Senate Inquiry into Food Production in Australia

The Inquiry

On 25 June 2008, the Senate referred the following matter to the Select Committee on Agricultural and Related Industries:

Food production in Australia and the question of how to produce food that is:

A. affordable to consumers;

B. viable for production by farmers; and

C. of sustainable impact on the environment.

VicHealth commends the Senate Select Committee for undertaking this important work. Affordable nutritious food produced in an environmentally sustainable manner is one of the key elements underpinning a healthy and productive workforce now and for future generations of Australians.

About VicHealth

The Victorian Health Promotion Foundation (VicHealth) was established by the Victorian Parliament in accordance with the Tobacco Act 1987 with a mandate to promote good health for all Victorians. Our focus is on promoting good health and wellbeing and preventing ill health.

VicHealth has an acknowledged track record in drawing diverse groups together to influence individuals' health-related lifestyles and to improve the social, cultural and environmental conditions to sustain health. With support across the political spectrum we work in partnership with governments, organisations, communities and individuals in a broad range of sectors including sport, community, urban planning, transport, local government, education and the arts. The key to our successful outcomes is the strength of these partnerships and the ability to pilot cutting edge strategies with non-health sectors to improve health. Our activities reflect national and state public health and health promotion priorities.

VicHealth has been leading the way in Food Security work

VicHealth has long recognised the importance of healthy eating. Nutritious foods are a resource for optimal growth, development and health throughout life and contribute to physical vitality, mental health and social wellbeing [1].

Food choices are determined not only by individual taste preferences, individual characteristics such as income, education, cooking ability, age, and ethnicity but also by broader economic, social, and environmental factors such as globalisation, food production, marketing, trade agreements, taxes levied on food, and transport policy. These all determine the availability, quality and price of food and subsequently influence food choice [1, 3, 4].

Health education alone is ineffective in shifting food behaviours [2]. Healthy choices need to be easy choices. This means having access to a sustainably produced, affordable, nutritious, and culturally appropriate food supply (*known as food security*).

Food insecurity is associated with lower nutrient intake, lower general physical wellbeing, and poorer mental health status in adults [3]. There is also evidence that being food insecure is linked to obesity, (particularly in women and children). The risk of obesity is 20–40% higher in women who have low incomes and are experiencing food insecurity. This is observed consistently across the United States, Europe and Australia [4]. There is convincing evidence that obesity is linked to several chronic diseases [1].

Geographic and economic access to healthy food is an important determinant of food security [5]. Ready access to affordable fast food has been shown to be associated with obesity, and fast food outlet density is significantly higher in low socio-economic areas than in high socioeconomic areas [6]. Planning for liveable communities means ensuring access to a *range* of healthy food options. This requires changes to the current planning laws and regulations.

Over the last 8 years, VicHealth has identified food insecurity as an emerging issue for Victorians. In Victoria, at least 5% of people experience food insecurity; with some geographic areas experiencing rates of up to 11.5% [7, 8]. As a result,
VicHealth began funding nine local government authorities in 2005 (2 in rural areas; 7 in Metropolitan/Urban fringe areas) to address systemic and infrastructure barriers to healthy eating. The three year evaluation findings of this program were presented to an annual public forum in Melbourne attended by over 150 participants in August, 2008. The presentations from this forum are on the VicHealth website: www.vichealth.vic.gov.au. The evaluation has reinforced the importance of local responses to local needs, but has also highlighted the limitations of Local Governments in influencing macro determinants of food supply, availability and in particular issues relating to food affordability.

Food security for optimal health and wellbeing can be improved by multi-level approaches. This submission will focus on the Terms of Reference (a) and (c), based on VicHealth's research, project grants, workforce development and extensive collaborative work in the last 21 years in promoting healthy eating.

VicHealth makes the following recommendations to the Committee as steps needed to ensure an affordable and environmentally sustainable food production system.

1. Nutrition as the basis of a healthy, sustainable food system

The Australian Dietary Guidelines are consistent with principles for environmental sustainability. There is a need to ensure that future food production policies support healthy food choices. Nutritious foods (particularly plant-based foods) protect against chronic disease (including cardiovascular disease, cancer, diabetes, osteoporosis and dental disease) [1, 9]. Our food production system should endeavour to provide an affordable, nutritious supply of plant-based foods for the Australian population.

