRATION COMPARED TO USA & UK

The persistent allegations of the use of predatory pricing to drive down supplier prices and overcome local competition have recently spurred a new investigation by the Australian Competition and Consumer Commission (ACCC).¹²³

The damaging effect of supermarket power concentration and frustrations with the scope and application of Australian competition law has now reached a peak and there is a clear case for structural and policy reform. In the meantime it is Australia’s food producers and manufacturers that are balanced on the knife edge of fatally low prices and a lack of access to alternative market paths to reach Australian shoppers.

While food manufacturing employs approximately 200,000 people, of which around half are located in rural and regional areas, the closure over recent years of food manufacturers, particularly those focussed on using local produce is a rising cause for concern. The reality of this story can be traced through the annual publication of Australian Food Statistics by the Department of Agriculture, Fisheries and Forestry. Since 2004 Australia has been a net food importer, and the trade deficit has increased every year. Processed fruit and vegetables have been hardest hit by sharply rising amounts of imports, and it is reflected in the loss of associated food manufacturing businesses.¹²⁴

Trade settings are not sufficiently balanced. Australia, with its unique combination of one of the lowest rates of government support for farmers and food manufacturing coupled with a rigid adherence to free trade seems dangerously naïve compared to the robust and unapologetic actions taken by other nations to protect their local food systems. Our farmers and food manufacturers have to compete against countries with vastly cheaper labour and more lax environmental standards and working conditions. It is farcical to pretend this represents a level playing field.

Trade agreements are also pursued with unacceptable levels of secrecy, making it virtually impossible for civil society to engage and consider the benefits and costs from particular proposed agreements. For example Australia is currently engaged in negotiations for the Trans-Pacific Partnership Agreement (TPPA), a regional free trade agreement that would encompass as at least 9 countries around the Asia-Pacific Rim. There are grave concerns that the TPPA will further undermine local food security in participating nations, yet the only real detail on what is being discussed is coming from leaked texts.¹²⁵

The National Food Plan is symptomatic of this attitude. While enthusiastically touting the potential for Australia to significantly increase the value of food exports it fundamentally fails to address the crisis in the domestic market that is pushing many farmers to the wall. It is, as Christine Milne first remarked: “A recipe for feeding Australians cheap imported food”.

CLIMATE CHANGE ALREADY AFFECTING FARMERS

Repeated droughts, floods and bushfires in the last decade in particular have taken their toll on the resilience and wellbeing of Australia’s farming communities.¹²⁶ The under-resourcing of

mental health services have become a key issue in rural and regional Australia, reflecting the psychological toll of surviving extreme weather events and adverse financial circumstances.

In some regions of Australia, permanent shifts in rainfall and seasons have already taken hold. These shifts are complicating and compounding existing challenges, and in some areas tragically may well be the last straw for traditional farming. The wheat belt of Western Australia is one such area now in the grip of a permanent drying, and experience in this region has demonstrated some of the breadth of possible consequences and responses to climate change.¹²⁷

For some of the wheat belt climate adaptation to maintain and increase productivity has been possible and critical to the ongoing viability of farms, and not necessarily reliant on radical new technologies. In other areas the extent of the loss of rainfall has shown the limits to adaptation, and some farms are now in deep financial crisis. The relative financial stability and skills and knowledge base of each farm has also been a critical factor in the ability to adapt to the changing conditions.¹²⁸

However, it must be remembered that the climate change impacts already in effect relate to a moderately warmed world. Unless there are dramatic interventions to reduce our greenhouse gas emissions soon, the world is on track to warm by as much as 5.3°C, with catastrophic consequences.¹²⁹



SOURCE: Courtesy of the Australian Defence Force

The potential range of impacts from climate change, and the fact that climate-smart farming practices are part of the solution to lowering greenhouse gas emissions demands a fundamental rethink of the kinds of government intervention and assistance provided for Australian farmers.

GOVERNMENT FINANCIALLY ASSISTANCE

All of the issues above have contributed to rising levels of unsustainable debt for some farmers, making them particularly vulnerable to external shocks and unable to recover. This in turn has exacerbated the number and rate of farmers walking off the land.¹³⁰

Typically, it has been accepted that farms in financial trouble were the result largely of poor practices, and the selling of such farms to more efficient farmers was appropriate. However, climate change impacts and the downward pressure from a

distorted market add new layers of complexity to this equation. With less predictable weather and seasons, a greater frequency of natural disasters, and the concentration of supermarket power seeing some farmers suddenly losing contracts or having prices reduced, is it still possible to simply assume unsustainable farm debt is always the result of poor farming?

Of equal importance, it has long been recognised that healthy, biodiverse landscapes and ecosystems services are essential public goods, yet the price we pay for food does not reflect the cost of maintaining them. The common result is two adverse outcomes – either farmers are forced to use poor farming practices which undermine the health of their farm; or they are forced to maintain the landscape themselves at their own cost.

Funding for community Landcare and more recently linking this regional-scale Natural Resource Management (NRM) has been a very welcome development, particularly as they have included greater recognition of Aboriginal and Torres Strait Islander cultural knowledge and land management practices. However NRM programs will not be enough by themselves because they don't address market pressures on farming practice, and still rely on significant volunteer effort and levels of co-investment from farmers to ensure sustainable farming outcomes.

There is a persistent argument that if we want farmers to maintain ecosystem services and our agricultural landscapes, then they need to receive some return for this effort. Other countries, developed and developing, have such payments in place or are actively exploring them. The Food and Agricultural Organisation recently instigated a three year study into the efficacy of payments for ecosystem services,¹³¹ and the most well-known subsidy for landscape management, the EU's Common Agricultural Policy is being overhauled with the aim of removing perverse outcomes and ensuring it specifically funds maintenance of ecosystem services on-farm.¹³²

For Australia, financial assistance to support resilient and sustainable farming needs to consider three elements:

- crisis funding to respond to unforeseen financial loss due to market failure and extreme weather
- transitional funding to assist farmers to change agricultural practices in areas already impacted by and unprepared for permanent climatic shifts
- long-term financial payments or similar in return for ecosystem services and landscape maintenance.

Recent reforms to drought assistance are a welcome move towards a more proactive approach to supporting farmers through difficult times, but leave many unresolved issues.

Consideration is also needed of whether there needs to be incentives or assistance to attract new farmers, particularly given the crisis in succession, or whether market reform and better assistance to adapt in the face of climate change will be sufficient.

FINITE INPUTS DEPENDENCY COSTING FARMERS

Australia's food system is heavily reliant on fossil fuels to deliver agricultural production, storage, processing and distribution. Our dependence on oil-powered mechanised agriculture and a

vast network of trucking to distribute food are readily apparent. Less appreciated is the considerable challenge posed by our heavy reliance on artificial fertilisers and pesticides derived from oil. A typical western family of four through food consumption and delivery to them “eats” 175 barrels of oil a year.¹³³ Of this, as much as one-third can be artificial fertilisers and pesticides.

With over half of the oil we consumer imported, Australia is particularly vulnerable to oil price increases and scarcity. Increased oil scarcity and prices will flow through into higher food prices in the short term. In the medium to long-term it will pose a severe challenge to agricultural systems such as Australia’s that are heavily reliant on artificial fertilizers. Fossil fuel-derived inputs are up to 50% of total input costs for Australian farmers.¹³⁴

Similarly, our near-total dependence on fossil-fuel powered food processing and transportation systems mean we are particularly vulnerable to adverse impacts from sustained oil price spikes if we do not begin to implement alternative approaches now.

