Overeating the Environment?
A time when much of the world, if not Australia, is facing food shortages, a discussion of the sustainability of the agricultural sector is pertinent and timely. This edition of Impact covers a number of important issues, including the regulation of genetically modified organisms, the future of biofuels and organic produce and the emerging conflict between mining and the preservation of prime agricultural land.

In an effort to provide a broad view of these issues, the EDO sought articles from a range of sources. The following articles were submitted by people working within the agricultural sector, including farmers and industry lobby groups as well as lawyers and scientists.

Food is a basic requirement for life and yet many of us take it for granted. It is not until food production becomes controversial or uncertain that we begin to question the role it plays in the broader scheme of things. What happens in the agricultural industry has repercussions for human health, trade and commerce, politics, economics and, of course, the environment.

When we consider that agriculture is the second largest emissions producing sector of the Australian economy1 we can begin to appreciate just how much of an impact food production has on our environment. It is evident that climate change is already having a negative impact on the agricultural industry and this impact is projected to increase over time, with more severe storms and droughts. Given this, it is a sad irony that the agricultural industry is contributing so significantly to the problem. However, it is also heartening to know that the industry holds the key to its own future in the sense that any action it takes to combat climate change now will ultimately benefit the sector in the long term.

The ability of our environment to continue to sustain us with ample food is not certain and with a growing population, our methods of production will determine whether we overeat our environment. What is evident from the following articles, and the significant media coverage some of these topics receive, is that this often overlooked issue is likely to become of critical importance in the coming years.

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Agriculture and climate change: the harsh truth

Sarah Kossew, Lawyer, Voiceless

The Australian public is slowly coming to terms with climate change. Plastic bag usage has declined, inefficient light bulbs are being phased out and people are now seeking out more fuel efficient, low emission cars.

However, discussions about the effects of intensive farming practices on climate change have been largely absent from the climate change debate. While most Australians are now more conscious of their ‘carbon footprint’, the effect our diets can have on the environment is seldom considered. It has recently been observed that it is actually cattle, not coal, which may have the most significant impact on the environment in the next 20 years.

If livestock production has been recognised as a key contributor to climate change, why is it that a comprehensive scheme to reduce agricultural emissions continues to be relegated to the ‘too hard’ basket? The current government, who promised a serious commitment to climate change in the lead up to the Federal election, together with environmental policy-makers, have seemingly thrown up their hands in defeat on this issue before fully exploring the possible solutions.

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What is factory farming?

To understand why agriculture is having such an impact on the environment in terms of methane and CO2 emissions, it is first necessary to comprehend intensive farming practices and current eating habits.

In the past century, farming methods have changed dramatically. It is often convenient for farming industries to perpetuate images of the outdoor style of farming, where animals are free to roam in rolling green pastures. However, this ‘small-scale’ method of farming has been replaced by an industrialised agricultural system that aims to produce meat and meat products on a massive scale at the lowest cost. As was recently observed, the modern day farmer has long shed the ‘Old MacDonald’ image and now bears “about as much resemblance to his old fashioned predecessors as automobiles to horse-drawn wagons”. Every year billions of farm animals live out the entirety of their (short) lives permanently confined in giant sheds before being slaughtered for human consumption. For example, in Australia, approximately 470 million chickens were killed for their meat in 2006/07. In a natural environment, chickens can live for between five to seven years, while intensively raised meat chickens are slaughtered as early as 35 days old.

The farming of pigs in Australia has also become more intensive, with approximately 333,000 female pigs (sows) kept inside large sheds in 2006/07. The pigs are kept in small stalls, continually impregnated and then prematurely separated from their young. While consumers may still believe that pigs are reared on small, outdoor farms, the truth is that between 1970/71 and 2002/03, the actual number of Australian pig farmers fell by 94 percent. Conversely, production of pig meat grew by 130 percent. It is clear that agricultural practices have undergone significant change and that farming has become big business. Indeed the term ‘agribusiness’ is often used to describe today’s large-scale farming practices (and, by inference, the erosion of smaller, traditional-style farms).

Meat-eating escalating around the world

Globally, people are consuming more meat than ever. In less than thirty years, global production of pigs and poultry has quadrupled and production of cattle, sheep and goats has doubled. People are now eating double the amount of meat they used to. In just a decade (from 1995 to 2005), the number of mammals used for meat and dairy production increased by 22 percent to 4.1 billion, while the number of poultry used for meat and eggs increased by 40 percent to 57.4 billion. Predictions are that by 2050, meat production levels will more than double current production levels.

Global patterns in meat production and consumption are mirrored in Australia. Australians love their barbeques, their pies at the football, their Sunday roasts and their 3:00am kebabs. In fact, the average Australian now eats a staggering 110 kilograms of meat every year.

But it wasn’t always this way. Forty years ago, Australians ate about six chickens each per year, while today, the average Australian eats close to 30 chickens (or 39 kilograms of chicken) every year. In 2005/06, Australians ate 35.4 kilograms of beef and veal each, and approximately 39 kilograms of pig meat.
With the Australian population eating more meat than ever, any meaningful strategy for reducing the effects of climate change must look at ways to implement a more balanced diet.

**Links between factory farming and climate change**

The link between the industrial farming of animals and greenhouse pollution is irrefutable. Indeed, the livestock sector has emerged as one of the most significant contributors to the more serious environmental problems, with agriculture now accounting for more greenhouse gas emissions than the world’s entire transport system. A recent study by the United Nations Food and Agriculture Organisation (FAO) found that animal production is responsible for 18 percent of all human-induced greenhouse gas emissions. Australia’s National Greenhouse Gas Inventory has also estimated that farming activities (excluding energy use) account for 18 percent of Australia’s total national emissions.

Bearing in mind that the most important greenhouse gases are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O), livestock-related global greenhouse gas emissions arise mainly from the following sources:

- The release of methane and nitrous oxide from animal manure. According to the FAO, “manure-induced soil emissions are clearly the largest livestock source of N₂O [nitrous oxide] worldwide.” In Australia, agriculture accounts for 85 percent of Australia’s nitrous oxide emissions. With the industrialisation of farming and the sheer number of animals now being farmed, an enormous amount of manure is being produced. This manure cannot always be used as fertiliser and the excess manure can build up in small areas of land, causing runoff of phosphorous, nitrogen and other pollutants into waterways.

- The digestive processes of animals which produce approximately 100 million tonnes of methane every year. Methane has been tipped as “Australia’s largest but also most under-appreciated contribution to climate change over the next few decades.”

- The production of animal feed – another significant contributor of greenhouse gas emissions. While the mass production of livestock involves large numbers of animals being raised in small areas, the fact that those animals are now indoors and cannot graze or forage for food means that extensive areas of land are needed to grow crops to feed them. Today, approximately one-third of the world’s total cereal crop and over 90 percent of the world’s soya crop are grown specifically for animal feed. One important environmental consequence of animal feed production is that the chemical fertiliser used to grow these crops accounts for a high percentage of CO₂ emissions – an estimated 40 million tonnes annually.

In addition to producing a significant proportion of greenhouse gas emissions, there are other environmental concerns that can be attributed to the agricultural sector, including:

1. **Land degradation**

   The sheer amount of land used by the livestock sector (over 3.9 billion hectares worldwide), together with the often intense nature of agricultural practices, is proving extremely damaging. In a few short decades, approximately 200 million hectares of tropical forest have been cleared for cattle-grazing and growing animal feed with 70 percent of deforestation in the Amazon occurring as a result of clearing to create animal pastures. In Australia, over-grazing of land by livestock has also caused widespread damage. According to the esteemed US economist Jeremy Rifkin, “cattle, alone, are literally eating their way through entire ecosystems.”

2. **Impacts on biodiversity**

   As a result of intensive animal farming and deforestation, habitats rich in wildlife have been and are continuing to be destroyed.

3. **Water usage**

   The production of meat also uses other precious natural resources, including a staggering amount of water. In Australia we are continually reminded that we are in a state of drought. Yet, animal production involves vast amounts of water to maintain animals and to water crops for animal
feed. According to the FAO, globally, the agricultural sector accounts for 70 percent of total freshwater usage. In Australia, for every dollar spent at the farm gate on beef, up to 731 litres of water are used. With demand for meat and meat products continuing to increase, so will demand for water – the use of water for livestock production is estimated to double by 2025. Discussions are already mounting about an imbalance between demand for food and the availability of water and with global water shortages now a real threat, this issue cannot be kept on the backburner.

In response to the growing body of information linking intensive animal farming with climate change, there have been calls for people to reduce the amount of meat they consume. However, while people seem willing to alter their habits regarding plastic bag usage, there seems to be a certain resistance to adopting dietary changes. As Rifkin has noted, “the immediate reaction to even a faint call for reduction of meat in the diet is that human beings are carnivores and need meat to maintain good health.” Although meat has long been considered a regular part of the human diet, until recently it was “more a condiment than a staple.”

While people should have the right to individual choice when it comes to their diet, it is important to make people aware that what they eat can have a major impact on the environment.

The need for (meaningful) reform

Any meaningful discussion about climate change must take into account the devastating effects of intensive animal production on the environment. Statistics clearly show that the livestock sector is responsible for a large proportion of the more harmful greenhouse gas emissions. But to date, there has been a lot of political sidestepping of the issue. July 2008 heralded the release of the Green Paper on Carbon Pollution Reduction, outlining the Government’s climate change strategy for the future. Following the recommendations in the draft Garnaut Report (released in early July 2008), agriculture will not be included in any emissions trading scheme (ETS) in the foreseeable future. In fact, any ETS is unlikely to include agricultural emissions until 2015 at the earliest.

Academics Peter Singer, Geoff Russell and Barry Brook have noted that a consideration of methane caused by the digestive processes of livestock was noticeably absent from the draft Garnaut Report. In fact, there was only one reference to ‘enteric fermentation’ (the digestive systems of animals such as sheep and cows) in the whole 548-page report (versus 272 references to the second-largest source of methane production, coal). Failure to factor one of the largest contributors to climate change into a national ETS is to distort Australia’s overall contribution to global warming.

The FAO has identified two key reasons why there may be such resistance to adopting policy reforms to take account of livestock’s effect on the environment. Briefly, those reasons are:

(a) a lack of knowledge about the complex issues involved, particularly the extent to which livestock production is impacting the environment; and

(b) existing policy frameworks for addressing serious environmental issues are inadequate.

In addition to these, in Australia there may also be the perceived burden that adapting to climate change would impose on farmers, as well as a reluctance to ‘interfere’ with the farming industry.

But if Australia is to take a comprehensive approach to climate change (and, as mentioned, Australians do seem willing to take steps to do this), then reducing agricultural emissions must remain firmly on the agenda. Intensive farming practices must be reigned in and it is time to stop making excuses about why livestock emissions are being excluded from the climate change debate.

If the government is not willing to face these issues head on, then it is essential that non-government organisations and environmental groups ensure that the effects of animal farming practices on the environment are brought to the attention of the broader public. Put simply, to ignore the impact of agriculture on climate change “is just plain silly.”

Where to from here?

Livestock-related emissions must be included in any scheme to tackle climate change. What is needed is “an aggressive and coordinated effort by all players in the food system” to work out strategies for how to cope with the potentially devastating effects of climate change. With the rising cost of oil, potential water shortages and changing weather conditions, attention must now be paid to formulating alternative systems of agriculture as well as shifting public perceptions of meat and meat products. Some possible ways forward include:

• Reducing meat consumption – this is fundamental to slowing the pace of climate change. If people were more aware of the impact their diets were having on the environment, they could take positive steps to reduce the amount of meat they consume. Studies have shown that a
vegetarian or vegan diet is significantly more beneficial to the environment than a diet consisting of meat and meat products. Many vegetarians adopt a meat-free lifestyle because of their belief that animals deserve to be treated with respect and compassion and to live their lives free from suffering, however, there are also compelling environmental reasons for reducing meat consumption. An Australian study recently published in medical journal, The Lancet, concluded that people in wealthy countries (such as Australia) should more than halve their daily meat intake, particularly red meat, to help reduce emissions.

- Reducing the number of ruminant (hoofed) animals such as sheep and cows in Australia and around the world.
- Investing resources into researching alternative farming methods – this may include, for example, low-input sustainable agriculture techniques to reduce the use of chemical products and pesticides.

Ideally, a combination of the above options would be the most effective way of addressing livestock’s impact on the environment.

Conclusion

While climate change is in the international spotlight, it is more important than ever to recognise the importance of implementing a climate change regime that aims to reduce livestock-related greenhouse gas emissions. Australians have shown that they are capable of and willing to change their habits when it comes to saving fuel and energy, recycling and reducing their use of plastic. It is now time for people to start considering how their diets are affecting the environment and to accept some uncomfortable compromises with regard to their meat consumption.

1 Voiceless is a non-profit organisation, established in 2004 to promote respect and compassion for animals, increase awareness of the conditions in which they live and take action to protect animals from suffering.
13 Ibid.
Increasingly the EDO’s work with communities affected by mining has highlighted the importance of examining both the environmental and human rights dimensions of coal mining and its impacts. The ongoing pollution of the natural environment caused by coal mining has the potential to affect human health through harm to air quality, clean water supply from rivers and oceans, and loss of productive land. On a larger scale, human-induced climate change, of which burning fossil fuels such as coal is the major cause, has the potential to cause coastal erosion; increased severity of storms, flood and droughts; disruptions to water supply and increase the range and spread of disease. Changes to the environment brought about by climate change also pose serious threats to Australia’s ability to produce food. The debate over coal mining highlights not only pollution issues, but the broader human rights and climate change impacts of continuing to promote the use of coal. It is in this context that the EDO is examining human rights frameworks and international agreements to promote law reform that will protect our clients’ interests.

The rights to food, clean water and a healthy environment are important rights that are not comprehensively protected under NSW and Australian laws. There is a need for recognition of these rights in the assessment of major projects such as coal mines. This is because NSW planning and environmental laws do not provide enough protection to the communities affected by mining. Changes brought to the assessment of major projects in NSW through the introduction of Part 3A of the Environmental Planning and Assessment Act 1979 in 2005 have in practice left the community with few options to challenge the approval of new mining projects. Part 3A also eliminated the need for an Environmental Impact Statement, provided the Minister for Planning with considerable discretion to approve projects, and removed the constraints imposed by pollution licences and the requirement to obtain other relevant approvals. Recognition of the human rights to food, clean water and a healthy environment could help restore the balance in the approval of major projects such as coal mines.
This article will argue that it is important that our governments consider the international human rights frameworks in assessing major mining projects. Greater protection of the right to food, clean water and a healthy environment will assist in ensuring the social as well as environmental and economic impacts of coal mining are considered. The Australian economy is booming from coal revenue. This makes us increasingly dependent on expanding coal resources instead of investing in renewable energy sources. Only consideration of a wider human rights framework will ensure the issue of how coal is contributing to climate change is addressed, and require broader moral and rights issues to be considered when developing new coal mines.

Coal mining, food and the environment in NSW

Australia and New South Wales are in the midst of an unprecedented minerals boom. Government and business are currently profiting from historically high minerals prices. As a consequence both government and private industry are looking to expand mining operations within NSW. This has resulted in new areas of NSW being opened up to mining. For example, mining is now being proposed or commenced around Scone, the Liverpool Plains, Gunnedah and Narrabri, all traditionally agricultural areas. Some mining operations are proposed over prime agricultural land which is land that contains the most suitable combination of topography, soil and climate for agricultural production. It is recognised as a limited resource within NSW. These developments are raising the issue of whether it is in the interests of NSW, having regard to economic and environmental sustainability and social impacts on communities, to allow mining into these areas. In particular, they raise the question as to whether long-term environmental damage to New South Wales’ most agriculturally productive areas should be permitted, in light of rising populations, climate change and our need for food.

The expansion of mining into new areas is actively encouraged by the NSW Government. This is demonstrated by programs such as the ‘New Frontiers’ program put in place by the Department of Primary Industries. As part of this program, the NSW Government has allocated $52.9 million of the 2008-2009 Budget to finance increased mineral exploration to facilitate the expansion of the minerals industry. When discussing the New Frontiers program in 2006, the Minister for Primary Industries, the Honourable Ian MacDonal stated:

“Specifically we will be looking for mineral and petroleum opportunities in the frontier regions in the far west of the State, which are largely unexplored and have potential for the discovery of mineral and gas resources”.

He also referred to new mineral discoveries in many rural areas including in Orange, Parkes, Cobar, Nyngan and West Wyalong, all of which are areas known for agricultural production.

The expansion of mining into new areas, most of which are currently used for agriculture and many of which comprise prime agricultural land, comes at a time when food production is facing a number of environmental challenges and the demand for food is increasing. While currently there are no food shortages in NSW, we are presently experiencing a global food shortage. Globally, for the past 3 years, more food has been consumed than was produced, with grain stocks being at their lowest levels in 30 years. Australia is also emerging from an extended period of drought. Scientists, including those from the Intergovernmental Panel on Climate Change, predict that the severity and frequency of drought in much of Australia’s most productive agricultural land will continue to increase as a consequence of climate change. Climate change is also causing changes in rainfall patterns as well as increases in evaporation, which will make Australia hotter and drier. These climate change impacts are likely to affect where our food is grown by making many areas unviable for food production in the future. It will also seriously inhibit Australia’s agricultural output, with a 2 degree temperature rise predicted to cause a 40 percent reduction in livestock carrying capacity. This will place more pressure on prime agricultural areas such as the Liverpool Plains that have to some extent remained sheltered from drought in recent years.

In this light, the expansion of coal mining in NSW is likely to intensify the conflict between food production and coal. As Bruce Scott, a National Party MP said recently during a television interview:

“Historically, the mining sector have operated in the large pastoral regions of Australia, rather than in the more productive agricultural lands of Australia. And I’ve got a real concern as they move closer into our prime agricultural assets that there’s gonna (sic) be a real conflict between food production and coal mining across Australia”.