Australian fruit and vegetable consumption levels are significantly lower than the recommended guidelines for health. In Victoria, only 10% of people consume the recommended intake of 5 or more vegetable serves daily. Inadequate vegetable and fruit intake in the western world is responsible for 30% of ischemic heart disease, 20% of gastrointestinal cancers and 19% of stroke [10]. Increasing fruit and vegetable levels in Australia by just one serve a day is estimated to save between $8.6million and $24.4 million per year in direct health care costs relating to cancer and a further $150 million relating to direct health costs associated with cardiovascular disease [11].

For a prosperous and productive nation, healthy eating principles should be used to guide the amount and type of food grown for Australian consumption and export. Policies regarding agricultural land-use, tariffs, subsidies, distance to market, and retail promotions need to consider affordability of healthy *and* sustainable food choices.

Recommendation: The principles of healthy eating need to guide decision making and policy development in seeking an affordable, environmentally sustainable food supply system.

2. Tax Reform and Economic Incentives

Over the past three years food prices have risen well above the CPI, and for healthy foods, the increase is more than 20% above the CPI [12]. For example, vegetables have increased by 33% and fruit has increased by 43% during this period. The impact of food prices affects everyone, but it is felt most severely by those on low incomes. In Australia, the national survey of household expenditure in 2003-04 showed average household food and non-alcoholic beverage expenditure of $153 per week, representing 17% of total household expenditure on goods and services [13]. A NSW study conducted last year, demonstrated that a family on an average income now needs to spend 22% of their income on groceries to meet their nutrient requirements and those households in the lowest income bracket need to spend 56% of their income to purchase a healthy food basket [14]. It is expected that this figure will escalate due to climate change, peak oil and housing stress.

Studies have shown that the costs of unhealthy food items (sugar, cooking oil and margarine) are much lower than healthier alternatives (breads and cereals, fruit, vegetables and legumes, meat and alternatives and dairy) by both weight and by unit of energy. One study showed that the average costs of unhealthy foods were $0.94 per kg compared with $3.49 per kg for healthier foods. It also showed that unhealthy foods cost an average of $0.03 per mega joule (MJ) compared with $0.89 per MJ for healthy alternatives [15] [16]. Energy dense foods are often seen as a “safe choice” because they are an inexpensive option guaranteed to satisfy family appetites.

The pending "Henry Review" (Review of Australia's Tax and Transfer System) will provide an excellent opportunity for reviewing food taxation mechanisms. Evidence suggests that a two-streamed approach to food pricing reform is most likely to improve population nutrition, without disadvantaging lower socio-economic groups. Such an approach involves subsidising healthy foods *in conjunction with* a carefully-targeted tax on energy-dense foods [17, 18]. A hypothecated tax model should be explored assessing the feasibility of channelling the revenue into price subsidies and a marketing fund for healthy foods. A marketing fund would help to overcome the imbalance in food marketing, as demonstrated in TABLE 1.

Table 1: Approximate expenditure on food marketing

Company/Product	**Expenditure**
McDonalds	$50 million
KFC	$34 million
Hungry Jacks/Pizza Hut	$30 million
Go for 2 'n' 5 Vegie Man	$5million

Source: [19, 20].

5 million were spent on the national Go for 2&5® campaign to encourage parents and their children to increase their daily fruit and vegie intake. In addition, states such as Queensland and Western Australia have also funded their individual state-based campaigns.

A recent UK study showed that nearly all the major supermarket retailers continue to promote twice as many fatty and sugary products compared with fruit and vegetables. This imbalance in price promotions adds another disincentive to purchasing healthy food options [21].

Recommendation: VicHealth believes that tax reform on food groceries is needed. Such reforms should aim to ensure that healthy foods are more affordable along with taxation of energy dense foods. Pricing reform should also reflect the true costs eg environment resource use and potential impact on chronic disease.

3. Low-impact, shorter supply chains are needed to sustain our food supply.

a) High impact food production system has affected our land and soil.

Since the 1960s, there has been a marked increase in agricultural efficiencies and intensification of land use. A higher production per unit area has been achieved using higher-yield dwarf crop varieties, increased mechanisation, irrigation, artificial fertilisers and agrochemicals [22],[23]. This intensification has not been without a cost: both environmentally and nutritionally. Substantial land degradation has occurred and there is now limited scope for expansion of agricultural land.

The nutrient density of foods in the US and the UK has been steadily declining for some years [24-26]; and there are indications that the same declines are occurring in Australia [27]. To date, most soil nutrition research has been driven by the organic sector. With the emergence of public health nutrient deficiencies such as Iodine and Selenium,

governments can no longer delay efforts to monitor the nutrient quality of our soils and food produced for Australian consumption.

***Recommendation: Comprehensive soil nutrition research should be undertaken to measure the impact of intensive farming (soil degradation, water constraints, salination) on the nutrient availability of our food supply*.**

b) Urban development is gradually displacing food production.