Helping farmers replace fossil fuel needs will not only increase



farm resilience, it will significantly reduce the contribution of agriculture to Australia’s greenhouse gas emissions. Switching to renewable energy is particularly appealing, as it means farmers can be energy self-sufficient, or host larger renewable energy projects that then provide an additional source of income.

With much of our soil lacking it, phosphorous is another key finite input for Australian farming that must be addressed through more efficient use and active substitution.¹³⁵

PROTECTING & RESTORING AGRICULTURAL LANDSCAPES

The most arid inhabited continent covered largely in fragile, ancient and poor soils, Australia has suffered severe land degradation and freshwater depletion since European colonisation.¹³⁶

Significant loss of native vegetation and biodiversity, over-allocation of water resources, and agricultural techniques that have exacerbated topsoil loss and degradation have left a legacy that governments have only begun to seriously address in the past 30 years.¹³⁷

The last national assessment of the state of our soil and water

was the Australian Natural Land and Water Resources Audit, published in 2002. It found that of Australia’s nearly 460 million hectares of agricultural land nearly 40 million hectares suffered from unsustainable erosion; over 20 million hectares was severely degraded as the result of acid soils; more than 3 million hectares was affected by salinity and a further 100 million hectares were characterised by sodic soils (soils that contain excessive quantities of sodium, which impedes water penetration and plant growth and causes waterlogging and erosion).¹³⁸

Despite this evidence of extensive degradation and the breach of limits to available environmental resources, government monitoring and intervention has fallen short of what is required.¹³⁹

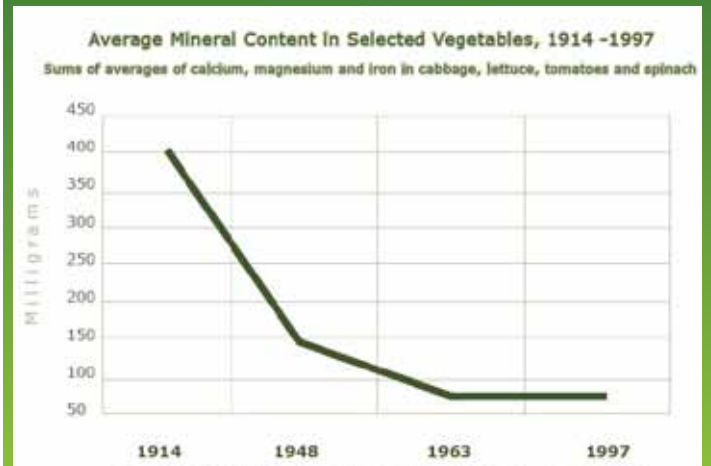
HEALTHY SOILS, HEALTHY PEOPLE

We all understand that fresh food gives our bodies the vitamins and minerals we need for good health. However what we are at risk of forgetting is that the source of those micronutrients in our food is the soil it is grown in.

Therefore as soil health has declined, so has the variety and amounts of micronutrients in our food.

FIGURE 10 - THE DECLINE OF MINERAL CONTENT IN SELECTED VEGETABLES

Restoring degraded land and soil therefore not only ensures sustainable landscapes, it is vital to our health.



SOURCE: Marler JB, Wallin JR. (2006) Human Health, the Nutritional Quality of Harvested Food and Sustainable Farming Systems, Nutrition Security Institute.

However, Australian farmers have not ignored the situation. The realisation of the level of historic degradation led to the formation of the Landcare movement in the 1980s and the successful creation of the regional Natural Resource Management model. The result has been a widespread adoption of ecological agriculture farming methods by Australian farmers. These methods fit well with the strong desire of the vast majority of our farmers to act as stewards of our agricultural landscapes, managing them for sustainability and prosperity now, and for future generations.¹⁴⁰

The uptake of sustainable farming methods has increased over recent years as a response to external shocks such as prolonged drought, coupled with the realisation that they increase productivity and reduce input costs, thus improving farm viability and resilience.¹⁴¹

Now, Australia must also confront the implications of climate change for our agricultural landscapes. We are considered to be one of the most vulnerable countries to the impacts of climate change. The magnitude of the impact to Australia's agriculture sector from climate change will vary depending on by how many degrees the world warms, but the overall effect will be the potential loss of currently productive areas and an increase in the extent of agricultural land regularly impacted upon by adverse weather conditions, with an overall marked decrease in productivity.¹⁴² With Australian agriculture contributing approximately 17% of our greenhouse gas emissions¹⁴³ the need for climate change risk assessment and adaptation is particularly acute.¹⁴⁴

Historically favouring minimal public intervention, Australia lags behind many other nations where active governments are assisting farmers at all scales to prepare for the impacts of climate change, and fostering the landscape-scale adoption of sustainable agriculture to systemically address land degradation.¹⁴⁵ We cannot possibly expect our farmers, rightly renowned as they are for their innovation and adaptability, to take on this enormous new challenge alone.



Another key area of concern with regard to climate change impacts is biosecurity. Australia is fortunate due to its island status to be relatively free of pests and diseases that significantly impact agriculture in other nations. The internal isolation of states such as Tasmania and Western Australia has further stopped some pest and disease incursions from affecting the whole country. It has meant that our farmers can access export markets with their clean produce, and use less chemicals to control pests and diseases, benefiting us all. Stopping the incursion of exotic pests and diseases is also critical to conserving our unique environment and wildlife.¹⁴⁶

Generally, Australia has had a strong biosecurity system, but it has become more vulnerable because of the significant increase in the movement of people and goods around the world, and

now climate change adds a new dimension to the problem.

The impacts of a warming world include a rise in threats from new pests and diseases, as changed conditions allow them to spread further and adapt to live in places that previously they have not been able to survive.

It has long been recognised that Australia's biosecurity system needs to be overhauled to meet the challenges of the 21st century. Two comprehensive reviews of Australia's biosecurity arrangements have been undertaken in the past 15 years. Both recommended that biosecurity decision-making, oversight and technical capability should be independent of government.¹⁴⁷ This recommendation has wide cross-sectoral support. With moves underway to replace the century-old Quarantine Act with new legislation, the time is now to implement this sensible reform.



SOURCE: Courtesy of Steve Roberts

AGRICULTURAL PUBLIC INVESTMENT

Government investment in agricultural research and development (R&D) has declined in real terms for the last 20 years.¹⁴⁸

There is a strong link between investment in agricultural R&D and productivity gains, including a significant time lag between the investment and flow-on productivity improvements. Evidence shows that Australian agriculture's productivity gains over the last twenty years were founded on significant public investment in research and development in the twenty years preceding them.

Many farmers have relied on productivity gains to buffer against low prices and poor years as the result of adverse conditions. Given strong historical productivity gains have paradoxically helped reduce prices, it could be assumed that slowing productivity gains is not necessarily a problem. However given that agricultural R&D funding has been declining in real terms for some time, we have yet to see the negative consequences of this fully play out for Australian farming.¹⁴⁹

Of particular concern is that much of Australia's historic productivity gains have occurred in landscapes that are suffering from habitat loss, biodiversity decline and degradation of soil health and water quality. Therefore as a nation we remain in deficit to the environment in delivering our past agricultural

success, and the decline in agricultural R&D means we have squandered valuable years of research we need now to help shift to truly sustainable farming systems.