The source of much of the conflict between the two industries is the impact that coal mining has on the environment. It is undisputed that agriculture has caused serious environmental degradation across NSW. However, agriculture’s sustainability can be improved. Increasingly, farmers are realising that the long term economic sustainability of their enterprises is inextricably linked to environmental sustainability, including prevention of degradation to soil and water resources. Farmers’ responses to this include the growth of the Landcare movement and adoption of farming methods such as direct drilling that minimise damage to soils. This is not the case with mining.

Coal mining impacts food production and the environment in several ways. The most obvious source of conflict is the conflict over the land itself. Coal is mined by either open cut mining or underground, deep cut mining. Large open cut mines require large tracts of land. Underground mining is completed using either the longwall method or the pillar and bord method. Longwall mining, although underground, can irreversibly harm the surface of the land by causing subsidence. Longwall mining is a form of underground mining where panels of coal are mined by a shearer, which ‘shears’ coal from the underground panels of coal. As the shearer removes the coal, chocks, which are self-advancing, hydraulic supports, hold up the roof whilst the coal is...
removed. Longwall panels can be up to 4 kilometres long, whereas chocks are only up to 400 metres long. After the coal is ‘shorn’ from the panel by the shearer, it is taken to the surface by a conveyor. As the coal is removed, the chocks move to the new cavity. The old cavity then eventually collapses. This causes subsidence of land, which reduces the utility and productivity of agricultural land. Pillar and bord mining utilises pillars of coal to support the roof. This form of underground mining also causes subsidence when the coal pillars collapse.

Another key concern of many communities about coal mining is its impacts on water quality. The concerns are threefold:

Firstly, mining degrades and pollutes the water it actually uses in mining processes. There are significant concerns about the impact of mining on water quality resulting from water due to mine dewatering or mineral processing being discharged into rivers and streams.

Secondly, mining increases demand for water resources, a scarce resource in most rural communities in NSW. Mining processes also require significant amounts of water. In several areas across NSW the introduction of mining has led to the more intense use of existing water entitlements, such that farmers are finding it noticeably more difficult to access groundwater for stock and domestic purposes. This also leaves less water available for environmental flows necessary to protect the sustainability of waterways.

Lastly, longwall mining risks causing permanent damage to underground water supplies and rivers. Perhaps most dramatically, as demonstrated in an area South of Sydney, longwall coal mining can undermine creeks and streams, causing the rock streambeds to crack. Water can disappear through these cracks.

Coal mining also causes air pollution, which can have health impacts. Little research has been done on the impacts of coal mining on human and community health, as opposed to the health of mine workers. One of the few studies done in the USA showed that there were more medical consultations for children suffering respiratory problems in areas of open cut mines than in the control area. There is also evidence of an association between ambient fine particulate air pollution and elevated risks of both cardio-pulmonary and lung cancer mortality.

If Australian citizens are to continue to enjoy good quality, cheap food our most productive land needs to be preserved for agricultural production. Equally, our land and water resources need to be protected, especially from the impacts of human-induced climate change. As discussed below, NSW legislation does not address these factors. The protection and preservation of resources necessary to ensure the continued access of Australians to food could be achieved through recognition of the human rights to food, water and a healthy environment.

Assessment of mines in NSW

At present, the Mining Act 1992 (NSW) and the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act) substantially govern where and how mining can proceed in NSW. The purpose of the Mining Act 1992 is to put in place and facilitate the granting of authorities to allow exploration and mining. Under the Mining Act 1992, all assessment of the impacts of mining is dealt with in the environmental impact assessment process under the EP&A Act.

The EP&A Act utilises a site specific, self-assessment method of environmental impact assessment. The Act makes limited provision for a thoroughgoing assessment of regional and cumulative environmental and health impacts. This is demonstrated clearly in the way climate change is dealt with under the EP&A Act. When the contributions to human-induced climate change of an individual coal mine are considered in isolation, their contribution will be negligible. There is very limited scope for assessing the impacts of coal-fired electricity generation on a broader scale and the consideration of alternatives. Furthermore, although economic and social impacts can be considered, there is no requirement to consider them in detail. Usually, the decision maker takes the view that the economic considerations of the project proceeding override any social concerns. This is particularly the case under Part 3A of the EP&A Act which regulates the majority of coal mines. Under Part 3A there are now few opportunities for other government agencies to actively regulate coal mining. There are also fewer opportunities for the community to appeal a decision of the Minister to approve a new coal mine.

The assessment process for coal mines makes no provision for consideration of human rights. A failure to look holistically at the human rights issues associated with mining means that decision makers are not required to protect communities from the impacts of these mining operations on their rights.

What rights exist in Australia and under international law?

Neither NSW nor Australia has legislatively enshrined a Bill of Rights. The introduction of charters of rights in Victoria and the Australian Capital Territory has focused debate on the need for greater protections of human rights around Australia. Recently, the Rudd Government announced that it would commence an inquiry into how best to protect human rights in Australia, but no details about the inquiry have yet been forthcoming. While the EDO concedes that a legalistic approach to human rights protection that focuses on litigation may not provide a complete answer to the problems facing our clients, there is a need for greater discussion of the need for protection of fundamental human rights. The Victorian Charter of Rights has focused on civil and political rights rather than economic and social rights. Similarly, much of the debate on the introduction of a Charter of Rights for Australia has focused on civil and political rights. However such a limited conception of human rights fails to recognise the importance of economic and social rights to the general population.
There is no protection of economic and social rights in NSW or Australia at present. Australia has, however, signed the International Covenant on Economic, Social and Cultural Rights; a covenant that sets out what the international community agrees are basic rights that should be protected. Further consideration needs to be given to codifying in legislation these rights, as without such action signing an international agreement is meaningless. The International Covenant on Economic, Social and Cultural Rights and the Convention on the Rights of the Child, both include a right to food. Under the International Covenant on Economic, Social and Cultural Rights the right to food is contained in Article 11, and provides (in part):

1. The States Parties to the present Covenant recognise the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions.

2. The States Parties to the present Covenant, recognising the fundamental right of everyone to be free from hunger, shall take, individually and through international co-operation, the measures, including specific programmes, which are needed:

(a) To improve methods of production, conservation and distribution of food by making full use of technical and scientific knowledge, by disseminating knowledge of the principles of nutrition and by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources;

(b) Taking into account the problems of both food-importing and food-exporting countries, to ensure an equitable distribution of world food supplies in relation to need.

This right has been expanded upon and fleshed out by the Committee on Economic, Social and Cultural Rights in General Comment 12: Right to Adequate Food. The committee stated that the concept of the right to adequate food comprises two key notions, being:

"The availability of food in a quantity and quality sufficient to satisfy the dietary needs of individuals, free from adverse substances, and acceptable within a given culture; and

The accessibility of such food in ways that are sustainable and that do not interfere with the enjoyment of other human rights."

Article 12(a) of the International Covenant on Economic, Social and Cultural Rights recognises the right of everyone to the “enjoyment of the highest standard of physical and mental health”. Similarly, Article 24 of the Convention on the Rights of the Child stipulates that the state parties must ensure that every child enjoys the highest attainable standard of health. By implication these rights combined with the right to food include the right to clean water. There is a risk that mining, particularly mining which impacts upon water supplies, will impact on the right to health.

There has also been discussion as to whether a right to a healthy environment is recognised internationally. While it has been recognised as a vital part of contemporary human rights doctrines, there are currently no legal instruments that support the right to an environment of a particular quality at international law. A healthy environment is required to ensure sustainable communities. Again this right is not codified in Australian or NSW law. Under the principles of ecologically sustainable development, which are codified under NSW law, environmental considerations (albeit significant) must be balanced against economic and other considerations. In comparison, recognition of a right to a healthy environment would ensure a fundamental level of protection to the environment in assessing major projects, which could not be traded off for economic considerations.

Case study on a human rights approach: Caroona coal exploration licence

The area of Caroona in the north west of NSW encapsulates the conflict between mining, food production and the environment. It is a useful example of how the codification of human rights in NSW would provide a comprehensive framework for assessing the social, environmental and economic impacts of coal mining.

Caroona is situated on the Liverpool Plains, home to some of Australia’s most agriculturally productive land. The area is largely comprised of heavy, self-mulching, fertile, black soil alluvial flood plains. The area also has significant natural water resources in the form of the Mooki River and a large aquifer. The ground and surface water resources supply rural irrigation, livestock and domestic water and town-water supplies. The Liverpool Plains have relatively mild climatic conditions and relatively high rainfall reliability. As a consequence the Plains are one of the few places in Australia capable of producing two crops a year.

A significant coal seam runs under this area, estimated to contain about 500 million tonnes of coal. In 2006 a wholly-owned subsidiary of BHP Billiton Plc was granted a 5 year exploration licence over part of the Liverpool Plains to conduct exploration for the purposes of coal mining. In August 2008, another exploration licence was granted to Shenhua Coal, a Chinese coal mining company, over land immediately adjacent to the BHP exploration area. The competition for both of these licences was fierce, with BHP committing to pay in excess of $200 million to the State Government as part of their expression of interest. The expression of interest from Shenhua Coal included an offer to pay the government almost $600 million if a mining lease is granted at the expiry of the exploration licence.

The granting of the exploration licences makes it more than likely that mining of at least parts of the Liverpool Plains will proceed. If mining proceeds, it is unclear whether open cut or longwall methods of mining, or both, will be employed, although it is likely that some longwall mining will occur.

Underground longwall mining would subside much of the landscape and irremediably alter surface water drainage lines and patterns. The flood plain, which is virtually flat would...
become a series of more or less shallow depressions within which water would pond, making cropping impossible. Subsidence of sloping land rising above the alluvial flood plains (the ridges) would also cause environmental damage. The ridges have relatively porous soils and are the recharge areas for the aquifers under the flood plain. Open cut mining would require large tracts of land that would otherwise be used for food production. The landscape would also be permanently altered by open cut mining, although it is possible that following remediation it could again be used for agriculture.

In addition, aquifers could be permanently damaged and contaminated if breached by either open cut or underground mining. This could cause contamination of clean aquifers by aquifers containing ‘dirty’ water. Cracking of riverbeds as a result of subsidence caused by longwall mining in a manner similar to what has already occurred around South-Western Sydney is a possibility. Longwall mining could also result in acid mine drainage, a process in which fractures in the substrate that occur when land subsides causes oxidation of sulphides, releasing pollutants into ground and surface water. Air pollution is also a threat posed by coal mining. These environmental impacts of mining have the potential to directly impact the community. Air and water pollution both pose health risks to the local community. Groundwater is used to supply water to local townships including Gunnedah, Werris Creek and Quirindi. The local community is also concerned about the likelihood of health impacts associated with coal mining in the Caroona region, in the form of respiratory and cardio pulmonary diseases as discussed above.

Furthermore, the Walhallow Aboriginal Community is located within the exploration licence area licensed to BHP. Subsidence would change the landscape of this community’s country and could undermine the community’s connection with the land.

Under the present environmental impact assessment process the mining companies must prepare an Environmental Assessment based on Environmental Assessment Requirements prepared by the Director-General of the Department of Planning. The Environmental Assessment must discuss the impacts on the site and how they can be mitigated. It is not required to question the appropriateness of commencing mining in this region in terms of social and environmental impacts. Already the landholders that will be impacted by the mining have requested that a catchment-wide independent water study be prepared prior to the commencement of mining and this request has been declined by the Department of Primary Industries.

A human rights approach in the assessment of whether mining should proceed in the Caroona area would broaden the focus of decision makers, requiring them to consider a range of environmental and social factors in making a decision as to whether coal mining should proceed in the first place. It would also mean that assessment of the impacts on the local community and the local and global environment would be more rigorous, as the decision makers would be required to uphold steadfast rights, rather than merely consider environmental and social considerations as one of several considerations.

A right to a healthy environment would require the decision makers to question the role of coal mining in the context of global warming. It would also enable an inquiry into whether to allow a whole new region in NSW to be opened up to coal mining in the first place, thereby ensuring the continuation of coal generated electricity. This right would have to be considered in a national context, and arguably a global one. It would also place a further onus on the government to prevent irremediable environmental damage, as a failure to do so would constitute a breach of this right for those within the Caroona community. A right to a healthy environment would also protect against the damage to the country of the Walhallow people.

Similarly, a right to water would require the government to approach the water issue from the perspective of whether mining will jeopardise people’s access to clean water, in the short and long term. It would also give the people of Caroona a solid legal basis for redress should their groundwater be permanently damaged.

Finally, a right to food would allow for consideration of whether the land on the Liverpool Plains is best used for sustainable agriculture, which presumably could continue for the foreseeable future, as opposed to mining, which could occur for decades and then render the land significantly less productive. In this way, the right to food could be used to provide a framework for consideration of what would be the most economically, socially and environmentally sustainable use of the land.

Conclusions

Coal mining leads to greenhouse gas emissions which in turn lead to climate change. Climate change will result in increased drought and a decrease in the productivity of agricultural land. There are sustainable alternatives to coal mining and coal-fired electricity generation. It is in this broader context that it is important that the debate considers all of the impacts of coal mining on a community. This debate must consider not only the physical environmental impacts of mining but the human rights impacts on communities. Without doing so and with governments continuing to fail to tackle climate change by restricting coal mining, there will be significant human rights impacts around the world. It is therefore imperative that human rights principles be put at the forefront of the assessment of new mining operations.

A broader right to adequate food for both present and future generations, as well as the associated rights to water and a clean and healthy environment would provide a rights-based framework to allow the consideration and assessment of issues such as those raised in the Caroona Area. A wider
human rights framework would consider the impacts not only on the Caroona area but the cumulative impacts of greenhouse gas emissions that result from mining.


3 Previously under the Environmental Planning and Assessment Act 1979 mining projects were designated development and objectors had merits appeal rights. Now only limited judicial review rights exist. See Drake Brockman v Minister for Planning [2007] NSWLEC 400, Gray v Minister for Planning [2008] 1/2 L.G.E.R.A 258 and Walker v Minister for Planning & Ors [2007] NSWLEC 741.

4 Environmental Planning and Assessment Act 1979, ss. 7.5, 7.5A and 7.5V.

5 New South Wales Department of Primary Industries, 2008, New South Wales Coal Industry Profile, p. 28.


13 For example, the CSIRO estimates that global warming could result in a 10 percent decline in rainfall over the next 25 years as a result of global warming. See CSIRO, 2007, Climate Change in Australia Technical Report 2007.


15 The 7.30 Report, ‘Farmers angry as mining companies move in’, ABC. Available at http://www.abc.net.au/7.30/content/2008/s2292519.htm (viewed 28 August 2008).


23 That is, the removal of water, usually runoff and groundwater seepage, from an open cut pit or underground mine. Often this water is contaminated.


25 Although agriculture as an industry uses many times more water than mining, during the current drought there has been a significant decrease in the use of water by agriculture compared with a significant increase in the use of water by mining across Australia. In this context the competition for water between uses has been intensified. National Water Commission, ‘Water Use in Australia’, Available at http://www.nwc.gov.au/html/water-use-in-australia.asp?intSiteID=1 (viewed 1 October 2008).


31 Long Title, Mining Act 1992.

32 Previously, objectors had a right to appeal to the Land and Environment Court against a designated development which included coal mines. This right is now removed where there is an Independent Hearing and Assessment Panel, or concept plan approval.


40 Ibid.


42 New South Wales Department of Primary Industries, New South Wales Coal Industry Profile, 2008, p. 28.


44 Exploration Licence 6105 for the Caroona Project signed by the Minister for Mineral Resources and Coal Mines Australia Limited dated 12 April 2006.


46 ‘Supervising Scientist, Department of Environment, Water Heritage and the Arts, 1997 Acid mine drainage in Australia: its extent and potential future liability.’

47 Environmental Planning and Assessment Act 1979, ss. 7.5E, 7.5H.

Introduction

The World Food Summit held in Rome in June 2008 is one of a number of recent events that has drawn international attention to the crisis in agriculture and food systems. This crisis is powerfully demonstrated in the simultaneous increase in both rates of hunger and obesity. Despite the Millennium Development Goal to halve rates of hunger by 2015, it is likely the number of hungry people could increase from 862 million to 1.2 billion by 2025. Escalating food prices are exacerbating global food insecurity, and in recent months citizens from over 40 countries have hit the streets to protest these price rises. World food prices continue to rise as motor vehicles increase their appetite for grains and other staple food crops for conversion to bio-fuels. This crisis in agriculture and food security is predicted to worsen as a result of climate change, and people living in countries of the South are likely to be amongst those most severely affected in the short term.

Such dire circumstances have pushed agriculture and food security to the centre stage of recent international policy debates. Despite this, in a disappointing end to the high profile international forum, the World Food Summit concluded by advocating for ‘more of the same’ policy solutions, including ‘techno-fixes’ such as genetic engineering, and on-going trade liberalisation.

Ironically, sustained support for high-tech and so-called ‘free trade’ policies over the last 50 years is at the heart of the current global food crisis. Rather than regurgitating simple techno-fix solutions and damaging policy approaches, there is an urgent need to develop new pathways for addressing the challenges associated with hunger, poverty and food insecurity. These new pathways need to address the structural, political and economic inequities that plague international agriculture and food systems. This will create an environment in which alternative agricultures and secure food futures can flourish.

Unfair rules of the game

The current crisis in food security is the result of long-term inequitable global agri-food policies. To borrow from George Orwell’s Animal Farm, while the rhetoric of global agri-food politics promises that all food producers and food-producing countries will prosper, the reality is that some countries prosper far more than others. Global agri-food policies benefit a minority of actors – primarily a few farmers in the North, traders, seed companies, food manufacturers and retailers. Most others are left significantly disadvantaged. So what are the conditions that have led to this inequality?

In recent decades global agri-food systems have been driven by policies of trade liberalisation and structural adjustment. These policies promised to establish the conditions for free trade by reducing the trade barriers between countries, de-regulating trade environments, and stimulating international investment in national infrastructure and projects. The liberalisation cheer squad – including the World Bank, the International Monetary Fund and the World Trade Organisation – argue that free trade opens up international markets, providing equal opportunities for all stakeholders to engage. The reality, however, is that free trade has produced exceptionally inequitable outcomes, especially for farmers in the South.

