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# Food Security in Australia in an Era of Neoliberalism, Productivism and Climate Change

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## **1. Introduction**

Food security is achieved when, according to the Food and Agriculture Organisation (2009), all people at all times have access to the sorts of foods that allow them to lead active and healthy lives. Where food is not supplied in sufficient quantity or is of poor quality or is lacking in nutrition, there is the strong likelihood that people will be malnourished, with their health and general well-being compromised (McDonald, 2010).

Although Australia is a wealthy, developed nation, there remain pockets of people in poverty who, as a consequence, can be described as food insecure (VicHealth, 2005). This paper provides a brief overview of food insecurity among Australians, but its main purpose is to examine the unsustainable farm production system that has developed since the Second World War and has been strongly shaped, in the last three decades, by neoliberalism. There are signs that the neoliberal-based market solutions to food production and trade are leading, in a period of climate change, to increasing pressures on the environment and to the destruction of some sections of farming, both of which have the capacity to undermine future food production, and food security, in Australia. They will also place limitations on Australia's capacity to export food.

Australian agriculture is largely unsubsidised, and is strongly export-oriented, with some 60 percent of total production sold abroad, equating to some 76 percent of the total gross value of farming (DAFF, 2010). Farming operates within a system of 'competitive productivism' (Dibden,

Potter and Cocklin, 2009), one shaped by neoliberalism. Producing for an international market – but receiving very little government financial support and direction – Australian farmers have adopted the latest technologies and management systems to increase output and improve efficiency (Argent, 2002; Dibden and Cocklin, 2005). They have embraced self-help strategies to improve their business operations and, through the peak organisation, the National Farmers' Federation (NFF), have supported federal government initiatives to pursue greater global competition, the reduction of tariffs and the elimination of other 'distortions' such as import restrictions and farm subsidies (Dibden et al., 2009; Gray and Lawrence, 2001).

Accompanying deregulation in Australia has been the flow of capital – along with products such as food and beverages – from abroad. While the movement, to and from Australia, of capital and goods is consistent with principles of free trade and comparative advantage, there are local-level consequences. One is the restructuring of farming as supermarkets employ various tactics to reshape the supply chain. The consequence is that local suppliers are expected to adhere to the increasingly rigid standards of the supermarkets. Many are unable to do so and leave the industry. The 'free market' is also affecting horticultural producers. The importation of vegetables is placing pressures on horticulturalists, resulting in the economic demise of parts of that industry – with questions raised about the consequences for future food security in Australia (PMSEIC, 2010). There are also concerns about foreign direct investment in Australian farmlands. Finance capital is purchasing properties with the apparent aims of profiting via capital gains and, where sovereign wealth funds have been employed, the production of foods

and biofuels for repatriation to investor nations. Mining capital is investing in coal, and coal seam gas, production, which – in a largely unregulated market – is likely to reduce the amount of high quality land available for farming. The attenuation of quarantine rules and regulations is yet another concern (see O'Neill and Fagan, 2006).

Finally, neoliberal settings have encouraged the growth of productivist farming, marked by specialisation, intensification and economic concentration (Argent, 2002). Deemed to be the most appropriate means of generating increased production from farming, it is a system which creates significant environmental damage (Gray and Lawrence, 2001). Despite Australia's past success in providing most of the nation's food and assisting in feeding the world's population through exports, there are quite severe limitations to the future expansion of agricultural output in Australia. The emergent challenges facing Australia in increasing its volume of food production are many. First is the issue of available arable land. The continent does not have an overabundance of good soils and many of the currently-farmed areas are undergoing salinisation, acidification and other forms of soil degradation as part of the productivist (intensive, chemically-based) farming practices that have been in place since the 1960s. Second, there is the problem of water availability. Rivers diverted to irrigated agriculture have been exploited to such an extent that the environment has been compromised. Wetlands have been degraded and bird, reptilian and fish species have declined. To counter this, water is now being purchased by government and returned to the environment, leaving less available for farming. Third, it is predicted that climate change will bring other, major, declines in overall output. Australia's primary agricultural regions will become drier. Fourth, agricultural productivity is not

increasing at a level which will guarantee food production increases that have occurred in earlier decades.

Drawing from current research into supermarkets and agrifood supply chains and into foreign direct investment in Australian farmlands, from government documents, and from materials produced by independent research bodies, this paper provides a case study of emerging food security issues facing Australia. The paper highlights the role of global neoliberalism in fostering productivist responses to the climate-change challenge, and to other challenges, faced by agriculture.

## **2. Australian Agriculture and Global Neoliberalism**

For three decades from the end of the Second World War protectionism was the key feature of Australian agricultural policy. Farmers had won support from a federal Liberal-Country Party coalition for the implementation of a variety of policies, including import restrictions, output subsidies, home consumption price schemes, fertilizer subsidies, monopoly boards, stabilisation funds, flat rate subsidies, income averaging, deficiency payments and emergency assistance (Lawrence, 1987). In combination these, and other, measures sought to provide a stable economic platform for farming while providing incentives for expansion of output and of exports. Much farm output was destined for Britain but when Britain joined the European Union in 1973 export markets collapsed. This was a time which saw the demise of the Bretton Woods agreement in 1971 and a surge in oil prices in 1973, placing pressures on the economies

of western nations. Falling prices of commodities, rising unemployment and growing levels of public and private debt affected all sections of the Australian economy (Tonts, 2000). The 1970s was a period of major restructuring in Australia, with a variety of 'adjustment' schemes helping to remove the least efficient farmers from agriculture and encouraging others to become larger and more efficient (Lawrence, 1987). The election of a federal Labor government in Australia in the mid 1980s coincided with the rise of Thatcher/Reagan-style neoliberalism. From that time until now, Australian governments of various political persuasions have embarked upon the most profound changes in public policy since Federation in 1901 (Western et al., 2007). These changes have included floating the dollar, deregulating the finance and banking system, and exposing the economy to international competition through tariff reductions. Governments adopted market-based policy instruments while reducing their involvement in the provision of public goods such as electricity, public housing and infrastructure (Chester, 2010). It has been assumed that deregulation would increase competition and that minimalist government intervention would stimulate growth, enhance productivity improvements and foster 'mutual obligation' – particularly from those receiving welfare payments (Chester, 2010, p.317; Western et al., 2007).

