

The Impacts of a Localised Food Supply: What is the Evidence?

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1. Summary and Overall Findings

Introduction

This project had its origins in the desire to test the often-stated claims and benefits of local food systems. There has been a progressive shift, particularly in western countries in their economy and by the population, from a strong reliance on local food supplies and systems to food sourced from an increasingly globalised food network. It is purported that this shift has brought substantial benefits in the form of competitive pricing, access to a wider variety of food types and a breaking of the reliance on the seasonality of many foods particularly fruit and vegetables. There has emerged at the same time a growing disquiet and range of concerns by parts of the general population, consumer groups and by some food producers that shifting away from local food systems raises a series of problems. It is contended that the value of having local food systems that can directly supply food to their own communities has been overlooked and at times dismissed. However, there is little apparent empirical evidence to support the claims made of the benefits of local food systems.

Supporters and advocates of local food systems promote substantial benefits. It is variously claimed that local food and local food systems can provide fresher, more nutritious and healthier food, that 'food miles' will be reduced, that the environment locally and generally will be improved, that local jobs and businesses will be generated and that there will be social and community benefits that flow from such systems. This project has sought through a series of local level case studies in Victoria to identify what evidence exists about the economic, social and environmental benefits of local food systems. It has sought to identify, document and test the evidence that is available to support the benefits that are alleged about local food systems. The project has utilized a range of methods with a focus on an extensive series and surveys of persons involved in local food systems. Statistical information on food production has been utilised as has a comprehensive case study of the development of local production in a selected region.

Discussing local food systems and supplies raises the questions, what is a local food system and what qualifies as local food? It is a question that this project has had to address. The project has found that there is no universally accepted and adopted definition of a local food system or what can be termed local food. Generally used definitions of local food and local food systems embrace four broad concepts.

1. That the food is grown in the general locality in which it is consumed.
2. That the distances that the food is transported are minimized.
3. That if food is processed it is done so in the general locality in which it is grown and consumed.
4. That food that is grown locally can be purchased locally.

The research undertaken for the project has revealed significant issues in defining what is a local food system and in using definitions that can be realistically applied and commonly accepted. The project has focused on Victoria, although it has drawn upon some evidence and information

from other places in Australia and overseas. The project used a case study method with extensive fieldwork, interviews, observations, and data analysis of selected localities and elements of their local food systems principally by focusing on a number of selected local government areas. These areas were chosen to provide representative samples of areas with varying social, economic and environmental characteristics and to reflect contrasting circumstances in respect to the growing of local food and the operation of local food systems.

In summary, the evidence indicates that the results from having and operating local food systems are themselves quite localised. Therefore the very local nature of these food systems disguises their benefits because they are not shared beyond the local. The evidence associated with them has no clear way of being recorded by conventional data collection and distribution methods. The outcomes of local food production are a complex web of cultural views (both inward and outward looking), local social relationships, localised physical and economic resources, individual championship for projects, and tensions between informal and formalised production-consumption relationships. This complex web is variously characterised by producer motivations such as: identity, hobby, community interaction, achieving supplemental income or a main income, and consumer motivations such as: identity, community interaction, health, support for local economies and tourism. Examining this complexity is not easy. There is no single readily identifiable product that sits discretely that can be quantified using conventional techniques and measures.

Findings

Overall the project has found that:

- 1. Local food and local food systems need to be clearly defined and given prominence as an emerging and increasingly credible concept. Confusion around what actually is local food is harming the value, efficacy and image of local food.*
- 2. The presence of local food and the development of local food systems is growing an increasingly important concept. It is emerging as valuable if albeit niche element of the economy. Overseas trends indicate that it is likely to become more prominent and that there is likely to an increasing number of people choosing product on the basis of where has it come from and is it local.*
- 3. There is strong evidence from the fieldwork research and the interviews we conducted that there are social and community benefits from local food production and particularly from the operation and involvement in the local networks and systems that are established to market and retail local food.*
- 4. Information collected by standard processes associated with agricultural and business data is limited in its capacity to document local food production and the operation of local food systems. Consequently the importance of local food is often understated and poorly understood.*
- 5. The economic and environmental benefits from protecting and supporting local food production are often only revealed over a longer timeframe than governments and communities are used to working with. Providing certainty about retaining land in food*

production is important in building productive, sustainable and environmentally beneficial local food systems.

A: There are a number of barriers or impediments that limit or prevent the potential of local food supplies to fully maximise economic, environmental and social benefits. Impediments include:

- a lack of understanding and education of the value of local food supplies by the wider community and government, countered by a lack of knowledge about who the producers are and what is available in communities;
- the cost of local food and a perception that it is “boutique” and a luxury instead of habitual source of sustenance;
- a lack of resources for local growers e.g. marketing training and absence of subsidies;
- incompatible regulatory systems for small growers and subsequent bureaucracy and paperwork such as the expense and need for multiple food-selling permits across local government boundaries;
- prohibitive start-up costs;
- water restrictions; and
- a lack of consistency linked to both local availability and consumer purchasing habits.

B: There are measures that need to be taken to maximise the benefits of local food supplies, these include:

- distribution reform in favour of the local level e.g. community food co-ops, community supported agriculture; government support of local food and cost absorption to make local food more affordable for consumers;
- incorporation of local food supplies in municipal health and well-being plans;
- consumer education;
- greater links between producers and consumers e.g. local produce directories;
- greater consideration of food supply in local government decision-making and coordination of local food supply across local government departments;
- increased water allocations and opportunities for local producers to develop their business such as providing start-up support; and
- marketing training and events for small producers to showcase their produce.

C: The lack of a clear accepted definition or practice in place that establishes what is local food or a local food system is an impediment to its development.

There are many who state, promote and market using the label ‘local food’ or ‘local food system’ but in reality it is a widely misunderstood, sometimes abused and often misapplied term. Significant debate surrounds the terms. The majority of persons that we interviewed defined ‘local’ according to distance between production and consumption. Often those distances were stretched to support the label ‘local’. For some it is simply a reference to where the product is grown or sourced. The local region, somewhere in Victoria or even Australia can qualify. For some the label is equated with and dependent on qualities such as perishability, seasonality and availability.

D: Local food production and systems are generally significant elements in the communities and local government areas we studied.

In many cases and in their own specific ways local food systems are thriving. They are generating local employment, building businesses and the local economy, they are making a substantial contribution to the social and community life in the places where they exist and they are contributing to enhanced environmental outcomes. However, they are relatively very small in the overall scheme of food systems. It is difficult to see how, despite their appeal and the growing support for them, that they will be in the foreseeable future more than a marginalised and small element in the overall food system. The benefits that do derive from local food systems is a difficult message beyond their passionate adherents and supporters.

E: The economic role of local food systems and supplies is important to local economies and communities but is generally understated on a wider scale.

Employment generation is generally low and fluid due to the prevalence of small family run entities with production and labour generation susceptible to seasonal restrictions. Research findings suggest that many local growers and producers are precluded from expanding their role in the local food supply due to structural and resource impediments along with contending against a general lack of understanding of the “value” of local food, that is encompassing economic, social and environmental worth. As a consequence the local food supply is not economically embraced as it could be by business, consumers and governments.

F: A number of environmental benefits can be identified or inferred from the existence of local food supplies and systems.

Most notably the preservation and conservation of land for food supply and other agricultural uses, soil farming, organic production, heirloom crop and rare breed preservation and the benefits of using land for compatible traditional crops against mass produced varieties. But again these values are not well documented, they are seen as marginal and they are not embraced as they could be by business, consumers and governments.

G: Research findings indicate that there are numerous social benefits that derive from local food supplies and food systems.

Farmers’ markets for example provide an opportunity for local food supply actors to meet with their counterparts and provide an outlet for interaction and networking in what can be often a socially isolating occupation. In some areas farmers’ markets provide respite from pressures associated with bushfires and drought. Farmers’ markets also often provide an important source of fundraising for community groups and an opportunity for consumers to forge a tangible link and relationship with their produce source. Similarly, there was strong evidence that stallholders also enjoyed the interaction and relationship building with customers, as well as educating them on how to use their products. Local food supplies provide societal benefits through giving their communities an opportunity to fill essential gaps such as access to nutritional sources,

assist in skill transfer and development, foster community connections across all demographic groups and forge partnerships with governments at local, regional and state level. Overall local food systems and those that participate in them report enhanced levels of community participation, community wellbeing and social gains from the experience.

H: Those involved with local food and local food systems need much better to record and document what they are doing in order to build the evidence of the value of local food and local food systems.

The existence and consequence of local food systems and networks is highly qualitative in nature and difficult to establish and quantify through large scale and standard secondary data collection and sources. However such data do offer ways to differentiate between those areas and sectors experiencing growth, decline and emergence, and those communities where the flow-on from production through manufacturing and consumption (including tourism) are strongest.

I: The long term economic, social and environmental value of local food systems is often hidden because the time periods and horizons that are used to justify and support them are far too short.

The findings that we took from a detailed case study of the food production in a particular region indicate it was only through deliberate policy and action taken some thirty to forty years ago, together with ongoing processes to protect and support that resource, that its potential and the benefits been fully realised.

J: The continuing loss of agricultural production in and around our cities through a range of reasons, forces and trends has impacted on the capacity of local food supplies and systems to be sustained and integrated into local economies and to demonstrate their social and economic benefits.

The apparent and almost inevitable result of liberal land use planning systems is the progressive loss of productive agricultural land. Land use planning in itself cannot guarantee the success of local food production. However, it can provide the regulatory conditions that prevent the introduction of incompatible uses and make more likely an acceptable rate of return in comparison to returns on subdivision and land development. Land use planning measures can also maintain options, such as large lot sizes, and the protection of highly productive soils, which provide opportunities for local food production, allow new types of agricultural production to emerge and related industries, such as tourism and educational businesses, to flourish. Regulatory measures in regard to land use can underpin the benefits of a highly productive agricultural areas linked to environmental, recreational and tourism services, and a wide range of business activities.

2. The Project

Rationale

This project aimed to document the scale, importance role and benefits of local food production and its social, environmental and economic roles. It has done this through a focus on urban, peri-urban or interface areas, regional city and small scale agriculture and particularly horticulture by using three different spatial scales of 'local'. Firstly, the metropolitan scale defined as the whole of the Melbourne metropolitan area and the area within the Melbourne Statistical Division as defined by the Australian Bureau of Statistics. Secondly, the Melbourne to Ballarat regional transport corridor. This comprises a series of local government areas and is defined as an urban growth corridor. Thirdly a regional service centre with a strong local food supply system, the towns and communities in the Shire of Campaspe a major horticultural, fruit growing and dairying area where there are already strong local food supply networks, including very active farmers markets but where the environmental issues of assured water supplies are impacting on the local food supply system.

Previous research (VLGA 2008) identified that there is a surprising divergence in the relative importance of issues and impacts, whether they derive from social and community matters, economic concerns or environmental considerations. Therefore, it is critical to obtain and document this information and avoid a 'one size fits all' set of findings, as well as policy and action responses clarify this sentence. This project provides new information in an integrated manner on a range of issues collected at new scales of activity, within various geographical locations around Victoria.

Methodology

This research project applied a case study approach to address the primary research aims; to provide a wider understanding of the social, environmental and economic impacts and benefits of local food production and a local food system, focusing particularly on the metropolitan and local community scales within the context of local food supply structures and how these two levels relate to policy and action at those scales. The identification and documentation of existing barriers to localised food supplies are also included. The research aims were established through a comprehensive literature review of scholarly discourses around the definitions of a local (or re-localised) food system and related theoretical concepts, such as 'localism', 'quality' and 'embeddedness', and the 'local trap'. The theoretical concepts indicated that an intensive case study approach would be better than other approaches because it is about dynamic systems, social relations, etc. The main methods used were: interviews, surveys and case studies.

The concept, legitimacy and methodology for the use of case study approaches have been well explored in the literature and in practice (Patton 2002, Yin 2003). Yin (2003:13-14) for instance states that 'a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident'. It relies on 'multiple sources of evidence with data'. Case study methodology can be used in both quantitative and qualitative research, although it has different functions and purposes in each (Feagin et al. 1991; Alston & Bowles 2003; Sarantakos 2005). In qualitative research case studies are often used to conduct in-depth, multi-faceted studies and

with varying units of analysis. This particularly aligns with our approach. Case studies are a widely used research tool in social science disciplines and in practice-orientated fields, such as urban planning (Yin 2003). 'The case study's unique strength is its ability to deal with a full variety of evidence-documents, artefacts, interviews and observations' (Yin 2003:8).

Yin (2003: 21) lists five main components of case study research design. These guided the development, and implementation of our approach. Namely, the study's original questions, its propositions, the unit of analysis, the logic linking the data to the propositions and the criteria for interpreting the findings. The particular value of case studies being in answering the 'how' and 'why' research questions. The unit of analysis, or cases, can range in size from an individual to large groups and case studies can be layered from smaller to larger case units or nested within a larger case study (Patton 2002). According to Patton (2002), the strength of purposeful sampling, as used in case studies, stems from its focus on in-depth understanding. This emphasis allows the intentional and strategic selection of the appropriate number and type of information-rich cases, according to the study's purpose and resources. It will explain their selection criteria and identify how the cases chosen compare significantly with other cases, so readers can make informed judgment about relevance. Case study approaches provide for the use of multiple sources of evidence, and can be used to establish a chain of evidence and progressively build a database. They can be used to construct the validity of the findings and demonstrate the reliability of the data that is gathered (Yin 2003). Sarantakos (2005: 216) identifies that case study approaches build the capacity for good time-series analysis. Walter (2006:315) perceptively comments that case studies 'provide the opportunity to find out more than just what the outcomes are; it provides the opportunity to explain why certain outcomes might occur'.

The case study approach is a legitimate and extensively utilised methodology and has been chosen in this project in order to encompass a broad series of 'local' geographical areas. The collection and analysis of data and findings from several structured case studies based on local government areas around the state. This methodology provides comparative data and analysis particularly around agricultural land use, economic structure and impact and identifies and explores qualitative information from a wide range of stakeholder interests and communities.

Purposeful sampling method has been used to compliment the case study methodology of focusing of collecting qualitative in-depth information from selected potential participants. The initial scan of available public information concerning local food supply activities was undertaken, resulting in information about the project being provided to key potential participants, primarily from local government and a range of locally-based food producers, groups and organisations in the case study areas. Additionally, the scan was used by the four project fieldworkers to make contact with other individuals, groups and organisations within the chosen geographical areas in order to enquiry as to whether they would like to be involved in either a focus group discussion or an interview.

Data Collection Methods

There were two main data collection methods.

1. Structured In-depth Interviews

Structured (or semi-structured) interviews were conducted. There were four main categories of interviewees, with local growers being the highest number of interviews undertaken. Service providers included representatives from local government, market organisers and a variety of other community service organisations. A smaller number of retailers and community group members were interviewed across the regions. Attendance at selected community and farmers' markets enabled the fieldworkers to interview a broad cross section of local growers and producers in the project areas.

2. Focus Groups

Focus groups representing service providers and community group members were undertaken throughout the project.

Research was conducted in thirteen local government areas from December 2009 to March 2010, with six of these LGAs in the greater metropolitan area of Melbourne and seven in regional Victoria. In total, one hundred and forty six interviews and nine focus groups were conducted. One hundred and four growers and producers were interviewed, with the majority of interviews held at thirteen farmers' markets; however a number of non-farmers market growers and producers were also interviewed in order to form a broad understanding of the characteristics of Victoria's local food supply. Eleven retailer interviews were conducted ranging from small businesses to supermarkets representing traditional and organic fruit and vegetables, meat and value-added local produce. Twenty service provider interviews were undertaken across metropolitan and regional areas involving local government, health and non-governmental organisations. Eleven community group interviews were carried out across the state encompassing a variety of groups involved with local food supplies from sustainability groups to community-based farmers' market organisers. Nine focus groups were conducted incorporating a diverse mix of community groups, local government and growers from metropolitan and regional areas.

Table 1: Summary of Interviews and Focus Groups

Grower Interviews /Farmers Market Interviews	Retailer Interviews	Service Provider Interviews	Community Group Interviews	Focus Group (All categories – grower, retailer, community group, service provider)	Total
104	11	20	11	9	155

Each of the detailed case studies also included establishing a detailed profile of the level of economic activity relating to agricultural land use and the local food economy. Extensive quantitative data on agricultural production has been very recently released through the ABS Agricultural census 2006, which provides comparative data at five year intervals. It can be supplemented by the population census taken at similar intervals that has considerable workforce data. This agricultural census data is presented at the local level and includes detail to

individual horticultural and other commodities by weight and area allocated. It allows a fine grained examination over time of the level of agricultural production and land use.

Data Analysis

Primary data analysis has used information collected from the structured interviews and focus groups of a representative sample of key stakeholders across the local food supply system. Content analysis resulted in themes being identified that gave understanding of the characteristics of local food supply systems and what enablers and barriers currently exist. Particular interest has been given to how such local food supplies are being used as a base to effect positive social, economic and environmental change.

The case studies were directed to providing quantitative and qualitative data. A study undertaken by the University of North Carolina (Ammerman 2008) used case studies that seek to identify positive changes in key community characteristics. Such an approach relies on identifying a series of qualitative indicators sourced through interviews with identified stakeholders.

Liaising with and understanding the much larger scale UNC study and the approach they are taking has informed our proposed approach. The North Carolina project utilises the work of Flora (2004), which is focussed on seven types of community capital: natural, cultural, human, social, political, financial and built. Flora’s approach focuses on the individual elements of these factors, the interaction between them and how they build upon one another. The North Carolina study has identified the following framework for establishing whether positive change is occurring in community characteristics. We believe that this approach provides an exceptionally useful framework and that by utilising this framework we will be able to also provide useful comparative material with that study. The seven elements in terms of ‘capital’ will assist in framing the structured focus groups and individual interviews. The table below adapts the indicators and measures being used in North Carolina to an Australian context.

Table 2: Identification of Positive Changes in Community Characteristics

Outcome	Indicator	Measure
Natural capital	Healthy ecosystems with multiple community benefits	Positive landscape and land development policies adopted
Cultural capital	Cultural consciousness and awareness	New community events and celebrations
Human capital	Use of the skills and abilities of local residents:, innovation and initiative,	New skills acquired, new training programs, health care improved
Social capital	Networks, communication, cooperation, trust	New groups involved and partners in community development; new and more effective leaders
Political capital	Ability to secure local and external resources	New community and government and governance connections at various levels
Financial capital	Appropriately diverse and vital economies	New financial instruments established, outside funding obtained to improve infrastructure and business development
Built capital	Diverse and vital physical infrastructure	Community and public infrastructure improved and strengthened

Adapted from Ammerman 2008

Ethical Approval and Considerations

- Ethics approval for the interview schedules was given by La Trobe University
- Confidentiality has been maintained as participants' names were not recorded and any potential identifying material in the data collected has been de-identified before writing up of the findings.
- All transcriptions, data tapes and written field notes will be secured in a locked cabinet and electronic material is password protected at La Trobe University.
- Participation in the project was entirely voluntary with potential participants being given a detailed information sheet and signing a consent form at the beginning of their participation. Withdrawal from the project needed no explanation.

3. Local Food Systems

Since the 1990s academic literature has been exploring in earnest the potential roles of local food supplies and systems as an alternative to the growing and what has become the conventional global food system. Local food has been seen as a means of seeking to provide a return to sense of place, equitable food access, a strengthening of local economies and consequently opportunities for embedding environmental best practice. Part of the problem, which this project report returns to a number of times, is the issues of scale and definition. The concepts of local food systems at the national, regional, metropolitan, community and local scale are difficult to define and describe to the satisfaction of all players and stakeholders. At different scales and within a range of settings examples of the economic, environmental and social impacts, benefits and barriers of local food supplies and systems play out differently. Various terms have been coined to describe the (re-) localization of food systems, particularly concerning production and consumption, as Feagan (2007) illustrates, inter alia, alternative food initiatives (or networks), community food security, post-productivism, and shortened food chains.

What is a Food System and what is a Local Food System?

A food system is the deliberate organization of the production, processing, distribution, selection and consumption of food. The dominant food system in western countries is now industrial: that is, it emphasizes mechanized production, inputs rather than organic, and capital-intensive rather than labour-intensive, production, processing and distribution methods. It is oriented toward global trade rather than directing meeting local needs. Local needs are met as part of the wider supply chain. It leads to the frequent observation that what is grown locally is taken away to a distant warehouse only to be returned to the locality where it was grown to be sold by a retailer. National and global food systems are generally dominated and controlled by a handful of large transnational corporations.

Current food systems are generally defined as either conventional, relying on large corporate productionism or 'alternative', based on a more ecological and localized premise. Western conventional food systems proponents pride themselves on providing a regular supply of affordable food for the masses, free from seasonality (Morgan et al. 2006) and location, a system described by Murdoch et al. (2000:7) in terms of 'globalization, industrialization and standardization'. In this system environmental and community externalities related to food production and distribution are not added to the end price of goods (Pirog et al. 2001). At the end of these 'long and sophisticated supply chains' (Maxwell & Slater 2004:5) are predominantly urban consumers.

Maxwell & Slater (2004: 12) set out nineteen criteria, both objective and subjective, quantitative and qualitative, that can be used to evaluate a food system, whether conventional or alternate. The criteria are set out in Table 3.

Table 3: Food System Criteria

A FOOD SYSTEM CAN BE JUDGED BY WHETHER IT:		
Is technically efficient in social prices	Is good for nutrition	Offers security
Is allocatively efficient in social prices	Supports higher standards of education	Reduces vulnerability
Leads to increased consumption by the poor	Enables people to have status	Is good for environmental sustainability
Leads to increased asset-holding by the poor	Enables people to have dignity	Promotes gender equality
Is good for health	Enables people to have rights	Promotes equality in general
	Enables people to have influence	Promotes social inclusion
	Underpins freedom	

Source: Maxwell & Slater (2004:12)

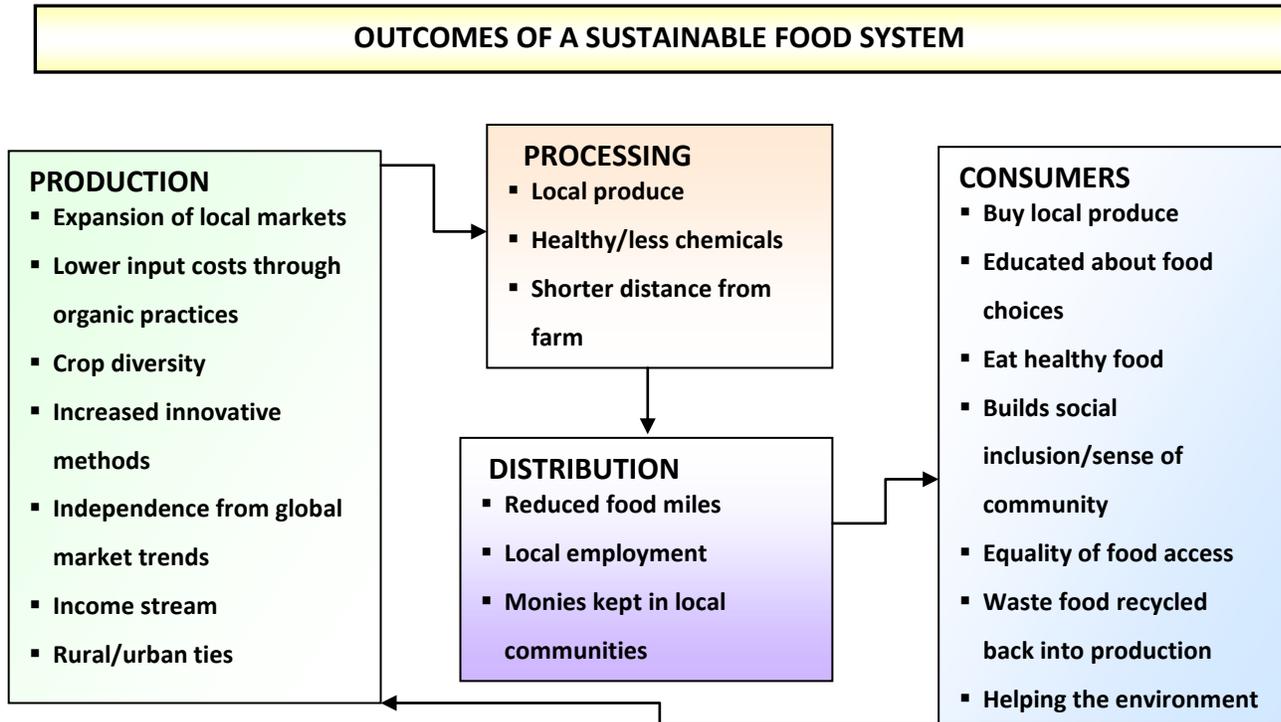
A Sustainable Food System

‘A sustainable food system means that food production, processing, distribution, consumption and waste recycling work on a cyclic pattern’ (VLGA 2008: 13) as shown in Table 4 below.