So-called ‘free trade’ has forced farmers in the South to open their markets to the rest of the world, exposing them to competition from highly subsidised farmers from the United States and the European Union. In the US, for example, to cover the difference between local and world market prices, the government invests over $US23 billion in farm subsidies each year, including subsidies to farmers’ incomes, as well as price supports and deficiency payments. Not surprisingly, subsidised agricultural crops dominate international markets, excluding Southern farmers from participation in international trade.

Subsidised crops not only distort the international market, they also impact domestic markets in countries of the South, with further crippling effects for Southern farmers. Subsidised agricultural products have flooded Southern markets, with up to 80 percent of all European exports now destined for African, Caribbean and Pacific countries. By swamping local markets, subsidised food imports make it virtually impossible for farmers to sell their produce in their own local markets. Powerfully demonstrating this, the consumption of locally grown rice in Ghana has dropped from 80 to just 20 percent between 1998 and 2003, as the market has been flooded by cheap imports of subsidised rice.

Similarly, Southern farmers are losing both their international and domestic market share as traditional cash crops (such as sugar), are replaced by high-tech substitutes from other parts of the world (including sugar beets grown...
and manufactured in the US, as well as the production of synthetic sweeteners in laboratories in Europe).\(^3\) At the same time, the buying power of global food companies discriminates against smallholder farmers, who are forced to sell their cash crops, including coffee, cotton, tea and oil palm, at very low prices dictated by their buyers.

It is obvious – despite the promises of free trade – that smallholder farmers in the South carry a disproportionate level of burden associated with this policy stance. This political and economic disadvantage is evidenced in the on-going reduction in incomes for farmers in the South. A recent United Nations report, for example, found that African smallholder farmers have experienced a 50 percent reduction – equivalent to $155 per annum – in household incomes.\(^6\) This increase in the level of poverty is intimately tied to the structural inequities that characterise global agri-food politics. Dismantling these structural inequities of ‘free trade’ will be an important step towards addressing poverty, and building global food security.

**A techno-revolution offers no lasting solutions**

The 2008 World Food Summit concluded with little critique of the economic and political structures that underpin global agri-food systems.\(^7\) Nor did it offer new policy approaches for addressing the growing and complex challenge of global food security. Rather, the World Food Summit – along with Bill Gates, the Rockefeller Foundation and others – advocated a simple techno-fix solution. This argument is far from new. During the 1950s, proponents of the ‘Green Revolution’ promised that new hybrid seed varieties would increase rates of agricultural production and, consequently, feed the world.\(^4\) Over fifty years later this argument is being wheeled out again, this time pinning hopes for a techno-fix solution on genetic engineering and nanotechnology. The techno-fix approach didn’t work in the 1950s, and it won’t work today.

The reality is that producing more food will not, by default, ensure equitable food distribution and access. In fact, global rates of food production are arguably already adequate to meet the world’s appetite. In terms of grain alone, global production totalled a record 2.3 billion tonnes in 2007, representing a four percent increase from the previous year.\(^5\)

While productivity rates of grain and other cereals continue to increase, people are eating less than half of this production. The majority of the world’s grain supply is destined for animal feed, and more recently for use as bio-fuels. At the same time, vast quantities of food are wasted: In the United Kingdom alone, a recent Cabinet report found that a third of all purchased food was thrown away, amounting to 6.7 million tonnes of domestic food waste each year.\(^10\)

Advocates of genetic engineering argue that genetically modified crops will not only result in more food, but better food. With promises that genetically engineered food crops contain high nutritional value, can withstand drought, or tolerate high doses of herbicides and other chemicals, advocates present genetic engineering as a magic wand. However, even if genetic engineering can deliver on these promises – an issue yet to be decided – the costs associated with genetic engineering render it out of reach for most Southern farmers. Genetic engineering also locks farmers into buying seeds (and other inputs, including chemicals and equipment), rather than saving seeds each year.

There is a mounting body of evidence related to the limits of techno-fix approaches for achieving food security. In South Africa, farmers have been growing genetically engineered varieties of cotton, maize and soya beans since the mid 1990s. And despite the promises of increased food production and food security of these genetically engineered crops, people remain hungry. In addition to this, rises in local food prices are placing further pressures on families already unable to meet their basic food needs.\(^11\)

With this in mind, the argument that high-tech agriculture will deliver food security is increasingly difficult to swallow. In his recent book ‘Starved for Science: How Biotechnology is Being Kept Out of Africa’, Robert Paarlberg argues in favour of biotechnology as a solution to food security problems, and points to issues of access as limiting its ability to succeed. Paarlberg claims African farmers remain poor and hungry primarily as a result of limited access to scientific innovations, including genetic engineering, rather than a failure of these innovations themselves. It is worth noting that Paarlberg is also a member of the Biotechnology Advisory Council to the Chief Executive Officer of Monsanto – a company that controls at least 90 percent of genetically engineered crops globally, and who have established South Africa as a base for experimentation with non-approved genetically engineered crops.\(^12\) Clearly, greater and better production – promised alongside the introduction of genetically modified crops – does not ensure equal access to food for the world’s population.

**Organic farming offers an alternative**

In contrast to the high-tech future advocated by Paarlberg and others, organic agriculture offers an alternative future for smallholder farmers in the South. Organic agriculture not only offers environmental and social advantages for smallholder farmers, but seeks to challenge some of the structural inequalities that characterise international trade.

Firstly, organic farming offers environmental benefits not only on farms, but also for surrounding environments. Organic farmers in Kenya, for example, have introduced tree planting, the use of nitrogen fixing and cover crops, as well as terraces and other soil conservation strategies in the process of converting to organic farming.\(^13\) These farmers are observing a number of environmental benefits associated with the uptake of these practices, including increased soil fertility and water holding capacity in the soil, as well as increased plant, insect and bird diversity.\(^14\)

Organic certification also creates new economic and social opportunities for smallholder farmers. In Lira, a community severely marginalised as a result of the long-standing conflict in northern Uganda, organic cotton farmers receive price premiums of 19 percent above world prices – and through the organic certification process, receive training, support and networks to help them develop skills and gain access to markets.
While in Tanzania, organic coffee growers report a 50 percent price premium. In addition to the benefit of price premiums, organic certification also enables farmers to establish secure international buyers for their organic produce. While smallholder farmers in the South are securing international markets for their organic produce and gaining numerous economic and social benefits – it is unlikely genetically engineered crops would provide such market security. In contrast, smallholders that cultivate genetically engineered crops are likely to face trade restrictions and consumer opposition to their genetically modified products.

In addition to these social and environmental benefits, organic farming provides opportunities to counteract some of the social and economic inequities resulting from international trade. Firstly, organic certification standards provide clear rules that exclude child labour, whilst making provisions to ensure gender equity, as well as consideration of a range of health and safety issues. These social justice challenges have plagued conventional international trade. While Paarlberg and others have argued that African organic farms rely on the exploitation of child labour, there is evidence that suggests otherwise. In reality, organic certification standards are able to ensure that in those circumstances where children do participate in household and farm work – a common occurrence, given the household is the organising unit of production in Africa – that this does not interfere with their education or general well being.

Secondly, the development of Group Organic Certification (GOC) schemes provides new opportunities for smallholder farmers to participate in trade, and on terms that are specific to smallholders’ needs. Smallholder farmers are often excluded from international trade; they have only small quantities of produce, they are unable to afford the cost of organic certification, and have little bargaining power compared to larger farmers, wholesalers and retailers. GOC represents a strategy to overcome these limitations. The GOC system represents a way forward for smallholders, and many state that it has “changed their lives”.

For some of the 4,000 organic coffee growers living in Sipi Falls in Uganda, GOC has also provided them with training in organic farming methods, and has led them to adopt a range of new farming techniques (including terracing on slopes to minimise erosion, tree planting to provide shade for coffee plants and timber, the addition of new crop varieties to fix nitrogen into the soil, and the addition of manure and compost). The introduction of these new farming methods has also increased coffee production for some farmers. As seen in this example, GOC has significant potential to improve the social and financial situation of smallholder farmers in countries of the South.

**Appropriate visions for food security**

Technological innovations – including genetic engineering – do not hold the key to building a food-secure future. In contrast, techno-fix solutions are short-sighted, and likely to exacerbate the structural power inequalities that are at the heart of poverty and food insecurity. By advocating techno-fix solutions, the 2008 World Food Summit offered limited strategies for addressing these social, economic and political inequities. Without addressing these structural inequities, there is little hope for ensuring global food security. With this in mind, international policy debates must reorient their attention towards the broader issues that result in and exacerbate poverty and food insecurity. This will involve expanding the debate, and thinking more creatively and critically, about a diversity of topics, including free trade and trade liberalisation, fair trade and food sovereignty.

This paper has argued that the uptake of organic farming can contribute towards re-thinking global agri-food politics, and in so doing, offer an opportunity to transform the social, economic and political foundations of agriculture and food trade. Specifically, Group Organic Certification systems integrate social justice and fair trade issues within organic standards. Such systems simultaneously present a strategy to re-build some of the inequitable social and economic relationships that continue to exist between smallholder farmers in the South and wholesalers and retailers in the North. In addition, organic farming offers environmental benefits for smallholder farmers, a solid grounding for building a food-secure future. Organic farming on its own may not be a solution to global food security challenges, however it does offer an opportunity to re-think contemporary approaches to food security, and will form part of the complex web of policy and farming strategies necessary in achieving global food security.


Are biofuels creating unfair competition for food?

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Introduction

In recent times there has been growing concern about the booming biofuels' industry. People are debating whether it is irresponsible to use food crops to service 800 million motorists while 850 million people remain chronically undernourished. The Food and Agriculture Organization of the United Nations (FAO) has urged caution regarding biofuels and warned against rising food prices. Biofuels are pushing policymakers into novel policy territory with unexpected results – European Union (EU) Environment Commissioner Stavros Dimas has admitted that the EU did not foresee the problems that the biofuels industry created. Promoters of biofuels advocate biofuels' role in generating security of energy supply, the reduction of greenhouse gas emissions and the creation of jobs. Other reasons to promote biofuels include increased access to energy in developing countries, technological development and reduction of air pollution. However, these arguments are only valid if the energy and greenhouse gas balances of biofuels are positive, feedstocks are cultivated and transported in a sustainable manner, and infrastructure and vehicle fleets are improved.

This article argues that biofuels production is not one of the major causes of the current world food crisis, but that it could make the food crisis worse depending on the types of biofuels technology adopted on a large scale. This article draws attention to the differences between first-generation and second-generation biofuels, especially regarding technical feasibility and sustainability value. Current laws regarding biofuels are the subject of condemnation because they encourage investment and development, but lack strong sustainability objectives. Globally, governments are feeling growing pressure to create new policies so as to ensure that priority is given to sustainability issues and that protection is given to food production.

Current laws affecting biofuels production

One of the critical contributing factors to the rapid growth of the biofuels industry in the last five years has been favourable laws. The EU and the United States (US) have devoted considerable attention to biofuels and encouraged investment and development in biofuels. The law makers in developing countries have also demonstrated enthusiasm for biofuels. By contrast, Australian law makers have shown cautious support for biofuels and have so far failed to deliver a long-term policy framework.

European Union

The EU’s Biofuels Directive (enacted 2003, updated 2006) set a target for 5.75 percent of each member state’s transport power to be sourced from biofuels by 2010 and 10 percent by 2020. 13 Member States have made law regarding biofuels tax exemptions and 8 Member States have brought biofuels usage obligations into force. The EU’s Fuel Quality Directive (enacted 1998, updated 2003) also provides incentives for the use of biofuels.

United States

The US’s Energy Independence and Security Act 2007 set the standard for 2008 at 9 billion gallons of biofuels usage and the 2012 standard at 15.2 billion gallons; the standard rises to 36 billion gallons in 2022. The Act requires that 2 billion gallons of ‘advanced’ biofuels be used in 2012, rising to 21 billion gallons in 2022.

Developing Countries

Brazilian law mandates an E20 blend (20 percent ethanol 80 percent petrol blend) to be used in transportation; 13 Thailand mandates E10; Ten provinces in China mandate E10; Colombia mandates E10; India mandates E5; and the Philippines mandates E5.

Australia

In 2007, Prime Minister Kevin Rudd stated that biofuels is “a complex area”, but that “it’s important in terms of long-
term energy security for Australia". The Federal Government's initiatives include:

- Ethanol Distribution Program grants of up to $20,000 to retail service stations that install E10 equipment and meet sales targets;
- production grants of 38.1 cents per litre (c/L), which fully offsets the excise paid on biofuels;
- capital grants for new facilities that effectively provides around 1 c/L in additional assistance over the lifetime of the plant;
- assistance to biofuels is scheduled to fall to 12.5 c/L for ethanol and 19.1 c/L for biodiesel by 1 July 2015; and
- ethanol imports are subject to both a general tariff of 5 percent (0 percent for the US) and the full excise of mid-energy fuels of 38.1 c/L. From 2011, the effective excise cost imposed on imported ethanol will be reduced to 12.5 c/L.

According to FAO, food represents about 10 percent of agricultural land. Biofuels sourced from energy crops, wood waste, agricultural waste, food waste, black liquor, and municipal solid waste are classified as "eligible renewable energy sources" under the Renewable Energy (Electricity) Act 2000 (C'th) and will play a role in the Mandatory Renewable Energy Target scheme.

In NSW, the Biofuel (Ethanol Content) Act 2007 (NSW) mandates that a primary wholesaler must ensure that the volume of ethanol sold by the wholesaler is not less than 2 percent of the total volume of all petrol sold by the wholesaler. A wholesaler who fails to comply is guilty of an offence and the maximum penalty per offence is $110,000.

The ambitious targets set by the current EU and US laws have encouraged rapid growth in biofuels production. Consequently, this rapid growth has motivating appeals for governments to take better account of the harm biofuels production does to food production.

**Current world food crisis**

At present, biofuels production is neither the sole nor predominant cause of the current world food crisis. Within this century food prices have both risen and fallen, due to drought, disease, subsidies, tariffs and changes in farming techniques. According to FAO, food represents about 10 percent to 20 percent of consumer spending in developed countries, but up to 65 percent in developing nations. Consumer in developing nations thus suffer the most when food prices rise. The prices of the world’s three main food crops – corn, rice and wheat – more than doubled in 2007. As a result, there were food riots in Cameroon, Egypt, India, Mexico, Pakistan, Senegal, Yemen, and many more places.

Three factors suggest that food prices will continue to climb higher: population growth, increasingly meat-based diets in China and other developing countries, and the rising cost of fertilisers and transport fuels. The impact of biofuels in this context is hotly debated, with some blaming biofuels as the cause of recent food price rises.

According to the Organisation for Economic Co-operation and Development (OECD) and FAO, the predominant reasons why food supplies are presently low are the virulent fungus Ug-99, which is destroying crops in Iran, India and Pakistan, and the historic droughts in major wheat-producing countries like Australia, Canada, Russia and Uzbekistan.

An increase in meat-based diets is subtle, but it is having a dramatic impact. Between 1995 and 2007 Chinese meat consumption rose from 25 kg per capita to 53 kg per capita; correspondingly utilisation of grain for livestock rose from 150 million tonnes to 350 million tonnes.

At present, feedstocks for biofuels occupy just 1 percent of agricultural land. The Renewable Fuels Agency undertook a detailed assessment of likely levels of future demand for agricultural land and land availability, and concluded that "the balance of evidence indicates there will be sufficient appropriate land available to 2020" to meet food and fuel demands. The Environmental Audit Committee agrees that theoretically the agricultural capacity to produce sustainable biofuels exists, but that lack of differentiation within the current legal incentive structures will mean that investment will flow to established first-generation biofuels and little to potentially more sustainable second-generation biofuels. Furthermore, caution is needed because of unpredictable factors such as climate change and food and fuel usage in rapidly developing countries such as India and China.

**All biofuels are not equal**

The term ‘biofuels’ covers a wide variety of products with many different production costs, greenhouse gas reductions, energy contents, land usage, and water usage; each biofuel must be assessed on its own merits and according to its local area’s agricultural resources.

The two most common biofuels are ethanol and biodiesel, which are used in petrol-powered vehicles and diesel-powered vehicles respectively. Biofuels require minimal modification to existing vehicles and fuel infrastructure. Most existing automobile petrol engines can run on a blend of up to 15 percent ethanol. Petrol with ethanol can typically burn hotter and more efficiently, which reduces carbon monoxide and other air pollutants by 10-20 percent. Most diesel engines can run on up to 50 percent biodiesel blends. Biodiesel also has health benefits and has demonstrated substantial reductions of unburned hydrocarbons, carbon monoxide, and particulate matter according to an evaluation of emissions results and potential health effects by the US Environmental Protection Agency under the Clean Air Act.

Biofuels are defined as first-generation or second-generation not according to the final products, which are ethanol and biodiesel in both cases, but rather by reference to the feedstock and biorefining technology used. As new
biofuels technologies are developed, demand for specific feedstocks will shift, thus changing the future impact biofuels production will have on food production. First-generation biofuels are produced from food crops. Ethanol's first-generation feedstocks are starchy or sugar-rich crops such as sugarcane, wheat or corn. Biodiesel's first-generation feedstocks are vegetable oils such as soybean, palm, or canola (rapeseed). Sugars are fermented by yeasts to produce ethanol. Oils are heated or chemically processed to produce biodiesel.

The dominant first-generation biofuel feedstocks in Australia are sugarcane and wheat. The USA's feedstock is corn, which is one of the most land, water and resource intensive crops and requires extra steps in the biorefining process to convert corn starch to sugar. Europe's feedstock are soybean, canola, cereals and sugar beet, but Europe's limited agricultural capacity means that it will increasingly have to import biofuels. Brazil's sole feedstock is sugarcane, which is well suited to Brazil's climate and is the most efficient in the biorefining process. However, clearing of rainforest is a major concern in Brazil.

Second-generation biofuels are made from non-food feedstocks. Enzymes break down lignocellulose into sugar, which is then fermented to make ethanol. Second-generation feedstocks are diverse, including biowaste, algae, wood and switchgrass. Algae and drought-tolerant trees (Jatropha, Pongamia, Moringa, and Hura crepitans) produce oils that can be used to produce biodiesel. Unfortunately, second-generation chemical processes are energy intensive and the enzymes are costly.