Neoliberalism comprises a series of pro-market values, ideas and policy settings that are designed to improve national and international competitiveness via a reorientation of the roles of government and private enterprise (Glassman, 2007; Heynen et al., 2007). Peck and Tickell (2002) have distinguished between what they term 'roll back' and 'roll out' neoliberalism. 'Roll back' neoliberalism commenced in countries such as the US, UK and Australia in the 1980s and

was associated with the dismantling of institutions, and the removal of public benefits, associated with the Keynesian welfare state (Holifield, 2007; Peck and Tickell, 2002). In contrast, since the 1990s there has been a rolling out of neoliberalism via the creation of new institutions and policies aimed at consolidating the market as the arbiter of economic decision-making and seeking to limit government intervention to that of stimulating market forces.

As suggested, in line with 'roll out' neoliberalism there is not a complete withdrawal from state-based activities. Rather, the state actively intervenes (re-regulates) where it considers it can more directly serve the interests of business, improve competition and foster community responsibility (Chester, 2010; Stilwell, 2002; Western et al., 2007).

The neoliberal ideology that has emerged for Australian agriculture has placed emphasis on individual and rural-community self-help. Rather than having the state provide economic benefits to farmers, farmers are encouraged to manage risk for themselves (Lockie, 2000; 2010). While it remains contentious among grass-roots farmers, the progressive withdrawal of state support for farming has been consistent with a strongly argued view in government, in the agricultural bureaucracy, and by peak farmer groups, that free trade is fundamental to Australian agriculture's future competitiveness (Pritchard, 2000, pp.91-92). The National Farmers' Federation (NFF) has been one of the leading advocates of free trade, as has the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) and its predecessors ABARE and the Bureau of Agricultural Economics (Lawrence, 1987; Pritchard, 2000). The support for free markets ensured a strong presence for Australia at important international fora such as the Uruguay Round of the General Agreement on Tariffs and Trade



(1986-94) and the Doha round of the World Trade Organisation (2001 to the present) where Australia has been a vocal advocate for the removal of trade barriers, particularly for agriculture. As a leading participant in the Cairns Group of some 19 agricultural exporting nations, Australia has argued for the dismantling of protectionism, pointing to Europe, the US, Korea and Japan as having distorted trade by providing major barriers to the opening up of agricultural markets. This position has not been taken disinterestedly. It has been predicted that agricultural liberalisation initiatives advanced by the Cairns Group would, if adopted globally, result in an additional AUD\$2 billion per annum for Australian farmers, including a 17 percent increase in average agricultural land values (Andrews et al., 2003, p.2).

Australian farmers currently produce some 93 percent of the foods that are consumed domestically, as well as exporting surpluses that feed an additional 40 million people abroad (PMSEIC, 2010, pp.1, 15). Some 60 percent of agricultural production is exported, with the value of these exports (largely wheat, sugar, beef, wine and processed dairy products) amounting to AUD\$24.3 billion (DAFF, 2011, p.2). This is approximately 16 percent of the value of Australia's merchandise exports (DFAT, 2011). Although the Australian dollar's rise against other currencies is a factor making farm exports less competitive, the sale abroad of agricultural goods is viewed as a major goal of government (DAFF, 2010).

### **3. Impacts of Neoliberal Settings**

Neoliberalism has had major impacts on Australian farming. The freeing up of the movement of agricultural commodities between Australia and its trading partners has been one outcome. While Australian governments have endorsed this as beneficial for the nation's trading relations, questions have been raised about the increasing volumes of food imports and Australia's potential dependence upon countries which may choose to prohibit exports at times of food scarcity.

While Australia sells most of its farming products as bulk undifferentiated commodities (meat, wheat and sugar, for example) it imports substantially- and elaborately-transformed, and higher-value, agricultural products (canned foods, bakery products, confectionary, processed foods and horticultural products such as fruit and vegetables) (PMSEIC, 2010, p.34). In a world of growing food demand, it is likely that the price of imports will increase and/or the availability of these products will diminish (Growcom, 2011, p.17). As the peak body for Australian horticultural producers, Growcom (2011, p.16), has noted, Australia currently imports 17 percent of the starchy root vegetables (mainly potatoes) that it consumes, some 19 percent of vegetables, and 34 percent of fruit. Some countries from which these imports arise (for example, China) have acted to restrict the exporting of food so as to keep prices down for domestic consumers, while others (such as Vietnam, Indonesia and India) have reduced import tariffs as a means of increasing the flow of imports – again aimed at ensuring food is available to domestic consumers, and at a reasonable price. Fruits and vegetables are of particular concern in relation to the expected doubling of the Australian population by 2050 [PMSEIC,

2010]). Under conditions of climate change, urban land-use pressures, land and water degradation and pest and disease concerns, it has been forecast that the per capita availability of domestically-produced horticultural products will decline by up to 48 percent (Growcom, 2011, p.44). There is concern that Australians in the decades to come will be eating higher levels of grains and meat, rather than fruit and vegetables – potentially compromising nutrition and health. At present, the domestic supply of vegetables is not able to meet the dietary needs of the Australian population, and most people are not eating the right balance of vegetable groups (Australian Food Sovereignty Alliance, 2011). Not surprisingly, Growcom (2011, p.15) concludes ‘food security is a real concern for Australian agriculture, particularly the horticulture industry’.