Pothukuchi’s (2004) nine community food assessment case studies agreed on the following elements:

1. That sustainability in the food system needs to consist of closer spatial links between various food activities, from production through to waste management; more environmentally sensitive practices; inclusion of small scale farmers and low socioeconomic consumers; and consumer education.
2. In contrast to other studies that call for changes in personal behaviour, industry or government policies, these case studies recognized community as the best unit in which to deal with food system problems. Although the definition of ‘community’ varies, Pothukuchi summaries the criteria as geographical areas that also includes group memberships.
3. It is important for there to be asset-based assessments e.g. existing land uses, infrastructure, human resources.
4. Data is collected from multiple sources using numerous categories.

Table 4: A Sustainable Closed Food System



Source: VLGA (2008:14)

Globalism v Localism

The globalization of food systems has occurred over an extensive period; in one sense all food systems were once 'local'. In fact many food systems around the world still are. Even in Australia local food systems were the dominant form, certainly in respect to vegetables, until relatively recently. Global or multinational food systems are often seen as being uneven and fragmented, often viewed as having devastating effects on local economies, cultural traditions and social networks, and more recently on the environment, particularly evident in rural areas. This process intensified with the 'Green Revolution', the growth of transnational companies, global trade agreements and finance, spurred on by tremendous technological advances. One of the results has been the compartmentalizing of each step in the food chain, with any linkages between these sectors fulfilled by large corporations. Therefore, any commonality and unity has not been activated and in some instances prevented (Koc & Dahlberg 1999).

On a practical level globalism is seen as above the notions of locality and seasonality, while local is often cast as or seen to have the connotation as 'fresh and wholesome' (Morgan et al. 2006). Localism is seen and portrayed as 'a defensive position against homogenizing effects of globalization' (Allen 1999:119), the antithesis to globalization in a simplified fashion, as though one system (local) is the answer to the global systems problems and implications. But the relationship is not that clear cut. The innuendo is that 'local' is 'good' and 'global' is 'bad' (Hinrichs 2003). This simplistic dualism is explained by Sonnino (2007) as a separation between the disembodied global conventional food system and the embedded local system, based on the potential of alternative food networks to relocalize the food system. However, Feagan (2008:38) sees the global and local as 'inseparable, though different and often conflicting' and

the issues are more about getting the right balance. Hinrichs (2003) agrees that the antithesis approach can be problematic and that a more interactionist approach would be realistic. Perhaps for convenience and simplicity of argument, the global v local binary approach remains in literature. In this project we have not sought to juxtapose the two and have avoided wherever possible viewing the impacts of local as beneficial simply because they may counter the alleged ‘evils’ of global.

Dixon (1998) explores another theme connecting globalism and localism in terms of adapting William Friedland’s Commodity Systems Analysis (CSA) model. This political economy model allows a social and cultural element to be infused into economic processes, which had previously omitted the role of the consumer. This adapted model has been termed the ‘cultural economy’ approach.

Localism does bring benefits as Pretty (2001) outlines in terms of a greater emphasis on sustainable production systems and reduced food miles; greater farmer incomes and increased finances in local economy and improved trust and connection between producers and consumers. However, there are important questions to ask in terms of diseconomies of scale, potential job losses; energy usage in small business; food safety and lack of policies (Pretty 2001: 9-10). Table 5 below charts attributes from both systems as illustrated by Hinrichs (2003:36).

Table 5: Contrast of Global and Local Attributes

GLOBAL	LOCAL
Market economy	Moral economy
An economics of price	An economic sociology of quality
TNCs dominating	Independent artisan producers prevailing
Corporate profits	Community well-being
Intensification	Extensification
Large-scale production	Small-scale production
Industrial models	“Natural” models
Monoculture	Bio-diversity
Resource consumption and degradation	Resource protection and regeneration
Relations across distance	Relations of proximity
Commodities across space	Communities in place
Big structures	Voluntary actors
Technocratic rules	Democratic participation
Homogenization of foods	Regional palates

Source: Hinrichs (2003:36)

A Local (or Re-Localized) Food System

'Localisation of food supply chains means simply that food should be consumed as close to the point of origin as possible' Seyfang (2006:386). Feensta (2002:100) defines a community food system (equated to a local food system within the community context) as

a collaborative effort to build more locally based, self-reliant food economies, one in which sustainable food production, processing, distribution and consumption is integrated to enhance the economic, environmental and social health of a particular place.

The goals of such a food system include equitable access to healthy food by all community members; sustainable farming practices used by a core number of family farms; the creation of direct links between producers and consumers; food businesses that create jobs and input financial capital into local economy; improved working conditions for food system workers; and supportive food and agricultural policies (Feenstra 2002). One method of expanding a local food system is the substitution of non-local products with local supply. Hamm and Bellows (2000) suggest that local autonomy and sustainable development be used as indicators of the success of such substitution.

It is important to note that local food systems cannot exist in isolation. Every food system needs to be considered as part of a whole within a wider or even global context. Therefore, substitution in one local economy can create 'displaced and unsustainable labor outcomes, unequal participation in the benefits, and more and less environmentally sound production practices' (Hamm & Bellows 2000: 281) as well as advantages. According to Hess (2008) localism advocates favour the following strategies:

1. Import substitution where local businesses can provide the same goods and/or services as previously were imported from outside the region.
2. Upholding studies of a 'local multiplier effect' where money spent in local community recirculates.
3. Localism brings non-economic benefits, such as social capital.

Seyfang (2008) explains a local food system exemplifies:

- Return to small scale production
- Greater connection with the land
- Shortening of 'food miles'
- Socially embedded economies based on place.
- The generation of money in the local economy
- Meeting the consumer appeal for fresh, safe and better tasting food.
- Consumer desire for improved environmental practices.

Case studies from Central Illinois researched by Hultine & Cooperband (2008) determined nine key assets required to facilitate a successful local food system project. These assets are:

1. Catalyst Farmers who are entrepreneurial and motivated.
2. An Independent Retail Outlet owned by community members will enable good relationships between local producers and businesses as well as keep money in the local economy
3. Communication about local food projects must be extended to the whole community, local government and consumers, not just the producers and business owners.
4. Long Time Horizon to Achieve Success means that stakeholders need to establish long-term goals while enjoying short-term small successes.
5. Leadership for direction and stability.
6. Community Cohesiveness and Pride
7. Supportive Local Officials
8. Invested Consumers. Producers and local business owners need to find out what the consumers prefer and address their concerns. Local food projects rely on strong community consumer support.
9. Location. The right location that is attractive and in a competitive environment attracts customers.

An expanded matrix of these key assets can be found in Appendix C. It is to be noted that these local food systems are supported by the Illinois Food, Farm and Jobs Act 2007 legislated to promote increased production and consumption of local foods.

'Local', 'Place' & 'Community'

There is no commonly agreed definition of 'local' in terms of food. Hendricks (2003:36) explains that connecting local with geographical place does not guarantee anticipated 'specific social or environmental relations' or political agreement over 'local' and 'non-local'. Two paths can be followed; defensive (patriotic homogeneity of spatial localism which constricts difference for the common good) or diversity-receptive localism (gives recognition to difference in terms of cultural, social and environmental issues and 'sees the local embedded within a larger national or world community, recognizing that the content and interests of "local" are relational and open to change' (Hinrichs 2003:37). In this project and particularly in the case studies and interviews we conducted we found evidence of both positions.

On a practical level, 'local' has been defined in various ways. DeWeerd (n.d.) offers the suggestion of the 100-mile radius created by Alisa Smith and J.B. MacKinnon in their book *The 100-Mile Diet* and reinforced by the 2008 Leopold Institute's consumer survey, which found that two-thirds of respondents considered 'local' to mean food produced within a 100 miles. It is interesting to note that we found that meant that in Victoria at least that was translated to 100 Kilometres (63 miles). Certainly the idea that there is a defined distance that a product should come from to be termed local or to sell at a market or store promoting local is widely accepted by producers, sellers and consumers. Where this system breaks down is in for example anywhere in Victoria where say pineapples are to be sold. The strict application of a local definition excludes pineapples from being sold. So what are the choices for the consumer, buy a product produced under the principles of a local food product from Queensland or go without?

Hess (2008: 625) defines localism as ‘the social movement that aims to increase the role of locally owned, independent businesses and other organizations that primarily serve the geographical communities in which they are located’. Using the pineapple analogy the product can meet all these requirements; it is just that the definition of community has to be stretched. Hinrichs (2003:42-43) uses a broader concept where local can mean state boundaries (such as Iowa), small towns, municipal jurisdictions and cultural or political regions, allowing the meeting ‘of producer and consumer interests, which takes place at a variety of scales and with differing outcomes even in “local” food systems. However calling all such encounters “local” obscures how the scales nest and for whose benefit.

Scholars have expressed not only varying but often contentious perspectives on the meaning of ‘place’, ‘community’ and ‘local’ (Feagan 2008). The terms can be interchanged when it comes to product, although reference to place and community begins to imply social connections that are not necessarily so obvious in the term local although they are frequently implied.

Quality and Embeddedness

Quality is socially constructed and therefore can have different meanings to producers, retailers and consumers, within differing geographical, socioeconomic and cultural contexts. It may also adopt value concepts, as pointed out by Ilbery & Kneafsey (2000: 217), such as ‘authentic’, ‘healthy’ and ‘traditional’. Additionally, the contemporary desire to relocalize our food systems has provided an opportunity for ‘the ecological and cultural relationships that a food system has with its territorial context’ (Sonnino 2007:63) to be added to academic embeddedness analysis.

The understanding of quality implies a high level of performance and a satisfying of consumer desires, and therefore commanding a higher price in the marketplace as part of a ‘cultural economy’ development approach (Ilbery & Kneafsey 2000: 218) which enables increased market power to local producers. High quality, niche market products have become linked to specific geographical locations, and perception of wholesome and nutritious. As such they are used in branding as marketing strategies (Winter 2003), and as such gives the appearance, even if it doesn’t exist, of being embedded in the local economy and being integrated in the social and natural relations within the food system. The importance of these relational networks in local food systems need to be understood ‘to determine different degrees of actual embeddedness, the varying shapes and compositions of networks and the scope for significant innovation (especially around issues of quality and safety)’ (Murdoch et al. 2000). Both quality and embeddedness are based on trust, requiring the local provenance of foods to be easily identifiable to consumers but at the same time quality foods must disembed themselves enough from locality to be successful in wider markets (Murdoch et al. 2000). On the other hand, research undertaken by Winter (2003) shows that there is potential for the development of markets for conventionally grown local produce based on consumer support for local farmers and their economy. This addresses what has become common to equate quality solely with organic or niche market products, which is incorrect.

Impacts, Benefits and Barriers of Local Food Systems

Pretty (2001: 9) explains three types of benefits gained by local food systems:

1. Environmental benefits through more sustainable production systems and reduced transport externalities;
2. Economic benefits through greater incomes for farmers and more financial contributions to local economies;
3. Social benefits through greater trust and connectedness between and within consumers and producer groups.

Our research has generally confirmed these benefits but we have found that impacts and benefits can be deeper. For example; social benefits extend to community, group and individual happiness and wellbeing. While these are still loose concepts generally, the interviews revealed that local food supplies and the networks and interaction they produce are a source of pride, enhanced satisfaction and overall wellness. Economically local food supplies and systems produce more visible jobs and lead to wider community understanding and appreciation of food as part of the local economy. It is a tangible way in which consumers can express support for their local jobs. Generally people get it, that money spent locally has a greater impact locally. Environmentally, awareness is raised about fresh, quality food and the value for health outcomes. Seeing a locality or region as being able to deliver local food strengthens local investment and creates further momentum, something that was in evidence from tracking the forty year history of local food production and systems in the Yarra Valley and Dandenong Ranges. That case study certainly illustrated the benefits of pursuing long term policies and planning for local food systems. Lack of planning for local food systems is a clear barrier. According to Koc & Dahlberg (1999: 111) the 'invisibility of food systems for urban planners' comes from the 'urban/rural' dichotomy, is promulgated by bureaucracies that continue to embrace this alignment and the continued use of cheap energy for transportation and technology. Planning for local food is vital to sustained local food systems.

Pretty (2001:9-10) also provides a number of difficulties that can arise with the promotion of local food system including diseconomies of scale when small. Local producers enter the same market as the larger corporations; when more money is circulated in the local economy how many jobs will be lost upstream (production) and downstream in processing and distribution. There is often a lack of policies to encourage regionalization and food system localization to assist in reaching the target of positive sum gains.

Incorrect assumptions, such as those listed below, can cause tensions between stakeholders and poor decision making.

1. Communities will make good, homogenous decisions about food systems based on social capital between diverse groups (Allen 1999).
2. The idea that local food has to be more sustainable and socially just is called the 'local trap' (Born & Purcell 2006). Growing food locally does not automatically guarantee sustainability or local autonomy (Bellows & Hamm 2000).
3. 'Organic' does not necessarily mean 'local', unless purposefully supporting local organic producers and distribution options.

Environmental Benefits of Food Systems

The contemporary topic of 'food miles' or the distance travelled by particular food items through the food system warrants further study. These need to include extensive Life Cycle Assessments (defined by Halberg 2003:7) as 'a tool for an aggregated description of emissions, waste and the resource use from soil to kitchen per unit of different food items'), due to the contradictions that have appeared upon closer scrutiny of transport modes and energy usage. However, such exploration is outside the scope of this study and is therefore excluded except to say that significant work is being undertaken into the vulnerability of food systems to future shocks, such as climate change, peak oil and agri-terrorism. Hinrichs (2003) perceives that it cannot be guaranteed that local, small-scale businesses, including agriculture, will be more environmentally attune than conventional businesses. Localism is primarily concerned about local ownership and markets and not necessarily about the environment (Hess 2008).

Land Use Planning Issues

Maintaining let alone expanding localised food supplies in the Melbourne metropolitan area, which embraces the metropolitan fringe and the immediate peri urban area, is under continuing pressure (Buxton et al 2007). Support for localised food production areas requires strategy, policy and regulation to maintain the continuing allocation of land to support that production (Pothukuchi & Kaufman 1999). Such an approach embraces an environmental and land use concept that constrains unregulated outward urban growth, in effect sprawl, in favour of consolidated and higher density development that protects and ensures the retention of productive local areas of food production (Buxton et al 2007). Often these areas are confined to highly productive agricultural areas but that has often proven to be no protection against urbanisation.

A focus of our research is to seek to demonstrate the substantial and wide ranging environmental benefits flowing from maintaining these local areas in production. Not the least of which is that land utilised for local food production and urban agriculture limits the environmental impact of a continuing and expanding urban front. Policy at the State, regional and local level has consistently overlooked the value of localised food production as an environmental tool to achieve wider strategies and environmental outcomes (Budge 2007). Over recent years the outward growth of urban areas and the consumption of land has produced a dramatic separation between 'rural' and 'urban' (Deelstra et al. 2001), or as Low et al. (2005) states, a distinct separation between consumers and producers, resulting in an abdication of responsibility for environmental, economic and social problems (Pothukuchi & Kaufman 1999). Cities have become accustomed to consuming a far greater amount of food than they can supply from within their own boundaries and adjacent areas. Food gathered from a global food system promotes disregard for the heavy ecological footprint created through its use, including the creation of massive amounts of waste (Larsen et al. 2008). Knowd et al. (2003) comments that 'in the contemporary context of urban development, the possibilities of looking anew at agriculture relates more to implementing sustainability and addressing the structural changes brought about by globalization to communities, their food systems and quality of life for urbanites'. Unlike policy of the past, based on a 'silo' mentality, this approach involves comprehensive, multi-tier, interdisciplinary cooperation (Lang 2004), and the fostering of partnerships between communities that can work together to create beneficial outcomes (CAST 2002).

Economic Role – Jobs, Capacity, Resilience

Local food systems can play an important role in strengthening the community’s economy. Hess (2008:626) sees localism’s main objective as ‘reversing the negative effects of corporate consolidation of the economy, especially the loss of economic sovereignty by place-based communities over local economies’. Such economies are linked to both local and non-local market forces and as a result two important responses take place; the translation of non local linkages back into the community and how the community creates jobs and income from local sources (Hustedde et al. 2005). So, if a community wants to increase the capacity of its local economy, according to (Hustedde et al. 2005:27) it will have a distinctive approach which will incorporate; identifying consumer needs and buying preferences for retail outlets potential, an analysis of the main activity areas, develop training programs for employees, increase purchases by non locals through advertising, encourage community members and businesses to buy locally and form groups to take collective action. Seyfang’s (2008) study suggested that direct alternative food marketers (compared to supermarkets) should focus on their unique advantage of supporting local economies and producers.

Community and Social Impacts of Food Systems

Hinrichs (2003) explains that local often implies positive and respectful social relationships within communities, which is an idyllic, possibly naïve understanding that neglects the negative, unequal power relationships that can exist in communities. Hinrichs (2003:36) ‘while affect, trust and regard can flourish under conditions of spatial proximity, this is not automatically or necessarily the case’.

One of the outcomes from a review of all the University of California’s Sustainable Agriculture Research and Education Program (SAREP) programs over the past ten years, as discussed by Feenstra (2002) was the idea of creating space for food projects to germinate, within four realms i.e. social, political, intellectual and economic space as elaborated in Table 6 below.

Table 6: Explanation of Social, Political, Intellectual and Economic Space

Social Spaces	Physical places for social interaction e.g. community gardens Places for diverse people to talk, listen, plan, argue and compromise and develop mutual trust (social capital) Citizens explore new opportunities for participation in food systems e.g. food policy councils, slow food movements, farm-to-school committees. Celebration.
Political Spaces	Leaders organizing and educating residents for the purpose of food system improvements Creating or adding to policies institutionalizes goals Brings stability and maturity to activities. Tells good stories Measures impacts
Intellectual	Articulates vision and conceptualizes the local initiative then shares it with others. Strengthens interdisciplinary stakeholders Reflection and project evaluation
Economic	Start up capital Recirculate local capital Successful projects manage funds well and creatively.
Public participation, partnerships and values underlie these spaces	

Adapted from Feenstra (2002)

A study of Eostre Organics, a cooperative of nine organic growers with a vision to create community food net works, in Norfolk in 2004, as reported in Seyfang (2008) revealed a wide range of customer motivations as shown in Table 7 below.

Table 7: Consumer Motivation for Purchases

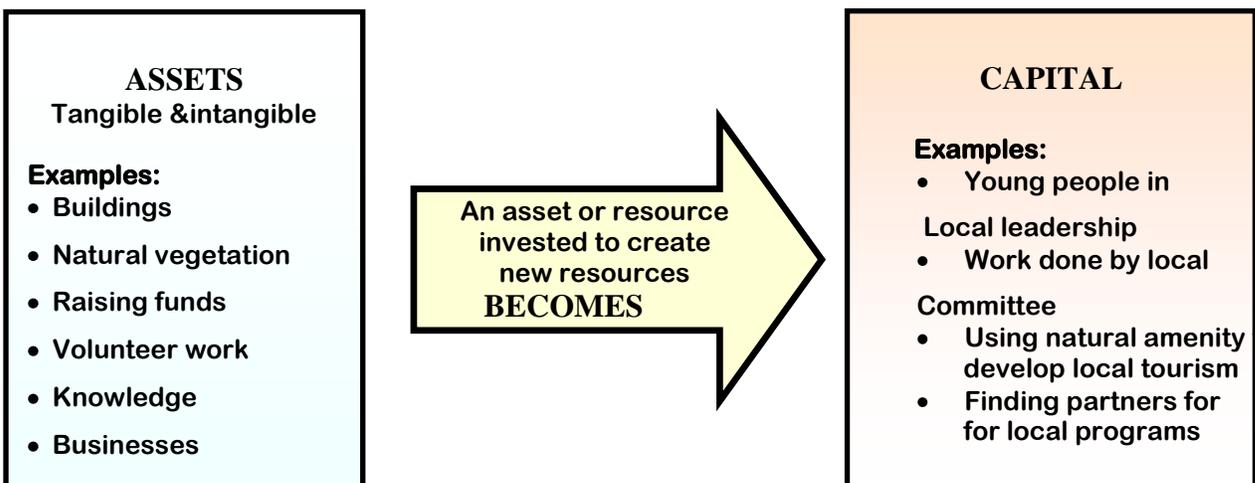
	Ranking	% of customers (n = 144)
<i>Environmental benefits</i>		
Better for the environment	1	94
To cut packaging waste	2	85
To cut food miles	^a 3 =	84
More diversity of produce varieties	11	33
<i>Economic benefits</i>		
Supporting local farmers	^a 3 =	84
Supporting a cooperative	8	70
Keeping money in the local economy	9	65
<i>Social benefits</i>		
To know where food has come from and how it was produced	7	76
Preserves local traditions and heritage	10	36
Enjoy face-to-face contact with growers	12	25
Demonstrates good taste and refinement	13	8
<i>Personal benefits</i>		
Organic food is more nutritious / tastes better	5	80
Organic food is safer	6	77

Source: Seyfang (2008: 195)

The Community Capitals Framework

This asset mapping framework is built on the view that firstly, communities have assets, which may be inactive or being used to multiply assets and secondly, that community status quo will slowly decline if its assets are not being used. When assets, both tangible and intangible, are being invested to produce new assets, they become capital, this process being explained in Figure 1 below.

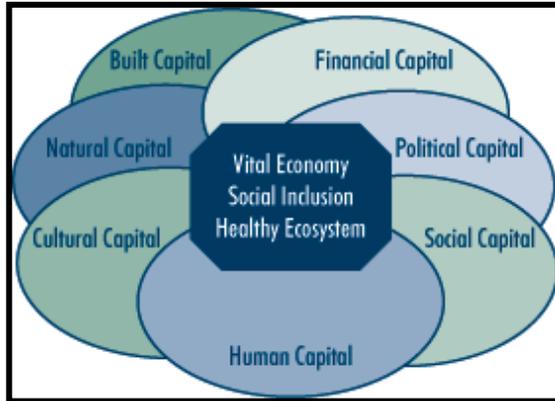
Figure 1: Community Assets and Capital



Adapted from Emery et al. 2006

Capital has been defined by Flora et al. 2004:165 as ‘any type of resource capable of producing additional resources’. The framework provides empirical evidence of asset development (capital) and examines interaction between capitals towards positive change as illustrated in Figure 2. The Framework is also used to evaluate impacts of change by using appropriate indicators to measure progress (Emery et al. 2006). Flora et al. (2004) ‘found that the communities most successful in supporting healthy sustainable community and economic development paid attention to all seven types of capital’.