Biowaste, a second-generation feedstock, can be comprised of agricultural residues, manure, municipal solid waste, demolition and construction waste, dairy processing waste, wood-processing waste, or even scrap vehicle tires. The advantages of biowaste are that it is cheap, does not compete with food production, has shorter transportation routes, and is plentiful. 90 percent of the mass of crops produced for food is non-edible residue, such as straw and corn husks, which would make good biowaste; in turn, once the biofuels have been extracted the residues could be used as a fertiliser back on the farms to promote more productive crops.

Algae is another exciting second-generation feedstock because it prefers non-potable water, such as sea-water or wastewater, and is the most efficient organism at converting sunlight energy into biomass, thus it can double its size within a day. Additionally, algae has a high yield of 106,000 litres of biodiesel or ethanol/hectare/year compared to canola's 1000 L biodiesel/ha/yr, palm oil's 5000 L biodiesel/ha/yr, or corn's 3500 L ethanol/ha/yr. A current project in Israel is growing algae in a power station's cooling ponds and feeding it CO2 from the power station's chimney.

Most second-generation biofuels technologies are in the demonstration phase, and not yet cost competitive although there is some indication that they will be competitive within 3–5 years. Despite this, in the US there are 30 projects developing second-generation ethanol biorefineries.

Land Use
To meet a target of replacing 10 percent of transport fuel with first-generation biofuels the percentage of agricultural land needed would be: 72 percent for the EU-15, 6 percent for Poland, 3 percent for Brazil, 30 percent for the US, and overall 9 percent of the world's agricultural land. In Australia, to mandate E10 usage 2000ML of ethanol would need to be produced – the current processing capacity for ethanol is 140ML, and the planned capacity is 1155ML. In the US, corn feedstock use is expected to double between 2006 and 2016. In the EU the amount of canola feedstock is set to grow from just over 10 million tonnes to 21 million tonnes over the same period. Brazil is planning a 500 percent increase in sugarcane acreage. Chinese ethanol output is expected to rise to an annual 3.8 billion litres, a 2 billion litre increase from current levels. Indonesia and Malaysia are expanding palm plantations. Developed countries still have capacity to increase their farming of feedstock, but in the long-term the majority of biofuels will be sourced from tropical developing countries. Also, as biofuels production increases from occupying 1 percent of the world's agricultural land towards 9 percent it will understandably begin to make a larger impact on food production and potentially create unfair competition.

Water Use
Biofuels should not only be assessed according to their individual production efficiencies, but also according to their compatibility with locally available resources. Sugarcane and corn plantations put pressure on water supplies in countries already suffering water scarcity problems. In Maharashtra, India, sugarcane plantations utilise two-thirds of the state's water and have lowered water tables by up to 50m. The International Water Management Institute (IWMI) has warned that China and India risk future famine by using unsustainable amounts of water on irrigation-dependent sugarcane and corn feedstock for biofuels. However, the IWMI's survey also concluded that water-rich regions, such as Brazil, have sufficient water supplies for its sugarcane plantations.

Compared to first-generation biofuels, second-generation biofuels require less land, water, fertiliser and other energy inputs. However, until large-scale commercial second-generation biofuels projects emerge, first-generation biofuels will continue to be the only biofuels on the market and will increasingly compete with food production.

Future policy directions
The EU's stated objectives regarding biofuels are: combating climate change under the Kyoto framework, improving the security of energy supply by reducing fossil fuel imports, and supporting agriculture and rural development. However, the initial political interest in biofuels in Europe began in 1983 with subsidised surplus wine, grain and agricultural products being redirected from dumping on the world market towards biofuels production. In 1992 there were trade disputes and the EU agreed to prevent gluts in the international canola market by redirecting farm produce towards biofuels.
The issues surrounding biofuels feedstocks are complex and new issues are continually emerging. The EU Environment Commissioner has cautioned that it would be better to miss biofuels targets than to achieve them by worsening social problems or damaging the environment. The EU will issue new biofuels sustainability criteria guidelines and a certification scheme in 2010, which the EU Environment Commissioner suggests will either promote second-generation biofuels or ensure biofuels feedstock production does not limit food production. UK Transport Secretary Ruth Kelly said that the UK would like to see the EU’s sustainability criteria address indirect, as well as direct, effects on land use.

The House of Commons Environmental Audit Committee has criticised the UK Government’s mandatory biofuels requirements and called for a moratorium on policies aimed at increasing biofuels usage because it is concerned that first-generation biofuels are likely to increase food prices, displace food production and damage food security in developing countries.

The UK Government rejected calls for a moratorium because:

- targets were set at an “appropriately cautious level”;
- an opportunity to make carbon savings from biofuels would be missed; and
- stimulating a market for biofuels will encourage investment and development of advanced technology.

The biofuels industry in the US is mostly motivated by the government’s desire to gain energy independence from Middle Eastern oil, as demonstrated by Congress naming its biofuels law the Energy Independence and Security Act. Of significant consequence is the energy output of biofuels relative to the fossil fuel put into making the biofuels: second-generation feedstocks have an energy output 10 times the input; and corn has a dismal energy output 1.4 times the input. Hence, production of corn ethanol does little to reduce the unsustainable importation of fossil fuels required to produce the corn ethanol. If the US is serious about reducing oil dependency it should shift its focus away from promoting corn towards second-generation feedstocks.

A demonstration of this is the Energy Independence and Security Act 2007 requirement that 0.5 billion gallons of biofuels must be cellulosic ethanol by 2012, rising to 16 billion gallons by 2022. Cellulosic ethanol must be sourced from a lignocellulose feedstock that has lifecycle greenhouse gas emissions at least 60 percent below those of petrol or diesel. In other words, 44 percent of the ethanol consumption mandated by the US for 2022 must be derived from cellulosic ethanol. The US government has announced the granting of US$385 million for the construction of six cellulosic ethanol pilot plants in the US.

A wide range of stakeholders are developing new principles and criteria for the biofuels industry. In particular, the Roundtable on Sustainable Biofuels, an international initiative involving farmers, companies, non-governmental organisations, scientists, and governments. It has drafted a ‘Version Zero’ of globally applicable principles and criteria for sustainable biofuels. Of particular interest is Criteria 6 Food Security: biofuels production “shall not replace staple crops if there are indications of local food insecurity” and biofuels production “shall give particular preference to waste” feedstocks, “to degraded/ marginal/ underutilized lands as sources, and to yield improvements.”

An imminent de-facto certification scheme for the feedstock production chain is the requirement of documentation and quantification under a carbon trading scheme. Australia also has ecological sustainability criteria and indicators for agriculture and forestry, and Environmental Impact Assessment and Social Impact Assessment processes.

Overall, future biofuels are likely to be produced from a much broader range of feedstocks. Key objectives for investors and scientists should be:

- increased yield per hectare of feedstock;
- development of new feedstocks that do not compete for land, water and resources; and
- improved methods of processing, in particular for second-generation feedstocks.

Key objectives for lawyers should be:

- internationally agreed methods of assessing sustainability and industry codes of conduct;
- a move away from biofuels mandates and subsidies, which focus only on supply targets and thus result in missed opportunities to reduce greenhouse gas emissions and insufficient consideration of wider environmental, social and economic benefits; and
- the establishment of a clear and coherent long-term policy framework, such as extending the fuel excise allowance to 2025, extending carbon pricing to transport fuels and requiring biofuels production chain reporting and certification.

Conclusion

The current laws regulating biofuels do not provide sufficient protection for food. At present this has not materialised into biofuels creating substantial competition for food, but the rapid expansion of first-generation biofuels production would result in significant competition. Second-generation biofuels offer an alternative path, which uses less land, water and resources. However, second-generation biofuels are not expected to become cost competitive for another three to five years. International codes of conduct and stronger legislative protection of food production are necessary to ensure biofuels production does not cause unacceptable harm to food production in the future.
Biofuels is a term used to describe all fuels derived from organic matter.


Feedstock is a term used to describe the plants grown and material sourced to make biofuels.

Campbell, P & Beer, T, 2007, Inquiry into Mandatory Ethanol and Biofuel Targets in Finland, CSIRO.


Advanced biofuels are defined as biofuels having lifecycle greenhouse gas emissions less than 50 percent of petrol or diesel.


Ibid.


Pearce, F, 2008, ‘Exploding the biofuels myths’, La Monde Diplomatique.


Introduction

This paper describes the genetically modified (GM) food labelling regulations for Australia and New Zealand (ANZ), how our food authority interprets and polices them and how well they address health and consumer concerns.

GM foods contain ingredients that come from GM organisms. Most of these organisms are GM crops. To make these crops, genetic engineers join sections of DNA that may come from plants, bacteria, animals and viruses into a gene cassette, which they insert into a plant. Genes coding for antibiotic resistance are often included. The aim is to get the plant to produce one or more new proteins. Usually, these proteins are of two types: proteins that are insecticides or proteins that make the plant resistant to herbicides.

Health concerns include those from eating the new, expected proteins, eating possible new substances caused by unintended effects on plants from inserting the genes, and increased herbicides in food.

The vast majority of GM crops grown in the world consist of maize, soy, cotton and canola. They are mostly used for animal feed, however, significant amounts enter the human food supply, including as refined products such as oils, starch and sugars. For example, most Australians eat soy flour on a daily basis in bread.

There is a dire need for long-term safety assessments of these crops by independent researchers using measures that are actually relevant to human health. The possible health implications of these crops are discussed elsewhere. This paper principally discusses the legal aspects of labelling. The scientific basis for better labelling will be addressed further elsewhere.

GM food regulations

Food Standards Australia New Zealand (FSANZ) regulates the food supply in ANZ and hence also regulates GM organisms for human consumption in ANZ.

GM food regulations are given in the Australia New Zealand Food Standards Code as Standard 1.5.2, Food Produced Using Gene Technology. The Standard prohibits the sale and use of these foods unless they are included in a table in the Standard. As of August 2008, this table contained 55 GM crop varieties of soy bean, canola, corn, potato, sugarbeet, lucerne (alfalfa), and cotton. These are likely to be found in bread, pastries, snack foods, baked products, oils, fried foods, confectionary, soft drinks and sausage skins.
Labelling laws for GM foods were introduced in December 2001. According to the Standard, labelling is required for food that is genetically modified or “contains as an ingredient, including a processing aid, a food produced using gene technology which:

(a) contains novel DNA and/or protein; or
(b) has altered characteristics. 8

This definition is notable for its emphasis on DNA and protein from GM organisms. It indicates a belief that health problems would only occur from ingesting the actual GM DNA inserted into the plant or the GM protein that this DNA codes-for. It ignores all possible unintended effects of genetic engineering.

The Standard then excludes a number of things from labelling, including products (for example, meat, milk, cheese, eggs) from animals fed GM feed, highly refined products (for example, cooking oil, sugars, starches), or food that is prepared and sold from food premises such as bakeries, restaurants and takeaways. The Standard also excludes foods ‘unintentionally’ contaminated by up to 1 percent per ingredient that are made with processing aids or food additives (for example, using GM microbes) (if no DNA or protein remains), or that contain GM flavours present at more than 0.1 percent. Various aspects of these exclusions are discussed below.

“… consumers are being denied a choice to source clearly-labelled GM-free food, because food manufacturers are concerned about being fined if tiny amounts of contamination slip through.”

Vegetable oil

Of the five canola-growing States of Australia, New South Wales and Victoria have recently ended their moratoria to allow unrestricted commercial growth of GM canola. The amount of GM canola oil in the Australian food supply is therefore expected to increase substantially. It will join oil from Australian-grown GM cotton seeds.

According to the Standard, “highly refined food, other than that with altered characteristics, where the effect of the refining process is to remove novel DNA and/or novel protein” does not need to be labelled. 1 FSANZ then interpreted this for oil in other documents and media interviews as: oil in the food supply is highly purified, therefore it contains no DNA or protein and therefore oil from GM crops does not need to be labelled. The only exception is if the GM plant was designed to produce a different type of oil than normal for that plant, for example if a canola plant was engineered to produce fish oils, in which case the oil would still need to be labelled.

Yet it has been known for a decade that there is a small amount of DNA in canola oil. 5 Since both the GM crop industry and FSANZ have long argued that GM DNA behaves the same as ‘ordinary’ DNA, they have also argued, *ipso facto*, that oil from GM canola contains GM DNA and must be labelled.

Meanwhile, it has been known for decades that there is a small amount of protein in vegetable oils 6 and that this specifically includes oils on supermarket shelves. 7 Even FSANZ’s own safety assessment of a GM canola variety shows there to be a small amount of protein in the oil. 8 Yet, FSANZ has still concluded that there is no protein in the oil from that crop, 9 and that oils do not contain protein, particularly novel protein. Moreover, FSANZ has also concluded, by referring to documents given to it by Monsanto that even if there were some protein in oil, there is not enough to cause any health effects, such as allergic reactions. In doing so, FSANZ has managed to miss a significant body of scientific literature and clinical knowledge. For example, in one published oral provocation test, 22 percent of patients allergic to peanuts reacted to peanut oil. 10

This evidence shows that FSANZ has wrongly interpreted the Standard. Oil from GM crops should be labelled, as is required in the European Union.

Meat, milk and cheese from animals fed GM feed

Due to the amount of GM canola being grown in Australia this year, the amount of GM canola meal eaten by Australian farm animals is expected to increase substantially. Canola meal is the seed waste remaining after the oil has been removed. Like GM cotton waste, it is used as stock feed.

The definition of a GM food in the Standard is accompanied by the following “editorial note” by FSANZ:

“This definition does not include a food derived from an animal or other organism which had been fed food produced using gene technology, unless the animal or organism itself is a product of gene technology.” 11

This removes from all GM labelling requirements, meat, milk, cheese and eggs produced from animals that are fed GM feed. Why does this appear as an editorial note? FSANZ is not permitted to develop policy, which remains the domain of the Ministerial committee overseeing FSANZ. Yet, by altering the Standard to address this previously unaddressed issue, it could be argued that FSANZ has developed policy.

It is also clear that FSANZ has made this statement in contravention of scientific evidence that these products have been shown to contain GM DNA and/or protein and hence should be labelled. More specifically, a number of studies have now shown that DNA (including GM DNA) can survive digestion and be found in the tissues of animals eating it. 12 Moreover, a recent survey of milk on Italian supermarket shelves found GM DNA in over a third of milk samples tested. 13

Therefore, FSANZ has wrongly interpreted the Standard. The editorial note should be removed from the Standard and replaced with a note that meat, milk, cheese and eggs from animals fed GM crops should be labelled.
Policing the Standard and the 1 percent limit

Because foods that are “unintentionally” contaminated by up to 1 percent per ingredient can escape a GM label, many food manufacturers believe that they do not need to label a GM ingredient if it is present at less than 1 percent. However, FSANZ has been clear that this exemption only applies “where the manufacturer has actively sought to avoid GM ingredients but GM material is inadvertently present” and that “the food manufacturer needs to be able to demonstrate that they have sought to source non-GM food for their product. Such measures include document verification, identity preservation systems or batch testing. However if testing shows a GM ingredient is present, labelling is required regardless of whether the level is below 1 percent”.

The only policing of the labelling laws that FSANZ has ever done involved a small pilot survey in 2003. In a study without a suitable sampling rationale, 69 samples of various foodstuffs were taken with only 51 of them tested. Of those tested, 22 percent of samples were positive for GM DNA. The highest proportion of positive results was for soy milk (42 percent of samples), corn chips (15 percent) and tacos (75 percent). None of them had a GM label. FSANZ asked 36 food companies supplying 58 of the samples about their management systems to determine the GM status of the ingredients. Although only 39 percent had suitable systems, FSANZ concluded that there was a “high level of industry compliance with the labelling requirements” and that any future survey could just ask manufacturers for documents rather than testing actual food. The survey results completely contradict this. FSANZ was silent on whether any of the companies with GM content in their food should have been prosecuted for failure to follow requirements for unintentional presence. Yet, assuming random distribution, statistically speaking, four companies should have been prosecuted.

FSANZ has done no testing since, even though the proportion of GM material in the food supply has substantially increased since then, so some food manufacturers may now be above the 1 percent limit, which would trigger a GM label regardless of “intention”.

Negative claims, consumer choice and the story of the sausage

The Standard is silent on negative claims on a food label such as “GM free” or “non-GM”. FSANZ has instead stated that such claims are subject to provisions regarding false and misleading conduct under various legislation. The Australian Competition and Consumer Commission (ACCC) and legal advice to the Network of Concerned Farmers both state that GM-free-labelled food must not contain any trace of GM material whatsoever and that under the Trade Practices Act 1974 (C’th), the definition of “non” is similar to “no” or “free of”. Therefore, “GM-free” and “non-GM” labels both mean that GM material must not be in the food and that, in fact, the product needs to have “no contact with novel DNA and/or protein during the production process”.

An example of how this can work is given by Bean Supreme, a New Zealand (NZ) maker of vegetarian, soy-based sausages. Only one of 12 of its products was found to test positive for GM material and then only at 0.0088 percent. Yet the NZ Food Safety Authority (NZFSA) referred the case to the Commerce Commission for prosecution. The company was subsequently found to be in breach of the Fair Trading Act 1986 because it had labelled its sausages as “non-GM”. Rather than face legal bills estimated at $63,000 the company pleaded guilty and was fined $4,250 plus costs. If the company had not put this claim on its products, it would not have been prosecuted, as it was easily able to demonstrate that it had worked hard to source non-GM ingredients and that the contamination was well below 1 percent. The role of FSANZ in this prosecution is unknown. While the Standard was determined by FSANZ for both Australia and New Zealand, NZFSA enforces the Standard in New Zealand, but may do so in consultation with FSANZ.

As a result, even though surveys have repeatedly found that a high proportion of consumers do not want to eat GM food, consumers are being denied a choice to source clearly-labelled GM-free food, because food manufacturers are concerned about being fined if tiny amounts of contamination slip through. Meanwhile, uncaring or unscrupulous manufacturers are getting away with putting unlabelled GM ingredients in their food due to a lack of policing and enforcement.