The decline in agricultural R&D means we are also behind in considering future land use changes as a result of climate change, and in identifying and trialling potential new crops suited to changed conditions and Australian soils. This includes research and development of potential native foods which could improve agricultural resilience. Comprehensive investigation of Australia's native foods would harness the cultural knowledge of Aboriginal and Torres Strait Islander peoples and provide greater economic opportunities for farming in northern and arid Australia in particular.¹⁵⁰

Agricultural R&D and its implementation are more critical than ever to reduce land and water degradation, minimise the food system's contribution to greenhouse gas emissions, and ensure sustainable productivity. However the decline in government investment means we now face a significant time deficit that must be addressed.

While Australia's Research Development Corporations (RDC) model of agricultural R&D is rightly well-regarded, they are divided into commodity groups, and the key cross-sectoral public research body, Land and Water Australia, was stupidly axed in 2009. This has been followed by the recent nonsensical decision to stop funding to the National Centre for Climate Change Adaptation. As Andrew Campbell, former Executive Director of Land and Water Australia recently wrote:

*The big challenges facing Australian agriculture, land use planning, and natural resource management — such as climate, energy, water, irrigation, biodiversity, biosecurity, soils, carbon, pests, weeds, land use planning and social issues — are not commodity-specific. They are cross-sectoral, demanding integrated approaches within and across geographic scales, and between government, industry and community.*¹⁵¹



SOURCE: Courtesy of CIMMYT

Along with declining public investment in landscape protection and sustainable agriculture, public extension services have also been cut. This has left many farmers without access to holistic advice on sustainable solutions to on-farm challenges. It has also made it harder for researchers to collaborate with farmers, and slowed the rate of adoption of innovative techniques.

Declining agricultural R&D and extension has other negative flow-on effects. It reduces the prominence and desirability of agricultural careers, including farming, which in turn reduces our skilled agricultural workforce and next generation of farmers. Building the production of food and fibre into the national curriculum for primary and secondary education and ensuring there is a link through to thriving tertiary opportunities and careers is essential for ensuring Australia has the knowledge base we need to transform our food system.¹⁵²

In the meantime, key research questions are not being addressed, such as how to pay for the cost of maintaining ecosystem services in agricultural landscapes. This is a glaring deficiency despite it being accepted that the price of food does not reflect the true cost of production and as a result has negative environmental and social consequences.

COMPETING LAND & WATER USES THREATEN AGRICULTURAL ASSETS

While nearly 60% of Australia is farmed, 40% is only suitable for extensive livestock grazing. Around 14% of our agricultural land has sufficiently reliable rainfall to allow cropping and only 6% is of prime quality and thus farmed intensively for horticulture and dairying. A significant proportion of that intensively cultivated land is found near our cities.

It is estimated that peri-urban agriculture comprises 3% of total farmed land, but accounts for 25% of the gross value of agricultural production for the five eastern mainland states. For example the south-eastern agricultural region of Queensland comprises 2% of the state's land area but produces 18% of agricultural economic activity. These intensive agricultural areas on Australia's urban fringe are the hub of fresh fruit and vegetable growing, and thus critical to regional food security.¹⁵³

Australia's richly productive prime agricultural land faces multiple threats. Urban encroachment is seeing a significant amount of intensively cultivated land lost to subdivision and redevelopment; we have lost 89 million hectares of arable land to urban sprawl since 1989.¹⁵⁴

The centralisation of Australia's food supply chain and distribution through the supermarket duopoly has played a role in undermining the valuation and viability of highly productive, typically smaller market-garden style farms on the fringes of our cities. As paths to market have diminished and price competition from the supermarkets increased, so the ability of small farms on the urban fringe to remain economically viable has been threatened, and often the result is pressure to claim prime farm land for new urban development.¹⁵⁵

Now, expanded coal mining and the coal seam gas rush are putting agricultural cropping heartlands such as the Darling Downs and Liverpool Plains under increased pressure. The renewed threats of mining expansion are particularly concerning given they have the potential to impact on water tables and contaminate priceless groundwater reserves, as well as decrease available agricultural land.¹⁵⁶

Despite these threats and the productive importance of these few regions, the protection of prime agricultural land has not systemically been given priority through local planning schemes or state government regulations. Government regulation at all levels give mining preferential access and use of agricultural land and water resources.

Nor has the marked increase in Australia's prime agricultural land and water from overseas sovereign interests sparked an understanding of their real value from Australian governments. The struggle for Australian farmers to remain viable and the global land grab has led to the paradox of Australian farmers struggling to stay on the land even as there is a surge in interest from foreign investors.



As Rochford notes:

*If Australian farmland is more attractive to foreign interests than to local farmers, this contributes to concerns about agricultural viability in Australia.*¹⁵⁷

TOO MANY HUNGRY, TOO MANY OVERWEIGHT, TOO MUCH WASTE

AUSTRALIA'S HIDDEN FOOD POVERTY

The top line assessment that Australia is food secure hides a much more complex situation requiring urgent attention. Food insecurity in Australia occurs both in terms of people



THE PROMISE AND IMPORTANCE OF URBAN AGRICULTURE

Australia is one of the most highly urbanised countries in the world, with more than 75% of our population living in just 17 major cities.¹⁵⁸

Like many other nations, our cities are built on some of the best agricultural land we have, and over time this precious resource has been lost to urban expansion and development. This has eroded access to local fresh food, and across Australia we have lost nearly 90 million hectares of urban agricultural land since the 1980s.¹⁵⁹

Unfortunately we have yet to learn and halt the decline. Sydney's current metropolitan plan proposes developing more than 50% of Sydney's remaining fresh produce farms, yet they contribute significantly to the local economy as well as to local food security and healthy diets.¹⁶⁰

Australia's geography means that we rely on a highly centralised transport system to deliver food "just in time", making our cities particularly vulnerable to disruptions in food supply during major disasters,¹⁶¹ as the experience of Queensland demonstrated during the 2011 catastrophic floods.¹⁶²

In other countries with the same challenges, urban agriculture is experiencing a new resurgence. Governments are protecting and restoring urban agriculture to increase urban food security, ensure everyday access to fresh and healthy food, and prepare for climate change impacts.

For example across Northern America, major cities have rewritten their planning schemes and provided incentives to protect urban agricultural land, remove concrete and convert empty public space for community and commercial agriculture, and foster rooftop gardens. Regulations to support the local sale of food are being introduced and farmers markets including mobile markets to reach into areas with low food access are being established.¹⁶³

In Australia, the community is ahead of governments in recognising the potential and importance of urban agriculture, with community gardens, new farmers markets and rooftop gardening beginning to thrive. Communities are pushing back against the loss of market gardens and agricultural land to more development.

What is now needed is the systematic reform of government policy to protect urban agricultural land, and support community and commercial urban farming so that it can flourish.

being unable to afford any food at certain times, and from diets regularly deficient in necessary nutrition. A recent ANU poll of 5,000 households found that 13% of households were unable to afford to eat healthily.¹⁶⁴

Research shows that for particularly vulnerable groups in Australia – the unemployed, people with chronic illnesses or disabilities, sole parents, newly settled refugees and Aboriginal and Torres Strait Islander peoples – food insecurity is far more prevalent, persistent and frequent. Relief agencies now also report that the fastest growing demand for emergency food relief is from low-income working households.¹⁶⁵

Australia's understanding of the causes, trends and dimensions to food insecurity remains frustratingly lacking, as there has not been a concerted effort by government to create a national picture since the National Health Survey conducted in 2004; and there is no ongoing resources dedicated to tracking food insecurity nationally.

