



RURAL INDUSTRIES RESEARCH
& DEVELOPMENT CORPORATION

Urban Fringe Land Use Conflict: Two Poultry Case Studies

**A report for the Rural Industries
Research and Development
Corporation**

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Foreword

Land use conflict is increasingly creating difficulties for many sectors of Australian agriculture. Conflict is heightened when industries are highly intensive and have the potential to periodically generate unacceptable externalities. The situation is further exacerbated when the activities occur either on the urban fringe or in areas where there is significant rural residential development.

This study has undertaken an in-depth examination of the Australian poultry industry. Two case study areas were selected - the south east corridor of Perth and the south west corridor of Sydney. Extensive interviews were conducted with both egg and broiler producers, industry association members, processor company representatives, local government officers, and representatives of state government agencies.

The research indicated that there were several instances of conflict in the study areas. In particular, appeals against the development of additional poultry sheds were often instrumental in restricting growth (more so in NSW) - generally essential if the operation is to remain competitive.

It was evident that strong leadership and a more geographically concentrated industry in Perth had facilitated a more cohesive approach to land use issues and had also assisted the successful lobbying of state government. Both the egg and broiler industries are more fragmented in NSW.

The study has indicated that there is substantial scope for ameliorating the land use conflicts in some, but not all areas. In certain cases, only the relocation of farms is likely to allow the producer to remain competitive and to eliminate complaints from neighbours.

The report includes a comprehensive review of the poultry industry, the planning context, the results of the interviews, a discussion of the results, and an extensive list of recommendations. Several avenues for continued and new research are emphasised.

It is to be noted that all secondary sources of information are fully cited in this report. Work not attributed to other sources stems from the primary data collection undertaken in the course of this project.

This project was funded from industry revenue which is matched by funds provided by the Federal Government.

This report, a new addition to RIRDC's diverse range of over 450 research publications, forms part of our Egg Industry R&D program, which aims to improve the viability of the industry.

Most of our publications are available for viewing, downloading or purchasing online through our website:

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Peter Core
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Steven Henderson
Roger Epps
5/6/2000

Glossary of Terms and Acronyms

ABS (IRDB)	Australian Bureau of Statistics (Integrated Regional Data Base)
AQIS	Australian Quarantine and Inspection Service
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
Buffer	Area of land set aside to reduce the impact of negative externalities
Broiler	Young chicken raised for meat production
Composting	Breakdown of organic material (dead birds) by microbial action
DA	Development application
DEP	Department of Environmental Protection
DPI	Department of Primary Industries
DCP	Development control plans
DUAP	Department of Urban Affairs and Planning
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMS	Environmental management systems
EMP	Environmental Management Programs
EPA	Environmental Protection Authority
FIDO	Frequency, Intensity, Duration and Offensiveness
HACCP	Hazards Analysis Critical Control Points
ISO 14000	A guide to environmental management principles
LGA	Local Government Area
LEP	Local environmental plans
LULU	Locally-Unwanted-Land-Use
Litter	Base material on which poultry are reared (generally wood shavings)
MRIF	Metropolitan Region Improvement Fund
MRPA	Metropolitan Regional Planning Authority
NIMBY	Not-In-My-Back-Yard
OECD	Organisation for Economic Cooperation and Development
OU	Odour unit
PFM	Planning focus meeting
PFWRG	Poultry Farm Relocation Working Group
PFWG	Poultry Farm Working Group
MRS	Metropolitan Region Scheme (Perth)
POEO	Protection of the Environment Operations Act, 1997
REP	Regional Environmental Plan
RSPCA	Royal Society for the Protection of Animals
SEPP	State Environmental Planning Policies
TDR	Transferable development rights
TPS	Town planning schemes
WABGA	Western Australian Broiler Growers Association
WAPC	Western Australian Planning Commission
WAPFA	Western Australia Poultry Farmers Association

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Executive Summary

Australia's agricultural landscape has changed considerably over the last several decades. The buoyancy of past markets has been undermined as greater mechanisation has been introduced to the industries in the developed and developing economies. Australia's producers are relatively unsubsidised and have considerable difficulty competing on global markets.

Relaxation of tariffs has opened Australia's domestic agricultural markets to overseas competition, often with product coming from countries where attention to animal welfare and environmental issues is minimal. To be competitive, Australian producers need to improve efficiencies, often through generating economies of scale and capitalising on mechanisation opportunities. In addition, industries need to benefit from whatever locational advantages are possible, such as the integration of enterprises.

In several localities, land use conflict is increasingly creating difficulties for many sectors of Australian agriculture. Conflict is heightened when industries are highly intensive and have the potential to periodically generate unacceptable externalities. The situation is further exacerbated when the activities occur either on the urban fringe or in areas where there is significant rural residential development. Often the situation is exaggerated when the actions (or inaction) of just a few producers reflects on the image of the industry as a whole.