Because of this situation, the best way a consumer can choose not to eat GM foods is to use Greenpeace’s The True Food Guide.

The FSANZ Act

FSANZ has three objectives, in descending order of priority, as described in Section 10(1) of the Food Standards Australia New Zealand Act 1991 (C’th). They are:

(a) the protection of public health and safety;
(b) the provision of adequate information relating to food to enable consumers to make informed choices; and
(c) the prevention of misleading or deceptive conduct.

The fact that FSANZ does not require any animal or human safety studies to be done on GM crops appears to breach aim (a). By not requiring labelling of purified products like oils from GM organisms or meat, milk and cheese produced from animals fed GM crops, FSANZ has denied consumers the choice they want, in contravention of aim (b). Also, because FSANZ has done no policing of GM foods on supermarket shelves, it allows manufacturers to get away with putting GM ingredients into foods without labelling, in breach of aims (b) and (c) of its Act. It could therefore be argued that FSANZ is in breach of all three aims of its Act.
“May contain” labels

Finding small sections of GM DNA in food requires skill and specific tools. If one researcher cannot find them, another often can. If FSANZ wishes to argue that other information, including unpublished information from GM companies, indicates there is not enough evidence to label oil, meat, milk and cheese, it should at least consider a “may contain” label until the evidence is clear enough for FSANZ. These labels are required for other foods where traces of certain substances may remain. An example on a current wine label is: “This wine was clarified the traditional way, using dairy and fish products. Traces may remain”, while an example on biscuits is: “May contain traces of nut, dairy, egg or seed”. At least for wine, FSANZ enacted this labelling over protests from wine producers who stated that traces would not remain and that no-one had suffered an adverse reaction to these substances from consuming wine. An equivalent label for GM food ingredients could be: “May contain DNA and/or protein from GM crops”. Such a move would also make FSANZ more compliant with its Act.
GM crops: does the law protect choice?

Julie Newman, Farmer (10,000ha) and seed cleaner, Newdegate, WA and National Spokesperson, Network of Concerned Farmers

Introduction

Why is there such a rush to adopt genetically modified (GM) crops when there is such opposition from consumers and farmers? The GM debate is complex and multifaceted and involves international treaties, national agreements, changes to public plant breeding regimes, corporate plans, farmer profitability, market demands and choice for consumers and farmers. This paper considers that legislation is inadequate in addressing consumer and farmer choice and that much of the GM promotion has been misleading. In order to understand the GM debate and try to address the problems, a good understanding of these issues is essential.

Corporate plans, international treaties, national agreements and public plant breeding changes

The drive behind GM crops by government, researchers and the GM industry is the need to attract corporate investment and alliances into plant breeding institutes and for investors (including government) to capitalise on their investments.

Historically, plant breeding was publicly funded and intellectual property and plant breeding techniques were traded internationally. In the 1986-94 Uruguay Round of the World Trade Organisation Agreements, intellectual property rules were introduced to encourage investment in research and development by promoting the patenting and ownership of intellectual property related to plant breeding.

When the international Trade Related Intellectual Property (TRIPs) Agreement was accepted internationally, Monsanto, a multinational chemical and biotechnology company, secured many of the patents necessary for plant breeding and has since continued to secure GM and non-GM biotechnology patents. Meanwhile, traditional, poorly funded public plant breeding institutes are unable to afford to pay the costs involved in producing varieties using patented technologies or securing patents or designing new technologies. Instead, they sign confidential contracts to form alliances with Monsanto in order to use patented property free of charge.

Due to the National Competition Policy principles, Australian governments encouraged each sector of the existing research and development chain to provide a commercial return on investments. This has led to the requirement to attract corporate investment and alliances to plant breeding, particularly for biotechnology where numerous patents are involved in each variety produced.

Australia’s largest biotech company, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) will not reveal the details of their agreements on the basis of confidentiality but as early as 1992, the former head of CSIRO, John Stocker, was quoted on ABC radio as saying:

“Yes, we do find that it is often the best strategy to get into bed with these companies”.

Investors had no intention of taking over previously unprofitable public plant breeding as they require a very profitable return on their investments. Public research and development consequently moved away from the ‘public good’ principles to the ‘corporate profit’ principle. However, this shift in plant breeding incentives is reliant on farmers paying far more for new plant varieties which is, in turn, limited by the performance of the variety as farmers will not pay more than the variety offers. Incentives to invest in the patents themselves, rather than the varieties, were promoted.

Patents were considered valuable property that could be traded. Australian research recognised the opportunity to capitalise from the ability to patent techniques and intellectual property stemming from research. What was traditionally a scientific research incentive soon became a Federal Government incentive. In 1999, the CSIRO responded to a Senate question:

“How best can Australia capitalise on its publicly funded biotechnology?”

The response from CSIRO was:

“In most cases, Australia alone does not have the resources or market access, or often the total required intellectual property, to take successful discoveries in biotechnology to the global markets these products can command and need to recoup investment in R&D.

“The multinationals recognise that this country has some of the most effective plant gene technology research teams in the world and that these are likely to be of consequence in the development of their own business systems. They are willing, in most cases, to consider trades with some of their intellectual property”.

At an industry biotech conference in January 1999, it was revealed by a representative from Arthur Anderson Consulting Group that the company had helped Monsanto create a strategy to own the patents for 100 percent of all commercial seeds grown and to ensure natural seeds were virtually extinct. The tactics involved included influencing
governments in order to get GM foods and crops grown before resistance prevented the move.³

Patents of living DNA were introduced in 1980 when, in a five-to-four decision, the US Supreme Court extended patent law to cover ‘live human-made micro-organisms’. Since then, Monsanto has become the world leader in the genetic modification of seeds and, according to the U.S. Department of Agriculture, now owns 674 biotechnology patents.

The difference between a patented seed and a conventional seed is that the patent owner owns the seed and its progeny and farmers are therefore required to sign contracts promising not to save or sell seeds for re-planting which, in turn, ensures farmers must buy new seed every year.

Legal compliance with patent law has been vigorously pursued by Monsanto. This has involved a team of private investigators and the installation of a ‘hotline’ encouraging farmers to report fellow farmers suspected of breaching patent law. A 2007 report prepared by the US Center for Food Safety documented 112 lawsuits in 27 US states that involved Monsanto suing farmers for breach of contract. In the Center’s opinion, many more farmers settled out of court as they could not afford the time or money to fight Monsanto.³

Seed cleaners have also been subpoenaed to provide information leading to action against farmers and sued for ‘encouraging’ farmers to break their contracts by supplying the seed grading service that they had provided for decades.⁶

Monsanto has progressively purchased seed companies. In 2003, Monsanto bought the world’s largest vegetable seed company, Seminis for $1.4 billion, giving it ownership of 40 percent of the US vegetable seed market and 20 percent of the world market. Soon after, it purchased De Ruiter Seeds Co, the largest vegetable seed company in the Netherlands for $850 million.⁹

The International Union for the Protection of New Varieties of Plants (UPOV) Agreement was introduced to adopt a system of royalty collection for new plant varieties while retaining the right of farmers to replant their own seed.¹⁰ While the United States and Canada refused to sign the updated UPOV 91 treaty, Australia did, which allowed the collection of royalties to be obtained from harvested seed produced from the seed planted in an ‘end-point royalty’ plan. GM patent owners such as Monsanto will have the right to collect their patent fee from a farmer’s grain payment which may lead to the Australian farmer being required to sue the company over any disputes, rather than the company suing the farmer. No limit of contamination is set to trigger this royalty deduction which leaves farmers vulnerable to the sensitivity of GM tests. Such tests may trigger a positive result and a reduction of royalties for as low as 0.5 percent contamination.

Of further concern is the recent investigation by the Australian Centre for Intellectual Property in Agriculture (ACIPA) that reveals the seed industry’s push to remove farmers’ rights to replant non-GM seeds.¹¹ If recommendations contained in the issues paper are legislated, farmers will have little option but to buy seeds released by plant breeders under confidential terms of agreement with Monsanto.

The strategy of the plant breeding industry appears to be to force all farmers to pay far more for research and development despite the requirement to offer a benefit to farmers in return. A pyramid selling arrangement is being promoted to enable the GM industry to dictate their fee from all crops produced. Unfortunately, farmers can not pass this cost to consumers as markets are rejecting GM foods. A combination of higher costs and market rejection will threaten farmer profitability and sustainability.

In May, 2002, the Federal Government Primary Industries Ministerial Council determined that industry should ‘self-regulate’ risks.¹² A joint State-Commonwealth regulatory system was agreed to by the Council of Australian Governments and the Australian Federal Government signed a biotechnology strategy in 2000 promising a path to market for GM crops.

All public service employees are bound by the Australian Public Service values including the requirement to be responsive to the government in implementing the government’s policies and programs.¹³ This led to traditionally trusted government organisations promoting a path to market while rejecting the required risk management.

Competition is currently retained in the supply of food because farmers have the choice to buy and sell from their business of choice. If plant breeders have agreements with Monsanto to add a Monsanto gene to all new varieties released, and farmers are required to purchase new seeds every year, all farmers could be locked into being a contract grower for a single supply chain. This would effectively remove all opposition, as no alternative supply chain will be able to access food. This should be prevented under anti-competition legislation.

Misleading promotions and farm policy pressure

Industry is keen to be part of the GM alliance, researchers are desperate to form alliances in return for corporate control, and governments want to make money out of research and development rather than fund public plant breeding. As a result, GM crops are often promoted for traits (such as drought tolerance and salt tolerance) that are not relevant to the traits offered (chemical resistance) but farmers traditionally have trusted information provided by these institutes. It is also possible that policy makers have been misled by vested interests about the benefits and risks of GM, leading to pro-GM policy.

The key policy advisor of farm lobby groups is Paula Fitzgerald from Agrifood Awareness representing the GM industry through CropLife Australia and funded by legislated levies from farmers through Grain Research Development Corporation (GRDC).¹¹ The life science benefits of lowering crop production costs, increasing productivity, providing a safer environment and a more sustainable system for ensuring global food, feed and fiber security have been constantly promoted. However the peak reporting body for the GM industry, the International Service for the Acquisition of Agri-biotech Applications (ISAAA), has admitted that this is an “inappropriate strategy for the future” with spin-offs and consolidation mergers being promoted as an alternative strategy since late 1990.¹⁵
Inadequate segregation plans

The Grain Research Development Corporation (GRDC) prepared an industry report titled “Delivering market choice with GM canola” to address segregation.16

The ‘industry endorsed’ protocols for coexistence involve the industry exempting itself from any liability and placing all responsibility for costs and liabilities onto the non-GM farmers. These farmers were not invited to be involved in the preparation of the industry protocols. The protocols accept contamination rather than prevent it.

This is because a GM grower is only required to respect a distance of five metres from a non-GM crop and 400 metres from a foundation seed canola. This places the responsibility on the non-GM farmer to minimise or prevent contamination if a neighbouring crop is GM. In line with industry self-management plans, Monsanto’s crop management plan recommends that non-GM farmers adopt “appropriate management strategies as communicated by the supply chain for the specified product”.17

The Vendor declarations that West Australian farmers sign when delivering their produce to the storage and handler, Cooperative Bulk Handling (CBH) details the requirements for a non-GM product.

The CBH Delivery and Warehousing Terms (1st October 2007) itemise the liability of growers:

• (4.1.10) none of the Grain in a Delivery is a Genetically Modified Organism (unless declared in writing to, and approved in writing by, CBH before the Delivery enters the Site);

• (19.10) CBH does not represent, warrant or guarantee that any Grain received, acquired or Outturned for You:

• (19.10.3) is free from the presence, at any level or concentration, of Genetically Modified Organisms.

• (19.11) CBH will not be liable to You for any and all Loss or Damage caused by the negligence, breach or contract, breach of statutory duty or any other legal or equitable obligation of CBH, or otherwise howsoever arising in connection with these Terms from:

 (19.11.3) the presence, in any Grain received or Outturned for You, at any level or concentration of any Genetically Modified Organisms.

• (19.12) You shall indemnify, keep indemnified and hold harmless CBH from any and all Loss or Damage suffered by or claimed from CBH, whether caused by the negligence, breach of contract, breach of statutory duty or any other legal or equitable obligation of CBH, or otherwise howsoever arising in connection with these Terms from:

(19.12.3) the presence, in any Grain received or Outturned for You, at any level or concentration of any Genetically Modified Organisms.

• (10.1) You agree that You will not effect or attempt to effect a Delivery that contains a Contaminant.

• (10.2) You agree that if a Contaminant is discovered in grain Delivered, or tendered for delivery, by You (whether discovered during sampling, unloading or in storage):

(10.2.1) You are liable to pay the relevant Contamination Charge; or any loss, costs or damage resulting from the presence of a Contaminant, its removal and/or the downgrading of Grain resulting from a Contaminant making it through into the stack.

Due to these contractual obligations, it is essential for farmers to know the GM content of their seed prior to delivery to avoid costs and liability. Unfortunately, there are no quantitative tests available at the delivery site. It is unlikely that any farmer would accept these liabilities to market as non-GM.

Alternatively, when marketing the harvested product under the coexistence guidelines, it is recommended by industry that the documentation accompanying sales states either:

• the commodity is not known to have GM content above 0.9 percent;

• testing has shown no positive GM test registering above 0.9 percent; or

• a specialised audited quality assurance program has been followed and the varieties planted were not known to have over 0.9 percent GM content.

Health concerns and consumer and market demands

If GM crops are released commercially in a State, the market perception is that all produce is GM unless it is proven to be non-GM. Markets demand a guarantee of no GM or a guarantee that the consignment does not exceed a set tolerance level.

Domestically, many supermarket chains have a GM-free policy and the majority of consumers prefer a GM-free product. As canola oil is not labelled, a ‘GM-free’ or ‘Non-GM’ label would be required to enable choice for the Australian consumer.

Confirmation from the Australian Competition and Consumer Commission (ACCC) has been received stating clearly that no contamination would be acceptable in products using these labels. In 2001 the ACCC published information regarding genetically modified organisms and food in News for Business. The ACCC pointed out that a ‘GM free’ claim left no room for ambiguity under the current Trade Practices Act 1974 (Cth). ‘GM free’ means no detectable GM.

The ACCC explained in a letter to Minister Chance dated 17 March 2008:

“The confusion appears to have arisen in terms of the Food Standards Australia New Zealand (FSANZ) Food Standards Code requirement which exempts products or ingredients from being labelled GM if they only have up to 1 percent of the material where its presence is unintended.”

If the recommended protocols are adopted, it is highly unlikely that farmers will be able to provide a GM-free product which, in turn, will mean no choice for consumers or farmers. It is felt that removing the GM-free option is an aim adopted by GM proponents. Dale Adolphe of the Canadian Seed Growers Association was quoted as saying...
"It's a hell of a thing to say that the way we win is don't give the consumer a choice, but that might be it.

Health related feeding trials have shown a range of problems with GM foods, including damaged immune systems and increased allergies, development of lesions and/or pre-cancerous growths, unusually enlarged or damaged organs, temporary infertility and unexplained death. When testing the second generation or developing animals, findings included smaller organs such as brain, liver and testicles, immune system damage and metabolic change, organ damage, abnormal anxiety and aggression, precancerous tumours, infertility, including up to 100 percent permanent male sterility in offspring and abnormally high death rates.

Consumers understandably want regulation to ensure GM foods are safe to eat and want the ability to avoid GM foods if they decide not to take the risk. GM canola was approved as safe by the regulatory process yet the oil, which is the part consumers eat, was not tested at all. The remaining meal escaped regulation as FSANZ has no authority over stock feed. It appears any GM company is allowed to have self-management on health regulations and if they don’t want to submit concerning data, they don’t have to. As a result, the Australian regulatory authority is nothing more than an expensive public relations exercise.

GM canola oil is not labelled. Therefore, a GM-free label will differentiate the product and give consumers a choice. As no contamination is accepted in a GM-free label but contamination is accepted by the industry, it will not be possible for farmers to provide a GM-free product. Despite both choice and coexistence being promised by governments and industry, it can not be provided under current coexistence plans.

Inadequate legislation

Farmers have been pushing for a strict liability regime to ensure the GM industry is responsible for compensating for any economic loss caused to non-GM farmers but this has been refused. It was initially thought that the Courts could provide a remedy with suggestions that a non-GM farmer could bring legal action against neighbouring GM farmers under tort law but this is unlikely to be successful as the GM farmer would claim that he followed industry protocols.

Conclusion

With government and industry support, the GM industry has been permitted to introduce GM crops under self-management guidelines and government institutes are failing to implement effective risk management strategies as they have a vested interest in the outcome. Despite coexistence being promised, it will not be possible for farmers to deliver it. The non-GM choice for both farmers and consumers will be denied leading to risks to both farmers and consumers.

Resources:

1. www.non-gm-farmers.com
2. Trade Related Intellectual Property Agreement, Available at http://www.wto.org/english/tratop_e/trips_e/trips_5.htm
13. James, C., 2003, ‘Global Review of Commercialised Transgenic Crops 2001’, ISSA Briefs No. 24–2001. “In 1995 the private sector viewed crop-biotechnology, prior to the commercialisation of the first GM crops in 1996, as an important new opportunity for markets that would contribute to lowering crop production costs, increasing productivity, provide a safer environment and a more sustainable system for ensuring global food, feed and fibre security. Later in the 1990’s the private sector judged the life science concept to be an inappropriate strategy for the future. There followed a series of spin-offs and mergers culminating in consolidation that resulted in six transnational North American and European based crop protection/biotechnology entities.”

Overeating the Environment! 29
Developing a strategy for managing climate change impacts on water resources

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Shared water resources and climate change

Water underpins all aspects of human life – social, economic and environmental. Therefore, when considering shared water resources, there will be a number of competing interests involved which affect different stakeholders in the community – water for drinking, food production, energy, industry and environmental flows. National water governance involves striking a balance between these competing interests. However, as was noted in the report of the United Nations Conference on Environment and Development held at Rio in 1992 “in developing and using water resources priority has to be given to the satisfaction of basic needs and the safeguarding of ecosystems”. These types of competition are also played out at an international level when shared water courses result in both conflicts and interdependencies between countries. In other words, the way one country or province uses water as it flows through its territory will have effects on downstream countries.