What is known is that the causes of food insecurity in Australia intersect with other forms of disadvantage, but the most prevalent factor is inadequate income. There is no doubt that income support payments are too low and therefore directly cause food insecurity.¹⁶⁶ Families including single parent families dependent on social security would have to spend as much as a third of their income on food to eat a nutritionally adequate diet meeting Australian health guidelines, reinforcing that food insecurity is as much about nutritional adequacy as it is about getting enough calories.¹⁶⁷

Aboriginal and Torres Strait Islander peoples living in remote Australia are disproportionately affected by food insecurity and diet-related illness. Healthy food is very expensive, often difficult to get, and traditional food gathering and hunting has been disrupted.¹⁶⁸ Instead of governments implementing actions to deliver their right to food, Australia's first people have been subjected to a loss of rights and dignity with the implementation of income management for those receiving social security, which has not discernibly improved food security or diet.¹⁶⁹

Local and state governments are at the forefront of recognising that food insecurity is a leading cause of poor health and an unacceptable symptom of poverty in a country that is now one of the richest in the world.¹⁷⁰ This has refocused attention on the production and distribution of fresh food in Australia, and some research is now suggesting that we already do not produce enough fruit and vegetables to provide every Australian with a nutritionally appropriate diet.¹⁷¹

While there has not been systematic mapping done here as there has for example in the US, there is a growing body of evidence showing that “food deserts” exist in Australia – locations where there is no ready access to fresh, healthy and affordable food, but often an abundance of calorie dense, nutritionally poor options such as fast food.

Because of lack of access to affordable healthy food, food insecurity and nutrition deficiencies can occur hand in hand with obesity.¹⁷² Poor housing stock without that does not include proper infrastructure for cooking and storing food is another significant barrier to people being able to make healthier and cheaper diet choices, as is a lack of cooking and nutrition skills.¹⁷³

The centralisation of food distribution systems contributes to

food deserts, as it has helped undermine local food systems that better assisted people to readily access fresh food. With 86% of Australians living in cities, urban and peri-urban agriculture is particularly important for ensuring local access to fresh food.¹⁷⁴

Many cities in other highly urbanised nations are prioritising the provision of just and sustainable food, including explicit support for urban agriculture. Australia has to date lagged behind in the recognising the critical importance and potential for urban agriculture. There is an urgent need to prioritise and support food-sensitive urban planning.¹⁷⁵



RISE & RISE OF DIET-RELATED ILL HEALTH

Simultaneously we must come to grips with what many health experts describe as an obesity epidemic. Currently, 62% of Australian adults and more than a quarter of children are overweight or obese. This is projected to rise to over 75% of Australian adults being overweight or obese by 2025 if current trends are not arrested. Already diet-related diseases cost our health system \$8.3 billion.¹⁷⁶

As noted earlier, globally affluence and urban living are strongly associated with over-consumption of intensively produced high-calorie food; and Australia is one of the most affluent and urbanised countries in the world. There is no single cause of obesity, but there is agreement we have created “obesogenic” environments, that is, we live, work and play in spaces that encourage inactivity and overeating.¹⁷⁷

Current approaches to tackling obesity based on consumer education are inadequate and urgent government intervention is required. The World Health Organisation has urged developed nations in particular to utilise fiscal policy to encourage the consumption of healthy food and to better reflect the health costs of energy dense, nutrient deficient food and drink (i.e. what is commonly known as “junk food”).¹⁷⁸

Using price signals to differentiate healthy and junk food may well have merit but it is a complex area that needs careful exploration. For example evidence from efforts to introduce various forms of junk food taxes in other countries has shown that the inelastic demand for food and the fact that people on lower incomes are more likely to suffer from diet-related diseases can lead to such taxes simply punishing the poor.¹⁷⁹

Declining knowledge and skills about healthy food choices and cooking are also increasingly coming into focus with regard to diet-related illness. The marketing of highly addictive junk food,



Senator Peter Whish-Wilson with NW Tasmania's Produce to the People, who deliver surplus farm produce to those who need it most.

particularly to children to inspire life-long brand loyalty has also become an area of acute concern in Australia.¹⁸⁰

Obesogenic environments emphasise "convenience" foods that are typically energy dense and low in nutrition, both in the form of takeaways and highly processed options from supermarkets that require as little preparation as heating.

Despite our love of cooking shows, in a nation that works some of the longest hours in the developed world, cooking is now often seen as a chore rather than a pleasure or worthwhile activity. A dislike of cooking is associated with less healthy food choices; while conversely having the knowledge, skills and appreciation of cooking is shown to lead to more healthy diets.¹⁸¹

The presence of rising food insecurity, nutritional inadequacy and obesity highlight how critical it is to consider the food system as a whole even in wealthy nations like Australia.

FOOD WASTE

Food waste occurs at all points in the food chain from harvest to processing and distribution, to retail and consumption. There is a lack of comprehensive national information on food waste at all points along the food chain in Australia except for household consumption.

For the EU, the food industry from paddock to retail accounts for 39% of food waste, households 42% and the catering industry the remainder (19%).¹⁸² While Australia lacks sufficient comprehensive data to know the exact figures, the similarities of our food chain to countries like the US and UK strongly suggests that sources of food waste here will be similar.

Consumer food waste studies in Australia show that we waste up to 20% of the food we buy. An average Australian family is throwing out over \$1000 worth of food a year; totalled up nationally every year we are throwing away four million tonnes of food worth a staggering \$8 billion.¹⁸³ The vast majority of this waste is avoidable and caused by buying and cooking too much

food, confusion over date labelling and a loss of basic home economic skills such as planning menus and shopping to a list, knowing how to cook and proper food storage.

Both the EU and the US have also found that there is significant avoidable food waste in other parts of the food chain. An estimated 20% to 40% of fresh fruit and vegetables are rejected on the basis of failure to meet aesthetic standards (such as shape, or the presence of a small blemish) before produce reaches retail outlets, and the cost of this waste is largely borne by the farmer. Crops are sometimes also wasted because prices drop, meaning it is not economically viable for a farmer to harvest and sell their produce.¹⁸⁴

Food waste does not just cost consumers and farmers; it represents a big cost to the environment and a waste of energy resources and other inputs used to generate it. In an arid country like Australia for example, it means an unacceptable waste of precious water resources. It is also a significant source of greenhouse gas emissions, as rotting food waste releases methane, which is more than 20 times more potent than carbon dioxide.

With food waste making up approximately 40% of the waste stream from Australian households, it comprises over a third of waste deposited in landfills and thus is a key driver of the need for more waste disposal sites.¹⁸⁵

Ensuring that our children have the knowledge and appreciation of where our food comes from and the resources it takes to produce it is one part of the long-term equation of reducing food waste, and why it is so important that food literacy is included in the national curriculum.¹⁸⁶

In the meantime there is an urgent need to better understand the sources and drivers of food waste throughout the Australian food chain. Food waste is an unacceptable loss of resources such as water in the world's most arid inhabited continent, and a loss to a community where too many still cannot access sufficient healthy food.