The ‘financialisation’ of Australian agriculture is also an emergent challenge. Sovereign wealth funds are seeking to purchase properties in Australia and to repatriate the food that is grown on those lands. These so called ‘land grabs’ (or ‘large-scale land appropriations’) are particularly prominent in the nations of sub-Saharan Africa (Cotula, 2011; Technical Committee on Land Tenure and Development, 2010), but are also becoming a feature of foreign direct investment into developed nations such as Australia. As an example, Qatar’s sovereign wealth funds have been investing in Australian farmlands to grow sheep, beef and wheat for delivery to Qatar. Saudi investors have a budget of some AUD\$3 billion to invest internationally, and a former Australian Prime Minister and Treasurer have been among those seeking to persuade Saudi Arabia to invest in farmlands and agribusiness assets (Marshall, 2011). Like the case of Qatar, the Chinese have been purchasing sheep, beef and wheat properties in Australia to grow food

to return to the investing nation – in this case, China. The Chinese Agricultural Vice-Minister pointed to the increased pressure on Chinese farming systems to meet growing demand, predicting that the nation would consume an additional 4 million tonnes of grain, 800,000 tonnes of vegetable oil and one million tonnes of meat in the five years to 2015 (cited in Sainsbury, 2011). The Chinese land purchases are not being scrutinised by the Australian government: farm businesses of between AUD\$10 million and AUD\$200 million are being targeted by investors because they do not come under the rules of disclosure of the Foreign Investment Review Board (Sainsbury, 2011). While the goal of increasing foreign direct investment is part of the WTO's adherence to 'comparative advantage' and, more broadly, to global neoliberalism (McCarthy, 2007), products returned to investor nations do not enter the open market and, if the trend continues, it may mean that less food is available domestically, potentially causing price increases and contributing to local food insecurity in Australia.

There is also the issue of food-versus-fuel. This includes the conversion of so-called 'first generation' bio-substances (base on sugar, sugar beets, wheat and canola) and second generation bio-substances (farm and forestry crop residues) into biofuels – or 'agrofuels', to denote their direct connection with agriculture and food (GRAIN, 2007). Up until now there have been limited amounts of grain (and other crops) in Australia being diverted from human and animal needs to agrofuel production. However, agrofuel production is now destined to accelerate with the development of an ethanol plant on Queensland's Darling Downs which will utilize grain sorghum (normally a feedstock), and with the Queensland government having mandated that some 5 percent of petrol sold in the state will contain ethanol (Sheales and

Gunning-Trant, 2009, p.11). The commitment to expand Australia's agrofuel sector – with national requirements of between 2 percent and 5 percent in all fuels sold - is underpinned by a discourse that positions agrofuel as a desirable environmentally-sustainable response to the rising global price of oil, and as a catalyst for future regional economic expansion (see RIRDC, 2007a). In contrast to such claims, the use of grains for agrofuels is said to have increased the price of cereals by up to 30 percent between 2000 and 2007 (PMSEIC, 2010). Peak oil is likely to foster a greater area of agricultural lands producing crops for agrofuel rather than for food – resulting in rising food prices. Globally, agrofuel expansion will increase the vulnerability of the world's poor to food insecurity (Growcom, 2011, p.27; McMichael, 2012). David Mitchell, of the World Bank, has claimed that up to 75 percent of the food price increases between 2002 and 2008 could be attributed to the production of agrofuels (Mitchell, 2008). It is in this context that the UN Special Rapporteur on the Right to Food has described agrofuels as a 'crime against humanity' (see Molony and Smith, 2010). The Australian government has yet to acknowledge, or discuss, this suggestion.

Finally, the removal of prime agricultural land through coal mining, and coal seam gas (CSG), development is of concern to farmers and surrounding rural communities on Australia's eastern coast. When, in past years, open cut mining has occurred in agricultural areas, grazing lands have been brought back to their previous condition, but cropping lands have been unable to be rehabilitated – representing a loss of prime farming land (Fraser, 2011; Growcom, 2011). Large CSG deposits have been found in the nation's most productive farming areas, with farmers and environmentalists raising concerns about the use of aquifers (the same ones used by farmers)

to enable gas extraction. Waters recovered from CSG will be salt affected, while chemicals used in extraction have the potential to enter bores and thereby poison water used for both agriculture and human settlements (ABC, 2011; Business Day, 2011). The wells, which are built at intervals of some 750 metres, are drilled along a gridline which includes pipes, concrete foundations and roads. This assemblage has the potential to disrupt overland water flows and limit cropping (ABC, 2011). In the Queensland Darling Downs region (one of the most fertile and productive in Australia) there will be 30,000 wells drilled, representing a substantial decline in arable farming lands (Business Day, 2011). The Queensland's Department of Environment and Water's own Water Group advised the Minister that CSG would have major environmental impacts. These include land subsistence and destruction of the Great Artesian Basin. Although it was claimed that it might take the Basin a thousand years to recover, the Minister chose to approve CSG development (Queensland Country Life, 2010). It was revealed that by 2020 mining activities (including CSG) would be worth AUD\$16 billion per annum to the State of Queensland, while agriculture would be worth some AUD\$2.2 billion per annum. The mining industry would also be contributing another AUD\$1 billion yearly in terms of royalties (Fraser, 2011). Neoliberal market forces are clearly at work, here. If there is more income to be generated from mining, then that is what will proceed – despite the calls from farmers, green groups and others for the quarantining of agricultural lands that are deemed to be 'irreplaceable' (Dart, 2011). CSG lies under some of the most productive farmland in Australia, and the wells needed to extract the gas will render this land unsuitable for farming, resulting in a decline in food production. Community concerns have resulted in Federal and State

governments agreeing to tighten regulations that protect aquifers and limit pollution but the expansion of natural gas extraction is viewed as essential for State and national economic development and, as such, is unlikely to be halted (Wilson, 2011).