Figure 2: The Community Capitals Framework



Source: Iowa State University, Department of Sociology

Natural Capital

This is the foundation of all community assets, including natural beauty, resources and amenities, which are easy to see but difficult to measure in relationship to community development and well-being. Communities that are dependant on natural resources, such as mining, can suffer from decisions made using political capital. On the other hand, natural capital can be used to attract non-locals through e.g. tourism (Fey et al. 2006).

Cultural Capital

This form of capital is generational, forming what people believe, value, their language and how they act as a consequence as well as the way creativity, influence and innovation emerge and are nurtured. It often occurs as a response to natural capital (Flora 2004). Cultural capital may be expressed through ethnic festivals (Iowa State University 2008), customs, art and culture (Fey et al. 2006)

Human Capital

‘Human capital is the native intelligence, skills, abilities, education, and health of individuals within a community’ (Flora 2004: 8) including the ability to acquire outside knowledge and understanding. Leadership skills are included in this capital (Iowa State University 2008).

Social Capital

This is the relational glue based on ‘mutual trust, reciprocity, collective identity, cooperation and a sense of a shared future’ (Flora 2004). Two types of social capital are included in this framework; bonding and bridging. Bonding social capital refers to ‘close ties that build community cohesion’ (Iowa State University 2008) but there are still disagreements and

divisions that can form within communities. The presence of bridging social capital i.e. weaker relationships in organizations and communities, can overcome cliques and individual control of others (Flora 2004).

Political Capital

This is the community's ability to influence and make decisions about distribution of resources, as well as including 'voice, organization, connections and power' (Flora 2004). Communities should not just rely on politicians to undertake these roles but be active in the process of government resource distribution (Flora 2004).

Financial Capital

Often financial capital dominates community initiatives as funds are sought for 'community capacity building, to underwrite businesses (sic) development, to support civic and social entrepreneurship, and to accumulate wealth for future community development' (Iowa State University 2008: 2).

Built Capital

This capital includes infrastructure, industrial parks, utilities and telecommunications that support the community (Iowa State University 2008).

The Community Capitals Framework can be adapted to the current local food systems research project in order to identify and evaluate changes within the participating communities.

Assessing and understanding the social, environmental and health impacts of current community food systems can bring benefits (See Table 8), particularly in implementing appropriate local level policies and programs. .

Table 8: Benefits of Understanding the Local Food System

HEALTH	Improved health outcomes through availability of affordable fresh fruit and vegetables Growing food improves physical activity and mental health Increased access of fresh food in 'food deserts'
ENVIRONMENT	Increased bio-diversity Reduction of waste in land fill Composting for better soil Reduced food miles Regeneration of urban wasteland
EDUCATION	Cooking skills in using fresh raw ingredients Understanding of food production and health effects leads to improved food choices Training and employment opportunities
ECONOMIC	Food promotion can lead to tourism and increased local identity Local employment opportunities Money kept in community Local markets for local produce can help reverse economic decline in agriculture
COMMUNITY DEVELOPMENT	Awareness of social and cultural value of food Empowerment of communities through food projects Delivers objectives of government funding

Source: Food Matters (2003: 8)

This foodshed assessment was followed by the *Spade to Spoon: Making the Connections Food Strategy and Action Plan for Brighton and Hove* in 2006.

Vancouver Food System Assessment 2005

Although Vancouver has a vibrant economy and is situated near prime agricultural land it was recognized that there was inequitable access to health food for all residents. Barbolet et al. (2005:5) concludes that 'food security can exist only within a system that is sustainable on economic, environmental and social dimensions'.

Elements examined in this food system assessment include:

1. The availability, accessibility and acceptability of food provided through charitable, community and retail food sectors;
2. Exploring how Vancouver's food system could be transformed through proactive community economic development and policies that build food system sustainability.
3. Information and recommendations to inform the Vancouver Food Policy Council and other agencies (Barbolet et al. 2005: 5)

Comprehensive recommendations were made as a result of the assessment as shown in Table 9 below:

Table 9: Recommendations for a Sustainable Food System in Vancouver

SECTOR	RECOMMENDATIONS
Food-related Social Economy	Convene a food & social economy congress Create a food social economy centre Conduct feasibility studies into key food manufacturing social enterprises Enhance funding and investment capital for food-related social enterprises Enhance training opportunities in food-related business Develop a strategy for the food-related social enterprise sector Promote farm to school/campus/hospital/government programs
Charitable Food Sector	Enhance public accountability and transparency of the charitable food system Ensure that charitable food providers include capacity-building in their programs and services Develop hybrid models that link charitable and social enterprise efforts
Improving Access to Community Food Security Resources	Support farmers' markets in low-income neighborhoods Explore the possibility of developing a wholesale farmers' market Publicize the importance of buying local Increase the number of community gardens
Retail Food Sector	Improve access to retail stores Market Chinatown food resources to surrounding neighbourhoods
City Food Policy and the Food Policy Council	Continue to monitor Vancouver's food system Promote sustainable food procurement for the 2010 Olympics Include purchase of local foods in the city's ethical procurement policies Expand the role of urban agriculture in city-led development Review city by-laws Map bio-regional supply-side factors
Other	Review the information report: Supermarkets in Vancouver Re-establish food security as a component of the Vancouver Agreement

Source: Barbolet et al. (2005: 40-43)

However, there is an emerging shift towards a whole of government approach

A noticeable shift is emerging in current policy and literature towards a whole of government approach to food issues with the development of broad documents at national, state and local levels. Advocacy for equitable access to healthy localised food supplies has drawn attention to structural problems within the food system. These structural constraints include land-use policy and regulation, the lack of strategic planning and public policy, particularly coordinated food policy, lack of political will, negative public perceptions with disconnection between urban and rural paradigms, as well as economic concerns, such as the fear of insecure markets for growers and higher consumer prices for locally produced food (Cassidy et al 2008).

Organisational and Policy Making Reforms

Research, such as work undertaken by Mendes (2008), who has examined the process at the metro scale notes that this level is increasingly be used to examine the multi dimensional agenda around local food supplies with cities introducing food policies into their governance arrangements.

Also see MacRae,Rod and the Toronto Food Policy Council (1998) Not just what, but How: Creating Agricultural Sustainability and food Security by changing Canada's Agricultural Policy Making Process

Table 10: Critical Factors in Research of Local Food Supply (LFS) Systems

FACTOR	DESCRIPTION	SIGNIFICANCE		EXAMPLES	KEY LITERATURE <i>*See Reference List for full citation</i>
		<i>Beneficial</i>	<i>Important Essential</i>		
What is Local Food Supply?	Understanding the significance of this term to different participants.		X	A bike ride distance from home to get food, 10-15km from home, 100 mile radius, regional, Victorian, Australian, seasonality,	Allen 1999; Hinrichs 2003; Morgan et al. 2006; Seyfang 2006; Sonnino 2007; Feagan 2008
Relevance of Wider Issues	External factors on varying levels (global, national, state) affect the LFS system.	X		The global financial crisis, agricultural decline, drought and water scarcity, food insecurity	NSW Centre for Public Health Nutrition 2003; Cribb et al. 2008; Larsen et al. 2008
Distinctive Features of Individuals Areas	Demographics that cause individual differences between locations	X		Urban, rural interface, peri-urban, regional city Population, income, food activities	
Scale of Economies	Food supply production ranges from macro to micro levels and can be for commercial gain down to personal consumption. Global versus local.		X	From exporting, macro level food production, manufacturing, processing, logistics to boutique and niche markets, business incubators, small scale 'necessities' growing at community level and in backyards.	Hamm & Bellows 2000; Pretty 2001; Hess 2008
Reasons for Involvement in LFS	Multiple stakeholders with different agendas are involved.	X		Growers, wholesalers, retailers, value-added, consumers, service providers.	

Strategy, Policy and Regulation of Local Food Activities	Authorities have policies and regulations for food production through to consumption that apply to LFS.	X	Wider state and multi-regional policies, regulations and strategies. Land use planning. Local government requirements i.e. health, retail, food handling certificate Accreditation with Australian Farmers' Markets Insurances	MacRae 1998; Koc & Dahlberg (1999); VLGA 2009;
Strength of Support Network	Local food initiatives require support from many stakeholders.	X	Community champions, organizational assistance, education, advertising. Partnerships. Interconnected networks of local food systems.	
Barriers & Enablers	What are the main obstacles/enablers to starting, maintaining, supporting and expanding LFS?	X	Regulation, land use planning, viability, central organization, advertising, long distances to travel, relationship between producers and customers, recognition of benefits of small scale production.	

Similar approaches can be used in respect to social, environmental, economic and consumption factors. This project has identified the following elements:

Table 11: Economic Indicators

FACTOR
Scale of Production
Viability
Reduces Vulnerability
Infrastructure Requirements
Regulation
Benefits to Local Economies
Job Creation
Self-reliant Producers

Table 12: Environmental Indicators

FACTOR
External Pressures on Land
Inclusion of Externalities
Sustainable Production Methods
Farm Diversity in Local Area

Table 13: Consumption Indicators

Factor
Seasonality
Freshness
Quality
Pesticide Free/Organically Certified
Provenance
Taste
Diversity -Uniqueness of Product
Price
Relationship between consumer and producer
Education about Product
Ethical Purchasing
Basic Food Provision

4. Fieldwork Research

Fieldwork research was conducted in thirteen Victorian local government areas (LGA) from December 2009 to March 2010. Research was focused on nine LGA, divided between metropolitan and regional areas with four of these LGA studied in the greater metropolitan area of Melbourne:

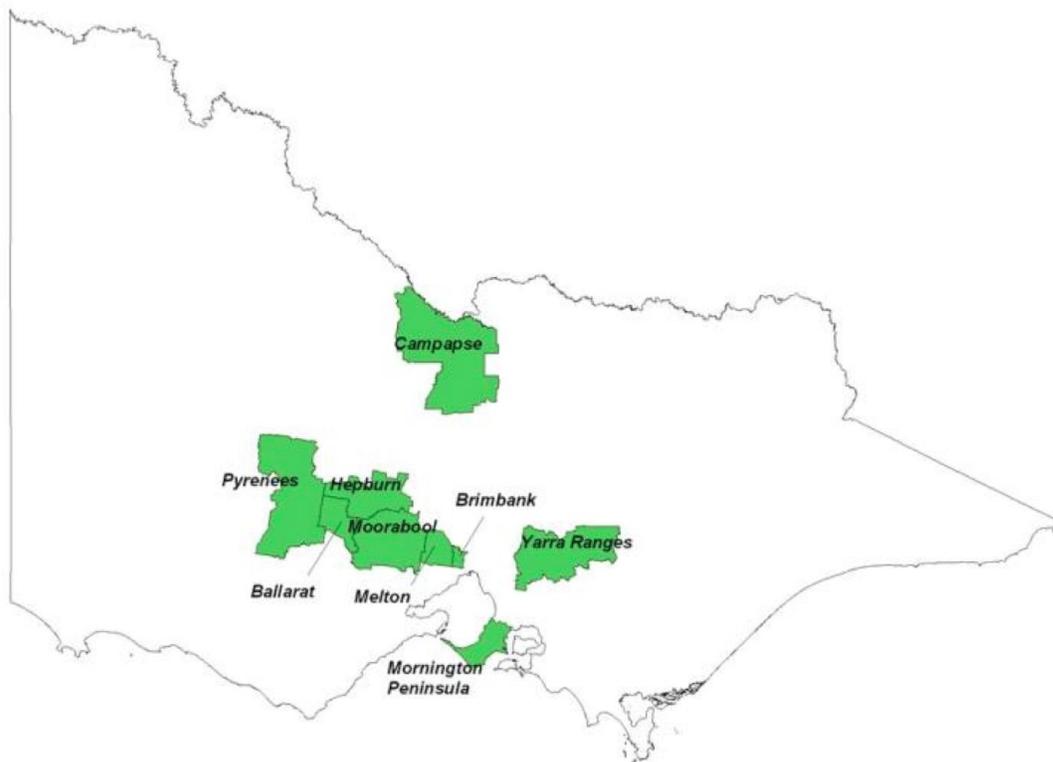
- Brimbank,
- Maribyrnong,
- Mornington Peninsula, and
- Yarra Ranges,

and six LGA in regional Victoria:

- Ballarat,
- Campaspe,
- Central Goldfields,
- Hepburn,
- Moorabool, and
- Pyrenees.

Limited investigations were also undertaken in the local government areas of Greater Bendigo, Hobsons Bay and Nillumbik. The location of the main local government areas where research was undertaken is shown on the map below.

Figure 3: Map of Case Study Areas



Overall, one hundred and forty six interviews and nine focus groups were conducted as part of the research into the impacts of a localised food supply in Victoria. One hundred and four growers and producers were interviewed, with the majority of interviews held at thirteen markets; predominantly “farmers’ markets”; but also “craft” and “community” markets, which included a significant presence of growers and producers. Researchers visited the following markets:

- Avoca Riverside Market (Pyrenees Shire),
- Ballarat Lakeside Farmers’ Market (City of Ballarat),
- Bittern Country Market (Mornington Peninsula Shire),
- Daylesford Farmers’ Market (Hepburn Shire),
- Echuca Farmers’ Market (Campaspe Shire),
- Girgarre Market (Campaspe Shire),
- Lilydale Farmers’ Market (Yarra Ranges Shire),
- Red Hill Craft Market (Mornington Peninsula Shire),
- St Andrews Community Market (Nillumbik Shire),
- Talbot Farmers’ Market (Central Goldfields Shire),
- Williamstown Farmers’ Market (City of Hobsons Bay),
- Yarraville Farmers’ Market (Maribyrnong City Council) and
- Yering Station Farmers’ Market (Yarra Ranges Shire).

Also there were interviews with growers and producers who were not stallholders at such markets, but were selected in order to form a broader understanding of the characteristics of Victoria’s local food supply, in areas such as the traditional market garden area of Bacchus Marsh (Moorabool Shire).

In addition to interviews with local growers and producers, other local food supply actors in the research areas were sought to build understanding of the characteristics of the local food supply. Eleven retailer interviews were conducted in regional LGA, ranging from small businesses to supermarkets, representing traditional and organic fruit and vegetables, meat and value-added local produce. Twenty service provider interviews were undertaken across metropolitan and regional areas involving local government, health and non-governmental organisations. Eleven community group interviews were carried out across the state encompassing a variety of groups involved with the local food supply, from sustainability groups to community-based farmers’ market organisers. Nine focus groups were conducted in the LGA of Ballarat, Bendigo, Brimbank, Hepburn and Maribyrnong, ranging from four to fourteen research participants in attendance and incorporating a diverse mix of community groups, local government and growers from metropolitan and regional areas.

The full report and findings from this fieldwork is set out in the Appendix. The following is an analysis of the major findings from the fieldwork.

Definition and Awareness of “Localised Food Supply”

What is your understanding of a localised food supply?

The research evoked many important insights into what is characterised as a localised food supply in Victoria. The most popular definition of a local food supply used the parameters of distance between production and consumption such as 100 kilometres or physical and political boundaries such as state, regional or municipal identifiers to conceptualise the “local” in “localised” food supply (see Appendix A, page 9 and 25). It was also evident that the local food supply had social connections through its association with “community” as a descriptor of local.

It was clear from the research however that a simplistic definition of a “localised food supply” did not exist due to many reported factors such as the relative nature of what is “local” in a “global” market (i.e. all Australian produce is local?); the fluid status of “local” produce and subsequent extension of boundaries due to the availability of certain produce; and inherent climatic and seasonal limitations of the local food supply, and the reality that locally grown food is often not locally sold due to the gravitational pull around areas of economy (Appendix A page 9). The following are some representative quotes:

To me, “local” is Victoria.

Research Participant – Grower/Producer (Appendix p78)

Often people do it on a kilometer basis but it is relative because there are not a lot of people who produce cheese. It really depends on the produce as to what is local.

Research Participant – Grower/Producer (Appendix p78)

Local is regional produce first then produce from a wider distance and what is available seasonally. I first look to local, state then interstate – need for compromise with other product

Research Participant – Grower/Producer (Appendix p77)

Local is seasonal. During winter “local” becomes produce from Mildura area to make up supply quota.

Research Participant – Grower/Producer (Appendix p77)

Local moves around the country in reality and expands to areas of economy. Distance or boundaries are not used to define local.

Research Participant – Grower/Producer (Appendix p77)

Grown locally. Marketed locally. Also, for the area, grown in your backyard, in orchards and can be found at the market. From our district. For example, people are trading between themselves informally – homemade jam from home grown grapes for example. Give and take. Bartering.

Research Participant – Community Group (Appendix p196)

There are many ways to understand this. Small concept: out of the backyard garden – how we can pool and share backyard grown food with neighbor. Big Concept – community gardens. Local can be all of Australia – especially in times of disaster like drought.

Research Participant – Service Provider (Appendix p174)

How are you aware of your area providing a localised food supply?

Results from the research highlight the fact that the localised food supply is currently understood as operating in a number of tiers, namely quasi-commercial for profit and informal backyard food swapping between locals. A number of growers and producers cited that outside of their own activities, they were not aware of other contributors to the local food supply in their area. Perceptions varied about the role and worth of their area in its input to the local food supply. Participants identified the following enterprises and activities as contributing to the local food supply: processing and manufacturing facilities, food grown for export, farmers' markets, food and wine festivals, commercial, niche and backyard growers and producers, boutique growers and producers, local retailers, local produce directories, community gardens, sustainability groups, local food cooperatives and produce swaps. For some, the local food supply was proudly synonymous with the identity of the place and region e.g. the town of Harcourt as "the apple capital". The following are a selection of representative quotes:

There is a sustainability group in the area and a grower that does veggie boxes. It has had a huge impact on the area.

Research Participant -Grower/Producer (Appendix p82)

It is starting up. Farmers markets make you aware of what is going on locally. Farmers markets bring local produce to others.

Research Participant -Grower/Producer (Appendix p82)

No idea. I don't know of any others in this area growing their own food.

Research Participant -Grower/Producer (Appendix p82)

Well aware through the Regional Food Group and through living in the area for 30 years and being aware of the area being equipped with local food.

Research Participant -Grower/Producer (Appendix p84)

Growers are aware but people in town don't realise what is around them. Locals think that local food is expensive and that it is not good "value".

Research Participant -Grower/Producer (Appendix p84)

There are a few beekeepers, Harcourt apples and cherries, grapes and diversification. It is a fairly diverse region. There are more and more organic vegetable growers, more and more demand for local producers starting up and seeing a need.

Research Participant -Grower/Producer (Appendix p84)

No. It's not a horticultural area. There are very tiny backyard/hobby scale growers. Only this scale of food production is sold in the shop in town. It's the only outlet in town where this can be done. These very small growers sell through the local shops and trade between themselves, product for product.

Research Participant -Grower/Producer (Appendix p85)

There are some but I can't just go to one supplier to get it.

Research Participant -Retailer (Appendix p161)

There are a number of local organic producers, smaller operations and farms on a regional basis, also some community gardens which are community ventures for social groups based around shared activities and interests which strengthen those involved.

Research Participant – Community Group (Appendix p196)

The Impacts of a Localised Food Supply: What is the Evidence?

Economic Impact

Enquiry into the economic role and implications of the local food supply highlighted the diverse ways of comprehending the economic impact of local food. The existence of a local food supply was cited as providing significant opportunities for growers and producers to innovate and value-add, with farmers' markets acting as a readymade market place to connect producers and consumers and also as a nursery for new business (Appendix p10, 51). Whilst selling produce locally through farmers' markets or farmgate sales was reported by many as preferable, due to a variety of reasons such as a perception of decreased associated costs, and increased and more reliable sales (eg compared to selling to wholesale markets) (Appendix p9), thus creating better margins for growers (Appendix p49-50); it was reported as not necessarily an entirely dependable form of subsistence, with participants seeking many other channels to maximise their income for produce outside of the local food supply such as via wholesale or export markets (Appendix p9 – 10, p27 – 28).

Employment numbers generated by the existence of a local food supply were predominantly low and fluid across research participants in the study, due to the prevalence of small/family run entities with production and labour generation susceptible to seasonal restrictions. (Appendix p11-12, p29 -30, p42). According to local government service providers and community groups interviewed, the local food supply was reported as being economically beneficial to the area ranging from large scale production and manufacturing to tourism activity (Appendix p49 – 51). The popularity of farmers' markets was inferred as a valuable attraction to an area, in many cases having a direct effect on accommodation numbers (Appendix p49 – 51). Events such as farmers' markets and food and wine festivals were also found to play an important role as marketing tools for local produce. Whilst individually, the economic impacts of a local food supply may appear small and relative to motivations and efforts of local food supply actors; collectively the local food supply can have a very big impact, particularly in nurturing entrepreneurship, innovation and connection between people in the local community (Appendix p49 – 51). The following are a selection of representative quotes:

I sell all of my produce locally through the farmers markets. Research Participant (Appendix p89)

I am a third generation farmer. I need an income to survive. We only supply markets now, not factories. Research Participant -Grower/Producer (Appendix p89)

We sell in various places, wholesale markets, and other farmers' markets. Farmers' Markets are a source of income for the moment but as the business develops future selling will depend on what is profitable (e.g. what has the largest footprint).

Research Participant -Grower/Producer (Appendix p94)

I do 15 farmers markets a month; they are very important to the viability of my business.

Research Participant -Grower/Producer (Appendix p97)

Environmental Impact

Local food is often considered synonymous with environmental awareness and pro-action. A number of participants alluded to consumers' trust for local produce against supermarket offerings and the appreciation of the educational exchange between producer and consumer (Appendix p13). According to the research, a number of environmental benefits can be inferred from the existence of a local food supply. Firstly, the preservation and conservation of land for food supply activity and other agricultural uses against urban encroachment. Secondly, the practices of many local food supply actors can be environmentally beneficial such as soil farming practices, organic production, heirloom crop and rare breed preservation (Appendix p15, 31) and the benefits of using land for compatible traditional crops against mass produced varieties (Appendix p53, 65). Transport and emission reduction was also an identified environmental benefit of local food supplies (Appendix p53), along with environmental benefits inferred from cooperative growing such as community gardens, which facilitate central distribution of water. The following are some representative quotes:

Customers are definitely concerned [where there food is coming from]. 8 out of ten people want to know where it is grown.

Research Participant -Grower/Producer (Appendix p105)

Customers like to see the grower/family and will take the local growers produce against non-local every time.

Research Participant -Grower/Producer (Appendix p104)

In the area there is strong support for local produce. Customers' don't ask about the cost of the produce anymore, they trust the quality of the produce (Appendix p104). We are soil famers not vegetable farmers.

Research Participant -Grower/Producer (Appendix p116)

Last year we put in a tree plantation at the whole end of our farm. We also fence above waterways. We rotationally graze which gives the land time to regenerate. With rotation grazing our perennial grasses become more dominant which is better for the soil. We have also gotten funding in the past from the platypus program. We also fence off our remnant vegetation patches

Research Participant -Grower/Producer (Appendix p118)

Social Impact

The local food supply was also found to have a number of direct social impacts according to the research. Farmers' markets, in particular, were seen as providing an opportunity for local food supply actors to meet with their counterparts, and provide an outlet for interaction and networking in what can be often a socially isolating occupation (Appendix p18 – 19, 35). In some areas farmers' markets were also found to provide respite from pressures associated with bushfires and drought (Appendix p140, 188). Farmers' Markets were also frequently cited as providing an opportunity for consumers to forge a tangible link and relationship with their produce source (Appendix p13, 30). In addition farmers' markets can have a wider social impact

on the community through providing an important source of fundraising for community groups (Appendix p51).