Chapter Three

THE GREENS' RESPONSE: A SUSTAINABLE, HEALTHY & FAIR FOOD SYSTEM



Like all complex issues, the state of our food system and the challenges facing it can feel daunting; but there is reason to be positive.

As a nation we have the resources and capacity to create a food system that is the envy of the world. Many of our farmers, communities, businesses, researchers and are already actively committed to transforming how and what we grow and distribute for food in Australia, and how we contribute to achieving the right to food for everyone on the planet.

The Greens have the vision and political will to transform our food system to one that is healthy, prosperous, fair, sustainable and Australian.

Our priorities and policies initiatives are described below, and costings are provided in Table 2.

REFOCUSING GOVERNMENT PRIORITIES

Many of the problems facing Australia's food system reflect misplaced government priorities and neglect.

The Greens understand that government must take the lead in re-prioritising the way we approach our food system so that people and the environment are at its heart. Our goal is to create and implement government policy based on the right to food, and ensure it is delivered by a food system that is "sustainable, healthy, prosperous, and fair".¹⁸⁷

GETTING GOVERNMENT STRUCTURES RIGHT

We can no longer afford for our food system to be managed without coordination across the relevant portfolios the affect it.

The Greens strongly believe that we must govern our food system based on delivering the right to food, and the interconnectedness of ecosystem health, human nutrition and farming viability. We accept the recommendations of the Food Alliance¹⁸⁸ and will:

Establish a National Food Policy Ministerial Board involving the critical portfolios overseeing our food system, chaired by the Minister for Health and reporting to the Prime Minister. The Board's first task will be to produce a whole of government National Food and Nutrition Strategy. Other responsibilities will be the identification and collection of key national data and information to underpin food policy; and resolving ongoing policy tensions between sustainability, health and economic objectives affecting the food system as they arise.

Create an independent Food Advisory Council to provide expert advice to government on how to achieve the key objective of a healthy, sustainable and prosperous food system. It will comprise of experts in key aspects of food policy and representatives from environmental, agricultural, public health and consumer groups.

Appoint an independent Food Commissioner who will hold the government to account for policies and actions related to the National Food Strategy through regular assessment and reporting. The position will have the power to commission new research and audits of key aspects of the food system (for example waste in the food supply chain) to measure progress towards agreed objectives and inform decision-making.

Encourage the creation of local and regional food councils to maximise community participation in their food system. Australia should adopt the approach of countries such as Canada that have created regional and state food councils to implement participatory food policy at these scales.

GLOBAL LEADERSHIP ROLE ON THE RIGHT TO FOOD

As chair of the G20 in 2014 the Greens recognise that Australia has an unprecedented opportunity to push for reform of the global food system, and we believe that Australia must make delivering on the right to food a key priority.¹⁸⁹ Specifically, Australia must drive an agenda to:

- regulate the international agricultural commodities market to address financial speculation
- push for an end to the subsidisation and allocation of grain quotas for biofuels
- restore food reserves, paying particular attention to regional needs as a result of climate and other vulnerabilities
- promote accelerated investment including aid in small-scale agriculture to build local food security and help the most vulnerable communities prepare for climate change.

The Greens believe that Australia should set an example by lifting our aid contribution to 0.7% of Gross National Income. We must also prioritise aid to build small-scale ecological agriculture in developing nations, and target its knowledge and technical exchanges similarly.

South-East Asia is one of the most vulnerable regions in terms of climate change impacts on local food security, so Australia's investment would be a significant contribution towards addressing global hunger. It will also boost efforts to address inequity particularly if Australia ensures it specifically targets empowering women farmers.



Greens Senators Rachel Siewert and Penny Wright visiting Papua New Guinea.

KEEPING FARMERS ON THE LAND

Without farmers there is no food. The trend of declining and ageing farmers must be reversed.

PROVIDING ESSENTIAL INFORMATION, RESEARCH & DEVELOPMENT

Australia is lacking crucial data with which to identify, track and respond to the key challenges and opportunities facing our food system. This must be urgently addressed through collation of existing disparate data and collection of new data to fill major gaps.

At the same time Australia must reverse the decline in public investment in agricultural research and development. Particularly missing is cross-disciplinary and cross-sectoral research and development to tackle the complexity of climate change mitigation and adaptation, boosting and sustaining productivity, strengthening rural communities and economies, and reconnecting local agricultural production and distribution to local food security.

The Greens will increase Commonwealth funding for agriculture research and development by 7% per year to reverse the decline in public investment and provide adequate funding for present and future needs.

We will replace the axed Land and Water Australia with a new Centre for Sustainable Agriculture, and boost the role of the Rural Industries Research and Development Corporation. The loss of Land and Water Australia is regarded as one of the most short-sighted recent decisions by government as it cost us a dedicated research body focussed on building agricultural sustainability.

As a nation we must recognise the need for a systemic and cooperative approach for all farmers, policy makers and scientific agencies to work together to restore and maintain our agricultural landscapes. This cannot happen without significant public investment in sustainable agricultural research and development.

Further, this research capacity must be broadened to encompass social and economic considerations, for example linking health and nutrition policy to farming practices, and it must be able to model and provide responses based on the best and worst case climate change scenarios. In the first instance the Greens will utilise the increased funding to fill critical national data gaps. These include:

- mapping prime agricultural land (which includes not just soil and water considerations but also available infrastructure and proximity to markets) and provide this as an essential data layer scaled to inform local planning schemes. This mapping will take into account current food production needs and the implications of future climate change scenarios with regard to the availability and value of agricultural land
- national climate change risk mapping, mitigation and adaptation information for agriculture at appropriate geographic and temporal scales to allow farmers to practically respond

- identifying and addressing gaps in existing knowledge with regard to appropriate sustainable and productive farming practices for Australia, including identification of future crops and land use changes to respond to climate change scenarios
- identification of appropriate mechanisms for paying farmers for the restoration and maintenance of ecosystem services based on identified bioregional environmental stewardship standards
- producing an Australian version of the US' Food Environment Atlas, including developing and monitoring national measures on the cost and accessibility of healthy and unhealthy food, food insecurity, and community nutrition characteristics¹⁹⁰
- adapting agricultural practices and transport needs for transitioning off fossil fuels and other finite input limitations (e.g. phosphorous)
- expanding collaboration with Aboriginal and Torres Strait Islander peoples to identify, trial and develop potential native crops and foods, including essential work to protect cultural intellectual property
- instigating long term, bioregional scale monitoring of landscape health based on the work of the National Land and Water Resources Audit.



SOURCE: Courtesy of CIMMYT

The Rural Industries Research and Development Corporation will continue with a complementary role to the new Centre for Sustainable Agriculture, with its additional extra funding directed towards assisting emerging rural industries, increasing value-adding in the food supply chain and rebuilding local and regional food systems.

In accordance with the Productivity Commissions' recommendations regarding public funding for agricultural research, Commonwealth funding to the single commodity-based RDCs will be halved over 10 years, and instead an uncapped contribution of 20c in each dollar committed by RDCs from levies towards research and development will be made.¹⁹¹ This will help redirect public funding to research that benefits all agricultural sectors such as national climate change risk mapping and the other examples listed above. Commodity-based RDCs will still benefit from the overall 7% increase, and can attract further research funds.

REBUILDING PUBLIC AGRICULTURAL EXTENSION SERVICES

Over the last 20 years public agricultural extension services have been cut alongside public investment in research and development, and it is now essential to reverse that trend.