Harmonisation of food standards, one of the mechanisms of increasing international trade in farm products, is pursued with vigour by the WTO (Wright, 2008) and, in Australia, by the Council of Australian Governments (Australia New Zealand Food Regulation Ministerial Council, 2008). Yet, harmonisation is viewed as a 'complex and precarious process' because of quarantine and biosecurity issues (Dibden, Higgins and Cocklin, 2011, p.108). The WTO fosters forms of governance and trade that adhere to global neoliberalism (Maye, Kneafsey and Holloway, 2007) and does so independently of any concerns that might arise about social and ecological impacts (Slaughter, 2005). Since its formation in 2005, the WTO has been adamant that quarantine concerns should not be a barrier to freer trade in agricultural commodities (O'Neill and Fagan, 2006). As McMichael (2011) has argued, the WTO has fostered the development of an agri-food system which has subsidised producers in the global North, undermined subsistence farming in the South, and generated an ecologically-unsustainable food production in both regions. In Australia, while there have been protests by farmers as the state has sought to align national food policies with international laws and settings, the WTO's liberalising and harmonising agendas have remained a potent force for change (Dibden, Higgins and Cocklin, 2011, p.118). To date, however, Australia has had very strict quarantine restrictions and fears remain that the WTO is promoting downward harmonisation, thereby increasing the risk of food-borne diseases entering the country and potentially compromising food security

(Dibden, Higgins and Cocklin, 2011). The concern is that downward harmonisation will diminish Australia's ability to trade in 'clean and green' agricultural products. In endorsing, and following, the WTO's global neoliberal trading regime, the Australian government is encouraging the importation of cheaper, but potentially more risky, foods.

The role of supermarkets in a more deregulated environment has been another cause for concern. Supermarket concentration in Australia is high, with three chains controlling 70 percent of grocery sales and some 60 percent of the market for fresh foods (ACCC, 2008). These firms are able to use their power to determine the conditions of supply along the various chains. At the level of the farm they have initiated environmental, safety and quality standards. Farmers who wish to sell to the supermarkets must abide by these standards. The costs of compliance can be quite demanding and financially testing. In other cases, those farmers who cannot meet the stringent conditions, and cannot supply products to the supermarkets, find themselves unable to find a market and must change production type or be 'restructured' out of agriculture. In one example of the influence of the supermarkets, the two largest firms – Coles and Woolworths – decided that for logistical reasons to do with ready sourcing, large-scale storage and cool-chain technologies, their banana purchases would be concentrated in the Tully/Mossman/Innisfail region of north Queensland. This meant that other previous and potential suppliers outside this zone were effectively left without a major market. It also meant that when Cyclone Larry hit north Queensland in 2006 and destroyed 90 percent of the banana crop, Australians were without a secure supply of bananas for nine months, until the crops fruited again (Koutsoukis, 2006). (Australian imports of bananas are banned because of



concerns over introduction of exotic pests.) When Cyclone Yasi crossed the north Queensland coast in February 2011 some 90 percent of Australia's banana crop was again destroyed, with many of the farmers previously affected by the cyclone Larry facing economic ruin (ABC News, 2011a). The location of virtually all of Australia's bananas in one production region might make economic sense for the supermarkets and their fleets of trucks, but the destruction of the nation's entire crop raises questions about wider food security. Bananas are a staple food in Australia - reportedly one of the nation's top selling grocery items (Koutsoukis, 2006).

In more recent times Coles and Woolworths have entered a price-cutting 'war' on milk. In late January 2011 Coles reduced the cost of a litre of milk to AUD\$1 – a price cheaper than bottled water, fruit juice and softdrink (Millward, 2011). Woolworths acknowledged that such a price was unsustainable and would have major negative effect on dairy farmers: it then immediately announced it would be lowering the price of milk to AUD\$1 to compete with Coles (ABC News, 2011b)! If the price of milk remains at this low level which, for some producers is below the cost of production, farmers will be forced from the industry (ABC Rural News, 2011). It is known that the supermarkets like to deal with larger, reliable, and compliant producers (Burch and Lawrence, 2007; Vorley, 2007). The 'milk war' is likely to result in fewer, larger, highly mechanised dairy farms. The supermarkets can sell the milk as a 'loss-leader', making profits on other grocery lines and from their petrol and liquor products (Cox and Chicksand, 2007). However, smaller farmers will not be able to compete. This so called 'squeeze' on farmers may provide cheaper milk for consumers in the short term, but is likely to lead to the further restructuring of agriculture and subsequent reduction in farm numbers.