A local food supply also reportedly provides societal benefit through providing communities with an opportunity to fill essential gaps such as access to nutritional sources (Appendix p55). Community gardens were found to assist skill transfer and development (Appendix p65, 66), and foster community connections across all demographics (Appendix p55). The research also found participant involvement with the local food supply as a way to generate partnerships with government such as Regional Development Victoria and Department of Planning and Community Development (Appendix p55-56). The following are some representative quotes:

Our market is called the 'friendly market'. In drought it is a social place for people.
Service Provider (Appendix p188).

The other main reason for coming to the market is the customers, stallholders and opportunities that come from it.
Research Participant -Grower/Producer (Appendix p129)

For sure, I have made a lot of contacts. When in the market scene, they all talk so get to know more of them. We have developed a good group of friends and some we see outside of the markets as well.
Research Participant -Grower/Producer (Appendix p129)

Great satisfaction. Not here simply to make a few dollars. It really gives me great satisfaction if customers give good comments. With that mentality I should be able to expand.
Research Participant -Grower/Producer (Appendix p130).

Love the interaction – there is rapport and interaction at the market. Only found in the market. We are on first name basis with customers. For us it is probably more social than anything.
Research Participant -Grower/Producer (Appendix p131)

There is a social aspect. Introducing product to the public, make them more aware of the product and educating them. At farmers' markets the public can talk to the farmer, if there were no farmers' markets people wouldn't have information about the product. A problem with supermarkets is that people don't know what to do with the product.
Research Participant -Grower/Producer (Appendix p133)

At "Pot luck" dinners, people are interacting at a different level. There is solidarity and support.
Research Participant – Community Group (Appendix p201).

Conclusions

From the research a number of barriers are evident in preventing the potential of local food supplies to fully maximise economic, environmental and social benefits. Firstly, there was a reported lack of understanding and education of the value of local food supplies - embracing economic, social and environmental worth- from the wider community and government (Appendix p23, 49). Particular reasons for the lesser regard given to local food were found to include the cost of local food and perception that it is “boutique” and a luxury instead of habitual source of sustenance (Appendix p69); namely due to the cost incurred in local production and the difficulty in competing against produce that may be cheaper in supermarkets (Appendix p19, 46). From consumers perspectives’ however there was a stated lack of knowledge about who the producers are in their region, what is available and how to procure local produce (Appendix p68) which can be attributed to the sporadic nature of the local food supply.

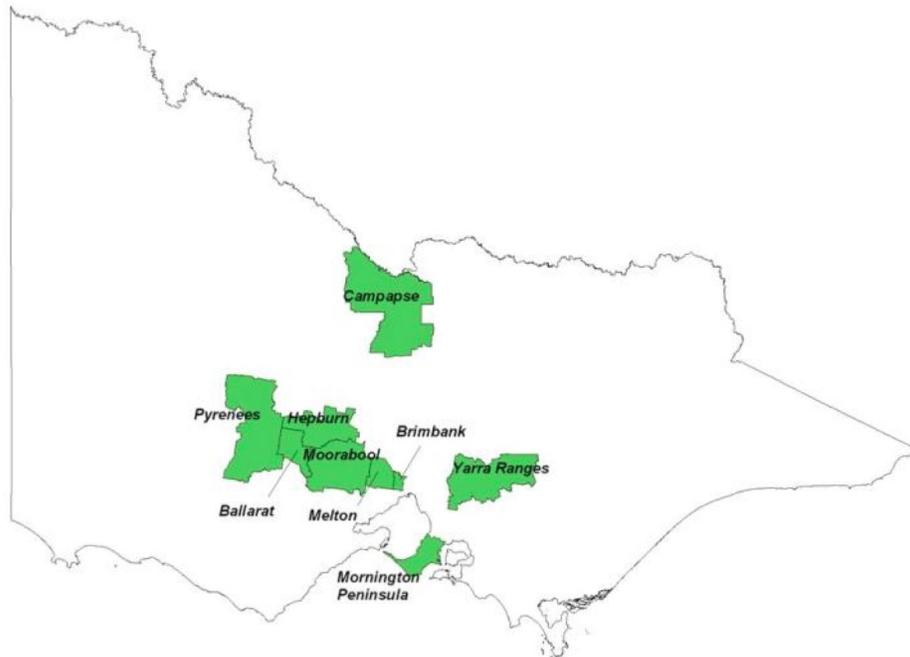
A lack of resources for local growers eg marketing training and absence of subsidies; incompatible regulatory systems for small growers and subsequent bureaucracy and paperwork such as the need for multiple food-selling permits across local government boundaries; and a lack of consistency linked to both produce availability and consumer purchasing habits. Suggested measures to address the above barriers and maximise the benefits of local food supplies include: distribution reform in favour of the local level e.g. community food co-ops, community supported agriculture; government support of local food and cost absorption to make local food more affordable for consumers; incorporation of local food supplies in municipal health and well-being plans; consumer education; greater links between producers and consumers eg local produce directories; greater consideration of food supply in local government decision-making and coordination of local food supply across local government departments; and opportunities for local producers to develop their business such as providing marketing training and events to showcase their produce and build identity of the region.

5. Local Food and Local Communities – An Exploration of Changing Industry and Social Profiles

This chapter provides an overview of the communities selected for this research and the linkages between population characteristics, employment and agricultural trends. The selection of local areas to provide a context for understanding the diverse understandings of food production, agricultural industries and local food ‘identities’ is intended to offer a way to ground the research in location, and explore the differences between urban, peri-urban and rural communities.

The locations selected reflect a broad range of demographic, land use and landscape characteristics; from Melbourne’s western fringe to peri-urban Ballarat, the tourist orientated landscapes of the Mornington Peninsula and Yarra Ranges on Melbourne’s fringe and Campaspe Shire and surrounds on the River Murray. These locations were chosen to provide an insight into social dynamics, community cultures and food production economies in varied circumstances. The selected locations are unique, and not intended to provide findings that can be simply generalised, however they are characteristics of many urban and rural communities in Australia.

Figure 4: Map of Case Study Areas



Perspective on Food, Agriculture and Land Use in Victoria

Processes of change in agricultural regions and rural landscapes occur continuously, however patterns emerging over the past 30 years suggest significant changes in the use, value and perceptions of rural land and in increasing divergence between the function of rural landscapes and the structure of rural community networks across the state. Rural landscapes are increasingly valued for conservation, amenity and accessibility, especially where these locations are close to larger urban or metropolitan regions (Buxton et al, 2008). The emergent processes are therefore social, economic and material; the focus of rural communities has changed, the economic profile of regions is often in flux and the way in which land is owned, used and valued has diverged.

Over this period, a broader process of restructure in Australian agriculture has continued. Australia-wide, farm numbers decreased by approximately 20,000 in the decade to 2004 (ABS 2006), and recent drought conditions would be anticipated to have exacerbated this existing trend in many regions. Remaining farm businesses in Australia and elsewhere have been subject to an imperative to increase in scale to maintain viability in the face of declining terms of trade. Increased off-farm income and linkages to the non-farm economy are other features of a transition for many farm business and farming communities (Gleeson et al, 2003). These patterns are characterised by demographic shifts including declining farmer numbers in most areas and ageing profile of farmers across Australia. Increasing part-time farming and an increase of non-farming land uses in the landscape are also emerging activities, particularly in peri-urban regions where access to other forms of income are increasingly available.

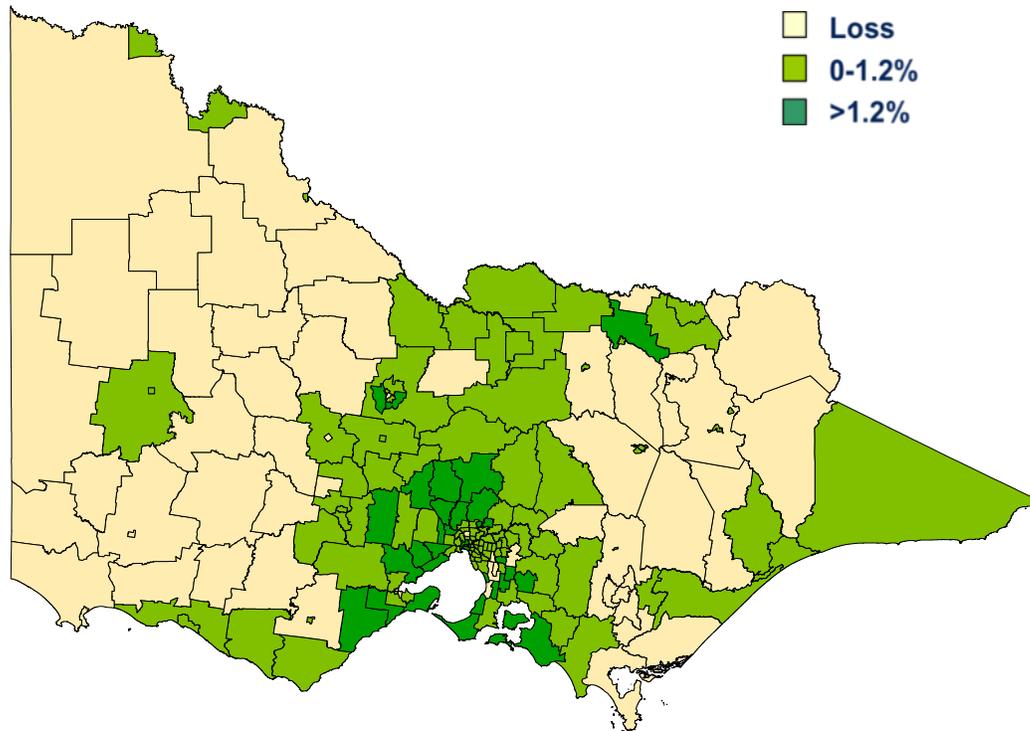
Coupled with the emerging forms of non-farm rural land use (especially in peri-urban areas), restructure has resulted primarily in a dual process of fewer but larger farms with an increased agricultural output, and an growing number of small rural landholdings operating at a sub-commercial scale, or with no agricultural output at all. Victoria's rural landscapes are varied, with continuing areas of high production and increasing scale in the state's west (for example the Wimmera) and in northern irrigation areas, while other areas might be described as *amenity* landscapes (Barr 2005) or the shifting *transitional* landscapes where non-farming land use and influence is increasing. Importantly, many rural areas in Victoria should be considered as multi-functional landscapes, while in others the importance of the (albeit changing) agricultural economy, and relative homogeneity of land use, has remained.

The process of restructure and change has not been uniform geographically or between industry and commodity types. For example, in Victoria over the past 30 years, industries such as dairying and horticulture have seen significant growth in production from fewer farms – often as a consequence of deliberate policy approaches to land and water management - while the more modest growth in industries such as beef cattle and viticulture have involved an increase in producer numbers at the small scale (Barr & McKenzie, 2007). The latter industries are increasingly components of agricultural activity (including part-time agriculture) in what may be considered as transition and amenity landscapes, and some of these are represented in this report. The complexity of the process of change is revealed in the study areas selected for this research – the increasing scale of farm businesses, and the concurrent increase in smaller sub-commercial activities has a geography, with the agricultural regions and 'post-productive' rural landscapes emerging, often with proximity.

Consequent social process and settlement processes are also evident that have bearing on local perceptions of agriculture and food production. Population change in Victoria can also be

generally understood as a divergent process where population decline in agricultural areas has occurred concurrently with population growth in transition and peri-urban regions. The centralisation of population in fewer larger centres (for example Horsham and Mildura) is a feature of Victoria's west and north-west (Budge 2005), while in coastal areas, hillsides and peri-urban areas population increase is evident in small and large towns and across rural landscapes (Buxton et al 2008).

Figure 5: Average Annual Population Change 1996-2006 (%)



Long term processes of the centralisation of government and commercial services in dryland and irrigation farming areas are well described (see for example Baum et al 2008), and these are coupled with the employment consequences of increasing farm scale and a declining agricultural labour-force. In growing rural regions however, increased mobility, a changing employment profile and housing choice and affordability are all components of a increase in of population and housing – at once population and employment is becoming concentrated in fewer regions, yet options for employment location and for housing location within these areas have expanded. The divergent trajectories of population and economic change in Australian regional towns include processes such as population (and employment) centralization (although drivers are contested see for example Budge, 2006, Argent et al 2008), counter-urbanisation (Champion & Hugo, 2003) and ‘amenity migration’ (Burnley & Murphy 2004) are changing the patterning of settlement sizes and roles across Australia. Consequently patterns of urban expansion, scattered rural housing and the employment profile of large and small settlements reflect policy shifts, economic structure and changing location preferences among households.

For this study, these processes suggest that the role of agricultural in the socio-economy and landscape in Victoria has undergone changes that are not uniform and that alter the value and perception of agriculture within the broader community. The understanding of agricultural and

rural land as a productive resource, or in terms of post-productive values (Argent, 2002) has an impact on the perceptions of agricultural industries and food production. For example, in Melbourne's peri-urban region overall agricultural production has not experienced decline despite land use change, but has rather seen concurrent growth in small-scale, often niche, farming and in large scale intensive agriculture (Buxton et al, 2009). The role of rural land and rural place in this context is complex, providing a land resource, a landscape for consumption and a rural space for activities with a potential for high local impacts. The structures of agriculture are therefore diverse, as are linkages into local and regional economies – likewise the nature of 'food economies' as producer regions, manufacturing regions or consumption focussed food and leisure regions is varied.

Profiling Local Social and Agricultural Landscapes

Understanding the dynamics of social and agricultural change in the study area reveals the complexity of interplay between population dynamics, the structural strengths and weaknesses of the local economy (and the role of that economy within a regional context) and the relative importance of local agricultural employment, mobility and regional employment for the community and economy.

More specifically, the case study areas we have selected reveal a range of structural relationships between community and agricultural production. In some cases the role of commodity agriculture, and consequent food processing remain clearly important components of the economy and employment structures at a local and regional level, in others this link is weakened by emergent urban drivers of change, while in some locations agriculture appears to be structurally declining, while the *symbolic* value of food production remains and is expressed through identity and parallel components of change, such as tourism and rural population change in amenity landscapes.

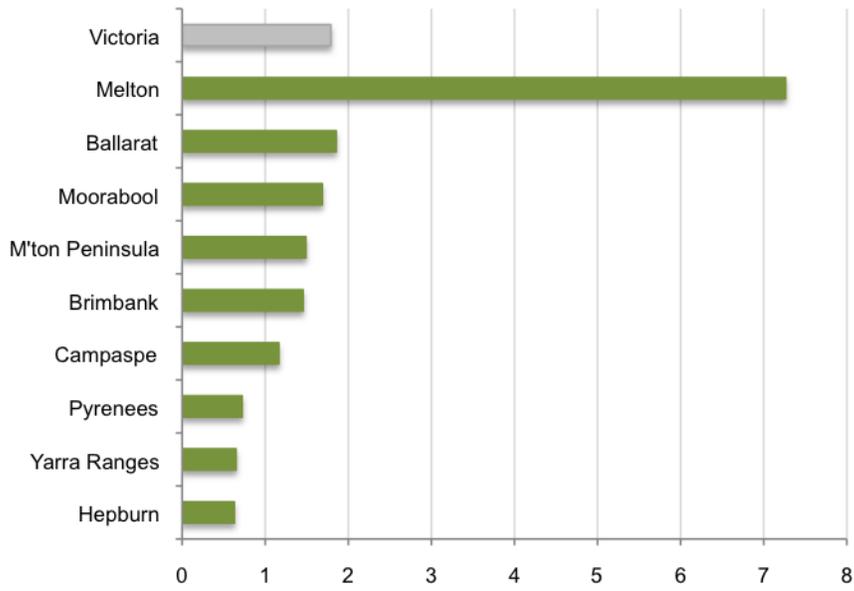
Consequently, the profiles below include an overview of the socio-economic drivers and characteristics of these areas with specific reference to population change, employment profiles and the agricultural economy. But importantly, they reveal the interplay between changing population and economic structures with a focus on the nature of the food related economy. The profiles include discussions from existing publications and strategies, as well as data from the ABS Population Estimates, the ABS Census of Population and Housing, the ABS Agricultural Census (and Surveys) since 1983 and DPCD population summaries and forecasts.

Population Drivers

The regions offer us a variety of example of the processes affecting population change in Victoria (and indeed across Australia). High-growth areas, especially on the metropolitan fringe, contrast with moderate and low growth regions further from large centres. Some locations draw significant levels of new residents from Melbourne, others from more distant rural areas. The study areas are all experiences population growth. The fringe metropolitan areas in the study are growing most rapidly, with slower growth in rural locations. Peri-urban and regional centres in Victoria have experienced population growth over the past two decades – more distant locations have more mixed patterns of change.

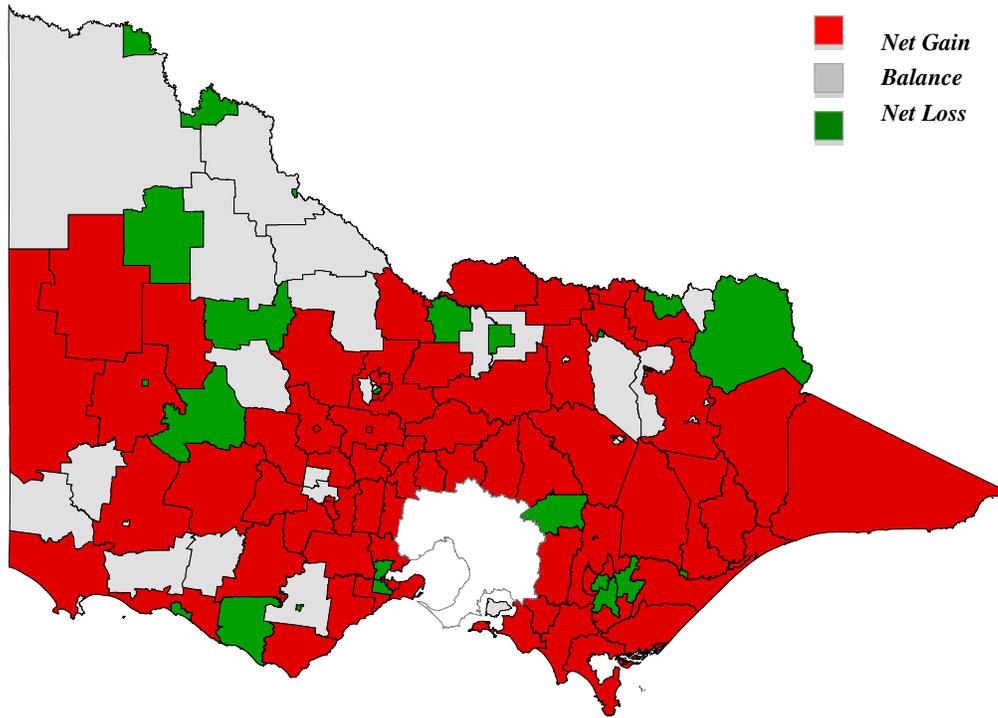
Growth and land use change in Melton stands out as the most considerable change in population and potentially in the character of place and community. In the context of metropolitan Melbourne, this area has emerged as a high growth corridor, with consequent land use change. In contrast Yarra Ranges has experienced slow population growth with little expansion of the urban area.

Figure 6: Average Annual Population Change, 2004-2009 (%)



Consequent patterns of residential housing development and land use change are reflective of these patterns of growth, however the spread of growth varies within these areas; for example in locations such as Moorabool, Pyrenees and Hepburn new housing outside of existing urban centres is significant, in Campaspe dual processes of high growth (near Echuca) contrast with decline in some irrigation and dryland farming areas.

Figure 7: Net Migration (ex-Melbourne) 2001-2006



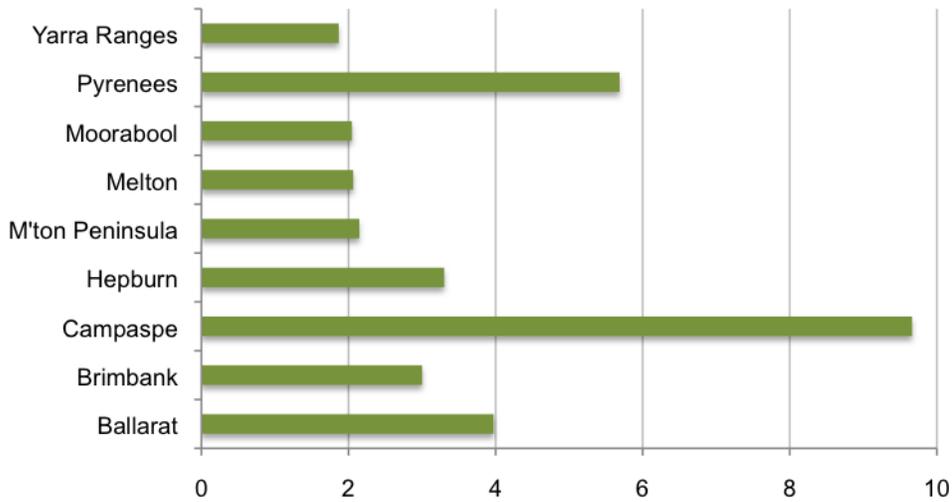
The process counter-urbanisation, in this case movement from Melbourne, is a strong feature of population change in many areas of regional Victoria, including most of the study locations. This is generally age-specific – with young people leaving regional Victoria (with the exception of larger regional centres) and older people tending to move in. Generally high levels of population ‘churn’ are evident in peri-urban areas.

Employment Characteristics

A series of changes in employment structures have occurred in urban and rural Victoria in recent decades, these include a decline in Agricultural employment (and a concurrent ageing of the farmer population), decline in manufacturing employment and growth in service sector employment. In a number of locations employment structures once dominated by one of two industries have become more mixed, in some locations increased mobility and commuting have changed the spatial relationships between home and work.

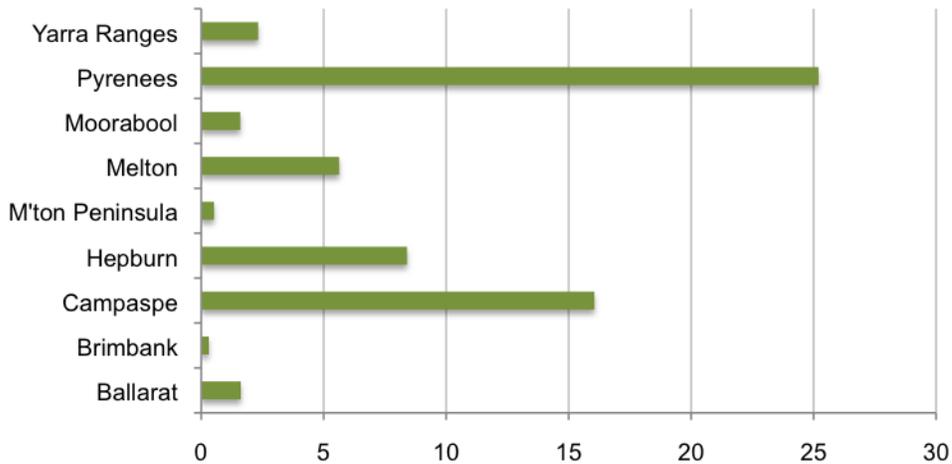
For this study, the linkages between food and employment offer some perspectives on the economic linkages within the food industry. Of note are the linkages between food processing and agricultural employment in Campaspe and Hepburn Shires. Additionally, however there has been considerable growth in the hospitality sector in a number of the study locations.