Public agriculture extension has several essential benefits. It connects researchers and farmers directly, which is critical to ensuring that local knowledge is harnessed, and the results are practical and specific to on-ground realities that vary across landscapes and regions.

Extension also increases the rate of adoption of sustainable and profitable farming methods. Given the pressing task of addressing land degradation and preparing for climate change, it has never been more vital to facilitate a faster and more systemic adoption of ecological agricultural methods.

The Greens will fund national network of 180 agricultural extension officers. These will be based in the Natural Resource Management (NRM) regions, and their work in each region will be determined by a regional steering committee with representatives from the NRM region, Landcare, local agricultural industry groups and research institutions.



FAIR MARKET PLACE FOR FARMERS STOPPING MARKET POWER ABUSE

For our farmers to stay on the land, it has to be profitable. With a food retail and wholesale marketplace dominated by just two companies, and a relentless expectation that they produce more and more food for less cost, it is little wonder that so many Australian farmers, local food manufacturers and small shops are struggling. Without changes to Australia's competition law, the concentration of market power will continue and pressure on local food production will worsen.

The Greens will:

- strengthen competition law to ensure companies are unable to abuse their market power. We will amend the Consumer Act to grant the ACCC divestiture powers to split up companies who have too much market power, bringing Australia in line with the UK and the US. We will amend section 46 of the Act to ensure companies can't use their market power to sell goods at below value to the detriment of farmers, suppliers,

small businesses, and consumers

- place a temporary hold on expansion by Coles and Woolworths, while the ACCC carries out an ex-post assessment to on their decisions relating to the grocery market. This assessment will require the ACCC to go back and review their decisions relating to the grocery market with hindsight and appreciation of the current realities of the market. Ex-post assessments are carried out by competition agencies overseas but the ACCC has never carried one out
- prevent the supermarket duopoly from purchasing agricultural land, to ensure they aren't able to completely control the whole supply chain. The major supermarkets already manage or own a large amount of the supply chain. They maintain retail premises, warehousing and logistics and sell products using their branding. In the liquor sector they own wine processing and brewing companies. It is imperative that they are not allowed to extend their supply chain dominance further
- increase the resources and effectiveness of Australia's competition watchdog the Australian Competition and Consumer Commission (ACCC). It's imperative that the ACCC has sufficient resources to pursue allegations and evidence of market abuse
- extend Australian Consumer Law framework dealing with unfair contract terms to business to business agreements involving small businesses and farmers. This will provide farmers and suppliers dealing with the supermarkets with more protections and promote fairer business dealings. Many of the complaints about supermarket behaviour have referred to surprise change in pricing and supply contracts.

LEVERAGING GOVERNMENT BUYING POWER

One practical way that government can help local food producers is through its own buying power. Government departments and services funding by government grants spend considerable public funds on food. Prioritising the purchase of Australian grown and manufactured with government funds would provide a reliable and fair market for our farmers and food processors. Often focussed on sustainability criteria as well as local supply, similar programs in Europe have been shown to significantly increase support for domestic food producers, but they can be overly complex and require careful planning.

The Greens will conduct a feasibility study into the introduction of a federal government local procurement policy.

FROM FREE TRADE TO FAIR TRADE

The Greens also believe that Australia must rethink its approach to free trade. Free trade agreements (FTA) such as the Australia-US FTA have not provided the promised benefits to rural Australia.¹⁹² New agreements are negotiated in secret, and have all have failed to address the fact that Australian farmers and food manufacturers are being forced to compete against other nations with much cheaper labour and little or no working condition and environmental standards.



Photo: An open cut coal mine eats into farmland in the Hunter Valley.

The Greens recently secured greater scrutiny of free trade agreements, with the government now required to release the priorities and objectives of any proposed agreements, including independent analysis of the anticipated costs and benefits.

The Greens will campaign for Australia to shift from free trade to fair trade, by ensuring that all new trade agreements contain mechanisms that reflect the cost to Australian farmers of meeting the highest environmental and labour standards compared to trading partners.

SWITCHING FARMERS TO RENEWABLE ENERGY

HIGH-ENERGY USE FARMING OPERATION GRANTS

Energy self-sufficiency is one way farmers can reduce input costs and increase resilience. The more farmers can generate their own energy, the more protected they will be from rising input costs.

Increasing energy efficiency is also critical. Some forms of farming and food storage on-farm necessarily involve using a lot of energy, and we rely on them to do so because the energy is used to maximise food freshness and safety, and to maximise water use efficiency.

If we want to ensure Australia is always able to produce enough fresh food to feed itself it makes sense to build resilience through our whole food supply system by encouraging increased energy efficiency and switching to renewable energy. The Clean Technology Grants, introduced as a result of the Clean Energy Package and funded by the price on greenhouse gas pollution, have already made hundreds of millions of dollars available to food manufacturer to increase their energy efficiency and install renewable energy.

However these grants were not extended to energy intensive farmers. The Greens will provide grants to energy-intensive farms to help them upgrade their equipment for maximum energy efficiency, and to install renewable energy to run intensive operations. Eligible farmers will be able to demonstrate either:

- reliance on high energy intensity from the use of facilities and equipment to ensure food hygiene and freshness such as cold stores, produce heating and cooling, packing and processing and sterilization processes
- reliance on best practice management irrigation systems (generally utilizing high pressure to maximize water efficiency). Given the importance of pressurized irrigation systems in regions reliant on groundwater resources, irrigators in such areas will get priority, however surface water irrigators will also be eligible.

RENEWABLE ENERGY INCOME GENERATION

For some farmers, hosting larger renewable energy installations that feed into the grid is also an option. For example, farmers who already host wind farms are benefitting from payments for the use of their land and this provides an additional source of income.

However for more farmers to be able to host larger scale renewable energy projects, barriers to their development must be removed. At the moment the national electricity grid and network providers are stalling the installation of “distributed” renewable energy generation. Additionally, it’s crucial that Australia increases its renewable energy target to provide commercial incentives for an accelerated rate of renewable energy installation.

The Australian Greens are committed to raising Australia’s renewable energy target to 90% by 2030. We will also create the Energy Savings Agency, which will be tasked with removing

barriers to the installation of more distributed renewable energy generation across the country, benefitting rural and regional communities, including farmers, in particular.

PROTECTING OUR LAND, WATER & BIODIVERSITY

If we are to protect and restore our irreplaceable soil, water and biodiversity, a major new effort must begin now.

UNCONVENTIONAL GAS & COAL MINING ON AGRICULTURAL LAND

The Greens support the farmers fighting for the right to protect their land and water from shale, tight and coal seam gas. We believe that the push to aggressively develop these new fossil fuel industries on the cusp of the full transition to renewable energy is tragically short-sighted and driven by greed for short-term profits.

It is our food security and rural communities who will pay the price and unconventional gas, along with massive coal mine expansions, must be stopped.

Thanks to the strong community campaign and the work of the Greens and Independents, the impact of coal and coal seam gas on Australia's water resources must now be considered before federal environmental approval can be given – meaning water can be protected from coal and coal seam gas under our national environment laws. What's more, advocacy by the Greens ensured that these new responsibilities must remain in the hands of the federal Environment Minister, rather than being able to be delegated to the state governments who have clearly demonstrated they cannot be trusted to protect our land and our water.

This was a hard won first step, but much more needs to urgently be done.