Food waste is another, separate, concern of those interested in improving food security. Global calculations indicate that up to 50 percent of the value of the food chain is wasted - representing losses at the farm level and in the food processing, wholesale and retail sectors, and within households (PMSEIC, 2010, p.37). It is estimated that food wastage in Australia is in the vicinity of some AUD\$5.2 billion annually (Baker et al., 2009, p.5) including uneaten fruit and vegetables (AUD\$1.0 billion) and waste from the restaurant and take-away food sectors (AUD\$1.0 billion) (PMSEIC, 2010, p.37). Each Australian is estimated to generate some 361kg of food waste per year or, for the average household, a total of 936kg of waste per year (PMSEIC, 2010, p.37). There are direct financial costs associated with this waste (an average, per household, of some AUD\$616 per year) including environmental impacts associated with greenhouse gas emissions and water use in the production and distribution of foods, alongside the greenhouse gases that escape from the garbage dumps that take the wastes (Baker et al., 2009, pp.1 and 5). Some 35 percent of waste in Australia's municipal dumps – together with 21 percent of commercial and industrial waste – is from food sources (PMSEIC, 2010, p.37). According to Baker et al., (2009) the supermarkets present a major barrier to addressing food waste: their profits are based on the volume of turnover, so the higher the level of sales, the better. They also perpetuate waste in the form of throw-away packaging, including plastics and styrofoam (Lyons, 2007). Strict minimum quality requirements imposed by supermarkets lead to considerable wastage of otherwise-nutritious fruits and vegetables (Growcom, 2011, p.31)

while the use-by-date is also implicated in waste: out-of-date foods represent over 30 percent of the foods that are thrown out by households (Cribb, 2010, p.69).

Alongside this level of waste is another concerning issue: not all Australians are obtaining the sorts of foods that they need for a healthy lifestyle. If, as noted earlier, food security means that all people at all times will have access to foods that permit them to live active and healthy lives (FAO, 2009), then there are groups of Australians who are not food secure. Studies have indicated that many of Australia's food insecure citizens live in remote areas, are Indigenous Australians, or are homeless, unemployed or older people living alone (Doljanin and van Herwerden, 2002). Small-scale, agency-based, studies have shown that some 70 percent of refugees living in an area of Perth, Western Australia, and in Western Sydney, NSW, experienced food insecurity. Another study showed that 5 percent of people in NSW had no access to food – and did not have the funds to purchase any – at least once in the last 12 months. The figure grew to 22 percent in the economically disadvantaged region of south western Sydney (reported in Sustainable Blue Mountains, 2010). Some 45 percent of single-parent households in three low-income Sydney suburbs were described as food insecure (Sydney Fair Food Alliance, 2010). One study has estimated that about 5 percent of the Australian population is food insecure at any one time (Temple, 2008), while another study puts this at closer to 10 percent (some 2 million people per year, of a total population of 22 million, require food relief, see Foodbank, 2011). Lockie and Pietsch (2011) conducted a survey of 1,200 randomly sampled adult Australians and found that: 16% often or sometimes worried that their food would run out before they had enough money to buy more; 8% had run out of food and

could not buy more; and 13% could not afford to eat a balanced diet. Food relief is most often provided by charity and other non-profit organizations, which reduces the numbers who are unable to purchase food. According to Lockie and Pietsch (2011) some 4-8% of Australians can be described as 'severely food insecure', having insufficient money to be able to purchase a meal. That not all citizens in Australia can access the foods they need for a healthy lifestyle is a failure of the market. There are groups in Australia that continue to be marginalised and do not benefit from neoliberal settings that shape food production, distribution and consumption. The call on charities to provide food is consistent with 'deep neoliberalisation' that seeks to engage community organisations in the provision of welfare benefits that were previously provided by the state (Holifield, 2007; Jessop, 2002). Jessop (2002, p.463) considers that such 'neo-communitarianism' is a strategy of the neoliberal state to enroll community bodies in redressing 'the imbalance between private affluence and public poverty', without the need to pursue policies aimed at wealth redistribution.

It is not only undernourishment that concerns Australia. *Overnourishment* – linked strongly to the intake of industrialised, highly processed, foods and meat and dairy products - is an important national, and global, public health issue (Dixon and Broom, 2007). Overnutrition leads to overweight, obesity and chronic diseases such as diabetes and hypertension. It is a form of food insecurity where there is a major imbalance in the composition of food intake – an excess of calories and fats (macronutrients) over vitamins and minerals (micronutrients). Nutritional security is based upon dietary diversity and this is being compromised as processed foods, comprising large quantities of salts, sugars and fats are purchased instead of fruits and

vegetables (Dixon and Broom, 2007; Butler and Dixon, 2012). In 2007-8 the proportion of Australian adults who were overweight or obese was approximately 70 percent (AIHW, 2008). One in four children between 5-17 years of age were also estimated to be overweight or obese and this was of particular concern for children who were socially or economically disadvantaged (PMSEIC, 2010, p.18).

Brown, Laurence and Thorpe (2009) report on the disproportionate levels of chronic disease amongst both remote and urban dwelling Indigenous people and highlight a link between poor nutrition and negative health consequences such as low birth weight, heart disease and diabetes. High rates of overweight and obesity have been reported in Indigenous populations – with estimates that as many as 57 percent of Indigenous people were obese or overweight (Brown, Laurance and Thorpe, 2009). Whilst overweight and obesity in both Indigenous and non-Indigenous Australians may be associated with over-eating and easy access to food, the link to poverty is crucial. Poor people often find it difficult to access and to afford healthy foods (Dixon and Broom, 2007; Innes-Hughes et al., 2010).

That is, the availability of cheap, easily-accessible processed foods is implicated in overnutrition. Such food is readily available in ‘food deserts’ – those areas in cities abandoned by the major food retailers as they relocate themselves in more profitable suburbs. Consumers in the food deserts do not have ready access to the fruits and vegetables that are supplied by the supermarket chains; rather, they rely upon the so-called ‘convenience stores’ which sell the sorts of highly processed, fat- salt- and sugar-laden, and take-away foods that are implicated in poor eating, obesity and diabetes (Oosterveer and Sonnenfeld, 2012, p.112). While the

movement of supermarkets from unprofitable areas follows a very clear market logic, the burden of poor food intake, along with the public health care costs that arise from diet-related obesity, is born by the state (Hattersley and Dixon, 2010). Poor health is one 'externality' of corporate control of the food supply chain.