Figure 8: Employment in Food and Beverage Processing (% of Total Employment) 2006



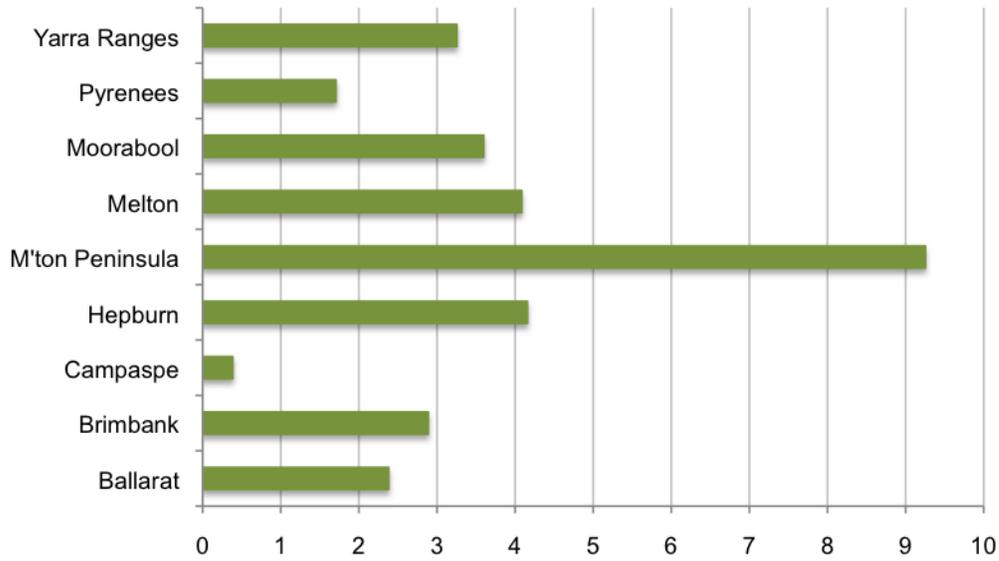
Agricultural employment continues to decline in all of the study areas. It remains the most significant employment sector in Pyrenees and Campaspe Shires despite a decline in farm numbers and broader structural changes in agricultural employment levels.

Figure 9: Employment in Agriculture (% of Total Employment) 2006



Hospitality, food and accommodation services represent a growing component of employment in each location. In Hepburn Shire, this employment represents almost 10% of all employment, with a slightly lower proportion in Ballarat and Moorabool. Employment in this sector is significant and growing.

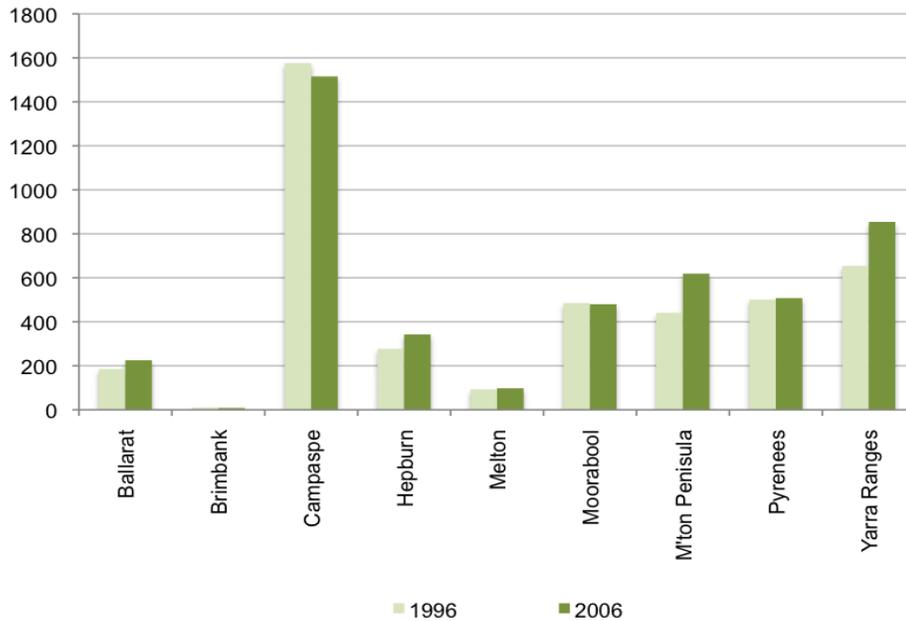
Figure 10: Average Annual Change (%) Employment in Hospitality/Food Services 1996-2006



Agricultural Profiles

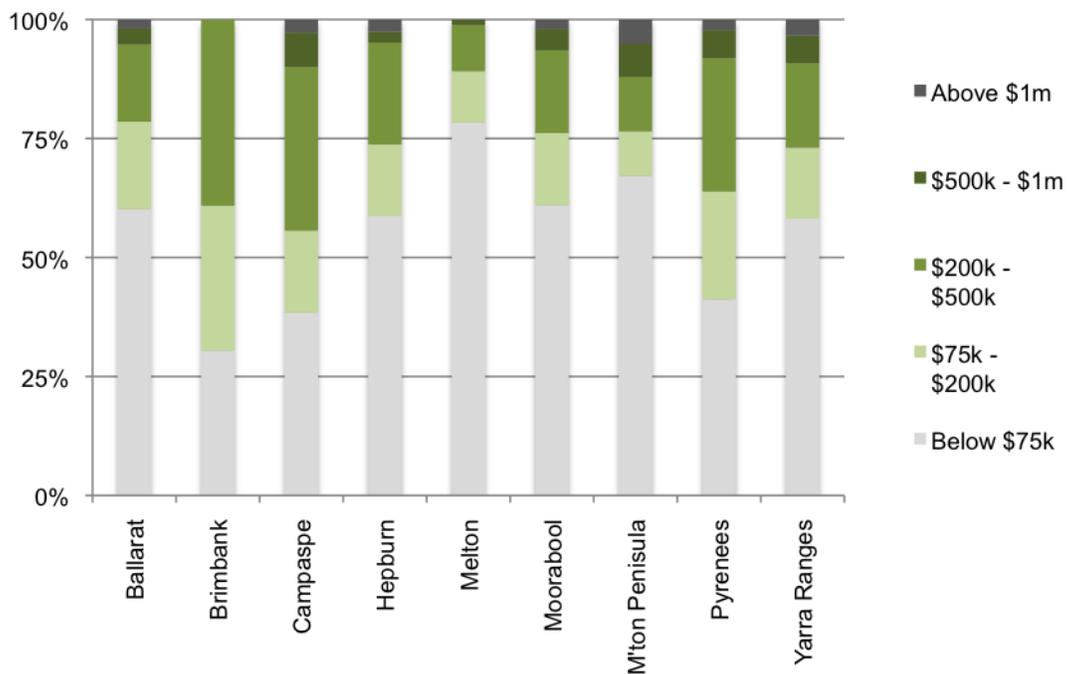
As discussed above, agricultural change in Victoria reflects the processes of land use change which has seen dual processes of fewer, larger farms in some areas and a proliferation of small and sub-commercial farms in those areas closer to large urban centres and 'amenity' landscapes in hills and along the coast. Further, the profile of the study locations suggests a complexity of agricultural change that has resulted in those patterns often occurring for different commodities within the same area. Additional complexity arises when sub-commercial farms are considered, and those businesses where agricultural production continues but is ancillary to accommodation or the processing of food and wine.

Figure 11: Farm Businesses Numbers 1996-2006



Farm business numbers were recorded as declining in or stable in the solidly agricultural areas of Campaspe and Pyrenees, but increasing in Yarra Ranges and Mornington Peninsula. Further analysis reveals that those areas are experiencing a growth in farm numbers

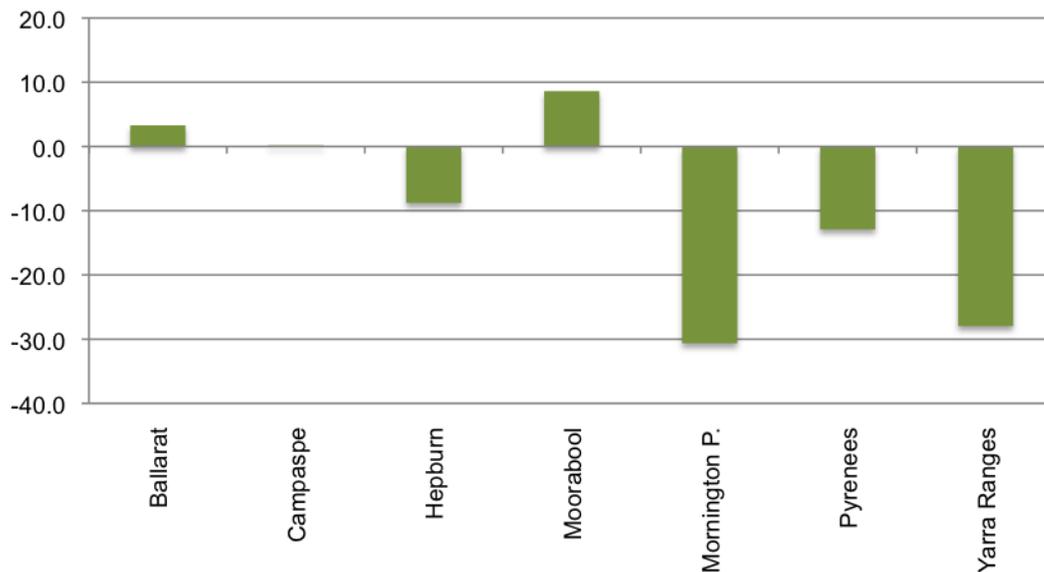
Figure 12: Farm Businesses by Estimated Value of Agricultural Output (Turnover) 2006



The table above provides a break down of farm enterprise scale based on output (turnover). Those farm businesses with an annual output of less than \$75,000 would be anticipated to achieve profits lower than typical household incomes, while those in the next bracket may draw a sufficient income, but be more constrained in terms of adjustment and reinvestment. Of course this varies between industry types, and in many instances access to off-farm income and investment from this income is a key element of local agriculture.

The scale of farm businesses reflects a diverse situation. In locations such as Campaspe and Pyrenees Shires there is a higher proportion of large-scale farm businesses, while in others there are often over 50% of all businesses with an output of under \$75,000. The dominance of small farms in these locations is a feature of a range of factors including the proliferation of sub-commercial lifestyle farms and access to off-farm income in urban areas.

Figure 13: Annual Average Change in Intensive Livestock Numbers 1989-2009*

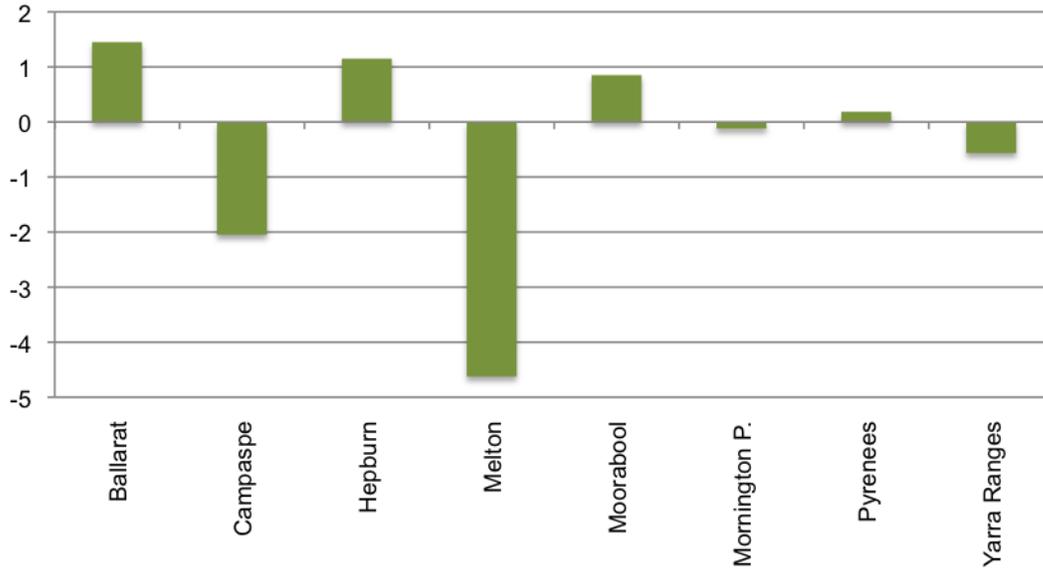


**Limited Data and Numbers in Brimbank and Melton - Mornington Peninsula data is 1989-2008*

Intensive livestock production (including piggeries and shed-based poultry raising) has experienced increasing scale and concentration in recent decades. During this period there has also been a spatial redistribution with operators seeking locations more distant from existing and likely urban expansion. Declining in numbers in locations such as Yarra Ranges and the Mornington Peninsula (and nearby areas) can be considered as a result of both urban growth and the changing nature of operations. Expanded large-scale poultry raising in areas such as Nagambie and landscapes between Geelong and Ballarat are a reaction to this.

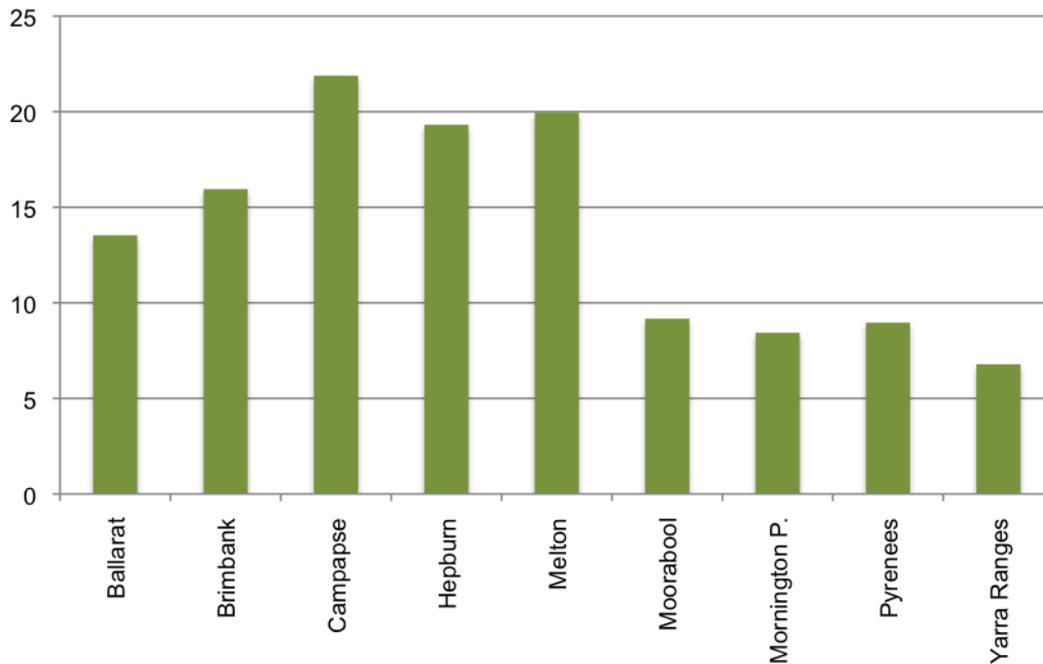
Changing patterns of grazing is more varied. In some locations declining cattle numbers have been recorded as the result of land use change. In some peri-urban locations cattle numbers have increased, with smaller businesses involved in this industry.

Figure 14: Annual Average Change in Cattle Numbers 1989-2009*



Viticulture has expanded in all case study areas, often from a very small base. As an industry, this includes large-scale plantings in areas such as Campaspe Shire (particularly those areas within in the Heathcote Wine Region) and growth in areas where a concurrent tourist industry is an important element of industry expansion, such as in the Yarra Ranges.

Figure 15: Average Annual Change (%) – Area Planted to Grapes (ha) 1998-2008



The varied patterns of change and the inter-linkages between agriculture, population and employment reveal diverse 'local food' structures, at least when explored from secondary data. The local profiles below describe these linkages, offering some analysis of connections between them.

Local Profiles

Ballarat

The City of Ballarat includes urban Ballarat and surrounds with a population of just over 94,000 and areas of rural land to the north west and south east. The city itself has experienced considerable population growth over the past 20 years, and has increased its urban footprint into a number of areas, including previously farming landscapes to the city's west.

Population Drivers

The population has grown by 1.2% per year since the 1990s – slightly below the growth rate for Victoria overall. Key population drivers relate to the growth of employment locally, increasing proximity to Melbourne of Ballarat (and the Moorabool growth corridor) and processes of population and employment centralisation in Western Victoria. The population is ageing marginally, although inward movement to central Ballarat and its expanding suburbs is characterised by a younger population profile.

Employment Characteristics

Local employment is varied, with Retail Trade, Manufacturing and Health/Education Services being large components of the local employment structure. Agricultural employment is a small component of the employment profile, and this includes employment in Agricultural Services. Manufacturing represents 13% of Ballarat's employment is varied, with Food and Beverage Manufacturing making up 31% of all manufacturing employment.

Agricultural Profile

Although Ballarat is a largely urban area with expanding residential and industrial development, especially to the west, agricultural land use in Ballarat includes broadacre cropping and grazing, vegetable growing and smaller-scale farming activities in areas that include rural residential development. In terms of farm businesses, most are beef, sheep farming and mixed farms, however Ballarat is home to poultry production, piggeries and dairies operating at scale. The decline in vegetable growing (production and businesses) since the 1990s (particularly potatoes) is the most significant shift in agriculture in Ballarat.

Brimbank

Brimbank is located on the north-western region of metropolitan Melbourne including Sunshine, Keilor and St Albans with a population of close to 185,000. The municipality is largely urban and residential, with the planned urban expansion reaching the limits of potential areas of growth. A small non-urban areas remains north of the Calder Highway and along the Maribyrnong River and Jacksons Creek. This area includes the site of market gardens and scattered housing.

Population Drivers

Drivers of population change relate to suburban flows within Melbourne. Locations such as Sunshine have mature and in some places ageing population, while fringe areas around Taylors Lakes have growing and younger populations. The area is characterised by household incomes generally lower than the metropolitan average and comparatively high rates of unemployment. Comparative housing affordability and the recent experience of edge suburban residential development have driven population growth.

Employment Characteristics

Employment in Brimbank is dominated by Manufacturing – which at close to 20% of the labour force is well above the metropolitan average. Employment in retail trade and transport/warehousing is also considerable. The manufacturing employment for this workforce includes sectors such as vehicle manufacturing and textiles, although food processing provides about 15% of manufacturing employment. The workforce is part of a broader manufacturing employment population in Melbourne’s west. Agriculture offers less than 1% of local jobs.

Agricultural Profile

Agriculture in Brimbank is limited to the small area of market gardening in Keilor adjoining the Maribyrnong River and some limited sub-commercial holdings nearby (less than 20 farm businesses). Recently this activity has experienced reduced access to water and production has been limited. The future of this area has been subject to a number of studies including *North of the Calder Non-urban Land Review (2006)* and *Horticultural Characteristics of the Keilor District (2005)* seeking to determine future viability and options for future land use. Presently this small area remains outside of the Urban Growth Boundary, although a number of land holders have sought zoning that would allow non-agricultural activities.

Campaspe

Campaspe Shire adjoins the River Murray and includes the urban centres of Echuca, Kyabram and Rochester. It has a population of almost 40,000 and includes areas of irrigation farming, urban development (especially close to the river) and dryland farming in the south. The area is part of the larger Murray River corridor ‘food bowl’ and despite high levels of population growth in and around towns on the river, retains a productive agricultural profile.

Population Drivers

Population dynamics are mixed, with Echuca and other towns close to the River Murray recording high levels of population growth in recent years. New housing and population in Echuca (and adjoining Moama) are well above growth rates in similar sized Victorian towns. Inward migration includes a range of ages, but older people are evident in this inward movement from both Melbourne and regional locations. In areas around Rushworth and Rochester population trends

Employment Characteristics

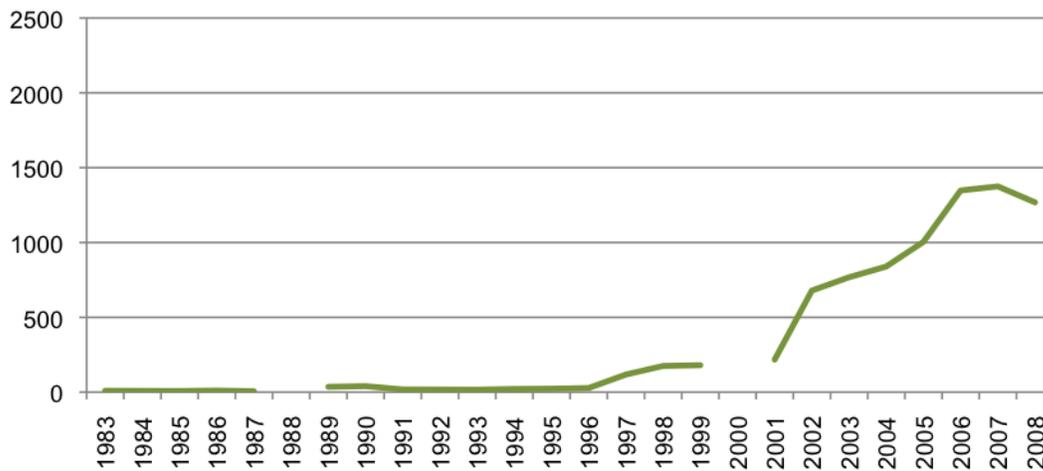
Employment is dominated by Agriculture (16%) and Manufacturing (15%) although agricultural employment has declined and sectors such as retailing, health, education and other service

sectors have grown since the 1990s. Food and beverage manufacturing make up over 60% of all manufacturing employment, with dairy processing being a large component of this.

Agricultural Profile

Agriculture in Campaspe is significant, contributing a Gross Value of Production of \$425m in 2008, an increase of \$100m since 1998. Key commodities include dairying and vegetable production. Beef cattle, mixed farming and rapid growth in viticulture are also features of local agriculture.

Figure 16: Area of Plantings (ha) – Grapes 1983-2008 (Campaspe)



Key trends include the increasing scale (and consequent reduction in farm numbers in the dairy industry – with a reduction of 300 farms between 1996 and 2006, and the growth in industries such as wine grape growing, including in the south of the shire with connections to the Heathcote wine growing region.

Hepburn

Hepburn Shire, which includes the urban centres of Daylesford, Creswick and Clunes, is an area that has undergone change in both urban and rural areas. Tourism and lifestyle opportunities, particularly in the east of the Shire have driven a growth in part-time and sub-commercial farming, while the exurban expansion of Ballarat has changed the characteristics of areas in the south.

Population Drivers

The population of Hepburn is presently about 14,000 and growth has been modest, with some locations experiencing decline. The considerable growth of residential and tourism development close to Daylesford has not led to a string increase in overall population, but a high degree of ‘churn’ is evident with strong outward migration among young people and inward movement among older people. Some growth has occurred around Creswick, but likewise outward movement has been experienced. Movement inwards from metropolitan Melbourne is evident with inward movers slightly older and on higher incomes than those leaving.