The transfer of land from agriculture to housing increases the food transport distances and increases the vulnerability of populations to food insecurity if there are disruptions in the food supply chain [26]. Peri urban regions comprise less than 3% of the land used for agriculture in five mainland states of Australia, but they have historically accounted for 25% of the total dollar value of agricultural production [28]. The rapid rate of urban sprawl experienced in recent years has resulted in a significant loss of productive agricultural land in per-urban areas.

Recommendation: An agricultural overlay is needed in Planning Provisions to protect productive land from further urban development

c) Our current food system involves long supply chains

Industrialisation and commercialisation of the food system has meant that consumers now have access to a wide variety of food products from all over the world. Diets are no longer restricted by local growing conditions or seasonality of produce, because food can be grown for export in one region and simultaneously imported from another region for consumption. As a result food travels along extended distribution chains and requires extensive inputs [29] [8-13]

For many years, food production for Australian consumption has gone to where land and labour is cheapest – which is outside of Australia [30]. At the same time, Australia grows enough to feed 60 million people (despite having only a population of 20 million people) [31], much of which is used for animal feed and for export.

The movement of food and produce has been enhanced not only by improved food technologies, trade liberalisation, and a freer global market, but also by improvements in sea, air and land logistics, as well as better communication technologies [32]. It is estimated that food transport in Australia accounted for 5.7 mega tonnes of CO2 in 2007, excluding the use of diesel for refrigeration purposes. A recent Victorian study estimated the average distance travelled by a typical healthy food basket [29]. The total distance for transportation of the food basket was **70,803 km**, equivalent to travelling **twice the Earth's circumference** (40,072 km), or travelling Australia's coastline three times[29].

To suit transport, packaging and storage requirements, much of our horticultural produce is grown, harvested and handled according to retail stipulations. Fruit is often picked before fully ripe - a practice which compromises its nutritional quality. Fruit harvested unripe has significantly reduced amount of antioxidants and other valuable phytochemicals[33]. Fruit and vegetables stored for prolonged periods in cold storage can also be nutritionally inferior[34]. For example, after 3 months in storage, antioxidant properties of apples greatly decline [35] Vitamin C levels can decline by up to 60% in some vegetables that have been distributed and stored in cold storage [36]

With more than 60% of the Australian population now living in the five large coastal cities (Sydney, Melbourne, Perth, Adelaide and Brisbane), the feasibility of incentives for low-

impact production in cities should be explored such as community supported agriculture and vertical gardening [37].

Recommendation: Research is needed which explores the feasibility (including an economic analysis) of low-impact, shorter supply chains.

d) Our current food system is vulnerable to converging threats

Food production in Australia has been effected by drought and severe weather events in a number of the main food growing regions. In 2006, Australia's production of wheat and coarse grains fell by 52% and 33% (respectively) in comparison to production levels of 2004 [38]. If the drought intensifies, as is evident by the increasing amount of land in Eastern Australia now "drought declared", Australia's wheat production is likely to remain low [38].

The increasing cost of oil is clearly another threat likely to impact on the availability and affordability of food; as oil is required not only for transportation, but for agrichemicals, machinery and refrigeration[39]. Competing uses of land, including production of crops for biofuels, represents another risk to an affordable, accessible food supply.

Climate change poses further substantial threats to food production in the long term. Higher temperatures and increased carbon dioxide concentrations are expected to reduce yields and to decrease protein levels in many crops [40]. This has major implications for longer term ecology and food security. Equally, severe weather events have the potential to interrupt food supply chains for undetermined periods of time [40]. As these threats converge, it is important that we have a greater understanding of the resilience and self-sufficiency of our food system.

***Recommendation: Food supply modelling is needed for Australia to ensure our food system is resilient to these converging threats (drought, natural disasters, , peak oil, terrorism, and agricultural disasters*).**

4. Waste Minimisation

a) Over consumption of food is a wasted resource.

Obesity is fundamentally an imbalance of energy intake and energy output. It is associated with an increased risk of coronary heart disease, diabetes, and some cancers. Obesity rates have been escalating over the last 30 years: a result of over-consumption of energy-dense foods and inadequate levels of physical activity. The economic cost of obesity in Australia in 2005 was estimated to be $3.767 billion. The net cost of lost wellbeing (the dollar value of the burden of disease) was valued at a further $17.2 billion, bringing the total cost of obesity in 2005 to $21.0 billion [41].