#### **4. Productivism and Climate Change**

The form of agriculture that emerged in Australia following the end of the Second World War is termed 'productivism'. It is based upon the desire to improve productivity as a means of both expanding the volume of production and of employing factors of production (land, labour, water and so forth) more efficiently (Gray and Lawrence, 2001). In the 1980s and 1990s neoliberal policies were set in place to extend free trade and to encourage farmers to innovate. Farmers responded by adopting the products of agribusiness – fertilizers, insecticides, veterinary pharmaceuticals, increasingly-mechanised farm equipment, and new seed varieties – and intensifying production (Argent, 2002; Dibden, Potter and Cocklin, 2009; Lang and Heasman, 2004). Monocultural cropping of grains, along with the 'factory farming' of livestock and poultry in concentrated animal feeding operations are elements of Australia's current system of agriculture. The use of irrigation waters and the clearing of native vegetation have been associated with the expansion of farming, more generally, and there have been considerable pressures on the land and vegetation from extensive forms of grazing of sheep and cattle (Goldie et al., 2005).

The three most recognizable characteristics of productivism are those of specialisation, intensification and economic concentration (Argent, 2002; Gray and Lawrence, 2001). Farms tend to specialize, allowing them to capture economies of scale. They intensify in an effort to employ external inputs in an efficient, targeted manner, and they seek to become bigger and more capital intensive to achieve increased output and improved market access (Productivity Commission, 2005). Not surprisingly, in the two decades to 2003, the number of commercial farms fell from 178,000 to 132,000 (a decline of 25 percent), while the size of properties increased from 2,720 hectares to 3,340 hectares (an increase of 23 percent). In terms of output the largest 10 percent of farms produce 50 percent of farm-based production, while the smallest 50 percent account for only 10 percent (Productivity Commission, 2005, pp.31, 37). The concentration in production is associated with the move to a more industrial form of agriculture, one which has serious environmental consequences (Gray and Lawrence, 2001).

A favoured means of securing new lands has been to clear trees. Since European settlement, some 90 percent of native vegetation in the temperate zone of eastern Australia has been cleared for agriculture and housing, some 50 percent of the nation's rainforests have given way to farming, while 30 percent of woodlands have been removed for farming and grazing (Aretino et al., 2001). The cumulative effects on soils have been severe. Salinisation, a consequence of tree removal, currently affects some 6 million hectares of land in Australia, but this is anticipated to reach 17 million hectares by 2050 (Bush Heritage, 2011).

As part of the process of agricultural intensification, fertilizer use has increased seven fold in the last four decades (see Growcom, 2011). Fertilizers are expected to become more expensive as global supplies are depleted. As oil supply declines, the cost of nitrogenous fertilizers and the fuel for agricultural machinery will rise. There is the likelihood that the search for new sources of energy, such as from biofuel production, will divert food supply and force prices to rise (see Sheales et al., 2009). Global supplies of phosphorus – an essential nutrient in plant growth – are expected to peak in 2030 with fertilizer price rises a likely outcome: food prices, both in Australia and globally, are expected to increase accordingly (Cordell, 2009; Cribb, 2010). A reduction in use of fertilizers would be beneficial for the Australian environment: soil acidification, a billion dollar problem for Australian farmers, is associated with the overuse of ammonium-based fertilizers which occurs when nitrates are leached into lower soil horizons (Goldie et al., 2005, p.8). Acidification has been recorded on 90 million hectares, with one third of this serious enough to cause production losses (Williams and Saunders, 2005, p.65). Yet, productivist farming methods are reliant upon continued fertilizer applications – as is the nation’s overall food supply.

Taken together, salinisation, acidification and soil erosion – along with urbanisation - continue to take land out of production and, thereby, reduce Australia’s capacity to produce food (ABARE-BRS, 2010a). That is, food production cannot be increased by bringing new arable lands into production – there are few new areas of the nation suitable for farming, and existing lands are being depleted. PMSEIC (2010, p.29) predicts that climate change impacts will marginalise inland grain producers, forcing them to turn their properties over to grazing. This will not only



reduce grain availability at a time of burgeoning demand, but will (potentially) see an increase in cattle numbers – along with the subsequent increase in greenhouse gas releases (Weis, 2010a; 2010b).

Furthermore, there is a need to extend tree planting for carbon sequestration and for biodiversity benefits. The biodiversity impacts of agricultural expansion and subsequent tree clearing have been severe. It is estimated that approximately 5 percent of plants, 7 percent of reptiles, 9 percent of birds, 9 percent of freshwater fish, 16 percent of amphibians and 32 percent of mammals are listed as vulnerable, endangered or extinct (Aretino et al., 2001, p.2). Approximately 40 percent of mammal species have become extinct since European settlement, representing the worst rate of animal extinction in the world (WWF, 2010). Some 80 percent of the waterways in the vast state of Western Australia are salinity-affected and half the bird species have disappeared from the wetlands that were once fed by those rivers. Plant species – up to 450 different species – are also threatened with extinction as a result of salinisation in the west of the continent (Williams and Saunders, 2005, p.65). Increasing salt concentrations in rivers and wetlands are destroying remnant vegetation with at least two million hectares likely to be affected (Williams and Saunders, 2005).

Of particular concern for Australian farmers is the future availability of water. Australian agriculture currently uses 70 percent of all freshwater in the nation (ABS, 2006). This level of usage is viewed as not being sustainable. The extent of water extraction in some regions, such as ‘Australia’s breadbasket’ - the Murray-Darling Basin (MDB) (Growcom, 2011) - has caused major ecological damage, with the Federal government initiating a ‘buy back’ scheme to

purchase licenses from producers, with the aim of returning that water to the environment. Modelling has predicted that to restore ecological health to the MDB some 22 percent of current allocations will have to be purchased by government. This is expected to reduce the gross value of irrigated agricultural production in the MDB by some 15 percent (ABARE-BRS, 2010b, pp.89-90). Food supply will be consequently diminished. This will be in addition to the losses caused by climate change. While governments are convinced that a neoliberal water-trading scheme will see the movement of water from low-value to high-value commodities, and will increasing efficiencies in water application, there are fears that the commoditisation of water will see water removed from regions, diminishing food production and undermining community viability and long-term prosperity (RIRDC, 2007b).