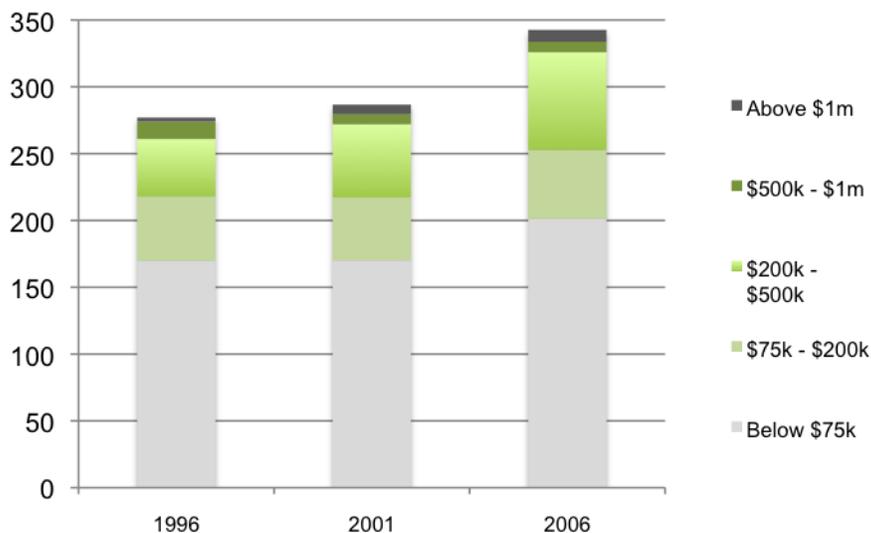
Employment Characteristics

Local employment is mixed with health care and community services the largest sector, followed by retail trade. Manufacturing, hospitality industries and agriculture are the next largest sectors. High growth has been experienced in construction and property services sectors – agricultural employment has declined since the 1990s.

Agricultural Profile

Agriculture in Hepburn is mixed, with some growth in industries such as dairying declining significantly since the 1980s, and others such as viticulture increasing. The area farmed has remained largely stable in recent years, although many businesses operate at a small scale. Sheep and vegetable growing, particularly in the west of the Shire are typically undertaken by larger enterprises.

Figure 17: Farm Businesses by Estimated Value of Agricultural Output (Hepburn) 1996-2006



Melton

Melton is rapidly growing municipality on Melbourne’s western fringe with a population of over 100,000 people. It includes areas such as Caroline Springs at the edge of metropolitan Melbourne and Melton itself. Recent changes to the Urban Growth Boundary have removed the non-urban break between these and in future Melton is likely to become part of a contiguous urban area. Presently agriculture remains in parts of Melton and non-urban land uses are expected to remain in these locations although pressures for development have resulted in a reduction in output from these areas.

Population Drivers

Population growth in Melton has occurred at very high rates since the 1990s. At over 7% per year this is well in excess of Melbourne’s overall growth rate. The median age is lower than other areas and household composition generally reflects the characteristics of new suburban areas. Relative housing affordability on the city fringe is the key driver of this growth, along with

improved transport linkages to Melbourne. Large household sizes and suburban housing forms have typified this growth and this has led to a considerable increase on the urban footprint.

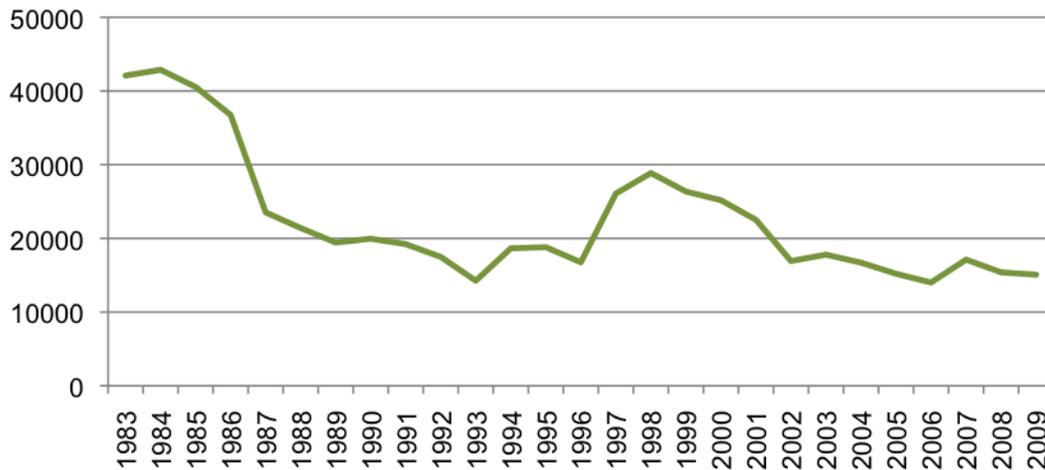
Employment Characteristics

Melton’s employment structure is strongly linked to Melbourne’s west. Manufacturing is the largest single employment sector, followed by retail trade and warehouse/transport employment. Growth has been spread across all sectors except for agriculture which has declined, but represents less than 1%of local employment. Food and beverage manufacturing represent 14% of manufacturing employment and the key manufacturing workplaces are outside of the local government boundaries.

Agricultural Profile

Urbanisation has significantly reduced agricultural activity in Melton since the 1980s. Activities such as dairying, cropping and grazing were all evident; but have now been reduced in scale and area.

Figure 18: Total Area of Agricultural Holdings (ha) – Melton 1983-2009



Likewise intensive industries such as poultry raising have declined. In addition to continued grazing at a small scale, some grape growing and associated winemaking is evident.

Moorabool

Moorabool is a growing municipality of about 28,000 people and includes urban centres such as Bacchus Marsh and Ballan that are increasingly within the social and economic influence of metropolitan Melbourne. These urban areas are growing, although a number of smaller centres have not experienced the same levels of population increase. Many of the rural landscapes of the area have experienced a transition to hobby farming and rural residential activities, and many of these locations are within the catchments of urban water and irrigation supplies.

Population Drivers

The population of Moorabool, particular in and around centres such as Bacchus Marsh and Ballan has increased over past decades driven by relative housing affordability and the increasing value placed on the lifestyle opportunities of small urban centres and rural landscapes with proximity to Melbourne and Ballarat. Inward population movement is largely drawn from metropolitan Melbourne and is relatively young. Peri-urban growth in Moorabool has included both urban development and small-lot housing in rural areas, however the majority of new housing over the past two decades has occurred in and around urban centres.

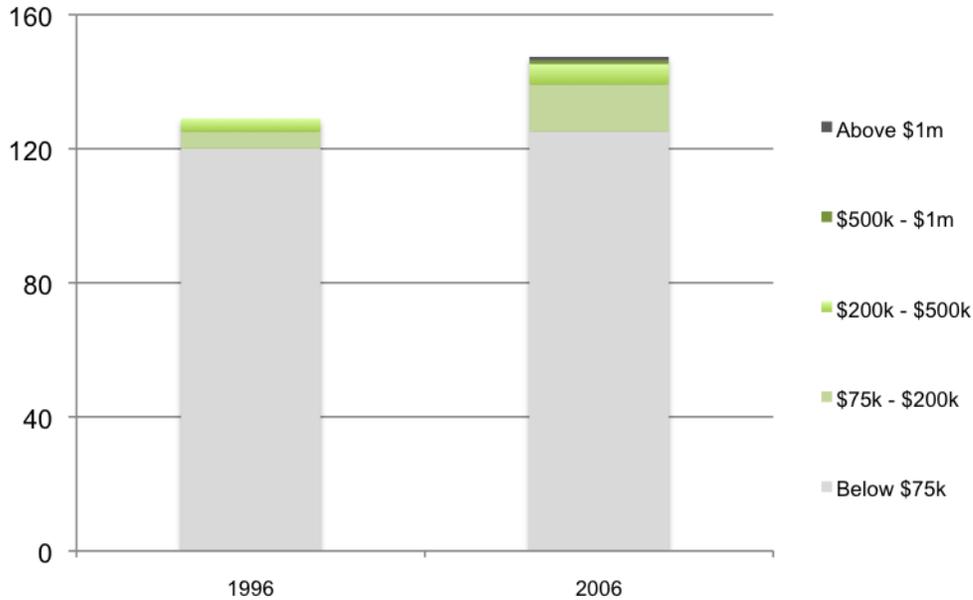
Employment Characteristics

The employment structure of Moorabool is mixed, with only the Manufacturing and Construction sectors each employing more than 10% of the total workforce. Agricultural employment accounts for 6% of the workforce (a decreasing share) with lower levels in those areas closest to Melbourne. Of manufacturing employment, 17% relates to food and beverage processing, while transport and machinery manufacturing account for the largest single sub-sector.

Agricultural Profile

Despite population growth and the expansion of exurban housing, Moorabool retains a number of key agricultural activities including fruit growing (including grapes and tree crops) and vegetable growing in addition to ongoing grazing and intensive agriculture (despite a decline in poultry raising in the 1990s). Despite this, the industry profile of Moorabool is dominated by small enterprises, with growth in those with a low turnover (despite any inflationary factors) as seen below.

Figure 19: Farm Businesses by Estimated Value of Agricultural Output (Beef Farms, Moorabool) 1996-2006



Mornington Peninsula

Mornington Peninsula Shire extends from Melbourne’s south-eastern fringes along Port Phillip and Westernport Bays to Bass Strait. The population is about 150,000 and includes high growth areas along the coast, suburban extensions from bayside and south-eastern suburbs and areas where the retention of rural, natural and farming landscapes has been achieved. Over previous decades a number of areas have made a clear transition from small town and tourist focussed development to clearly residential and usually commuter locations.

Population Drivers

The population of Mornington Peninsula has been growing rapidly in the east (Hastings and surrounds) and the areas closer to Frankston on the metropolitan fringe. Population growth is slower on the peninsula area. The population is ageing with inward movement among older people evident, particularly from suburban Melbourne. Household sizes are declining and housing growth is occurring at rates higher than population growth. While the highest growth areas (near Hastings) are largely occurring in residential suburban styles, other areas of growth include expansion into rural landscapes at relatively low densities.

Employment Characteristics

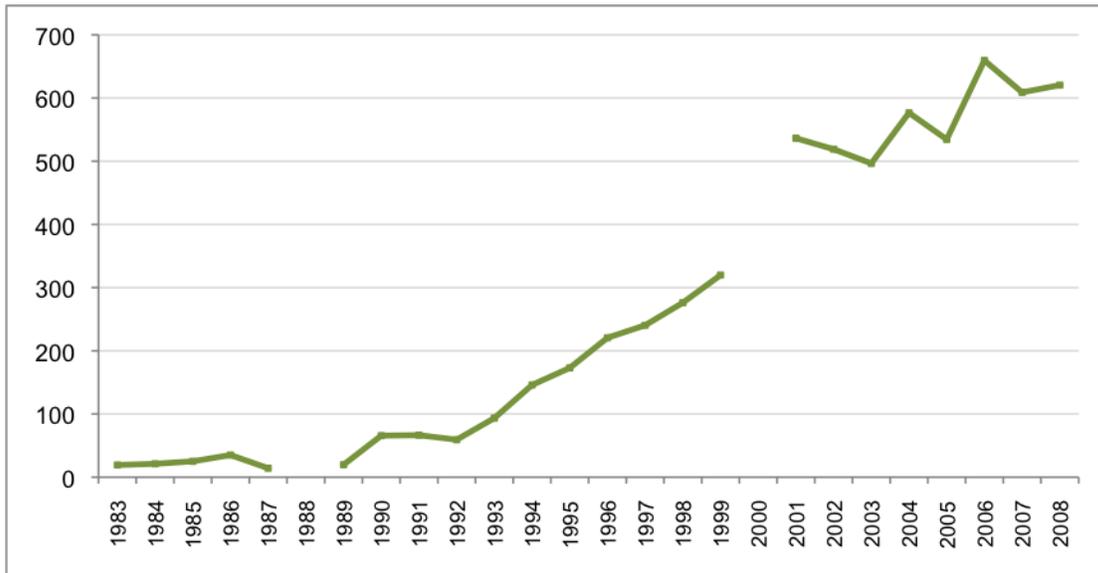
The employment structure of the Mornington Peninsula community is mixed, with Retail Trade, Health Services and Construction, along with Manufacturing, the largest sectors, each employing over 10% of the workforce. Within the manufacturing sector metal production (generally driven through the Westernport refinery) provides the highest share of employment with food and beverage manufacturing representing 17% of manufacturing employment. Agriculture employs

less than 2% of the workforce, a declining proportion, although overall numbers employed are stable.

Agricultural Profile

The Mornington Peninsula region exhibits the tensions in agricultural production of many other peri-urban localities; land use change and urban pressure contrast with the increasingly valued rural landscapes and the associated opportunities for small-scale agricultural and associated tourist and leisure-focussed enterprises. A number of operations occur at scale in this area, including fruit and vegetable growing. Wine grape production has increased in the area, and the development of a considerable local wine industry has occurred.

Figure 20: Total Area Planted (Grapes) – Mornington Peninsula 1983-2008



Other agricultural activities continue at small and large scale. Poultry meat production and non-food production (particularly plant nurseries) remain as significant local agricultural activities.

Pyrenees

Pyrenees Shire is located west of Ballarat and includes the urban centres of Beaufort and Avoca. The area is generally beyond the limits of peri-urban growth driven by metropolitan area, but has employment, retail and service linkages to Ballarat. The area has a small population of about 6,000 and has experienced slow to negative population growth in recent years, and processes such as population ageing and the inward movement of low-income households are features of demographic change.

Population Drivers

Population levels have remained stable in Pyrenees over recent decades. While solidly agricultural regions further north and west have experienced population decline, stability in the two key urban centres and some growth in surrounding rural landscapes (largely through land fragmentation and rural residential development) has allowed retention of population levels. Net inward movement among older people has largely offset outward movement among younger age groups – the population structure is ageing. Between 2001-2006 Pyrenees

experienced high levels of inward movement among groups on low incomes and those who remain unemployed.

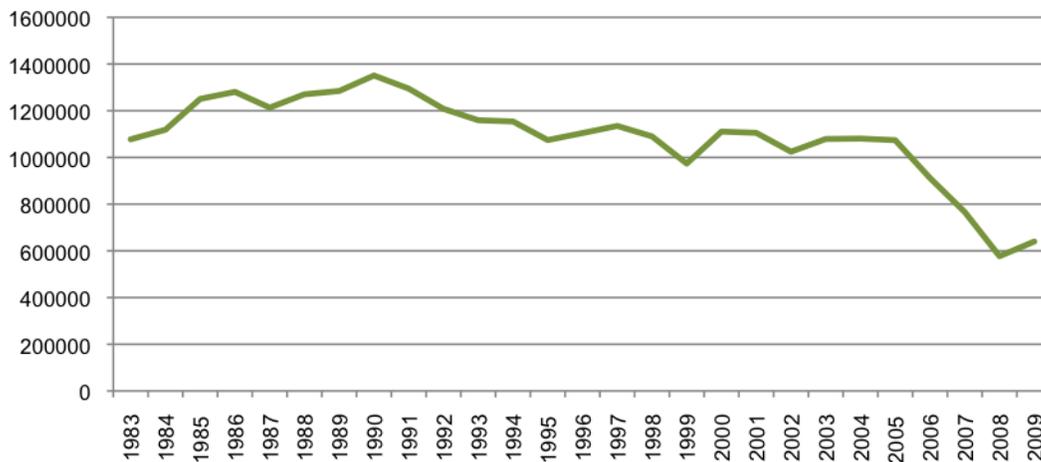
Employment Characteristics

Agriculture employs 25% of the local workforce, with manufacturing the next largest sector at 13%. Agricultural employment is, however declining in real and proportional terms and the sector has an ageing employment profile. Over 40% of the local manufacturing workforce is employed in food and beverage processing. Unemployment levels are high for young people and the general workforce.

Agricultural Profile

Pyrenees retains the characteristics of its traditional cropping and grazing agriculture, along with the emergence of new industries such as wine grape growing, at small and large scale. Overall farm numbers in the Pyrenees Shire have remained stable since the 1990s. Grazing and mixed farming at a range of enterprise scales dominate agriculture in the area, while some larger scale operations are evident in the grains industry and grape growing.

Figure 21: Total Sheep Numbers – Pyrenees 1983-2009



Traditional commodities such as sheep grazing have diminished in overall scale, despite some larger enterprises remaining in these industries. Small-scale farms involved in beef cattle grazing and grape growing have increased in number, as has the overall size of the cattle herd and the area planted to grapes.

Yarra Ranges

Yarra Ranges Shire extends from Melbourne’s fringes into a region of peri-urban settlements and extensive forested landscapes. The area’s population is close to 150,000 and stable. Over several decades population growth and urban expansion have been actively discouraged in the area even as the footprint of metropolitan Melbourne has expanded considerably in other areas.

Population Drivers

Population levels are generally stable growing at less than 1% per year in recent decades. While the Lilydale area has seen growth, communities in the Dandenongs themselves have experienced some population decline. The population is ageing, and overall household sizes have declined slightly. This population stability is significant as it is the product of a long-term process of urban containment, unlike other growth corridors and non-urban green wedges surrounding Melbourne. The maturity of housing and population structure does suggest some likelihood of either population stability and decline, or a process of significant population ‘churn’ in coming years.

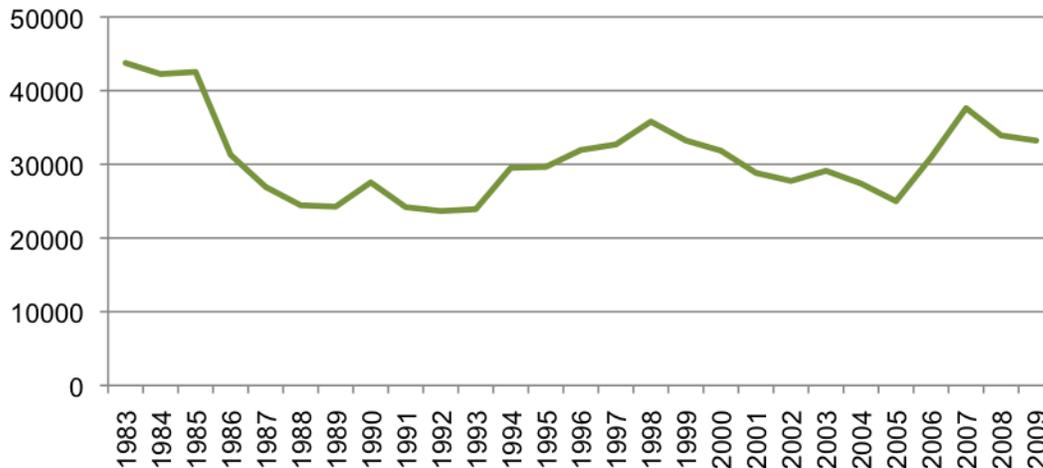
Employment Characteristics

Manufacturing (14%), Construction (12%) and Retail Trade (12%) are the largest local employment sectors in a mixed structure. Agriculture represents 2.5% and is declining while service sector employment is increasing. Transport and machinery production are key manufacturing subsectors, while food and beverage production represent only 13% of manufacturing employment. There has been significant growth in food and accommodation sector employment, although this represented only 5% of total employment in 2006.

Agricultural Profile

The agricultural profile of the Yarra Ranges area is characterised by some growth in farm business numbers, slight decline in the area of agricultural holdings and the emergence of a wine grape growing (and wine making) sector of significant scale.

Figure 22: Total Area of Agricultural Holdings (ha) – Yarra Ranges 1983-2009



The growth of viticulture (and to some extent other fruit crops) has been the most evident change in local agriculture. Livestock (both intensive and grazing) and other cropping has declined since the 1980s. The threefold increase in grape growing business between 1996 and 2006 has included operations at the small and large scale, although the industry is dominated by smaller operations in both area and turnover.

Industry, Population and Local Food Systems

These local summaries offer characteristics of local community and population change, the features of employment and the nature of change in agricultural systems, landscapes and businesses. In this respect the use of secondary data (census material) is very useful, but also limiting. As the case studies of local markets and other food related activities demonstrate, the broader characteristics of population, labour force and commercial-scale agriculture can mask ongoing activities and linkages at the local level.

Importantly, these profiles indicate that the changes occurring in production (agriculture) are variegated, and not related simply to an urban-rural divide. Additionally, trends in population and the expansion of population and housing through urban and peri-urban growth, while diluting the role of food production and processing have not in all instances diminished it. Examples such as the Yarra Ranges demonstrate the scope for the emergence of new agricultural sectors, and new industries with linkages well beyond production, on the fringes of metropolitan areas.

Nonetheless, the varied nature of local agriculture and food production and the role of these within communities are evident through these data. For example the strong role of food production in the mainstream agricultural and manufacturing sector in Campaspe contrasts with its increasingly marginal role in Moorabool or Mornington Peninsula. Yet in the latter locations, rural landscapes and the associated values of local food production as a key factor in identity and as a component of the consumption economy remain important. The significance of this sector in the identity and associated consumption economy is difficult to establish but is evident. Likewise in areas such as Pyrenees or Hepburn Shires where traditional forms of agriculture are increasingly limited in scale, new industries (such as wine grapes) are emerging. In a number of locations the continued scale of intensive agriculture supports overall industry output, but the local employment consequences appear more modest. The existence and consequence of local food networks is highly qualitative in nature and difficult to establish and quantify through large scale secondary data, however these data do offer ways to differentiate between those sectors experiencing growth, decline and emergence, and those communities where the flow-ons of production through manufacturing and consumption (including tourism) are strongest.

6. Land Use Planning Supporting Local Food Production

Sporadic attempts have been made across Australia's states to protect local food production and productive agricultural land from adverse land uses and developments. These measures have included land use policies and regulatory planning controls. These policies usually have been general and often not enforced. Some controls have been related to specific areas such as wine growing and some agricultural regions in South Australia, or non-urban metropolitan and regional areas in Victoria. Such controls rarely have been systematic, related to policy and implementation, or long lasting. The relationships between land use planning controls and the maintenance of food production areas and agricultural production have been little studied in Australia. This section of the report examines the relationships between large scale and specific area spatial planning and food production – specifically local food production and agricultural protection internationally and in Australia. In particular it focuses on the contribution of peri-urban agriculture to local food production, and the application and implementation of environmental management and land use planning measures to a case study area the Upper Yarra Valley and Dandenong Ranges area of Victoria. This case study area has been deliberately chosen in the context of this project because it demonstrates that a set of consistent policies and measures applied over a long term has the capacity to demonstrate the economic, environmental and social benefits of sustaining local food production and actually building on the benefits of that production to support employment growth and the local economy. It therefore provides a conceptual context to a case study of the relationships between local food production, local food systems, agricultural policy and practice, land use planning and environmental management.

Loss of agricultural land internationally

Land use planning controls exist in many parts of the world which at some level support agriculture. These controls exist not only to support localisation of food production but also to promote regional development or heritage preservation (Van Der Ploeg, 2000). Restrictive planning controls are used to protect values identified with a brand or a specific region of origin (sometimes called a geographic indicator). While restrictive controls are helpful in protecting or promoting a specific agriculture product, they do not promote the diversity in agriculture production. In order for a localised food system to be successful, measures need to be put in place which can showcase a range of social benefits. Social benefits manifest themselves in various forms from greater selection of localised produce to improvements in nutrition of the local population.

Significant losses of productive agricultural land continue globally. Opinions differ over the rate of farmland loss in the US. The general view is that about 1 million acres (about 450,000 ha) is lost annually. Nelson draws alarming conclusions from the rate of loss. In 1990, he estimated that one fifth of prime agricultural land in the US was located within 50 miles of the 100 largest urban areas. He showed that between 1982 and 1992 nearly 10 million acres (over four million hectares) of cropland were lost in the US and total sales of farm produce fell by over \$42 billion. In peri-urban areas sales of farm produce fell by \$19 billion. The 12 million new households expected to be added to exurban areas between 1990 and 2040 may reduce national sales of farm produce by up to \$100 billion annually. Exurbanization threatens much of the cropland located within about one hundred miles of central cities. As Nelson (1999:147) points out, "it is

not difficult to see that if recent trends continue, much of exurbia's cropland will be taken out of inventory within the next generation...at a cost to the American economy of perhaps trillions of dollars in farm sales".