The Greens will:

- reject new shale, tight and coal seam gas developments and coal mines
- legislate the right of landowners to refuse miners access to their land
- extend the new national protection for water to shale gas, tight gas, and underground coal gasification
- apply the national water trigger to major coal and coal seam gas projects approved by the Environment Minister just before this new requirement was introduced.

STOPPING ARABLE LAND LOSS TO URBAN SPRAWL

In order to conserve our best agricultural land, we need to know where it is at a scale that can directly inform local planning schemes and decisions. Currently data on Australia's prime agricultural land is inconsistent and updating is ad hoc.

There is also a need to ensure that local mapping of our best arable land takes into account factors beyond soil quality and water availability, such as access to infrastructure and transport. This is particularly important for the full value of good agricultural land located on the urban fringe to be fully understood.

While the federal government does not control state and local planning, it can exercise considerable influence and set a clear national goal of conserving prime agricultural land, and provide resources to assist. It can also provide incentives to sustainable urban planning that avoids further city sprawl.

The Greens will resource the national mapping of all prime agricultural land at an appropriate scale to inform local and state planning. We will also prioritise the conservation of prime agricultural land as part of the National Urban Policy, and only fund state and local infrastructure and development requests that complies with this directive.

STRIKING A BALANCE ON FOREIGN OWNERSHIP OF LAND

For Australia to be able to make informed and strategic decisions about our agricultural land and water resources, we must accurately track and consider each bid by foreign investors, particularly sovereign nations, to own it.

The Greens will:

- create a live register of foreign ownership of agricultural land and water assets to continuously track overseas purchases
- lower the threshold from \$248 million to \$5 million for consideration of the national interest by the Foreign Investment Review Board for purchases of agricultural land and water by a foreign private entity. This will include cumulative purchases by the same entity under the \$5 million threshold
- legislate a mandatory national interest test to be applied by the Foreign Investment Review board for purchases of agricultural land and water resources
- prohibit the purchase of agricultural land and water by wholly owned subsidiaries of foreign governments.

REWARDING ENVIRONMENTAL STEWARDSHIP

For the Greens, a central goal of increasing research and development and rebuilding public extension services is to drive a rapid uptake of regenerative and sustainable agricultural practices.

We must empower farmers with knowledge and assistance to restore degraded land and water resources, and adapt their farming techniques to ensure they are sustainable, resilient in the face of climate change, and profitable into the long-term.

However research, development and extension alone is not enough. If we want to ensure we have prosperous farmers and sustainable landscapes but don't want to pay more for food, other forms of government and market intervention must be identified to rectify the significant cost imbalances.

The Greens already have a strong track record in recognising the need to reward farmers' environmental stewardship, negotiating \$1.7 billion for the Biodiversity Fund and the Carbon Farming Initiative, both of which financially reward farmers for sustainable practices, including specific funding to support Aboriginal and Torres Strait Islander land managers.¹⁹³

As Australia's first Advocate for Soils, Michael Jeffrey, stated on his appointment:

*Farmers and landowners are the key carers of our soils and country; they should be recognised not just for their food production but as stewards of our landscape and if they make improvements... that is something we as citizens should jointly financially support.*¹⁹⁴

It is time to move to a nation-wide system of payments for farmers, linked to clear bioregional environmental stewardship standards. The Greens will fund research to identify appropriate mechanisms for paying farmers for the restoration and maintenance of ecosystem services.

STRENGTHENING OUR BIOSECURITY SYSTEM

As an island nation, Australia is incredibly fortunate to be free of many pests and diseases that cause untold damage to human health, agriculture and the environment in other countries.

Now, climate change and the large increase in the movement of people and goods around the world are creating serious challenges for our biosecurity. At the same time we are facing a looming shortage of highly qualified plant and animal pest and disease professionals.

It is time to prepare Australia for the increasing challenges to our biosecurity this century.

The Australian Greens will:

- create a National Biosecurity Commission, a decision-making panel of eminent biosecurity experts charged with making the key decisions to best protect Australia from new pests and diseases

- create a National Biosecurity Authority, a statutory, independent and expertise-based organisation tasked with the day to day management of Australia's national biosecurity system and advising the Biosecurity Commission
- provide the resources necessary to ensure that the new Biosecurity Authority has the technical capability it will require to perform its functions and support the Biosecurity Commission.

The National Biosecurity Commission will comprise seven members who will be selected on the basis of their proven expertise in natural sciences related to risks of pests and diseases in plants, animals and humans; risk assessment and management; ecology; agricultural and food production; and economic assessments. It will be responsible for undertaking Biosecurity Import Risk Analyses, with technical assistance from the Biosecurity Authority. The Biosecurity Commission will also provide expert advice on biosecurity policy generally.

The National Biosecurity Authority will incorporate the Australian Quarantine and Inspection Service and the other key divisions of the Department of Agriculture, Fisheries and Forestry currently engaged in biosecurity matters. Additionally it will receive increased resourcing to ensure that it can recruit the necessary expertise to boost national capacity across the board, but particularly in relation to environmental biosecurity matters, which are currently critically under-resourced.

The National Biosecurity Authority's core function will be to administer Australia's biosecurity legislation.



Photo: A varroa mite on a bee nymph. Australia is the only country free of varroa mites. SOURCE: Courtesy of Gilles San Martin.

REBUILDING LOCAL FOOD ECONOMIES

More than ever before Australians want to be able to buy food from local growers, frustrated by the lack of choice and unethical behaviour offered by the supermarket duopoly. At the same time increasingly disenfranchised by the market concentration, farmers and local processors are also actively seeking alternative paths to sell direct to the community.

Meanwhile, experts in public health and the right to food have identified rebuilding local food systems, particularly targeting “food deserts” as a key tool for addressing food insecurity and obesity in Australia; and agricultural experts have recognised that supporting local and regional food systems is essential to providing sustainable incomes for farmers and conserve prime agricultural land particularly on the urban fringe.

The Greens strongly believe that we must rebuild local food systems. We will provide funding for infrastructure and other support that allows farmers and communities to collaborate and create local food distribution pathways and markets. Such infrastructure includes farmer’s markets; community supported agriculture and food box schemes; mobile farmer’s markets that take fresh food directly into communities lacking access; and regional food hubs, where farmers can market, package, value-add and distribute their produce directly to local commercial scale customers such as health institutions, restaurants, universities, hospitality and tourism sector businesses, and direct to the public.

In the US, the Obama Administration introduced the ‘Know Your Farmer, Know Your Food’ program that provides targeted funding to rebuild local and regional food systems. The program has shown that rebuilding local food economies expands markets for farmers, provides them with a greater share of the retail price of food, creates jobs and increases community access to healthy food. It has also been shown to be an effective way to help empower Indigenous and other disadvantaged communities take control of their own food security and local food economy.¹⁹⁵

The Greens will fund local infrastructure to reconnect communities with their farmers. Such grants can be used to create regional food hubs; start up farmer’s markets and food box schemes; establish farmers’ cooperatives. They will kick-start innovative solutions to help farmers reach new customers including institutions such as health and aged care centres, education providers, restaurant franchises and tourism businesses.

<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=S TELPRDC5090409> (use pic of regional food hub on page 11 to illustrate box)]

PUTTING GOOD FOOD ON EVERY TABLE

Every Australian has the right to enough healthy, affordable food.