Within the Australian context, Australia’s largest river system, the Murray-Darling Basin poses similar challenges at a Federal-State level. The Murray-Darling Basin system stretches over 2740 kilometres north and 2530 kilometres east from South Australia through Victoria, the ACT, New South Wales and Queensland. Traditionally, water resources have been managed individually by the States. It has only been in recent years that limited coordination between States and the Commonwealth has occurred. That coordination is given effect to through the Murray-Darling Basin Agreement 1995, which sets caps on diversions of flows within the rivers as they pass through to downstream States, and more recently the Water Act 2007 (C’th) (Water Act). As will be seen below, the potential impacts of climate change on the Murray-Darling are so significant that the need for an integrated approach to managing and adapting to those impacts is imperative.

“...the potential impacts of climate change on the Murray-Darling are so significant that the need for an integrated approach to managing and adapting to those impacts is imperative.”

Climate change, freshwater and agriculture

Anthropogenic climate change refers to changes in the global climate (including surface temperature, precipitation and ocean temperature) as a result of the increase in greenhouse gas emissions from human activities. The objective of the United Nations Framework Convention on Climate Change (UNFCCC) is to stabilise “greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”. Parties under the UNFCCC were asked to develop “appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas... affected by drought and desertification as well as floods”. Parties are required to take climate change into consideration when formulating social, economic and environmental policies and actions. Hence, it is essential for vulnerable countries to identify strategies and integrate responses to climate change in their current water resource management policies and activities.

Climate change and freshwater systems are interconnected in many complex ways. Direct impacts of climate change derive from the cause-effect relationship between precipitation and/or temperature and the quantitative and qualitative aspects of water resources. In this respect, the Intergovernmental Panel on Climate Change’s (IPCC) Fourth Assessment
The IPCC has indicated that stream flows into the Murray-Darling Basin are projected to decline by 10-25 percent by 2030 and by 16-48 percent by 2100. The costs to Australia’s agricultural industries as a result of these changes will be between US$0.6-0.9 billion. Climate change is likely to change land use in southern Australia, with many crops, such as wheat, becoming non-viable at the dry margins if rainfall is reduced substantially. In this regard, best estimates from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Bureau of Meteorology indicate that rainfall in southern Australia will decrease by approximately ten percent by 2070 relative to 1990 levels. Other potential changes to agriculture as a result of climate change include loss of agricultural productivity, declines in crop yields, pasture growth and livestock production returns and a rise in agricultural production costs.

Water management

The vulnerability of freshwater systems and agricultural production to climate change is partly dependent upon water management. In this regard, the institutions that govern water allocations and water infrastructure play an important role in determining how and where water resources are used. The IPCC has recognised the need for regional coordination in water management, particularly in international and shared basins and has recommended that international basin authorities be strengthened and should be backed by robust legal frameworks. In the AR4, the IPCC states that current water management practices are very likely to be inadequate to reduce the negative impacts of climate change on water supply reliability, flood risk, health, energy and aquatic ecosystems. However, improved incorporation of current climate variability into water-related management would make adaptation to future climate change easier.

Traditionally water has been managed on the assumption that historic seasonal patterns will persist. Climate change throws a number of uncertainties into this assumption, such as increased chances of droughts or floods, which requires a more dynamic approach to water management that takes these uncertainties into account. The integrated catchment management (ICM), otherwise known as the integrated water resource management (IWRM) framework is one method of water planning that seeks to respond to considerations of climate change. IWRM involves the harmonisation of policies, institutions, regulatory frameworks, planning, maintenance and design standards for those agencies and departments responsible for one or more aspect of water and natural resource management. The concept is underpinned by the recognition that water resources are often best managed by a permanent coordinating body such as a catchment management authority or river basin committee. The Murray-Darling Basin Commission provides a good example of a basin management committee seeking to apply an ICM approach. However, because of the limitations on its jurisdiction, it has been unable to effectively exercise control over key water management activities. By conferring new and additional powers on the Murray-Darling Basin Authority, which is being established under the Water Act, some of these limitations may be overcome in the future.

Adaptation

Adger et al note that adaptation takes place through adjustments to reduce vulnerability or enhance resilience in response to observed and expected changes in climate and associated extreme weather events. Adaptation actions may be anticipatory or reactive and are often ongoing measures that respond to a number of factors or stresses, including but not limited to climate change.

In the water sector, adaptation involves measures that alter hydrological characteristics to suit human demands and to alter demand to suit conditions of water availability. There are a number of adaptation measures that can be used to improve water supply and demand. These include, on the supply side:

- prospecting for and extracting groundwater,
- increasing storage capacity by building dams and reservoirs,
- desalination,
- rainwater storage,
- removing invasive species from riparian areas, and
- water transfers.

On the demand side, measures include:

- improving water use efficiency and water recycling,
- reducing water demand for irrigation by changing cropping practices,
- importing agricultural products to irrigation areas,
- promoting indigenous practices and sustainable water use,
- expanding the use of water markets to reallocate water to higher value uses, and
- increasing economic incentives, including metering and pricing to encourage water conservation.

There are a number of limits to the extent to which different supply and demand side adaptation measures can be adopted in different circumstances, including the physical constraints of the water resource itself, the economic feasibility of the measures, the political and social will to adopt changes and the institutional capacity of water managers to act.
Identifying the risks

Assuming that there are increases in temperature and reduced rainfall then the following direct impacts on water resources can be expected: reduced inflow to water storages, reduced streamflow, reduced water available for rainfed agriculture, reduced recharge of groundwater, and exacerbated drought. In addition, indirect impacts will also be felt, primarily at the ecosystem level, such as: increased occurrences of invasive species; changes in salt/sediment loads in streams; and possible changes to water required for the health of aquatic and water dependent plants and animals.

When considering arrangements to manage water resources, climate change is only one of a number of factors that will affect the sustainable development of communities, towns, countries and regions that depend upon a basin. Other potential threats to sustainable resource management include: unsustainable use of water by agriculture and industry; construction of dams, embankments, dykes or water transfers used to serve purposes such as hydropower or navigation; nutrient loads and emissions of substances affecting water quality and reducing the availability of clean water; changing land-use patterns and structural measures that affect river flows and seasonal water availability; changes in agriculture – crops and water use; increased development in urban areas, which may place pressure upon water availability; and development in flood plains which increases risks to property and life.\(^2\) Climate change is likely to exacerbate these threats.

Managing risks

There are a number of strategies that can be used to manage climate risk. Whilst the appropriate response largely depends upon specific local factors, national and regional level responses may also provide a useful context for local decision making.

Within Australia, water managers are seeking to address climate variability by: including climate information in decision making, such as using climate forecasting tools and models to predict rainfall and yields; building a resilient system that anticipates and can withstand drought; improving water use efficiency; making the most of any rainfall and being able to respond to actual weather conditions; and planting different crops/varieties to improve their tolerance.

The Commonwealth Government is in the process of establishing the Murray-Darling Basin Authority under the Water Act. The Authority has a number of functions which include:

* preparing a Basin Plan for adoption by the Minister, including setting sustainable limits on water that can be taken from surface and groundwater systems across the Basin;
* developing a water rights information service which facilitates water trading across the Murray-Darling Basin;
* special powers relating to entry onto land for compliance purposes;
* measuring and monitoring water resources and water dependent ecosystems in the Basin;
* developing measures for the equitable, efficient and sustainable use of the Basin’s water resources;
* advising the Minister on the accreditation of State water resource plans;
* gathering information and undertaking research; and
* engaging the community in the management of the Basin’s resources.

The establishment of the Authority and the development of the Basin Plan should provide a strong management framework within which coordinated decisions can be taken to address the impacts of climate change on the Basin.

In the European Union, although the impacts of climate change on water resources are likely to be different to those impacts in Australia, the policy framework adopted through the Water Framework Directive (WFD)\(^2\) provides a useful reference to consider integrating climate change adaptation into water management planning. The WFD requires member states to: undertake a comprehensive stocktake of environmental pressures, including additional climate pressures and of the economics of water use; apply an ecosystem (catchment area) approach (across administrative boundaries); look at ecosystem management with a long-term perspective; monitor the relevant environmental (climate and other) impacts; define clear environmental quality targets; devise and implement management plans with concrete measures to achieve these targets, including market based instruments, such as the recovery of water service costs, or environmental resource costs from water users, and to review management plans regularly in order to take into account recent data and information.\(^2\)

As noted above, current ‘best practice’ water management involves firstly, working out the appropriate scale at which the resource should be managed and secondly identifying the appropriate regional, national and local stakeholders to coordinate and cooperate with.

There are a number of benefits in promoting regional water management coordination and responding collectively to mutual threats to the security of shared water resources. First, pooling resources and sharing information can contribute to a greater understanding of the physical and hydrological characteristics of the resource and the climatic factors which may affect the resource in the future. This in turn enables water managers to plan and ultimately make better informed decisions. Second, establishing a forum and process to notify other water users about proposed actions that will affect the water resource and which enables stakeholders to discuss and resolve concerns about such actions can assist in avoiding conflicts over water use. Third, establishing a joint committee and adopting clear arrangements that outline the vision, objectives, management principles, and way in which stakeholders will work to achieve the optimum sustainable use of the resource provides clarity and certainty for all users of the resource.
The Australian example of managing the Murray-Darling Basin through a Basin Authority and with the co-operation of all the Basin States provides a good example of how a country can engage in a co-ordinated response to the challenges of water scarcity and climate change. However, even with best practice management, rural communities will have to deal with the unavoidable impacts of climate change. Planning for and managing risks should also, therefore, consider the social and economic restructuring that may be needed in circumstances where traditional agricultural activities are no longer viable.

1 Agenda 21, Chapter 18, Part 18.8.
2 United Nations Framework Convention on Climate Change (UNFCCC), Article 2.
3 UNFCCC, Article 4(1)(c).
4 UNFCCC, Article 4(1)(f).
5 UNFCCC, Article 4(1)(f).
9 WGII, AR4, Ch.11 p. 516.
10 WGII, AR4, Ch.11 p. 518.
12 Ibid.
13 WGII, TAR, Ch.10 p. 500.
14 WGII, AR4, Ch.3 para 3.4, 3.5.
15 WGII, AR4, Ch.3 para 3.6.
17 Ibid p. 33.
19 WGII, AR4, Ch.17 para 17.1.
20 WGII, AR4, Ch.3 para 3.6.4.
21 WGII, AR4, Ch.3 Table 3.5.
22 WGII, AR4, Ch.3 para 3.6.4 (citing Arnell & Delaney, 2006).
24 Directive 2000/60/EC
25 Directive 2006/66/EC
26 See ECCP 2006 report p.4.
Environmental food claims and the legal limitations of a “food miles” claim

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Should the Australian laws that govern the making of representations or claims in relation to food specifically address the making of environmental claims?

In this article, the author considers the existing laws and standards applicable to environmental claims for food products. He considers the legal effect of the Australia New Zealand Food Standards Code (ANZFSC), the Trade Practices Act 1974 (Cth) (Trade Practices Act), particular State environmental legislation, industry schemes and relevant standards set by the International Organisation for Standardisation and Standards Australia in relation to environmental claims pertaining to food products.

In exploring the laws and regulations on claims regarding the environmental impact of food products, the author examines the concept of food miles as a specific example of an environmental claim in the food industry and illustrates the legal risks and limitations of using the food miles concept as a voluntary or mandatory claim.

The author suggests an alternative scheme for environmental claims that will be more effective firstly in representing the environmental characteristics of food products in a more accurate fashion and secondly to utilise government regulation of fair trading to produce better outcomes for the environment and sustainable food production.

The ANZFSC is a bi-national mandatory code of standards for Australia and New Zealand that sets out the laws concerning the composition and labelling of food. These standards have the force of law since they are incorporated by reference into the Food Acts of each State and Territory. In addition, the Australian Quarantine Inspection Service (AQIS) may prevent entry into Australia of any food imported into Australia that fails to comply with the ANZFSC.

The ANZFSC prescribes the rules for making certain mandatory claims (such as the requirement to identify country of origin of certain food products) or for making voluntary claims on food labels (for example, a ‘nutrition claim’ promoting the food as a source of a vitamin or mineral). However, there is no actual food standard in the ANZFSC that sets out any eligibility criteria for the making of an environmental claim (whether voluntary or mandatory) for a food.

Nonetheless, the Australian Competition and Consumer Commission (ACCC) has in recent times become an active law enforcer to prevent any labelling or conduct by food businesses that is liable to mislead or deceive consumers. The ACCC now acts under a specific mandate to regulate the food industry. On 29 April 2004, the ACCC entered into a Memorandum of Understanding (MoU) with Food Standards Australia New Zealand (FSANZ), the federal agency responsible for setting the standards in the ANZFSC. While FSANZ sets the standards that are adopted for incorporation into the ANZFSC, it is not a law enforcement agency. This has occasionally caused confusion for food suppliers who sometimes seek to claim to be relying on compliance with the requirements of the ANZFSC in order to mitigate or defend actions being prosecuted independently by the ACCC under Sections 52, 53 and/or 55 of the Trade Practices Act. The ACCC has always taken the view, and continues to hold, that any inaccurate, misleading or deceptive labelling may be considered by the ACCC as a contravention of Sections 52, 53 and/or 55 of the Trade Practices Act irrespective of strict compliance with any labelling requirements in the ANZFSC.

The MoU has done nothing to address the enforcement gap resulting from FSANZ’s purely developmental role in food regulation. Since the ACCC focuses on national-level detriment to consumers and competitors, the ACCC has not always involved itself in some Food Standards Code food labelling issues where infringements have occurred only at a local level. This usually means enforcement action in relation to food laws has been left to State and Territory and local government officers. In some jurisdictions, this has resulted in inadequate attention to enforcement of labelling laws. Another problem has been inconsistency between differing local interpretations of the Food Standards Code.

In examining the role of the ACCC and the compliance obligations of food advertisers and food packagers, it is necessary first to have a better understanding of the relevant sections of the Trade Practices Act.

Section 52 of the Trade Practices Act states that:

(1) A corporation shall not, in trade or commerce, engage in conduct that is misleading or deceptive or is likely to mislead or deceive.

Section 53 states that:

(1) A corporation shall not, in trade or commerce, in connexion with the supply or possible supply of goods or services or in connexion with the promotion by any means of the supply or use of goods or services:

(a) falsely represent that goods are of a particular standard, quality, value, grade, composition, style or model or have had a particular history or particular previous use;
(aa) falsely represent that services are of a particular standard, quality, value or grade;

(b) falsely represent that goods are new;

(bb) falsely represent that a particular person has agreed to acquire goods or services;

(c) represent that goods or services have sponsorship, approval, performance characteristics, accessories, uses or benefits they do not have;

(d) represent that the corporation has a sponsorship, approval or affiliation it does not have;

(e) make a false or misleading representation with respect to the price of goods or services;

(ea) make a false or misleading representation concerning the availability of facilities for the repair of goods or of spare parts for goods;

(eb) make a false or misleading representation concerning the place of origin of goods;

(f) make a false or misleading representation concerning the need for any goods or services; or

(g) make a false or misleading representation concerning the existence, exclusion or effect of any condition, warranty, guarantee, right or remedy.

Section 55 states:
A person shall not, in trade or commerce, engage in conduct that is liable to mislead the public as to the nature, the manufacturing process, the characteristics, the suitability for their purpose or the quantity of any goods.

The ACCC has imposed a wide range of sanctions upon recalcitrant food companies, either for mislabelling their products or for making inaccurate claims for their products. The potential penalties that the ACCC can impose can include fines (of up to $1.1 million for each offence), corrective advertising and court-enforceable undertakings by which the offending company may be compelled by court-enforceable undertaking or court order to commit to the maintenance of ongoing Trade Practices compliance training, reporting and review programs.³

Over the past few years, the Australian market has witnessed the emergence of new types of advertising claims or endorsements across a diverse range of food businesses promoting the beneficial environmental impact of their products. In response to the growing proliferation of environmental claims, the ACCC has released guidelines in ACCC publications.⁴ The ACCC’s enforcement policies against inaccurate or unsubstantiated environmental claims highlight the need to comply with Sections 52, 53 and 55 of the Trade Practices Act and this is evident across all industries, not just food.⁵

Consistently with the message in its publication “Green Marketing and the Trade Practices Act”, the ACCC warns businesses to -

“Be cautious in making green claims which may be ambiguous or controversial, particularly in circumstances where consumers are increasingly placing weight on environmental representations. Businesses must be 100 per cent sure of their ability to back their claims”.

The expanding role of the ACCC in relation to general labelling law enforcement is likely to increase further following the recent decision on August 19, 2008 by the Australian Ministerial Council on Consumer Affairs to consolidate the nine separate consumer protection laws of the States and Territories into one national law overseen by the ACCC.

International and Australian environmental standards
Apart from the abovementioned ACCC guidelines for environmentally-oriented claims, all companies would find it useful to consider the array of international and Australian standards that can help businesses seeking to conform to environmental best practice for their operations as well as for substantiating the environmental benefits being claimed.

In Australia and New Zealand, there are voluntary standards for environmental management,⁶ self-declared environmental claims⁷ and on life cycle assessment⁸ as well as voluntary, self-regulated industry codes of practice. These standards, alongside more recently developed international standards provide businesses with guidelines as to how and when to make certain claims (such as consistent calculation of a carbon footprint). For example, in Australia voluntary standards apply to the criteria for using the term “recyclable” or for applying the Mobius Loop recyclable logo on a product.⁹

Notwithstanding the recognition under AS/NZS 14021: 2000 that an environmental claim can be self-declared and adequate once various criteria specified in that standard are met, it is generally desirable for any environmental claims to have been subjected to the scrutiny and certification and accreditation of independent third parties. The ACCC has expressly approved environmental endorsements such as for the Equipment Energy Efficiency Program and the Water Efficiency Labelling and Standards Scheme.¹⁰

State laws
Under State laws, there can be special legal labelling requirements specifically aimed at environmental effects. The most prominent example is the South Australian Environmental Protection Act 1993 and corresponding Regulations which require that the packaging of all beverage products sold in South Australia must be approved by the South Australian Environmental Protection Agency and that all beverage product labels must carry the monetary refund statement as prescribed by the law. Senator Fielding of the Family First political party recently introduced the Drink Container Recycling Bill to Federal Parliament to make the South Australian Scheme a national scheme; however the Senate Inquiry into the Management of Australia’s Waste Streams has recommended against Senate support for the Bill.¹¹

The true nature of food miles
The previous discussion of the regulation of environmental claims applies to all products, services and industries across Australia. However, the labelling of food miles on a food product is an environmental claim that pertains solely to
the food industry.