Many other countries are also experiencing loss of farmland. In Canada, the rate of urban conversion of agricultural land is about one tenth that of the US loss, but it is still substantial. In the Toronto region, for example, over 117,000 hectares were lost between 1986 and 2001 (Walton, 2003, cited in Bourne et al., 2003). In the UK (England and Wales) the total loss was 2.5 per cent in the decade from 1970, falling from 19,414,000 hectares to 18,920,000 ha. in that period. In the decade from 1980 the loss was 1.9 per cent, with total farmland falling to 18,563,000 hectares (Alterman, 1997). Bouteille (1990, cited in Alterman, 1997) estimates that the rate of transfer of agricultural land into urban uses in the UK during the past 30 years has been about five per cent of total cultivated land. The Netherlands is particularly vulnerable to this trend: Needham et al. (1993) suggest that, if current rates of urbanisation continue, all Netherlands' farmland will be built on by the year 2280. Kraemer (2005) reports that, although the average size of farms is increasing in Germany, the number of active farms and full-time farmers is decreasing. The expansion of farm size is constrained by proximity to urban areas due to the operation of the land market. Structural change in agriculture is affected by national, EU and global policies, but land use influences on farming tend to replicate those described by Barr (2005) for Australia.

It is clear that government policy and land use planning measures are able to affect the rate of agricultural land use conversion in many countries and regions. In the UK, national planning policy and county and local council planning systems have combined to achieve strong protection of peri-urban areas from urban encroachment. The British Government has protected green belts through Planning Policy Guidance (PPG) Note 2 (PPG2) (UK DoE, 1988), recently revised, and through objectives stated in circulars 42/55 (UK DoE, 1955) and 1985/14 (UK DoE, 1985). The intention of this policy regime is to protect green belts from inappropriate development, although development is allowed under exceptional circumstances. Green belts have been used in the UK for about fifty years. They are "one of the most long-lived and popular environmental policies. Every account of green belts refers to the general consensus in their favour. Every political party makes almost ritual reference to its support for the policy, where possible claiming responsibility for its introduction, operation or protection." (Rydin and Myerson, 1989:471). Morris (1997: 99) observes that, in the UK, "in the popular mind, the principle of the green belt is the most sacred of planning principles, and has so far withstood the test of time".

European policies have often been directed at urban containment and landscape and farmland protection in urban hinterlands. Some countries develop national or state plans that are guided by broad EU and other policies. There tends to be greater integration of land use policy at different levels of government than is common in the US or Australia, with national or state plans guiding regional and local planning. Strong land use planning and legislative traditions exist in many European countries without the need for compensation to private landowners.

In Germany, planning powers are exercised by municipalities within a regional planning framework. Kraemer (2005:49,65) has argued that "stiff inter-municipal competition for jobs and inhabitants" is increasing with the result that, in a multitude of municipalities, local policies of expansion which ignore broader spatial planning policies are causing "absolute damage".

Urban corridors separated by green wedges are common to many German cities, such as Dusseldorf, Munich and Nuremberg. The Netherlands uses a similar legislative and planning approach and Hall (1984) points to the use of a strong joint conservation and urban containment policy there. Regulatory control of land use is weaker in France where there is little regional planning and national policy, and strong reliance on local planning. Many local authorities are small and have not prepared local plans. This is leading to significant peri-urban development in many areas. The strength of local decision making in some European countries is beginning to replicate the competitive dispersal policies and fragmented land use patterns and decision making processes so common through annexation practices in the US. These trends reinforce the lessons that the integrated planning of urban and peri-urban areas requires interventionist regional and statewide planning frameworks, and that reliance on municipal decision making alone will lead to inconsistent decisions and fragmented land use patterns.

Goodenough (1978:289) reports that, in the United States in the 1970s, the “growing acceptance of public land-use control”, including zoning and subdivision controls, amounted to “a quiet revolution”, while Rickard (1992) shows that by 1975, 37 states had introduced programs of statewide planning or review of local decisions. But a decade later, as Audirac (1999:25) observes, “the current anti-regulatory climate” in the US was such that “the future of the rural-urban fringe rests increasingly on private landowners’ decisions”. Even now protection of rural land relies on land trusts, purchase of development rights and conservation easements as the only politically acceptable controls: as Allen (2003:138) comments, “planned interventions seeking positive changes in rural-urban linkages that ...enhance the use and state of natural resources” are still rare. Nelson (1999) reports that only a limited number of US states use most or all of the techniques of exclusive farm use zoning, large lot zoning, right-to-farm laws, preferential tax assessment, and planning guidelines for prime agricultural land. These states include California, Connecticut, Florida, Maine, Rhode Island, Vermont and Washington where such land use controls are used only in certain areas, and Hawaii and Oregon where land use regulations are imposed state-wide.

Most US states have not introduced farmland zoning or other forms of land use controls or regulations, such as exclusive agricultural zoning on the Oregon and Hawaii models, to conserve peri-urban areas. Similarly, green belts are uncommon. More common is flexible agricultural zoning which places few, if any, barriers on conversion to urban uses; the use of economic instruments such as tax relief; and the use of ‘right to farm’ laws which are the least effective form of policy. Other mechanisms, such as the purchase or transfer of development rights, are rare.

Without strict controls on rural land uses and rural subdivision, peri-urban areas will continue to develop even while governments are pursuing consolidation and urban limitation policies. The effectiveness of the planning system to prevent the development of rural land will tend to diminish over time.

Response to System Stress – Havana and Urban Agriculture

With the onset of the 1990's and the collapse of the Soviet Union, agricultural production in Cuba was placed under an intense amount of stress. Known as the *Special Period*, this was a product of a high reliance on the Soviet Union for petroleum and seed stock as well as the trade embargo imposed by the United States (Deere, 1993). This caused widespread shortages of food and other staples which led to the government enacting austere measures such as food rationing to reduce consumption quickly (Deere, 1993). In response, a large portion of unused land in and around Havana was converted to agriculture. A few years after the special period began community gardens and local markets became commonplace (Altieri, 1999). Additionally consumption of nutrient rich foods such as fruits and vegetables increased dramatically resulting in a healthier society (Altieri, 1999).

While not strictly speaking a planning control, the experience of Havana demonstrates how food systems can be reinvented when faced with severe stress. What this demonstrates is: interventionist government policies can force real change in a population's behaviour towards food as well as the land where it is produced. Havana is an extreme case conducted during a short period of time. This leads to the next case demonstrating the use of prescriptive planning controls.

Protecting Productive Land -

British Columbia and the Agriculture Land Reserve

The province of British Columbia in Western Canada is a mixture of rugged mountains and river valleys which abut the north Pacific coast. Due to this geography, productive agriculture areas are restricted to the low lying areas of the province. These areas are in direct competition with the population centres of the province which are attempting to grow outward.

In an effort to stymie the conflict that can arise from competing land uses, the agriculture land reserve was established (British Columbia, 2002; Commission, 2010). This was intended to achieve three outcomes:

- To preserve the most productive agricultural land from development
- To focus population growth in existing urban areas
- Make urban areas of the province more cosmopolitan and sustainable by having easy access to a local food supply.

The principles of the Agriculture Land Reserve are sound and have brought many benefits to the urban areas of British Columbia. This is especially true of Vancouver, where access to fresh produce by urban dwellers is made possible due to the proximity of the Fraser River Valley (Commission, 2010). A high percentage of food consumed in Vancouver is still imported from outside the province. However, the agriculture land reserve is an alternative approach which provides a localised food system. Similar outcomes can be achieved with more traditional planning controls as the next example will demonstrate.

The New Zealand Experience

New Zealand seeks to market its agricultural produce as not environmentally harmful, particularly through the use of production techniques and through the minimisation of impacts. In 2004, the parliamentary commissioner for the environment's report, *Growing for Good*, showed that the intensification of agriculture (horticulture, livestock, and forestry) was creating harmful environmental impacts throughout the country (Environment, 2004). A related cause of the rapid intensification of agriculture in New Zealand was its full exposure to the world market. Few planning controls were in place to manage agriculture (Environment, 2004; Kriebel, 2008; Salmon, 2008). Due to the relatively large size of the export market for New Zealand agricultural goods, the need to improve the environmental situation in order to keep foreign markets open to New Zealand products was also noted in the 2004 report (Environment, 2004). This caused a push towards sustainable agricultural policy practices nationwide in order to offset and eventual deflation of the agricultural sector.

To achieve sustainable agricultural practices, it has been suggested that the key is to create regional frameworks which manage regional systems of essential resources allowing for the restoration of natural capital (Environment, 2004; Swaffield, 2008). This would help in promoting sustainable agricultural and demonstrate its connection with the larger rural environment (Salmon, 2008). Integrated Catchment Management was proposed in the *Growing for Good* report as a system for examining the regional impacts of agricultural practices with the intent to make such practices more sustainable, potentially leading to broader national or trans-national policies as exemplified in the following section.

Trans-national Policy –

The European Agriculture Fund for Rural Development

When dealing with numerous nationalities and political interests, the European Union (EU) provides an insight into how to create policy which supports localised food production. The agricultural fund for rural development operates under three broad principles:

- the competitiveness of agriculture and forestry;
- the environment and the countryside;
- the quality of life and the management of economic activity in rural areas.

The combined effort on these principles by each EU member will shape the rural landscape throughout Europe. At the national level each government is tasked with producing a national plan adhering to these principles (Legislation, 2009). This allows for a portion of policy to be managed at a local level. However, with the presence of free market policy there is some speculation as to how drastically different rural land use may appear between EU members as a result of the rural development fund (Primdahl, 2008). To combat this it is intended that lessons of success and failure from previous rural development policies will be examined (Legislation, 2009). The same approach could be used in Australia where currently protection of rural land for agriculture only exists at the state level.

Agricultural Land Use Policy in Australian States

Most state governments have been reluctant to prevent major development proposals that affect the agricultural value of land. Tasmania is also the only Australian State to have enacted Right to Farm legislation. Tasmania has very low rates of population growth and its productive farmland is under much lower levels of threat from urban development than in other States. In theory the Tasmanian Policy is the most prescriptive of all the States and has the advantage that, once enacted, all provisions in current local planning schemes are deemed invalid if they contradict the State Policy.

Due in part to its restricted geography, Tasmania has been forced to confront many environmental policy issues with higher motivation for rapid action than other states. A direct result of this sense of urgency has been an attempt to protect agricultural land leading to a state-wide policy in 2009 (Government of Tasmania, 2009). The *State Policy on the Protection of Agricultural Land* is comprehensive in scope listing various types of agriculture and holding to a set of principles which are intended to serve as planning instruments governing rural agricultural land use. Through the application of these policy principles it is possible to examine the impacts which altering the agricultural landscape will have upon the region. Additionally the policy notes different classifications for prime agricultural land leading to a grading system for which lands are of greatest importance for production (Government of Tasmania, 2009). However, the land policy in Tasmania does not specifically recognise the importance of localised food systems, only the importance of preserving agricultural land for regional sustainability.

In South East Queensland, where urban growth rates associated with the development of Brisbane and the Gold Coast are the most rapid in Australia, the protection of high quality agricultural land and management of metropolitan growth are now priority issues. The Queensland State Planning Policy on the Development and Conservation of Agricultural Land 1992 policy aimed to protect high quality agricultural land and, when introduced, was the most significant policy initiative by any of the States. This policy (Queensland Government, 1992:6) noted that productive agricultural land is a national resource and that “good quality agricultural land has a special importance and should not be built on unless there is an overriding need for the development in terms of public benefit and no other site is suitable for the particular purpose”.

The loss of productive land continued throughout the SEQ2001 planning process and even after the adoption of the State Policy in 1992 because strategies to manage urban development were largely advisory and lacked specific growth management measures. However, the Queensland State government’s South East Queensland Regional Plan (Office of Urban Management, 2004) now contains detailed enforceable planning requirements with the means to preserve agricultural land. This new plan directs growth away from the coast and from productive agricultural land. Enforcement will occur through a centralised approval mechanism for land rezoning in the hands of the Minister. The regional plan covers a large area up to 150 kilometres from Brisbane with a population of 2.65 million people which is projected to increase by another million persons by 2026 (Office of Urban Management, 2004). Without strong State government intervention the likely result of continuing consumer preference and market forces would result in urban development engulfing most of the remaining undeveloped coastal areas of south east

Queensland, as well as the attractive landscape areas that support major agricultural production.

The SEQ Regional Plan estimates that the south east region accounts for 14 per cent of Queensland's farm production (Office of Urban Management, 2004: 17). Houston's work would suggest that this figure is too low because it does not include production from small holdings. The Regional Plan notes that South East Queensland is also the hub of the state's agricultural processing industries (Office of Urban Management, 2004: 17). The Regional Plan contains a number of significant actions to implement the strategy in respect to "natural environment, resources and rural production". Farm production on the metropolitan edge increasingly is being valued for its contribution to employment and production in peri-urban and metropolitan areas. The Plan defines the Regional Landscape and Rural Production Area to be protected. This area includes "areas supporting rural activities including clusters of rural industries capitalising on the availability of particular soil types, water, climate or proximity to markets and processing facilities". The plan also recognises the multiple values people attach to productive rural areas, and notes that such landscapes "underpin the region's liveability" (Office of Urban Management, 2004:16) by providing open space, scenic amenity, nature conservation and outdoor recreation, for example. The regional plan thus acknowledges that agricultural landscapes "deliver a range of economic and community benefits across the entire region" (Office of Urban Management, 2004:16).

Land use planning and natural resource management in Victoria are governed by separate legislation and different administrative arrangements. This has led to different planning, policy and management arrangements for land use, water, agriculture, catchment management, environmental protection and the management of other natural resources. In 1996, the Victorian government introduced standardized statewide planning controls, the Victoria Planning Provisions (VPP). All Victorian councils were required to replace their planning schemes with the new provisions in new format planning schemes. The government in 2003 introduced replaced the Rural Zone (the major rural zone) with more regulatory Green Wedge and Green Wedge A zones as part of the implementation of the metropolitan strategy, *Melbourne 2030*. The report of the *Rural Zones Review*, in 2004, recommended the replacement of the rural zones with four new zones, Rural Industry Zone, Rural Activity Zone, Rural Conservation Zone, and Rural Living Zone. The government introduced these zones outside Melbourne's Green belt, substituting a Farming Zone for the Rural Industry Zone, and altering some provisions in the new zones, in 2004. In 2006, the government directed councils to replace existing rural zones with the new zones.

The State government also altered the planning policy context for rural areas of the State particularly to control the proliferation of rural-residential subdivision and to protect productive agricultural land. The government strengthened controls on rural residential development by introducing a Ministerial Direction in 1996, and altered the provisions on rural residential, rural living and retention of productive agricultural land in the State Planning Policy Framework (SPPF). Amendments to the SPPF introduced, in part, Ministerial Direction No.6 on Rural Residential Development and require an application for rural residential development to be consistent with a range of requirements including the need to locate any such development close to existing towns and urban centres, and not to encroach on productive agricultural land, or adversely affect environmental resources. In 2007, the government introduced a planning practice note on how to apply the new rural zones.

From the cases exhibited in the sections above it is apparent that no perfect solution exists for the preservation of land for food production. This can be attributed to the different approaches taken as well as the different stakeholders involved. However this is not an admission of resolve to abandon localised food systems, rather it is a statement that the task is a difficult one. It requires both the popular support of government at all levels and local communities, a task achieved through the showcasing of the positive impacts of planning controls.

Table 14: Agricultural Land Use Policy in Australian States

State	Response
New South Wales	State Environment Protection Policy NSW Department of Primary Industries Policy for Protection of Agricultural Land
Queensland	State Planning Policy Conservation and Development of Agricultural Land
South Australia	No Specific State Policy State Strategy References to Agricultural Land
Tasmania	State Policy on High Quality Agricultural Land Policy requirements incorporated in all planning schemes Right to Farm Legislation.
Victoria	State Planning Policy Policy requirements incorporated in all planning schemes Urban Growth Boundary Legislation, protection of green wedges, new rural zones
Western Australia	Statement of Planning Policy Agricultural and Rural Land Use

Rural land policy

The use of land use planning controls is strongly related to the protection of productive agricultural land in peri-urban areas of Australian cities. A number of Australian states have used strong state or regional planning mechanisms, principally zoning techniques, to prevent the adoption of non-urban uses and small lot subdivision. However, there is no national policy, and states adopt an inconsistent approach within and between states over time to the use planning mechanisms to protect agricultural land. Land use planning cannot require the adoption of designated uses. However, it can assist the retention of certain conditions which promote and support agricultural practice. It can also assist the maintenance of future options by, for example, preventing urban or rural-residential uses from encroaching on agricultural land.

Successful rural land policies are strongly related to integrated sectoral and spatial policies. Alterman (1997) concludes that the best way to protect the countryside is not by protecting farmland but by containing urban growth. In the UK, national planning policy and county and local council planning systems have combined to achieve strong protection of peri-urban areas from urban encroachment. The maintenance of identified landscape, environmental and agricultural values of non-urban areas is therefore connected strongly to broader policies on

limiting the spread of cities through intensification of urban development, promoting relatively high urban densities in outer urban areas and new township development separated from other urban areas by green belts or other farmland. Alterman proposes both the protection of farmland and the containment of urban growth as interacting measures to protect peri-urban areas. She argues that “public constituencies concerned with countryside preservation would do well to focus directly on changing the norms that support wasteful land utilization” (Alterman, 1997:221)..

Researchers reviewing the effectiveness of agricultural peri-urban and green belt zones agree that reliance on agricultural policy and the designation of agricultural areas alone will not prevent the conversion of land to urban purposes. In their review of urban sprawl in the Seattle region of Washington State, Robinson et al. (2005) conclude that the designation of long-term forest and agriculture production areas had the most beneficial impact in conserving landscapes and environmental resources in King County. However, the designation of these production areas was linked with strong limitations on development, coupled with the designation of urban growth areas and lower density rural areas elsewhere. In a comparison of farmland protection policies in six countries Alterman (1997:7) argued that the designation of agricultural areas cannot achieve broader goals such as the protection of landscapes, recreation areas and open space:

“Clearly, policies directed at the protection of agricultural land per se could not have achieved the successful countryside preservation that is so visible to any visitor to Britain. Instead, the British have given more attention to urban-planning policies called ‘urban restraint’, or ‘urban containment’. As Grant (1982:304) says, ‘The constraint policies of British planning are probably its most conspicuously successful achievement’. The goal has been to produce an urban structure that provides infrastructure efficiently while preserving countryside beauty. Farmland preservation is often an afterthought or byproduct”.

Alterman (1997:228,236) also argues that peri-urban agriculture will increasingly become less viable or become a form of intensive factory production with major landscape impacts. Countryside preservation must be a goal in its own right, she argues. The Netherlands “demonstrates vividly that reliance on agriculture as a means for keeping open space is increasingly fallacious. Agriculture and countryside preservation are two separate goals”. In a review of the European Commission White Paper *The Future of Rural Society*, Errington (1994:368) argues that peri-urban areas and their distinctive problems should not be ignored in the development of rural policy, and that “rural policy is most appropriately viewed as a facet of regional, rather than agricultural, policy”.

Contribution of Peri-Urban Land to Agriculture

One of the over-riding problems in Australia in establishing the importance and value of agricultural land has been the difficulty of quantifying the value of agriculture on the urban fringe. There has been little systematic work at a national level to quantify the national or even state importance of urban fringe land for agriculture (Houston, 2005). Data on the scale and economic value of agriculture in Australia is officially prepared through a comprehensive survey program conducted by the Australian Bureau of Statistics (ABS). There are limitations to this

process, however. It relies on sample surveys of landholders and only properties above a specified monetary level of agricultural production are counted.

This data shows that Australia's agricultural production has doubled in the last 25 years (ABARE, 2004) but its share of GDP has fallen from about 20 per cent 50 years ago to below 4 per cent today (ABS, 2005 cited in Young et al, 2006). This situation is compounded by the difficulty of defining what constitutes the urban fringe and whether it is productive land or not. There is no agreed national rating system of land capability that has been applied to create common mapping across states. The experience has been that productive land on the metropolitan fringe is often not being used for agricultural purposes because it is being held by the owner in anticipation of it being converted to urban use (Caldwell and Dodds-Weir, 2003). Land often sits idle for many years in the expectation of windfall profits. All these factors have combined to make it difficult to map productive land, to quantify its productive value and to establish its relative importance.

The National Audit of Peri-urban Agriculture (NAPUA) has investigated issues associated with agriculture in Australian peri-urban areas. To Houston (2005:210) "conventional wisdom about agriculture in Australia's peri-urban regions tends to be dismissive about its economic significance". However, he points out that "peri-urban agriculture is more economically significant than conventional wisdom suggests" (Houston, 2003:43). Houston estimates that Australia's peri-urban regions comprise less than 3 per cent of the land used for agriculture, but are responsible for almost 25 per cent of the gross value of agricultural production in the five mainland state, with most of that coming from the peri-urban areas around the metropolitan areas. This value may be even higher because ABS data is geared to broadscale agricultural production and "consistently and substantially understates the value of agricultural production in peri-urban regions" by adopting a statistical threshold based on Estimated Value of Agricultural Output (EVAO) which ignores smaller and intensive industries situated close to major population centres (Houston, 2005:217). Houston (2005:217) cites publications which show under-reporting for flower, nursery and wine grape industries (Gardner, 1994; Langworthy and Hackett, 2000; Primary Industries South Australia, 1993), as well as fruit production and vegetables (Kininmonth, 2000, citing van Gool and Runge, 1999). Using Houston's defining peri-urban characteristics The Victorian Department of Sustainability and Environment states that "Victoria's peri-urban region accounts for around one quarter of the State's land area but half of the agricultural production value" (DSE, 2006:16, citing Houston, 2004). Houston shows that "in the mid-1990s, NSW Agriculture found that, while ABS statistics on vegetable production in the Blacktown local government area were based on census returns from 30 growers, their own records identified 182 growers" Houston (2005:218). The self-administered nature of the Census makes it possible for some producers to not file returns.

There are still very important and significant levels of agricultural production in peri-urban areas, often in high value specialty agricultural land uses (Houston, 2005). These range from traditional intensive types, such as the horticulture and viticulture of Victoria's Yarra Valley, and the vegetables of South East Queensland's Lockyer Valley which produces a third of Queensland's vegetables particularly supplying the south-east of the state, e.g. in 2005 it provided 44% cauliflowers, 60% lettuce, 75% broccoli, 90% carrots and 99% beetroot (Willis 2005.). The SEQ region constitutes only 1.3 per cent of Queensland yet accounts for 14 per cent of the State's total 'farm gate' turnover. As the hub for Queensland's agricultural manufacturing

and processing industries, in 2002 it generated a turnover of \$6.24 billion per annum (Q.DPI and SEQROC, 2002).

Peri urban agriculture in the Sydney basin has a farmgate value of over \$1 billion per annum, which includes \$250 million in vegetable production and \$278 million in poultry. It involves over 2,000 market gardens which produces 90 percent of the city's fresh vegetables and employs over 5,000 people (Parker 2007). Knowd et al. (2007) report that Sydney's agriculture is very intensive, valued at \$5,433 per hectare in comparison to NSW's average of \$136 per hectare. These figures are based on individual industries and local government areas and vary considerable to ABS figures.

Recent research has identified that in 2007-08, the food sector represented 15.0% (\$36.2 billion) of Victoria's Gross value added and In Melbourne, represented 12.3% (\$21.2 billion) of gross value added. In 2007-08 the Food industry employed 366,000 people in Victoria, of which 210,000 were employed in Melbourne. The food sector is a larger sector than manufacturing and is the second largest in the State's economy (SGS Planning & Economic 2009).