There is no doubt that dietary excesses have contributed to the obesity situation. From 1980-2003, the amount of dietary fat consumed in Australia per capita increased from 113g/day to 132g/day [42]. The average Australian adult consumes about 9 grams of salt each day. This is far more than our bodies require for health - approximately one gram of salt each day[43]. More than three-quarters of salt intake is derived from processed foods. The average volume of soft drink consumed annually by adults and children has increased from 47 litres per person in the 1970's to current average of 113 litres consumed per day[44]. Children's energy consumption has increased by 13-15% from 1983-1995 as explained by an increased consumption of energy dense foods rather than an increase in total food consumption[45].

The term "luxus consumption" has been defined as "consumption beyond metabolic need" [46]. It refers to the purchase of food which is ingested beyond physical need or discarded. A study in the US has recently indicated that luxus consumption in the contemporary US food system represents about 18% of available food, and is equivalent to an ecological footprint of 0.36 ha of farm and ocean land per person [46].

VicHealth would like to draw particular attention to livestock production and consumption in Australia. As with most affluent countries, meat consumption is high in Australia, particularly amongst men. The National Nutrition Survey conducted in 1995, shows average weekly intakes for men of approximately **600g** of red meat (including processed) and **294g** of red meat (including processed) for women[47]. Population targets set by the World Cancer Research Fund are for less than **300g** per capita of red meat a week (including processed) [48]. There is now convincing evidence that **red meat**, in particular processed meat, is a cause of colorectal cancer. Colorectal Cancer is the most commonly occurring cancer in Australia (excluding non-melanomic skin cancer), and the second most common cancer-related cause of death, responsible for 4,447 deaths in 2003 [49].

A reduction in red meat intake not only has clear health benefits, but a reduction in intensive livestock production will have substantial environmental benefits. The feed requirements for the production of feed-lot and factory-farmed livestock are intensive. It is estimated that 1 kg of feed-lot beef requires 9kg of cereal grain such as corn, for pork it is 4kg, and for chickens it is 2kg[23]. Not only does intensive meat production require high inputs of cereal grain, it also requires intensive use of energy, water and antibiotics, and in Australia, has involved much clearing of land, widespread damage to soils and waterways [39].

Recommendation: Nutrition guidelines should be used to support agricultural land use planning in order to balance intensive livestock production with less-intensive plant production.

b) Waste in the food system is substantial

Food waste in developed societies is significant. It is estimated that approximately 27%–29% of edible food available for human consumption in western countries is wasted through losses, damage, over supply by food retailers, foodservice, and consumers. Whilst disease and oversupply contribute to this, post-harvest management is also critical [50]. Characteristically, 40% to 50% of the raw vegetable or salad by weight is rejected at various stages of a production line. Some hygienic and nourishing substandard (or Grade 2) food products are rejected on the basis of their 'flawed' physical attributes considered by retailers.

In the UK, the supermarket chain Waitrose has begun selling 'ugly' (Grade 2) fruit at a cheaper price, alongside its unblemished, Grade 1 crop. This high-end retailer is now marketing the range at cooks, promoting ingredients traditionally used in cooking such as Bramley apples, rhubarb, gooseberries and quinces [51]. This type of strategy ensures greater affordability and avoids waste. This is an approach that should be encouraged with Australian retailers.

Recommendation: To explore models that minimise wastage after harvesting such as gleaning, and improving the availability of all grades of horticultural produce for retail.

5. Health Impact Assessments of emerging food technologies

VicHealth notes that Australia is one of only three countries not signing the International Assessment of Agricultural Knowledge, Science and Technology for Development Report (2008) which acknowledges potential risks associated with agricultural technologies and future food security. VicHealth urges the Select Committee to recommend that health considerations be given more prominence in future decisions about technology for food production. VicHealth is concerned about the increased use of functional foods and nanotechnology in the food supply.

Functional foods are foods that have been modified to provide an asserted health benefit such as protecting against heart disease, hypertension, osteoporosis etc [52]. Commonly foods are fortified with a specific nutrient or food component, such as margarine that has been fortified with plant sterols to reduce blood cholesterol [53]. However, the function, properties, and value of these biological components when extracted from the original food and added to another food may not exert the same physiological response in the body. The interaction of phytochemicals within food and their subsequent bioavailability is the continued subject of discussion amongst plant scientists[54]. VicHealth believes that there is insufficient pre-market monitoring of some functional foods. For example, we are beginning to see health ramifications of the addition certain fibres (such as inulin) to foods. Inulin is one food ingredient thought to be contributing to an increased incidence of fructose malabsorption in the population [55].