Australia is a dry continent, but will become drier in future decades. The continent is now experiencing exceptionally hot years over 10-12 percent of its surface area every year – which is twice the anticipated long-term average (PMSEIC, 2010, p.12). This trend notwithstanding, the continent will also face more intense and unpredictable weather events such as floods, fires and cyclones (Gunasekera et al., 2007) which are likely to disrupt food production and distribution. Climate change will affect some of the most productive regions of the nation. Best case and worst case scenarios show that total wheat, beef, dairy and sugar production will decline by between 11 percent and 60 percent to 2030 and that this will increase to between 15 percent and 79 percent by 2050 as climate impacts upon water availability and further exacerbates soil erosion, salinisation and acidification (Gunasekera, 2007). On average, food production in Australia is likely to decline by between 15-30 percent over the next four decades

(PMSEIC, 2010, p.21). Importantly, many Australian farmers are not undertaking activities that will assist in mitigating the effects of climate change. The majority of farmers are addressing short-term challenges rather than embracing longer-term adaptations to climate change (Hogan et al., 2011). About one-quarter of farmers do not believe in climate change, while most of those who do are 'cash poor': they do not possess the financial resources necessary to alter their current practices (Hogan et al., 2011, p.ix).

One means of countering price rises is through productivity increases – the use of technology and resources to produce more food, more efficiently. Productivist agriculture – as its name suggests – has been especially adept at capturing efficiency gains. In the 20 years leading up to the new millennium, Australian agriculture recorded productivity growth in the order of some 1.8 percent per annum, but in the most recent decade productivity has dropped to 1.3 percent per annum (PMSEIC, 2010, p.16). While this fall in productivity growth has been attributed to such events as drought and climate change (Sheales and Gunning-Trant, 2009), the main cause is purported to be the lack of investment by the state in agricultural R&D (Nossal and Gooday, 2009; PMSEIC, 2010). As part of its neoliberal agenda the state had removed much of the funding from agricultural R&D during the past three decades, largely trusting that private enterprise (the corporate agribusiness sector, in particular) would make the necessary investments – something which it has failed to do. There are now calls for the state to increase public investment to at least 5 percent of the gross value of agricultural production (from 3 percent today) so as to return to the investment levels of the 1970s (PMSEIC, 2010, p.65). The question of whether roll-out neoliberalism can create the sorts of settings that will produce

productivity increases and growth in food output in a sustainable manner is one of the most important facing Australia.

## **5. Discussion**

Some of the main elements of Australia's neoliberalist regime have been fiscal conservatism, labour market deregulation, privatisation of state assets, and 'mutual obligation' (provision of government funding-support conditional upon recipients being 'work-ready')(O'Neill and Fagan, 2006). Others include the re-scaling of governance, along with changes to state-based regulation aimed at both stimulating free trade and extending profit-making opportunities for private firms and corporations (Stilwell, 2002).

In Australian agriculture, the neoliberal state has sought to foster self-reliance in the management of risks. For example, from 1971 to 1989 farmers were provided with disaster relief at times of severe drought; after this time the state recognised drought as a normal feature of the Australian landscape and provided struggling farmers with various types of business support assistance, with income support (not drought relief funds) being provided only in exceptional circumstances (Aslin and Russell, 2008). Drought was once viewed as a national problem to be addressed through state financial support. Now, it has been reconstituted as a problem for individual farmers to deal with as part of rationally-based risk management (Cheshire and Lawrence, 2005a).

As Lockie (2010) has argued, a variety of market-based instruments (MBIs) that have been adopted in Australia form part of a hybrid array of neoliberal governance mechanisms. The National Landcare Program, which commenced nationally in the 1980s, has been an attempt to enroll farmers in local, voluntary, self-help groups to address the environmental degradation that farming (among other industries) has produced. The establishment, in the 1990s, of some 56 regional, community-based, bodies to prepare catchment plans for natural resource management throughout the nation (rather than calling upon government departments or local government to address natural resource problems) is also viewed as an example of roll-out neoliberalism (Lockie, 2010, p.371). These bodies receive direct funding from the state to build local decision-making capacity among a group of diverse stakeholders in what is, for Australia, a new hybrid form of agri-environmental governance and an experiment in devolving responsibility, accountability and action to the regional level (Lawrence, 2005; Lockie, 2010). Despite the observation that they often fail to address the underlying causes of environmental problems, MBIs are expected to continue to be employed in Australian agri-environmental governance, including water trading and possible schemes to reduce atmospheric carbon (Lockie, 2010).

The extension of private standards in terms of EMS and those of the supermarkets is an example of the penetration of market-based settings in the management of food and the environment (Higgins, Dibden and Cocklin, 2008). EMS are promoted by regional bodies and the federal government. They are yet another example of a neoliberal technology of governing aimed at building capacity among farmers to regulate their behavior so as to improve their

environmental credentials (Dibden and Cocklin, 2005). Such neoliberal forms of governing are not 'forced' by the state or by the corporate sector on unsuspecting farmers: rather, they are readily adopted in an effort to gain (or hold) contracts, ensure domestic and overseas consumers are informed about product quality and integrity, and are a form of cultural capital, allowing farmers to distinguish themselves from others in terms of environmental credentials. EMS have been built upon neoliberal practices such as self-auditing, peer-auditing and notation and calculation and farmer enrollment in these activities has led to positive outcomes in the form of better management of the farm and improving sales of their products (Higgins, Dibden and Cocklin, 2008, p.1783).