“[F]ood represents a unique opportunity for consumers to lower their personal impacts [on the environment] due to its high impact, high degree of personal choice, and a lack of long-term ‘lock-in’ effects which limit consumers’ day-to-day choices.”

The term food miles was reputedly first coined by Dr Tim Lang. The concept of food miles was seen as a demonstration of the principle for consumers to show how far a food has travelled before it reaches the consumer. The assumption behind food miles was that the greater the distance the food had travelled to its consumers, the greater the adverse environmental impact of a food. This assumption has now been seriously challenged by a number of studies that have shown up the weakness of food miles as an environmental claim:

1. Carnegie Mellon University researchers have written that it is dietary choice, not food miles, which most determines a household’s food-related climate impacts. Their study broke down the carbon footprint of foods, and showed 85 percent of emissions came from the growth and production of the food itself. Only 11 percent came from transportation, and even then, only 4 percent came from the transportation between the grower and the seller, which is the part that is measured by food miles. Additionally, the study showed that food shipped from far off can often be demonstrated to be better for the environment than food shipped within the country for reasons such as long distance ocean travel being more energy efficient than trucking over the short distances close to where the food is consumed.

2. A separate report that was published on 27 July 2007, by Professor Caroline Saunders and Andrew Barber of The Agribusiness Group, showed that the generation of greenhouse gases (carbon dioxide, methane and nitrous oxide) in the production of New Zealand dairy and delivery to the British market nonetheless generated less greenhouse gas emissions than British dairy products produced in Britain for the same market.

The Lincoln University study’s central finding was that the British product produced 55 percent more emissions per kilogram of milk solid than the New Zealand product and 31 percent more emissions per hectare than New Zealand – even including the transportation from New Zealand to Britain with the carbon dioxide generated in that process. An important explanation for the favourable New Zealand outcome in comparison with the UK was that there were greater energy savings and less pollution in production in New Zealand where milk is produced mainly from cows on open pasture, compared with the UK where production of milk is mainly from cows housed in large barns for most of the time. The study also found that food products rather than its transport counted for more in the greenhouse impact. The report also took account of all the methane emissions that originate from enteric fermentation in dairy cows and cattle and from manure management, and nitrous oxide emissions, which are a combination of direct and indirect emissions from synthetic fertiliser and animal waste. The report included analysis as to energy use and carbon dioxide generated as well as the greenhouse gas emissions.

3. Dr Adrian Williams was commissioned by the UK Department for Food, Rural Affairs and Agriculture to analyse the relative environmental impacts of a number of foods. He concluded that the food miles concept was simplistic and misleading as a measure of the environmental impact of a food. The report suggested that the short trip in the car to the supermarket or local farmers market to pick up the shopping may be as important as the far larger distances travelled by the food itself, in bulk, from overseas by air or sea. He was subsequently quoted as saying:

“The idea that a product travels a certain distance and is therefore worse than one you raised nearby—well, it’s just idiotic…It doesn’t take into consideration the land use, the type of transportation, the weather, or even the season… The concept of food miles is unhelpful and stupid. It doesn’t inform about anything except the distance travelled.”

4. A study on Food Miles in Melbourne Australia by Sophie Gaballa and Asha Bee Abraham concluded that higher food miles in themselves were not conclusive evidence of higher energy usage in the total environmental cycle of the food product. Food miles was merely one of numerous facets in measurement of the environmental impact of a food product or environmental sustainability of the product for the particular market.

Legal basis against a misleading claim

Given the argument that the concept of food miles is not a real reflection of the environmental impact of the food product, the question can well be asked whether a claim of “low food miles” could be “misleading” or “deceptive” for the purposes of a claim under Section 52, 53 or 55 of the Trade Practices Act.

I believe this would depend on the context of the accompanying claim. For example:

1. A mere statement of the number of actual food miles if substantiated to be accurate and measured on a proper basis and setting out the full story about the product and its components but making no other claim as to environmental impact, might not be misleading by itself.

2. On the other hand, expressing a statement or an inferred conclusion of environmental superiority over other comparable products from further afield or claiming there to be superior environmental benefit for a consumer of the product would probably be legally actionable as being an infringement of Sections 52, 53 and/or 55 of the Trade Practices Act.

Another major legal weakness of the food miles concept is its vulnerability as to the manner of calculating the food miles travelled. There are no consistent rules that state how food miles are to be calculated as there is for the calculation of a carbon footprint. For example, food miles only take into account the distance travelled since the food was produced. For the food miles system to show the consumer how far a food has travelled and to reflect the ecological impact of the food, the distance travelled for each ingredient would need to be added together, not just the distance travelled by...
the finished product. Also, if food miles are to be applied to processed foods, how are the food miles to be worked out for ingredients such as the salt, sugar or preservatives?

If the true aim of the concept of informing consumers of the ecological, social and economic impacts of the food is to be realised, the food miles concept is misleadingly vague as it clearly does not address the real environmental impact in the full product supply chain and product cycle, and verifying its measurement can be uncertain.

The distinction between geographical claims and environmental claims

While it is clear that using a geographical location for production as an environmental claim can be flawed, there are examples of its successful use. The Prince Edward Island Trust is a not-for-profit NGO that protects the Prince Edward Island in Canada by encouraging sustainable use of land.22 This has led to a certification trade mark brand being developed for food produced by sustainable farming methods on Prince Edward Island.23 However, it is important to note that while Prince Edward Island produce as a brand identity has become synonymous in Canada with environmentally sustainable produce, it is the method that is being claimed and not the location. By way of comparison, the Western Australian Government recently launched a “Buy West, Eat Best” campaign24 to encourage consumers to buy produce grown or produced in Western Australia. This claim could only ever become an environmental claim if the whole of Western Australia had specific food production and transportation processing standards that were demonstrated to have less adverse environmental impacts than similar foods from other areas. However, no such environmental claims are being made in connection with this Western Australian scheme.

The concept of food miles may still have some value as a marketing tool. It may not be misleading and deceptive to label food with its food miles simply as a way to market to consumers the location where the food was produced. However, the making of claims as to the geographical origin of a product is highly regulated within Australia. A number of Australian laws can apply to prevent an Australian food business from selling a product with a geographical indicator in its name if the product is not sourced from that location.

If food miles were used as a purely geographical claim, it would have to comply with the Trade Practices Act prohibition on making false representations as to the origin of the goods.25 For example, food with low food miles could be interpreted by consumers as being a “local” product, despite some ingredients of the food not being sourced locally. The ACCC warns food companies of the example of its Federal Court action in 2002 against Woolworths,26 where Woolworths had published misleading advertisements claiming that their beef was fully sourced from local suppliers. In a colour full-page newspaper advertisement, Woolworths included the words ‘WOOLWORTHS: Beefting up the local economy’ alongside the image of a butcher. Woolworths also claimed that all the beef it sold in its local stores came from among 150 cattle suppliers located in the North West and New England regions of New South Wales, when in fact, its economy beef and some of its premium beef were sourced from cattle suppliers outside the area.

Another aspect to note is whether a food miles claim might be interpreted as being a claim that a food product was either “made in Australia” or a “product of Australia”, and therefore needs to comply with the clear tests in Sections 65AC and 65AB of the Trade Practices Act. Under Section 65AC, a representation claiming a product was ‘produced’ in a particular place of origin still requires 100 percent production at the claimed place, but under Section 65AB one can claim legitimately that a product has been ‘made’ there if the goods have been ‘substantially transformed’ in that place and 50 percent or more of the cost of producing or manufacturing the goods is attributable to processes that occurred there. Substantial transformation refers to a fundamental change in the form, appearance or nature of the goods, such that they are new and different foods from those existing before the change.

It should also be noted that Standard 1.2.11 of the Australia New Zealand Food Standards Code specifies that, for some foods, it is mandatory to label the country of origin of the products.

Danger of unconstitutionality of mandatory Environmental Labelling Scheme covering less than the whole of Australia

The High Court case of Castlemaine Tooheys Ltd v South Australia27 illustrates the risk of State environmental protection requirements for food packaging being considered as unconstitutional. In that case, the High Court invalidated some aspects of South Australian legislation concerning the deposits on beer bottles even though the law had been passed for environmental protection purposes of South Australia. It was held that an effect of the invalid part of the legislation was to discriminate against non-recyclable bottles used by Castlemaine Tooheys Ltd which sold beer from Western Australia to South Australia. Part of the legislation was overturned on the basis that the Beverage Container Amendment Act 1986 (SA) was unconstitutional because it protected South Australian brewers against interstate competition and hence infringed Section 92 of the Australian Constitution.

Nevertheless, apart from this offending provision, the remaining legislation requiring South Australian retailers to charge and collect a surcharge deposit on all bottles sold in South Australia was legitimate and was held not to infringe section 92 of the Constitution even though it also applied to any beverage bottle produced anywhere in Australia as a legal requirement for sale of the bottled products in South Australia.

If a mandatory food miles labelling system were to be introduced in one Australian State jurisdiction but not across the nation, such a law would likely be considered to discriminate in a protectionist sense and hence infringe the Constitutional protection of free trade between Australian States. The principles of the High Court cases Cole v Whitfield28 and Castlemaine Tooheys Ltd v South Australia would need to be carefully considered.
Conclusions

It is clear that the making of environmental claims for marketing purposes is an increasingly popular trend and will be held in check by the ACCC ensuring that all claims must be substantiated. As a claim, food miles is vague, legally uncertain and potentially misleading for consumers. This is due to its very nature as a claim of distance travelled between production and retailer and not a more comprehensive and reliable measurement such as the more accurate calculation of the carbon footprint of a food product. Any food business seeking to market its product based on food miles must be careful that the claim is not misleading by claiming to be more "environmentally friendly" than competitors when this may well not be the case. There would be a real risk of infringing Sections 52, 53 and 55 of the Trade Practices Act.

Furthermore, should any jurisdiction in Australia be considering a mandatory requirement for food miles to be labelled on food products, such laws will likely contravene Section 92 of the Australian Constitution. The WA “Eat West, Eat Best” campaign only avoids anti-protectionist litigation because it is a voluntary scheme, rather than a mandatory requirement imposed on all food producers who supply the Western Australian market.

By contrast to a ‘Food Miles’ claim, there could be greater merit in the promotion of voluntary affiliation schemes with associated certification trade marks for their food products that are certified to meet appropriate environmental sustainability criteria. These voluntary schemes allow the free market to operate for voluntary claims that can be monitored for accuracy by the ACCC. The Prince Edward Island Trust scheme, which has been referred to earlier, is but one example. Of course there is also a danger that commercial success in some instances may result in a watering-down of certification standards and this should be monitored, although deviation will be difficult for law enforcement agencies to control. Consumer groups therefore are important to maintain standards but they also need to be mindful of the legal dangers of permitting environmental sustainability or superiority claims to be asserted in the absence of accurate science that substantiates the claims. It will then be up to the ACCC to enforce compliance by ensuring that no claim is made if it is not adequately substantiated.

1. ACCC’s ‘Nude Foods Australia Pty Ltd [2008] FCA 943 – The ACCC took the view that Nude had potentially misled and deceived consumers by labelling a product as “Cranberry Cloudly” when in fact the product was 80 percent apple juice. The case ended in negotiated consent orders.

2. ACCC v Arnott’s Biscuits Ltd [29 April 2008; Federal Court File No NSD2252/2007] – The ACCC took the view that Arnott’s had potentially misled and deceived consumers by labelling products, for example, “Apricot Slice” when there was more apple in the product than apricot. The case ended in negotiated consent orders.

3. Tasti Products Ltd entered into court enforceable undertakings with the ACCC after the ACCC took the view that Tasti had potentially misled and deceived consumers by labelling a product, for example, “Raspberry Pie” when in fact raspberry only made up 1.5 percent of the product.


5. See, for example, previous successful legal actions brought by the ACCC and accompanying media Releases issued by the ACCC in relation to environmental claims such as in the cases of “Sunny Airconditioners Manufacturing Singapore; (11 November 2000); Lloyd Brooks Pty Ltd in relation to its “Earthstrongth” plastic kitchen garbage and freezer bags (11 March 2003); Origin Energy in relation to its Green Power marketing campaigns (21 December 2007) and Woolworths Limited in relation to the labelling of its “Select” tissue products (18 March 2008).


9. Australian Standard AS/NZS ISO 14021:2000 Environmental Labels and Declarations – Self-Declared Environmental Claims (Type II Environmental Labelling) dictates that the term ‘recyclable’ and the associated recycling symbol, known as the Mobius Loop, can only be used to make environmental claims on products or packaging where there is evidence that:

- The collection, sorting and delivery systems to transfer materials from the source to the recycling facility are conveniently available to a reasonable proportion of the purchasers, potential purchasers and users of the products;
- The recycling facilities are available to accommodate the collected materials; and
- The product for which the claim is made is being collected and recycled.


13. Professor of Food Policy at City University, London.


16. Director of Lincoln University’s Agribusiness and Economics Research Unit.

17. Agricultural researcher in the Natural Resources Department of Cranfield University, England.


20. First released July 2007 by Melbourne’s Centre for Education and Research in Environmental Strategies (CERES); report presented at the Agrifood XIV conference in Brisbane in November 2007.


Introduction

The Organic Federation of Australia (OFA), as the peak body for the Australian Organic Sector, regards the absence of regulation of organic products in the Australian market as a significant problem.

Discussions with key industry stakeholders and University of New England research reveals that the organic market is valued at around $600 million at retail and is growing at 30 percent per annum. Given the value of the market it is important that consumers receive guarantees that the products they purchase are in fact organic.

After surveying key stakeholders, Standards Australia started the process of developing an Australian Standard for Organic and Biodynamic Products which is due for completion in December 2008. This paper reflects on the current regulatory framework in place in Australia and makes recommendations for the development of the Australian Standards.

The current regulatory situation

Most of the organic industry currently uses The National Standard for Organic and Biodynamic Produce. This standard comes under the auspices of the Organic Industry Export Consultative Committee, which is a committee run by the Australian Quarantine and Inspection Service (AQIS). While this standard is only legally binding for exports, it has become a de-facto domestic standard. However, the National Standard has limited regulatory authority in stopping fraud and misrepresentation in the domestic market and cannot be used to regulate imported organic products.

Currently there is no legal requirement for organic products to be certified under the National Standard and there is nothing stopping any organisation from certifying products as ‘organic’ to a standard that does not comply with the National Standard.

A Federal Court decision in August 2007 concerning the substitution of organic eggs has highlighted the need for a domestic regulatory system using an Australian Standard as the definition of ‘organic’. The Hon. Justice Gray acknowledged the difficulty faced by the Australian Competition and Consumer Commission (ACCC), given the absence of any recognised legal definition of the term ‘organic’ and the difficulty this presented in creating an enforceable injunction in broader terms to prevent misrepresentation of eggs as ‘organic’.

Justice Gray stated ‘attempts to overcome the lack of clear criteria by which it can be said eggs are, or are not, organic have been unsuccessful’.

Australian standard

An Australian Standard can close the regulatory gap.

Australian Standards are used by the courts and regulatory authorities as benchmark definitions when making determinations. An Australian Standard for Organic and Biodynamic Products could be used by Judges when making determinations on organic products, thereby developing through case law the definition of ‘organic’.

Because the current National Standard for Organic and Biodynamic Produce is considered a private standard it cannot be used for regulatory purposes on the domestic market. Justice Gray has now recognised this in the Federal Court decision referred to above.

The fastest way to get regulation of the domestic organic sector is to adopt a modified version of the existing National Standard as an Australian Standard for Organic and Biodynamic Products. This process has started with the FT-032 committee of Standards Australia working to a completion date of December 2008.

Using the National Standard as the basis of the Australian Standard will mean that the process of regulatory compliance could start quickly. AQIS has said that it would use the Australian Standard as the standard for exports and as the basis for accrediting certification bodies. This will mean that there will be no changes in the current certification arrangements for organic products and certified producers should not notice any difference in the compliance requirements with their current certifying body.

Federal and State compliance

The OFA, on behalf of the organic sector, wants the sale of products labelled as organic or biodynamic to come under the jurisdiction of the existing Australian regulatory systems that ensure fair trading and consumer protection. The Australian Standard for Organic and Biodynamic Products can be called up by Federal, State and Territory regulatory agencies as the definition of ‘organic’. This would mean that if complaints were made to these organisations about the validity of the organic products, they could use the standard as the benchmark to establish whether the labelling is false
or misleading. The Commonwealth Minister responsible for trade could utilise their powers under section 63E of the Trade Practices Act 1974 (Cth) (Trade Practices Act) to adopt these standards and set the benchmark for organic products in Australia.

**Food Standards Australia New Zealand (FSANZ)**

Under a memorandum of understanding between Standards Australia and Food Standards Australia New Zealand (FSANZ), an Australian Standard can be called up into the FSANZ Food Standards Code.

Organic produce is already included in the Food Standards Code as there is a new exemption for folate fortification in organic flour. The OFA believes that the Australian Standard for Organic and Biodynamic Products needs to be called up into the Food Standards Code as the definition of ‘organic’ for products produced and sold in Australia.

**Independent third party certification**

The certification of organic products must be mandated in regulations when the Australian Standard is called up into the relevant Federal and State regulatory systems. This will simplify the work of ensuring that products labelled as organic/biodynamic comply with the standard. It would mean that regulatory authorities would only have to determine if a product has the certification label of an accredited certifier rather than determining through the courts if a product meets a complex production standard.