In addition to the widespread concern for land degradation in Australia, evidence from this report indicates that land use conflict associated with the transfer of externalities across property boundaries has become a critical issue for certain agricultural industries. For the Australian poultry industry, implications include increasing community resistance to the intensification of agricultural enterprises and the implementation of restrictions on farm management practices. Many of the complexities involved in overcoming land use conflict have been addressed, such that more informed policy-making can be developed by both government and the poultry industry throughout Australia.

Satisfying the interests of farmers and their residential neighbours appears exceedingly challenging because of the spectrum of reasons why people complain, their varying sensitivities, the economic structure of agricultural production and the relative absence of research investigating the generation, offensiveness and control of externalities. The spatial context of the urban fringe, including the impact of land speculation and the uncertainty of future residential development, adds a further layer of difficulty. Despite these complexities a number of implications for farmers, industry associations, processing companies, local government and state government are addressed in turn, followed by proposed recommendations. The chapter concludes by drawing a more detailed distinction between the situation facing the industry in Western Australia compared to New South Wales.

Implications for Farmers Applying for New Sheds

* It is recommended that the industry actively participate in forums where state government departments are consulted at an early stage of a proposal, such as at planning focus meetings in NSW. Although state government may not be the responsible decision-maker, having negotiated its approval on most key issues may discourage local government from forcing the farmer to appeal against rejection of the development proposal.

* It is recommended that proponents ensure that, when obliged to prepare an environmental impact statement or a statement of environmental effects, the task is carefully and comprehensively undertaken. Despite negative attitudes towards having to complete an environmental impact statement, the document represents a small cost in relation to the overall project. In an era of increasing environmental concern, there is the potential to save time, and thus loss of income, the situation where local government is continually requesting additional information is avoided.

* It is recommended that additional research be undertaken linking farm management or technology to

potential impacts. There remains a difficulty where an environmental impact statement is undertaken, as the potential to objectively link the technology being employed and the level of externalities created is limited. Problems arise where such research needs to be geographically sensitive. The validity of research undertaken in one state may be disputed in another because environmental conditions vary. It is likely that the industry has argued against a national code of practice for similar reasons.

Implications for Existing Farmers

* It is recommended that farmers are seen to be doing something to resolve environmental problems where they have been identified. Simple actions on the part of farmers may prevent neighbours from complaining, may encourage favourable local government attitudes and prevent state government from introducing more stringent forms of environmental regulation. Actions might include establishing vegetative barriers, erecting light or dust screens, ensuring dead birds and manure are appropriately and quickly disposed of, and simply being more vigilant regarding fly breeding and initiating appropriate management practices. The reality is that farmers may become more complacent about management practices over time should they become inured to externalities and insensitive to their impact.

* It is recommended that, when approached by neighbours, farmers need to address their concerns with reasonable concern and empathy. Through openly dealing with neighbours, perhaps by conducting a farm tour to describe the nature of the operation and what is being done to minimise externalities, conflict is less likely to develop and local government may not become involved.

* Farmers are advised to be proactive in opening lines of communication with local residents, especially in relation to notifying them of significant events, such as the removal of birds and litter.

Implications for Industry Associations

* It is recommended that, despite the difficulty of regulating participants in a fragmented industry, the industry associations encourage improved farming practices - necessary because a negative image of the industry may be created by the actions of one farmer. Introduction of environmental management systems, despite associated difficulties, provides one method to guarantee increased farmer vigilance. The development and adoption of codes of practice would also be advantageous, especially once a better understanding of the links between management systems and externalities is better understood (see below). Codes of practice would need to be developed on a state by state basis as it is unlikely that national codes would be appropriate to each production area. An added difficulty is that government regulation varies across time as well as space, such that information relating to different requirements may soon be outdated. Should codes of practice not be practical, farmers need to be encouraged to adopt best management practice as determined by industry.

* It is recommended that investigation continue into the impact of alternative odour control technologies through scientific experimentation, including the impact of shed technology, chimneys, genetic breeds, litter type, feed type, various odour suppressants and filtration. The difficulty is that research can only compare the impact of different production methods, and cannot conclusively demonstrate that externalities will not be offensive. Other important areas of research relate to noise levels during bird pick-up, alternative methods for disposing of dead birds and manure (either low cost solutions for individual farmers or industry-wide strategies) quarantine buffers and the productive use of buffer zones. It should be undertaken openly, as in-house research increases community suspicion and the perception that the industry is obfuscating negative information.

* It is recommended that closer linkages be established with other urban fringe industries, recognising that there are similar interests and common problems. Establishing a joint lobbying front to demand more attention to the protection of agricultural land, including exclusive agricultural zones would be

strategically advantageous.

* It is recommended that the industry actively inform local government and the community about the positive achievements of the industry and offset misinformation campaigns (health risks, production systems, chemicals, animal welfare, hormones).

* It is recommended that the industry establishes closer linkages with local communities. Options for consideration include:

- Promoting the economic importance of the industry to the local community.
- Promoting local produce in community papers, including door sales, with the objective of associating local farms not just with externalities but with agricultural produce.
- Instigating industry competitions in relation to farm appearance and/or management and promoting the winner in local papers. (Perhaps seeking advice from Tidy Towns organisers.)
- Consider local sponsorships, perhaps through targeting one large community activity.
- Prepare school project information kits about aspects of the industry.
- Foster more extensive involvement in community environmental groups such as Landcare.