INCOME SUPPORT PAYMENTS FOR FOOD

With Newstart payments set at least \$130 below the poverty line, it is a fact that Australia’s social security payments are now so low they virtually guarantee hunger and unhealthy diets. It is inhumane and irrelevant to offer people on income support financial counselling, or forcibly quarantine part of their payments through income management, when they simply are not provided with enough money to buy an adequate and nutritious diet.

The Greens will:

- increase Newstart and Youth Allowance by \$50 per week to provide a fairer level of income support for people reliant on social security
- improve indexation models that will help maintain the value of an increase into the future
- make a supplementary payment of \$40 per week for single parents on Newstart with children under 16. Combined with the rise in Newstart this will provide a \$90 a week increase in support for single parents on Newstart
- reform the income-free test for single parents on Newstart so the income they can keep is the same as single parents receiving parenting payments
- end the failed, expensive and punitive income management regime.

These measures would see single parents receive up to \$180 per fortnight in additional support, as well as being able to earn more from paid work.





INCREASING HEALTHY EMERGENCY FOOD RELIEF

At the same time as Australia's most vulnerable are struggling to afford and access fresh healthy food we know that thousands of tonnes of perfectly good fruit and vegetables is going to waste.

Organisations like Second Bite nationally and local groups like Produce to the People in Tasmania have shown that it's possible to rescue and distribute fresh food that would otherwise be wasted to people experiencing food poverty, with great success.

There is also a need for research to identify suitable financial mechanisms such as tax offsets to reward farmers and wholesalers who donate crops that would otherwise go to waste due to gluts or contract difficulties.

The tragic fact is that demand for emergency food relief, particularly fresh fruit and vegetables is currently far outstripping supply – and thousands of tonnes of food that could fill this demand is still being wasted.

The Greens will increase funding for food emergency relief organisations that specialise in fresh food rescue and distribution; and provide funding for research into financial mechanisms to avert avoidable post-harvest food waste

HEALTHY EATING SKILLS FOR LIFE

Knowing how to choose, prepare, cook and store nutritious food has become an endangered life skill. The absence of nutritional knowledge and food preparation skills hampers people from eating healthily, contributes to the excessive consumption of unhealthy food and food waste.

We need to foster a culture of knowledge and pleasure in growing, choosing and cooking healthy food. To do so we must teach our children food literacy – ensuring they appreciate where their food comes from and why eating well is important, and have the life skills to grow, budget, cook and store healthy food.

Additionally we must help adults who have lost or missed out on this knowledge also gain these essential skills for a better quality of life.

The Greens will:

- ensure that origins of our food and fibre are embedded in the National curriculum for primary and secondary education; and fund up to 800 new school kitchen garden projects, prioritising funding for schools in low socio-economic areas
- offer national grants for adult nutrition education programs, targeting staff training for welfare agencies that provide food relief, and their clients
- fund the production of an Australian version of the US' Food Environment Atlas, including developing and monitoring national measures on the cost and accessibility of healthy and unhealthy food, food insecurity, and community nutrition characteristics.

MUTING THE SIREN CALL OF JUNK FOOD

There is no doubt that self-regulation of the food industry with regard to unhealthy food has failed. There is a rising and consistent view from health experts that junk food must now be treated similarly to tobacco, and regulated as a public health "bad" that is a significant contributor to mortality and chronic ill-health in our society.

In accordance with these calls, the Australian National Preventative Health Agency and the Obesity Policy Coalition are supporting several research projects that consider the effectiveness and appropriateness of taxation and other mechanisms for better regulating junk food and making healthy food cheaper.¹⁹⁶

The Greens will:

- ban junk food advertising during children’s television, on websites aimed at children, and via text message. The ban will cover free to air TV, and pay TV channels dedicated to children. We have campaigned alongside public health experts for this crucial action as the Greens understand the evidence that junk food is deliberately targeted at children to hook them for life
- support research into regulatory measures such as junk food taxes to assess whether they are effective and equitable.

TRUTH IN FOOD LABELLING

Accurate food labelling is important to allow Australians to have clear and accessible information on the many factors people want to know about their food. It’s essential for helping people identify the nutritional value of their food, for knowing where it was grown and manufactured, and for having a clear picture of sustainability and welfare issues, and for being able to choose to avoid controversial aspects such as genetically modified ingredients.

The Greens have long championed food labelling reform. Over the last decade in parliament we have introduced legislation to label palm oil and genetically modified ingredients, to provide a simple front of pack nutrition labelling system such as the traffic light method, and to reform country of origin labelling. Time after time Labor and the Coalition have refused to support these reforms, despite strong public campaigns and support from experts.

We have no intention of giving up. This year we introduced a new set of reforms to fix country of origin labelling for food, which has garnered wide support from organisations such as CHOICE and farmers groups.

Recent reforms announced by government to provide a star rating on food nutrition, very similar to a traffic light system to help people easily identify healthy food shows that persistence pays off.

The Greens will:

- reform Country of Origin labelling to make it easy to identify food grown and manufactured in Australia and prohibit the confusing array of ‘qualified’ claims such as ‘made from local and imported ingredients’
- introduce mandatory labelling of palm oil and close the loopholes to ensure that all GMO ingredients in food are mandatorily listed
- working with groups such as Humane Choice, introduce consistent national standard definitions of ‘free range’ for eggs, poultry and pigs, to remove the confusion and misuse of current voluntary standards

- support the introduction clear front of pack nutrition labelling such as the new star rating that will assist people to easily identify healthy and unhealthy food choices.

SAVINGS FROM FOOD WASTE ACTION

Wasting food costs us all a lot of money. The average Australian household could save up to \$1,000 by preventing food waste.

We also know that food gets wasted along the supply chain. For example it might be rejected for sale because it doesn’t meet aesthetic standards for sale even though it’s fine to eat. Every bit of food thrown away means we’re also wasting the water, nutrients and fuel that went into growing it. Food waste is also a significant source of greenhouse gas pollution.

At the same time, too many Australians can’t afford to buy fresh food they need for a healthy diet.

To help reduce avoidable food waste the Greens will:

- introduce a national food waste campaign to help us all learn how to waste less. We will model it on the highly successful Love Food, Hate Waste campaign run in the UK, which raises community awareness on how to prevent food waste, as well as working with retailers local authorities, businesses, community and campaign groups
- review and simplify food date labelling to remove confusion and stop food being thrown out when it’s still safe to eat. Research shows that food date labelling can be very confusing, particularly as some labels are meant for in-store use only. This confusion leads people to throw out a significant amount of perfectly good food because they think it’s no longer safe to eat. Experience from overseas shows that simplifying food date labels can help save a significant amount of good food
- rescue “ugly fruit and veg” by working with food retailers to relax cosmetic standards that cause unnecessary waste, including a community education campaign. “Ugly fruit and veg” is produce that has a small blemish or is oddly shaped, but perfectly good to eat. Current supermarket cosmetic standards dictate an unreasonable level of perfection for our fruit and vegetables, and as a result a lot goes to waste. Recently UK supermarket giant Sainsbury’s relaxed their cosmetic standards for fruit and vegetables and this has been embraced by the British public
- fund an analysis of avoidable fresh food waste in Australia’s food supply chain to identify key areas where waste can be avoided or reduced
- increase funding for emergency food relief agencies that rescue fresh food, so that they can better meet demand from those going hungry for fresh food; provide adult food literacy education and investigate appropriate reimbursement for farmers for crops that otherwise go to waste due to gluts or market collapses.

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