Nanotechnology refers to a range of technologies that operate at a nanoscale - operating at a scale of 100 nanometres (ie one billionth of a metre) or less [56]. Nanotechnology is already widely used by the food industry in food flavourings and additives; antibacterial ingredients (eg nano-sensors) in food packaging; and potent fertilisers and agrochemicals [56]. VicHealth is concerned that the full health impacts of nanotechnology are not yet fully known [56-58]. Nanochemicals (whilst only a smaller replica of their larger counterparts) are thought to operate differently within the body because of their ease of access and absorption within human cells.

Recommendation: Comprehensive longitudinal research is required to monitor the health impacts of new technologies used in food production. Independent, non-partisan funding sources are required for this.

6. Maintaining Agro-Diversity

The genetic variety of our food supply is rapidly declining. Since agriculture began 12,000 years ago, approximately 7,000 plant species and several thousand animal species have been used for food. Today, only 15 plant crops and 8 domesticated animals supply 90 percent of the world's food energy requirements [59]. This reduction in diversity, has been attributed to a distribution and retailing system reliant on uniform produce for processing, transport, distribution and packaging [39],[26]. The proliferation of product variety on our supermarket shelves does not reflect the same biological diversity; since many of the thousands of products available are made from the same relatively few raw materials [60].

Biodiversity and food variety are key indicators of the resilience of the food system, future food security and nutritional adequacy[61]. One of the key principles underpinning a healthy diet is the consumption of a *wide variety* of foods[47]. This is to ensure a balance of nutrients, given that foods contain different combinations of nutrients and phytochemicals even from foods within the same food group [47]. Not only are diets highly complex, consisting of many different food items, but each food is a complex mix of biologically active components [53].

Australian conditions lend themselves to production of foods with lower water requirements and hotter temperatures. Heirloom and indigenous varieties well suited to the Australian conditions need to be protected as part of our long term food security strategy.

Recommendation: A strategy for monitoring and protecting agricultural seed diversity in Australia is required. This will ensure maintenance of indigenous food varieties suited to the Australian environment.

7. Government Leadership

a) A need for coordinated action

Effective planning for healthy, affordable and sustainable food production system does not necessarily require additional funding. Often it can be achieved through better joined-up responses. The issues raised in this submission demonstrate that any policies addressing sustainable food production and affordability must consider the impact on each tier of government and potential ramifications on international partnerships and trade. The inter-relatedness of issues affecting food production also demonstrates the need for close collaboration between relevant government departments. An Agriculture, Trade and Food Security Unit would ensure the coordination of responses to these rapidly developing challenges.

Such a Unit would be responsible for:

- The development of National and Statewide food policies. A coordinated whole-of-government approach has recently been undertaken by the Cabinet Office of the United Kingdom. VicHealth asks that the Senate Committee consider a similar vision. http://www.cabinetöffice.gov.uk/newsroom/news_releases/2008/080707_food_report.aspx Scotland and Western Australia have also produced whole of government policies addressing food systems; and would serve as useful models for the Committee to consider [62-64].

- Ensuring a more accessible monitoring and surveillance system is available on the Australian food supply system, consumption patterns and export trends.

Whilst such information may be routinely collected, it is difficult to access. Policy makers in many government departments and statutory bodies could utilise this information in their decision making, but the fragmentation of government responsibility (and data collection) makes this a near impossible task. There would be enormous benefit in coordinating the data collection and monitoring between and across government portfolios.

- Setting and commissioning research priorities.

Recommendation: VicHealth recommends the establishment of an Agriculture, Trade and Food Security Unit at both federal and state levels.

b) Improved knowledge management

To facilitate joined-up government responses, it would be beneficial to analyse the congruencies and potential tensions emerging from parallel Reviews and Inquiries such as (but not limited to)

- The Federal Obesity Inquiry
- The Revision Of The Core Food Groups (NH & MRC)
- The Carbon Pollution Reduction Scheme Green Paper
- The ACCC Inquiry into the Competitiveness of Retail Prices for Standard Groceries

Recommendation: VicHealth encourages the Committee to link the recommendations emerging from this Inquiry with those findings from related Inquiries.

Conclusions

VicHealth again congratulates the Senate Committee in undertaking this Inquiry. For our future food security, urgent action is required to address sustainable food production in Australia. The community appears ready to be mobilised on issues relating to food and the environment. A recent study of Victorian attitudes has highlighted high levels of support for changing food behaviours that will support the environment (such as growing locally produced fruit and vegetables; or reducing red meat intake)[65]. Government-led action needs to harness this community readiness. VicHealth hopes that some of the issues presented here will assist the Inquiry in making its recommendations for such action.

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