Buxton and Goodman (2002) note that the Werribee South green wedge area to the south west of Melbourne provides up to 70 per cent of south eastern Australia's leaf and kale crops. Kellock (A. Kellock Associates, 2000:26) found that "The average value of agricultural production per hectare in the peri-metropolitan areas around Melbourne is twice that of the other nine geographical catchments that are used in the State of Victoria for natural resource management planning and is more than three times the State average".

The Port Phillip region around Melbourne is the second highest producer of agricultural products in Victoria. The average gross value of its agricultural output per hectare is at least three times greater than any other region in the state and four times greater than the state average (Port Phillip and Westernport Catchment Management Authority, 2004).

The Upper Yarra Valley and Dandenong Ranges Region: A Case Study in Long Term Provision for Local Food Production

The Upper Yarra Valley and Dandenong Ranges region extends from the eastern edge of metropolitan Melbourne to the Thompson River in the Great Dividing Range. Its boundary at the Melbourne end extends from the southern foothills of the Dandenong Ranges at Lysterfield, along the base of the Dandenong Ranges escarpment at Ferntree Gully and The Basin, encompassing the main Upper Yarra Valley. The region was formerly defined by the boundaries of the four municipalities forming the region identified with the former Upper Yarra Valley and Dandenong Ranges Authority (the shires of Lillydale, Sherbrooke, Healesville and Upper Yarra) covered an area of 3000 square kilometres. Urban land comprised about 3 per cent of this area, non urban land 23 per cent and public land 74 per cent. In 1977 the region's population was 105,000 people. The region is now associated with the area of the Shire of Yarra Ranges. It covers an area of about 2,500 square kilometres and includes about 137,600 residents in 47,000 households. About one third of the population lives in suburban areas at the western end of the Shire on the fringe of metropolitan Melbourne, the balance in 40 small townships and the rural areas. Many people work outside the region in the metropolitan area. There is a mix of larger

and small scale industry comprising manufacturing and service industries in the western areas of the Shire. The region also has a significant rural focus.

Population projections under current land use and development policies now show a relatively stable level peaking at 144,100 around the year 2011 then falling to 140,800 by 2021. The average annual population growth between 1991-1996 was 0.1 per cent and the population is expected to increase by about four per cent over the next 20 years.

The Yarra Valley and Dandenong Ranges are renowned for the diversity of their landscapes, from forests and mountain ranges, national parks, intensive agricultural areas and other rural landscapes, to small picturesque towns and major tourist attractions such as vineyards.

The region attracts over 2.5 million visitors a year making it Victoria's second most visited tourist area. Its national and international importance is reflected by the number of visitors to the region, and by the importance of its unique environment and its economic contribution to the State's economy.

The need for protection – agriculture

State and regional policy from the early 1970s identified the region as an area of State, regional and local significance. Government statements and the regional authority's charter made it clear that environmental protection was important both in itself and because environmental values underpinned the region's economy with substantial economic benefits to Melbourne and the state. The Upper Yarra Valley and Dandenong Ranges Authority Investigations Report (1980:i) identified the region's significance for Melbourne and Victoria in terms of its water resources, food production, forest products, landscapes, recreation and tourism opportunities, and its natural, historical and archaeological features. In 1977/78 only 5.4 per cent or 3,687 ha of the non urban land in the region was used for intensive agriculture but vegetable growing, nurseries, bulb and cut flower production were significant in terms of total production and share of the Victorian market, producing 75 per cent of the state's berry crop (1,900 tonnes), 20 per cent of the carrot crop (10,000 tonnes), 59 per cent of cut flower/nursery production and 10 per cent of the Brassica crop (4,500 tonnes) (Phillips and Ransom, 1979). In the late 1970s, the Upper Yarra catchment of 76,000 ha supplied over 70 per cent of Melbourne's water consumption. Parts of the region supplied the Thomson catchment and the region supplied water to 52,000 regional residents.

The importance of rural land use planning as a means of protecting actual and potential agricultural production can be illustrated by the recent history of the wine industry in the Upper Yarra Valley. From 35 ha under vineyards in 1973/74, by 1998 there were an estimated 114 vineyards and 50 wineries in the Yarra Valley region and about 2,500 hectares under cultivation. This increase in production was made possible by the introduction of regional planning controls under state government legislation during the 1970s. These land use controls prevented the spread of urban and rural residential development into agricultural areas of the Upper Yarra Valley, limited land speculation and maintained a sufficient rate of return on agricultural investment. These benefits have been recognised by farming groups. For example, the Yarra Valley Winegrowers Association in a submission to the Review Panel for the 1998 Shire of Yarra Ranges Planning Scheme wrote that: "Unless rural land is available for vineyard expansion and tourism developments the industry will fail to grow. It will slowly atrophy as the leapfrogging

developments swallow up the vineyards and turn the tourist vistas into a sea of residential subdivisions.” (Yarra Valley Winegrowers Association, 1998). The growth in the wine industry has added another major aspect to the region’s many attractions, with over 600,000 visitors a year to the numerous wineries and associated activities such as restaurants. The wine industry is now a significant employer of labour and underpins much of the economic activity in the region with an estimated turnover of \$100 million annually.

Two studies over time allow a comparison of agricultural output related to planning controls. The first is a 1979 farming study conducted for the Upper Yarra Valley and Dandenong Ranges Authority (Phillips and Associates, and Ransom, 1979). The second is a study by the Victorian Department of Primary Industries (Parbery et.al. 2008). These will be examined in turn.

Farming study, 1979

The 1979 farming study investigated agricultural practice in the Upper Yarra Valley and Dandenong Ranges region in the late 1970s. It contributed to the development of agricultural policy and planning in the regional strategy plan in the context of Statement of Planning Policy No.3 (SSP3). The study investigated agricultural land and excluded an investigation of rural residential land and related land uses. The study was monitored by the Farming Consultative Committee of the authority. This committee comprised mainly members of the region’s farming businesses.

Statement of Planning Policy No.3 included the following policies:

- Agricultural land in non-urban zones shall generally be retained for rural pursuits (section 2.9)
- Planning measures shall encourage farming and other rural pursuits in appropriate areas and provide for the maintenance of natural resources and rural landscape values (section 3.6)
- The susceptibility of the Yarra and its tributaries to local and regional flooding; their important for drainage and the need to integrate land use planning with flood plain management (section 4.6)
- The suitability and significance of land for farming in the policy area (section 4.12).

The Farming study summarized SSP3 in the following terms: “The Statement of Planning Policy states that farming is to be encouraged in the area, taking into account the suitability of the land for farming, and the maintenance of natural resources” (Phillips and Ransom, 1979:1). It recommended that planning strategies should be directed at implementing this policy position by maintaining full-time farming where possible and part-time farming where full-time farming is difficult.

The study used the Soil Conservation Authority’s land systems analysis to identify 26 agricultural land units based on physical characteristics including soil type, slope, topography, climate, vegetation and land use. The study identified two broad types of agricultural land use, intensive cropping and grazing. It classified these as Class 1 (highest capability), class 2 (fair capability) and class 3 (least capable) against 12 land features (such as slope, soil texture and depth, and climate). The study then applied a land capability analysis to each of the 26 agricultural land units assessing their capability for intensive agriculture or grazing. A land classification system

was developed as a result of the land capability analysis identifying six land uses: intensive agriculture, mixed farming, grazing, floodplain, forest and bushland and rural residential.

The study found that intensive agricultural was the most important type of agricultural pursuit in the region. Their profitability allowed them to compete with urban uses and had developed its own service infrastructure which assisted economic viability. Family farms dominated and these assisted the resilience of intensive farming in the face of social, economic and environmental pressures. However, they were often located in environmentally significant areas.

Of the forms of intensive agriculture, orchard fruit production, particularly apples and cherries was most significant. The cherry industry based in Wandin and Seville supplied 75-80 per cent of the total Victorian market. Apple production remained economically viable despite recent structural changes to the industry.

Livestock industries were applied most widely to the region. Dairying had declined in extent, with beef production remaining the most significant though increasingly as a part time activity. Beef production however was affected by small property size and related high land values. Land was also being increasingly used for horse related activities.

The study concluded that land use planning was an integral part of a strategy to maintain agricultural activities. It recommended using minimum subdivision sizes of 8, 20, 40 and 60 hectares, as a key planning tool and that these be related to current and likely future agricultural uses along with existing lot patterns. It identifies the Silvan and Toolangi areas as most likely areas for ongoing full-time farming. Where full time farming was unlikely, the report recommended that natural resource and other land characteristics assist the determination of minimum subdivision sizes for lots. Of the four municipalities in the region, the planning schemes for the Shires of Healesville and Lillydale were generally consistent with the report's recommended subdivision minimums. The report argued that little significant agriculture remained in the Shire of Sherbrooke. The study argued that "because of the stage of urban based development and the relative weakness of agriculture, it is difficult to justify agricultural criteria as the basis of zoning other than as an environmentally responsible strategy" (Phillips and Ransom, 1979:5). However, the Sherbrooke Shire Council adopted 40 hectare and 25 hectare minimum controls in its rural lands when it introduced its 1979 Rural Areas planning scheme, attempting to use strong land use planning techniques to encourage ongoing agricultural practice and to integrate environmental and natural resource objectives into the attempt to maintain agricultural activities. The study also recommended the use of tenement controls for small allotments less than 4 hectares.

Cropping was located mainly on the deep red clay soils in Silvan-Wandin-Monbulk, Toolangi, Hoddles, Creek, Emerald-Avonsleigh, Gladysdale and The Patch. Activities included nurseries, cut flowers, vegetables, fruit orchards, berries (mainly strawberries) and vineyards. The total area under crops fell from 4,140 he in 1973/74 to 3,486 ha in 1977/78. Farmed areas fell for most categories but average size of farm holdings tended to increase. The area under vineyards was small increasing from on 35 ha in 1973/74 to 43 ha in 1977/78. Only 17 vineyards existed in 1978. For extensive grazing, livestock numbers (dairy and beef cattle, and sheep) fell from 675,946 in 1973/74 to 468,177 in 1977/78. Only 53 dairy herds remained in 1978. Some

cropping occurred on large holdings, such as potato production on farms mainly between 30-50 ha.

Intensive agriculture remained important for its contribution to state production with many vegetables contributing a high share of the Victorian crop. The market share of Victorian vegetable production in 1977/78 ranged from 1.5 per cent for potatoes to 53 per cent for rhubarb. The broader Melbourne peri-urban area increased this peri-urban state share of agricultural production. For example, the Melbourne statistical district grew two thirds of the Victorian carrot crop, while the Upper Yarra region grew 10-12 per cent of cabbages, 25 per cent of brussel sprouts, 10.5 per cent of apples, and half the Victorian production of cut flowers and bulbs. Brassica production was controlled by 2-3 growers.

Intensive agriculture remained profitable with many products maintaining high annual financial returns. Vegetable growers typically operated on lots of 6-8 ha and apple orchardists on lots of 20 ha. Increasing land prices caused by low subdivision controls in some areas and the creation of small lots were leading to higher land prices and reducing the comparable rate of return on agricultural investment compared to returns from development. The high capital intensive nature of intensive agriculture meant that technical and marketing expertise, not simply land size, was important. Grower numbers were declining for some products though area in cultivation was increasing (such as for strawberries), while in other industries such as cut flowers, grower numbers remained stable while area in cultivation increased.

Holding sizes were gradually decreasing during the 1970s in the region with about half of rural holdings less than 20 ha. Land price for lots below 20 ha had rapidly escalated. Above 20 ha, price per hectare declined slowly, levelling out above 40 hectares. These findings were reinforced over 20 years later for other areas in rural Victoria by Barr and McKenzie. Only the retention of land for intensive agriculture could compete with these returns.

Existing fragmented tenement holdings affected land use. The study concluded: "The case for retaining land suitable for intensive agriculture is strong as the industry is operating at profitable levels and is particularly well placed in relation to escalating fuel price and consumer demand for fresh vegetables" (Phillips and Ransom, 1979:54). The retention of intensive agriculture and the protection of environmental values should take precedence over the sale of fragmented lots. However, in other areas, fragmented lot patterns had largely removed commercial agriculture, the study argued.

Department of Primary Industries study, 2008

This study investigated agricultural practice in Melbourne's green wedges including the Yarra Green Wedge region comprising most of the agricultural areas of the Shire of Yarra Ranges (including some small areas in neighbouring municipalities) consisting of 113,140 hectares of rural land. This area generated \$187.5 million from 578 farms, or about 21 per cent of the total value of agricultural production for the Port Phillip and Westernport region. Production was diverse with 95 per cent of the total estimated value of agricultural output (EVAO) from nurseries, fruit, intensive agricultural production, viticulture and vegetables. Agriculture in this region had the highest value of production per hectare (\$7,507/ha) of the Port Phillip and Westernport area. A further indication of the relationship between planning controls and growth in agricultural production is provided by the growth of particular industries in the Yarra

Ranges and Mornington Peninsula areas. Both these areas have inherited relatively sophisticated and strong planning controls from former regional planning authorities. Between 1986 and 2001, farms engaged in viticulture increased by 998 per cent and the area in grapes by 777 per cent while farms devoted to flowers and nurseries have increased by 31 per cent and in area by 29 per cent, mainly in these two municipalities.

The stronger level of planning control was also associated with the proportion of agricultural land lost between 1986 and 2001 at half that of the neighbouring Western Green Wedge region, at 4.4 per cent compared to 9.8 per cent. Land owners were also generally opposed to further urban development with 72.2 per cent expressing opposition. It is likely that these attitudes are related to support for relatively strong land use planning controls.

Government Response – regional authority and strategy plan

Planning controls began to be introduced into council planning schemes in the 1960s. The first planning scheme for the Dandenong Ranges was introduced, for example, in 1965 and this scheme bore little relationship to land characteristics and environmental conditions. In 1971, the State government introduced the first state statutory controls designed to influence development in the region by approving Statements of Planning Policy No. 3 and No. 4 for the Dandenong Ranges and the Yarra Valley respectively. The Premier's 22 October, 1974 statement announcing the establishment of a regional planning authority, recognised the need for interim planning control and promised the imposition of "a tight 'freeze' over potentially vulnerable or sensitive areas of particular significance which will prohibit all subdivision of land" while the authority developed policy (UYVDR, 1980a:ii). Without interim protection for the region's environmental assets, an announcement of future planning control might lead to development which undermined the intent of future policy.

The Upper Yarra Valley and Dandenong Ranges Authority Act was passed on 21 December 1976. The overriding object of the Act was to enable increased protection of the special features and character of the region covering the Shires of Healesville, Lillydale, Sherbrooke and Upper Yarra. This Act established the Upper Yarra Valley and Dandenong Ranges Authority to plan the region's future. Membership comprised 15 members made up of two members from each of the four councils, one from each of the Forests Commission of Victoria, Ministry for Conservation, Department of Community Welfare Services and the Melbourne and Metropolitan Board of Works, and three members who were permanent residents of the region nominated by primary producers, conservation organisations and trading and commercial interests.

The objective of the Act was "to enable increased protection for the special features and character of the region, and to provide for the implementation of statements of planning policy". The 1981 Review Panel interpreted this objective as the overriding direction by Parliament to conserve the region for present and future generations. The Act required the authority to prepare a regional strategy plan to provide clear direction for the allocation of public and private resources in the region. Its overall concern with land use led to policies aimed at environmental, economic and social issues.

The Act also provided that the strategy plan would bind every government department, public authority and municipal council, besides regulating the land use activities of individuals. This

legislation was a rare example of government establishing an independent statutory authority that could override the activities of all government authorities, that is, it “bind the Crown”.

In summary, the government put in place a structure unique in Australia’s planning history with elements designed to reinforce each other to protect the region’s values. This consisted, firstly, of a regional planning authority established with the purpose of developing a regional strategy plan in accordance with statutory policy. Secondly, the authority acted as the custodian of the plan. The authority in effect exercised regional governance. Thirdly, the strategy plan set the framework for land use decisions and as a result became a key factor in the region’s future. Finally, this structure and related processes were established by legislation. This legislation was a signal that the Hamer government intended to ensure that its desire to protect the region from development pressures and to secure its economic strengths would be implemented.

Rural development

SPP3 aimed to protect the rural characteristics of the region. In particular, clause 3.6 specified that planning controls were to encourage farming and rural activities and protect natural resources and rural landscapes, and clause 2.9 required that agricultural land in non urban areas would be generally retained for rural activities. Other clauses stipulated the protection of vegetation and landscapes. The strategy plan included a range of policies aimed at containing development within well defined urban boundaries, protecting rural uses, landscapes and environmental features. Clause 1.22 of the regional strategy plan sought to maintain agricultural uses, including intensive agriculture, restrict rural residential development to land already subdivided into small lots, and to regulate subdivision and development of non urban land to maintain landscape quality, agricultural land capability and water quality standards. These were supported by a farming consultative committee and were supported by rural farming interests.

Rural policies

The strategy plan included policies aimed at implementing SPP3 which required the authority to “retain and improve where possible, the amenity of the Policy Area for present and future residents, the farming community and other users and the conservation of its natural resources”. Two types of development led to small lot fragmentation, the existing pattern of lots, large numbers without dwellings but held in joint ownership, and future subdivision.

A number of studies examined economic issues relating to the continuation of agricultural production. The 1981 Review Panel report on the strategy plan relied on the authority’s Farming Study and the MMBW Metropolitan Farming Study. It also considered submissions by landowners commenting that “submissions were virtually unanimous in expressing the view that it was desirable to retain farming as the major land use” (Review Panel, 1981:106).

It concluded that “the question of expectations underpins the problems of many of the rural areas in the region”. It classified the two main landowner arguments as, firstly, the belief that farming was not viable with the exception of intensive production, and secondly that subdivision practice should respond to demand. Viability, the panel argued, could be defined as sufficient return to pay interest on investment or reasonable return for labour and capital. It concluded that “even if a property was demonstrated to be “non-viable”...it still does not logically follow that there is an inalienable right of subdivision...to permit further subdivision in areas now in rural production would be contrary to the intent and objectives of the Government’s policy, and

would inevitably lead to the destruction of the rural environment”(Review Panel, 1981:70-72). Other definitions of viability have been proposed, including a range of net income levels related to production types, and income compared to capital value related to different land uses such as farming, rural residential or residential development. Viability has been related to physical factors, such as the quality of soils or the availability of water, and to spatial factors, such as proximity to urban centres. Viability is rarely related to the impacts of various policy instruments, such as the impacts of zoning to protect farmland from subdivision on land values and thus on the rate of return on investment. Farm viability can be considered in the context of total farm income, including off-farm income. Viability can also be related to the certainty farmland protection measures can provide for continuing production, investment, innovation and diversity in place of constant uncertainty from continued development opportunities and pressure, and diminishing rates of return in relation to capital value.

The Review Panel rejected the argument that land use controls should respond to demand. It argued that the “perceived demand is illusory”, but that responding to demand, even if it was evident, would feed a cycle of further expectations and cumulative loss of agriculture. It viewed the “creeping loss of rural land as an insidious process which must be stopped (Review Panel, 1981:76)”. Subdivision would place further pressure on remaining agricultural land, lead to costly infrastructure costs, isolation and problems of accessibility, and degrade important landscapes. The Review Panel, the Authority and the MMBW all followed a consistent approach at the time towards the need to reduce landowner expectations for development. Two major studies were undertaken by the MMBW into non-urban zones in the mid 1970s. The first was the *Review of Planning Policies for the Non-Urban Zones* (MMBW 1977:12) and the second was the *Metropolitan Farming Study* (Aberdeen Hogg and Associates 1977).

Both these 1970s MMBW studies made strong recommendations aimed at ensuring the continuation of farming in the non-urban zones. The non-urban zones review outlined the importance of non-urban zones in terms of State production of agricultural products and showed that in many cases almost the whole of the State’s supply was produced in the Melbourne Planning Region. It also reaffirmed the importance of non-urban zones and green wedge policy proposing that future urban development be located in urban corridors and that permanent non-urban wedges be retained. The Farming Study concluded that “it is important to realise that any production that is lost through sub-division or urban incursion may not be capable of being produced elsewhere, or, if it is, it would involve higher prices to the consumer” (Aberdeen Hogg and Associates 1977:1).

The non-urban zones report summarized the five statutory non-urban zones then in place: conservation, landscape interest, general farming, intensive agriculture, and parts of corridor zones where urban development was deferred indefinitely. It argued that “the determination to preserve permanent non-urban wedges between corridors of urban development...removed urban expectations from major portions of the Metropolitan planning area”. The non-urban zones report recommended the retention of the non-urban zones, additional restrictive controls over housing construction and the protection of environmental values.

The farming study argued that uncertainty could best be avoided by adherence to the permanence of the non-urban zones. It was essential “that the Board does not relax minimum sub-division sizes and use controls if certainty is to be maintained” (Aberdeen Hogg and Associates 1977:4). The report argued that large metropolitan farms should be preserved,

subdivision prevented and amalgamation of small farms encouraged. It proposed an increase in the minimum subdivision size of the general farming zone in some areas from 40 ha to 80 ha, the introduction of more restrictive uses in environmental zones, arguing that

when a farm is sold it tends to be subdivided to the minimum lot size allowable. This reduces the capacity of the non-urban zones to achieve the desired planning objectives of retaining agricultural production and rural landscape...There is no evidence that controls on use or development have imposed any significant constraint or caused any hardship to metropolitan farmers in the carrying out of their present farming pursuits (Aberdeen Hogg and Associates 1977:8-9,2).

The farming study concluded that “it is important to realise that any production that is lost through sub-division or urban incursion may not be capable of being produced elsewhere, or, if it is, it would involve higher prices to the consumer” (Aberdeen Hogg and Associates, 1977:1).

The MMBW implemented its report through Amending Planning Schemes 3 and 21 which modified the Melbourne Metropolitan Planning Scheme, (MMPS).

In 1980 the MMBW released its *Metropolitan Strategy*. In 1981, the MMBW released its *Metropolitan Strategy Implementation* report. This was intended to implement the 1980 strategy and to provide the policy context for a broader range of urban consolidation and other policies in Amendment 150. This report maintained the corridor/wedge principle and maintained a

clear demarcation between urban and non-urban areas, to eliminate urban expectations from rural areas... by removing urban expectations from non-urban areas, the planning strategy aids their survival. It also helps eliminate both land speculation and the sort of development that leads to uneconomic demand for urban services (MMBW 1981:85).

Conclusion

Agricultural production is influenced by many factors. Productive agricultural regions are often located near metropolitan areas because cities were often established in areas rich in natural resources. Large scale cropping generally has moved away from these peripheral urban areas, though not always as shown by the barley cropping area to the north of Adelaide. High value agricultural production continues in peri-urban areas of Australian cities and globally but is threatened by subdivision and land development. Land use planning is an independent factor which affects the supply of allotments and influences both the direction and type of development. Land use planning systems which allow subdivision of land into smaller rural-residential or residential lots raise the price of land and provide a supply of land parcels which influence demand for subdivided lots in those locations. The rate of return from agricultural practice usually cannot compete with returns from development. For this reason, the inevitable result of liberalised land use planning systems is the progressive loss of agricultural production near cities.

Land use planning cannot guarantee the success of agricultural regions through continued production. However, it can provide the regulatory conditions which prevent the introduction of incompatible uses and make more likely an acceptable rate of return in comparison to returns on subdivision and land development. Land use planning measures can also maintain options, such as large lot sizes, and the protection of highly productive soils, which allow new types of agricultural production to emerge and related industries, such as tourism and educational businesses, to flourish. The Victorian government in the late 1960s realized that the natural resources and agricultural productivity of the Upper Yarra region were more valuable to the state than the economic benefits from intensive land development. The government put in place strong regulatory measures which continue to underpin the benefits of a highly productive agricultural region linked to environmental, recreational and tourism services, primary industry, and a wide range of business activities.

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