The question remaining is: will neoliberal governance be capable of overcoming the problems caused by productivist agriculture, particularly in the context of the predicted impacts of climate change? An assessment of previous schemes of neoliberal-making indicate that the answer to the question is likely to be no. Landcare is viewed as a success in having encouraged a third of Australian farmers to join local groups and having fostered education, social learning, local cooperation and community-led activities aimed at improving the environment (Lockie, 2010, p.369). However, it has reinforced, rather than challenged, the system of productivism and has failed to improve the overall level of catchment health (CSIRO, 2003; Lawrence, 2005). As Lockie and Higgins (2007, p.5) have stated, 'Individual landholders ... remain ill-equipped to internalize enough of the social and environmental costs of their activities to generate landscape scale benefits', with Dibden et al., (2009) having suggested that the forced efficiency

drive in neoliberal agriculture is propelling Australian producers into a new era of 'hyper-productivism', with ecological damage being accelerated as a direct consequence.

Similarly, catchment management groups - while creating incentives for a number of disparate stakeholders to seek agreed-upon ways of improving the regional natural resource base – have been criticised for failing to deliver the changes in on-farm management necessary for ecosystem improvement (Lockie, 2010). Within catchment management arrangements there has been a noticeable tension between accountability and responsiveness, with procedural requirements being in tension with and in some cases undermining the 'action-enabling' aspects of stakeholder interactions (Wallington and Lawrence, 2008). As for EMS, while some farmers can obtain benefits, this does not seem to have made a difference to the environment. Lockie and Higgins (2007) have noted there has been a slow uptake of environmentally-sustainable land-use practices. Indeed, in evaluating neoliberalism's impact upon Australian farming, Dibden and Cocklin (2005, p.148) have observed that there is an 'increasingly apparent incompatibility between deregulated, competitive, intensive agriculture, and the notion of rural sustainability'.

Is there any likelihood of a more environmentally-benign post-productivist future? As Argent (2002, p.108) has perceptively argued, if post-productivist trajectories were apparent under neoliberalist policies and settings, four obvious changes would be observed. First, there would be more pluriactivity (diversification). Second, there would be 'extensification' (a retreat from

intensive farming). Third, there would be 'dispersion' – the trend away from capital-intensive farming toward middle-level diversified farming operations. And, fourth, a 'consumptionist countryside' – one associated with new activities relating to amenity, tourism and recreation - would be viewed as emerging. Argent (2002, p.111) concludes that while partial examples of all four exist in Australia, there is little evidence that there has been a concerted movement 'from a concern with production at all costs to a concern with economic and environmental sustainability'. He acknowledges that there is the 'continuing strong grip of productivism as financially stressed farm families strive to attain higher levels of productivity to survive' (Argent, 2002, p.111).

It would appear that neoliberal approaches have limitations when it comes to correcting the market failures (including the externalisation of pollution, soil erosion, water degradation and biodiversity loss) inflicted by commercial agriculture, yet these approaches and measures are becoming increasingly popular as roll-out neoliberalism is 'deepened' in Australia (Cheshire and Lawrence, 2005b). The argument of this paper is that neoliberalism fosters productivism which, in an era of significant negative climate change predictions for Australia, is likely to exacerbate environmental degradation. This, in turn, is likely to undermine Australia's attempts to provide greater volumes of food to growing domestic and international populations.

## **6. Conclusion**



Australia faces the immediate food security problem of ensuring all its citizens have access to healthy, nutritious foods. It is failing to achieve this goal. It also faces an emerging food security concern relating to the continuation of productivist agriculture as the vehicle to deliver food in a sustainable manner for future generations. While the productivist path promises (moderate) productivity gains, there is no guarantee that it can deal with the environmental externalities that have been produced through high-tech farming. In recent years, a number of significant factors have combined to generate concern regarding Australia's ability to continue to meet national food needs, while contributing to global food supply. As reported in this paper, governments are trusting neoliberal settings to achieve this. However, state-withdrawal from agricultural R&D, trade liberalisation, burgeoning retailer power, population growth, degradation of agricultural lands, peak oil and peak phosphorous, conflicts over water and land use, and an entrenched culture of productivism, are combining to paint a bleak picture of the future of food security in Australia unless these complex issues can be effectively managed.

Yet, neoliberalism, as the dominant organising economic philosophy in Australia, appears intractable. Its reliance upon market forces, geared to returning economic benefits to shareholders and investors, does not provide for the necessary public goods such as research and development, ecosystem services, or a safety net for poor and marginalised citizens. Considering agriculture as a normal part of the market has enabled the commoditisation of land as a new asset class, allowing for foreign investment and speculation, with little regulatory buffering to prevent Australia's food-producing lands being used for biofuel production, coal seam gas extraction, or even as an 'off-shore farm' for oil-rich nations. The exposure of farmers

to the 'get big or get out' doctrine of neoliberal capitalism has undermined the public good that can accrue from the traditional format of family-farm ownership. Under the current neoliberal political economy of domestic food production, farmers and consumers are increasingly vulnerable to a capricious global marketplace as well as the profit-making desires of agribusiness corporations, the food retail sector, global finance companies and sovereign wealth funds. Yet, little change is likely. As Botterill (2005, p.216) has noted 'the agricultural policy community in Australia is virtually closed to those who disagree with the prevailing economic approach'.

It seems that in the face of the need for Australia to fundamentally redesign its agriculture for the new century, the current productivist trajectory will continue to be pursued with vigor – creating major concerns for food security into the future.

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