This will significantly reduce compliance and investigation costs for regulatory authorities when a complaint is made. The easiest way to achieve mandated certification of products labelled as organic or biodynamic is to ensure that certification is referenced within the standard.

There has been strong debate on the issue of certification of organic products. The majority of the organic sector agrees that third party certification is essential whilst the regulatory authorities argue that certification cannot be included in the Australian Standard because a standard should not include regulatory provisions. However this argument is not valid as most of the world’s organic regulatory standards, such as those from the European Union and the USA, include mandatory certification requirements. Codex as the ‘world standard’ is an example: The Codex Alimentarius ‘Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods’, adopted in 1999, mandates certification in the standard.

The Codex Alimentarius organic standard includes inspection and certification systems, as well as general sections describing the organic production concept and the scope of the text; description and definitions; labelling and claims; rules of production and preparation, including criteria for the substances allowed in organic production and import control.

Codex Alimentarius is used by the World Trade Organisation (WTO) as the reference standard in the world trade for food. It has been used to resolve trade disputes over foods that have been brought to the WTO.

**Certification to the Standard**

After much discussion, a compromise was reached. Standards Australia agreed to develop a second standard that would document the certification procedures for organic products. This new document would use ISO 65, the international standard on certification, as the primary reference and just add the specific requirements for organic certification not covered by the ISO.

The Australian Standard for Organic and Biodynamic Products will have a requirement under the labelling section that all products labelled as organic or biodynamic must be certified.

**Accreditation of Certification Bodies**

The industry position is that all products claiming to be organic must be certified by suitably accredited certifying bodies. Without an accreditation system for certifying bodies, unqualified organisations could set up as certifiers using inadequate record keeping and third party auditing methods. This could damage the credibility of certified products.

In most countries accreditation is either done by a government competent authority or by recognised accreditation bodies appointed by the competent authority.

**Accreditation Bodies**

Accreditation is currently done by AQIS, which audits annually using ISO 65 and then approves the seven certifying bodies in Australia. AQIS ensures that these certifying bodies have good systems to guarantee the integrity of organic certification.

Currently the industry is considering the options on how accreditation will work and has short listed two organisations; the Joint Accreditation Service Australia and New Zealand (JAS-ANZ) and the International Organic Accreditation Service (IOAS).

JAS-ANZ is the main accreditation body for non-organic competent bodies and auditing organisations in Australia. JAS-ANZ is recognised internationally and is a member of the International Accreditation Forum (IAF) and is ISO 17011 compliant. IOAS accredits certifying bodies to the IFOAM (the world organic peak body) organic standard and to ISO 65, but could easily accredit certifying bodies to the Australian Standard. Two Australian certifying bodies already have IFOAM and ISO 65 accreditation with IOAS.

**Competent authorities**

AQIS is the current competent authority, however as stated previously it only has jurisdiction over organic exports. Legislative amendments would be required to allow it to have jurisdiction over the sale of organic products on the domestic market. The OFA has had discussions with AQIS over this and has been told that this would set a precedent for all products and result in AQIS having overlapping/conflicting responsibilities with other State and Federal regulatory authorities. As a result, AQIS is not prepared to go down this path.
The organic industry would like another government department such as the Department of Agriculture, Fisheries and Forestry to take up the supervisory role. The OFA has written to the current Minister on behalf of the industry, but is yet to receive a response.

As an interim option, the industry is currently exploring a self-regulatory model. This would involve an industry-owned competent authority that would have the role of appointing and reviewing the accreditation body/bodies.

Equivalence with other organic standards

A significant amount of organic products are imported into Australia. It is essential that they are certified to the Australian Standard for Organic and Biodynamic Products or to international standards recognised by Australia as equivalent.

The draft standard is proposing that Australia accepts all products that conform to major international standards and are certified by certifying bodies that are accredited by the relevant competent authorities in their jurisdictions.

Examples would be:

• United States National Organic Program (NOP) by the United States Department of Agriculture (USDA);
• Japanese Organic Standard (JAS) by the Japanese Ministry of Agriculture (MAFF);
• New Zealand Organic Standard by the New Zealand Food Safety Authority (NZFSA);
• European Organic Regulations by the European competent authorities; or
• Swiss Organic Standard by the Swiss competent authorities.

Conclusion

The OFA regards the absence of regulation of organic products in the Australian market as a significant problem. This was highlighted in the Federal Court recently as Justice Gray stated that there were no clear criteria to determine what constitutes an ‘organic product’.

The basis of establishing a regulatory system will be the Australian Standard for Organic and Biodynamic Products, due for completion in December 2008.

The OFA position is that all products labelled as organic or biodynamic should come under the jurisdiction of the existing Australian Commonwealth and State Government regulatory systems. The most appropriate would be having the Australian Standard for Organic and Biodynamic Products to be declared by the responsible Minister under section 65E of the Trade Practices Act and to be called up into the FSANZ Food Standards Code.

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1 Australian Competition and Consumer Commission v G.O. Drew Pty Ltd [2007] FCA 1246
Special legislation kills threatened species court challenge

Josie Walker, Senior Solicitor, EDO NSW

True Conservation Association v The Minister Administering the Threatened Species Conservation Act 1995

Overview

In December 2007 the then NSW Minister for the Environment, Verity Firth, conferred biodiversity certification on State Environmental Planning Policy (Sydney Region Growth Centre) 2006 (Growth Centre SEPP). Biodiversity certification has major ramifications for threatened species protection, because it paves the way for subdivision development in approved areas without the need for species impact statements. The EDO, acting for the True Conservation Association, commenced a legal challenge to the biodiversity certification order in March 2008.

Background

Biodiversity certification was a new process introduced into the Threatened Species Conservation Act 1995 (the Act) in 2005. Under s 126G of this Act, biodiversity certification can only be conferred on an environmental planning instrument if the Minister is satisfied that the plan will lead to the overall improvement or maintenance of biodiversity values. The government at the time claimed that biodiversity certification would benefit threatened species by encouraging better up-front planning for threatened species protection, in place of an inefficient site-by-site assessment process.

The Growth Centres SEPP covers about 20,000 ha to the north-west and south-west of Sydney’s existing urban footprint. This area is also the last bastion for many of the State’s highly cleared vegetation communities. The plan allows for the clearing of 1,867 ha of high quality native vegetation, including 12 percent of the remaining high quality Cumberland Plain Woodland. The plan is also likely to result in a significant loss of habitat for 16 threatened plant species and 22 threatened animal species.

Legal argument

In its legal challenge, the True Conservation Association alleged that the Minister had no rational basis for concluding that the Growth Centres SEPP would result in a maintenance or improvement of biodiversity values. The Minister’s interpretation of the ‘maintain or improve’ test essentially compared the outcomes under the plan to what would have occurred in the plan area under a future scenario of virtually unconstrained development. The Association’s argument was that maintenance or improvement of biodiversity values needed to be achieved relative to the current level of biodiversity existing on the subject land.

Six weeks before the matter was due to be heard, Parliament passed special legislation putting the biodiversity certification order beyond the reach of Court review, and the proceedings had to be discontinued. The NSW Government claimed that the uncertainty generated by the Court case was holding up $5 billion dollars worth of development. This suggests that the Minister may not have been optimistic about her own prospects of success.

Implications

The effectiveness of the biodiversity certification process is likely to vary depending on the quality of assessment undertaken and whether the government is willing to spend resources on acquiring and preserving important habitat remnants. At best, biodiversity certification has the potential to put an end to cumulative losses of threatened species and their habitat in new plan areas. At worst, it could provide a mechanism for ‘switching off’ the Act in certain areas based on inadequate data and faulty scientific reasoning.

The government shows little respect for the rule of law when it is unwilling to stand up in Court to answer for the legality of its own actions. It is to be hoped that when making future biodiversity certification decisions the Minister will apply the ‘maintain or improve’ test more rigorously or will, at least, be willing to defend future ministerial decisions in Court. Ongoing vigilance is required to ensure that the biodiversity certification process is properly used to improve planning for threatened species protection, otherwise the outlook will be grim for threatened species in new-release urban areas.
First climate change case against QLD’s coal industry

Scott Sellwood, EDO Queensland

Queensland Conservation Council Inc v Xstrata Coal Queensland Pty Ltd & Ors (2007) 155 LGERA 322

On 12 October 2007 the full Queensland Court of Appeal handed down its decision in Queensland Conservation Council’s (QCC) climate change appeal against Xstrata Coal Queensland Pty Ltd, finding in favour of QCC. This was the first climate change case to involve a detailed assessment of the climate impacts of coal mining in Queensland.

Background

Earlier in 2007, QCC had argued in the Land & Resources Tribunal that an application by Xstrata Coal Queensland for a mine expansion to an open cut coal mine ‘Newlands’, located about 130kms west of Mackay, should not be approved unless conditions were imposed requiring Xstrata to offset the greenhouse gas emissions from the mining, transport and use of the coal.

During the hearing, expert witnesses gave evidence regarding the effects and economic impacts of climate change, the calculation of emissions and the costs and methods available to offset the emissions. The fact that climate change is occurring and that greenhouse gas emissions contribute to it was common ground between the parties at the hearing.

The President of the Tribunal found against QCC, relying on material doubting the science of climate change and without informing the parties that he was forming a view contrary to that adduced in evidence.

Court of Appeal decision

In the Court of Appeal the EDO (Qld) and top environmental barristers Stephen Keim SC and Chris McGrath represented QCC and argued that the Tribunal made serious legal errors when finding against QCC.

In short, the Court of Appeal (McMurdo P, Homes JA, McKenzie J) unanimously found that QCC was denied natural justice as the Tribunal should have given QCC the opportunity to respond to the Tribunal’s doubts regarding the science of climate change. The Court of Appeal also found that QCC should have been given leave to amend its particulars to reduce the amount of offsets it sought to be imposed.

The Court decided that Xstrata’s application to expand ‘Newlands’ had to be reassessed.

Implications

On 17 October 2008 the Queensland Government passed special legislation stymieing the Court of Appeal’s decision. This Act spoke loudly of the political leverage the coal industry in Queensland continues to have. Yet, QCC v Xstrata is significant because it confirms that the environmental, social and economic costs of climate change (and considerations of measures to offset, reduce or mitigate greenhouse gas emissions) should no longer be dismissed within the legislative frameworks used to assess new coal mining applications.
Development pressures coastal hamlet

Sue Higginson, Solicitor, EDO Northern Rivers

**Hastings Point Progress Association v Tweed Shire Council & Ors [2008] NSWLEC 180**

**Hastings Point Progress Association v Tweed Shire Council & Aeklig [2008] NSWLEC 180**

Background

Hastings Point is the smallest Coastal Village in the Tweed Shire on the Far North Coast of NSW. It is nestled between the ocean to its east, a small estuary to the west and generally surrounded by national parks. Over the last decade Hastings Point has come under continued development pressure with proposals attempting to increase the bulk, scale and height of buildings which would result in inappropriate development in terms of the existing character of the village and surrounds.

The Hastings Point Progress Association (the Association) challenged the decision of Tweed Shire Council (Council) to consent to two such developments in the Hastings Point village. The first of the two developments was for a multi housing development and the second was for a luxury resort-style seniors living development. Both the developments as approved would set a precedent for a style of building involving increased bulk, height and density in Hastings Point. The two cases were heard together in the Land and Environment Court in early 2008.

Legal arguments

The Association argued that in both cases Council, in reaching its decision to consent to the developments, failed to take into account clause 8(1)(c) of the Tweed Local Environmental Plan 2000 which states:

“**The consent authority may grant consent to development only if it is satisfied that the development would not have an unacceptable cumulative impact on the community, locality or catchment that will be affected by its being carried out or on the area of Tweed as a whole**.”

The Court rejected the Association’s seniors living development challenge. The Court found that the State Environmental Planning Policy (Seniors Living) (SEPP) that applied to the development covers the field on matters that Council must consider in assessing a seniors living development. It held that Council did not have to consider the cumulative impacts under clause 8 of the Tweed Local Environmental Plan because the SEPP prevails, even though the SEPP states that it will prevail over other environmental planning instruments only “to the extent of any inconsistency”.

Implications

While the outcome of the first challenge was a win for local amenity and appropriate development, the seniors living development is still of considerable concern to the Association. The Association has lodged an appeal in the NSW Court of Appeal regarding the Court’s decision to uphold the Council’s approval of this development.
The battle to preserve the scenic backdrop to Cairns

Adam Millar, Principal Solicitor, EDO North Queensland

The Environmental Defender’s Office of Northern Queensland Inc. (EDONQ) along with two local community groups, Cairns and Far North Environment Centre Inc. (CAFNEC) and Save Our Slopes Community Action Group Inc. (SOS) have been fighting to conserve the scenic backdrop to Cairns. In particular, EDONQ, CAFNEC and SOS have long opposed the proposed development of False Cape, which forms the eastern scenic backdrop to Cairns. These groups recently achieved a significant victory when the Commonwealth Environment Minister, the Hon. Peter Garrett MP, suspended the Commonwealth’s approval for the False Cape development under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), being the first Commonwealth Environment Minister to exercise that power.

Background

The battle to protect False Cape and Cairns’ scenic backdrop as a whole has been a long-fought one. Development was first proposed at False Cape in the mid 1980s, and since then a succession of local governments has applied Queensland’s planning and development laws to limit the community’s right and ability to be involved in the assessment process or appeal the merits of any local government approval decisions to a higher authority. More recently, in 2004 the Cairns City Council granted a developer approval to subdivide the area into 102 residential lots and 20 ‘additional lots’, including areas for a resort hotel, townhouses and other resort village infrastructure.

The False Cape area forms part of the green mountainous backdrop to the east of Cairns across Trinity Inlet, and borders two World Heritage areas; the Great Barrier Reef (GBR) and the Wet Tropics World Heritage Areas of Queensland. False Cape is highly visible from Cairns and its northern beaches, and is passed by every tourist who visits the Great Barrier Reef or its inner islands from Cairns. The area is largely undeveloped and contains a number of unique vegetation communities and endangered species.

CAFNEC and SOS have taken up the fight to save False Cape on behalf of a large number of local residents and tourists who are concerned that its development would have an adverse impact on the visual amenity and environment of the area. Grave concerns are also held that the development was and remains unsafe due to the instability of surrounding steep granite slopes (much of the proposed development site is on slopes greater than 1 in 3), and would place anyone working on or visiting the site at risk of serious harm or death.

Whilst the development has barely started, some of those fears have already been realised with the tragic death of Doug Ehau in 2007. Doug, a machine operator employed by local contractor CEC, was trapped in his machine’s cabin after a multi-tonne boulder crashed onto him from above. He eventually died when he suffered a cardiac arrest after hours of attempts to extract him from his machine. Unfortunately, EDONQ, CAFNEC, SOS and many others have for many years brought past rock falls and other real examples of site instability to the attention of all relevant authorities, and those authorities have taken little or no action to adequately address those concerns.

Legal argument

In 2005 EDONQ lodged an application in the Planning and Environment Court at Cairns on behalf of the CAFNEC and SOS against the Cairns City Council approval, seeking declarations that the approvals for subdivision and operational works were invalid. EDONQ argued that the approvals conflicted with the Hillslopes Development Control Plan and the Strategic Plan within the transitional Cairns Planning Scheme, which requires developers to identify at the outset areas unsuitable for development because of slope stability. In conflict with those requirements, significant areas of development are to be constructed on slopes greater than 1 in 3.

The developer succeeded in applying to strike out part of the case on the basis that it sought to review the merits of the approval decisions (a right which the community has been continuously denied), objecting to SOS or CAFNEC calling expert witnesses in support of the case and denying them access to the site to conduct the geotechnical surveying which CAFNEC, SOS and EDONQ argued was necessary to properly determine whether the False Cape site was safe to build and live on. EDONQ and SOS unsuccessfully appealed the strike out decision to the Queensland Court of Appeal. Since that appeal was dismissed in 2006, there have been a number of occasions where very large boulders have crashed from the site’s higher slopes into and through construction areas whilst workers have been on site.

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Despite this defeat, neither CAFNEC, SOS, EDONQ nor their supporters have given up the fight; they have continued
to campaign against the development, and for greater community involvement in the assessment of developments which affect the scenic amenity and environmental health of entire communities. Despite this concerted effort some work commenced on the site in 2007 and by early 2008 several dirt roads had been cleared on the site.

Supporters of CAFNEC, SOS and EDONQ have gathered copious amounts of video and photographic footage of alleged breaches of development approval conditions at False Cape and have provided it to all levels of government. The footage captured during the 2007/08 wet season showed significant and severe erosion of excavated areas, and the apparent failure of sediment control measures, causing the release of large plumes of sediment into the pristine marine environment below, where sea grasses feed dugong, turtles and other endangered reef species. The situation worsened in early 2008 when the developer struck financial difficulties and ordered all work to stop, allowing severe erosion to continue and worsen, and more sediment to be released into the waters adjacent to the GBR World Heritage Area.

Opponents of the development have given all three levels of government copies of all footage collected at and near False Cape, and have relentlessly campaigned and lobbied for them to take appropriate action to ensure that the environment (including the adjacent GBR) is protected and conserved for everyone’s benefit.

After a year of lobbying Minister Garrett to take one of a variety of actions available under the EPBC Act, on 4 September 2008 he finally suspended the Commonwealth’s approval of the False Cape development for 12 months, due to concerns about the sediment run off in the GBR World Heritage Area. As a result, there can be no further construction until the Minister is:

"satisfied that the developer has completed the appropriate remediation work and can complete construction in a responsible manner and in full compliance with the approval conditions, without impacting on the marine environment."

The Minister also ordered the developer to carry out an environmental audit of the site.

If the Minister is not satisfied by the end of the suspension period that appropriate remediation measures have been implemented in accordance with the compliance audit then he will consider using his EPBC Act powers to suspend the approval for a further period or revoke it entirely, in which case any new development at False Cape would most likely need to be re-assessed.
Australian Network of Environmental Defender’s Offices (ANEDO)

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