* It is recommended that the industry be proactive in informing both itself and farmers of the changing realities of farming and the impacts that could follow from urban encroachment. The industry has to encourage farmers to become politically active and to support them in making industry interests known in relation to proposed residential developments. Options include participating in community meetings during the development approval process to reduce public misconceptions of the industry.

Implications for Processing Companies

* It is recommended that processing companies become more involved in farm environmental issues, especially given their involvement in farm management decisions, the impact of farm closure on processing line efficiencies, and the difficulties involved in developing new farms. Opportunities exist to:

- account for environmental costs in the model farm, such as cool room storage for dead birds;
- enforce contract conditions relating to farm appearance, and encourage farmers to plant trees;
- investigate innovative approaches to the disposal of dead birds and manure; and
- educate night time pick-up crews about the need to minimise noise, including avoiding revving engines, using reverse beepers, lights on full beam and loud conversations etc..

* It is recommended that processing companies identify farmers facing intense conflict and give them special treatment, where possible, in relation to:

- greater consciousness about hours of operation (feed deliveries, bird collection);
- use of acceptable odour suppressants following adequate research; and
- paying careful attention to the transport routes being used.

* It is recommended that processors fully take into account the costs of appeals in relation to shed developments and consider possible assistance mechanisms.

* It is recommended that the industry be fully attentive to the difficulty in expanding existing farms and developing new operations on the urban fringe. Strategic planning is essential for both the processors and the farmers, especially when faced with the prospect of relocation. Planning must fully accommodate land, infrastructure and resource constraints, issues likely to be of concern to the local community identified, the areas of rural residential development and future growth, and the anticipated rates of industry investment. Open communication with the target LGAs and local communities is essential, including the need to stress employment opportunities and economic growth potential.

* It is recommended that research be undertaken or supported by the industry and processors into the economics and logistics of relocation, including contracts for additional sheds and staged relocation.

Implications for Local Government

* It is recommended that consent conditions be included on poultry farm construction approvals, including the need for vegetative barriers, landscaping and signage indicating the presence of a farm and associated externalities. To be effective, consent conditions requirements must be explicitly stated and fully enforced.

* It is recommended that, in order to prevent discrepancies in standards, there is a need for local governments to communicate with each other, identifying the approaches being employed in ameliorating poultry farm problems. Joint action by local governments could also cause the state government to become more actively involved in regard to research, negotiation of standards, regulation and monitoring associated with externalities.

* It is recommended that local government, in association with state planning authorities, identify different methods for reducing urban sprawl impacting upon agricultural zones.

* It is recommended that property developers carry the full cost of supplying infrastructure for rural residential development. This may foster stronger adoption of community title and cluster settlement, leading to a more rational use of agricultural land.

* It is recommended that before any form of strategic planning can commence, it is imperative that local government is aware of the location of poultry farms (and other potentially offensive land uses) within their jurisdiction.

* It is recommended that, where residential development is proposed near poultry farms, local government should consider the potential for land use conflict, informing potential buyers by placing notifications on property titles, carefully positioning open space requirements, and assessing the design and siting of new dwellings and surrounding landscaping.

* It is recommended that, where encroachment cannot be prevented and conflict is likely, strategies for assisting relocation need to be explored, including increasing the density of development, transferable development rights, and levying new allotments (with the levy adjusted if necessary to cover consultancy costs).

Implications for State Government

* It is recommended that, in relation to environmental legislation, consideration be given to requiring farmers to adopt environmental management programs or environmental management systems. An alternative is to introduce mediation. However, such strategies are unlikely to be successful where conflict is particularly entrenched or where resolution involves expensive capital investment.

* It is recommended that greater accountability of all key issues needs to be taken in land use planning and the development approval process, and that these processes pay full regard to rural context. Key concerns relate to the accuracy of odour modelling, whether local government is able to assess environmental reports, and the possibility of future change, including farm expansion, urban expansion and ownership change.

* In addition to dealing with externalities, government needs to investigate ways of assisting farmers to relocate. Possible options include changes to the appeal process (including local government responsibility for applicant costs), reducing inconsistencies between local governments, legislating buffer distances to encourage market forces, adapting the development approval process for farmers satisfying certain pre-determined conditions in rural zones, and reformulating planning legislation to give local government additional options.

Chapter 1: Introduction

1.1 Background

In uniformity with international experience, Australia's urban centres have expanded outwards as population levels have increased due to natural increase, international immigration and rural to urban demographic shifts. Technological change, including improved road networks and transportation, has provided further emphasis for peripheral urban growth. The perception that land is an abundant commodity has undermined any comprehensive attempt at land use planning, such that Australian cities have sprawled outwards. In recent decades this has occurred at an accelerated rate because of the increasing demand for rural residential development, in addition to hobby farms of various sizes. The area over which a city may have some influence has also expanded beyond the commuting zone as increased wealth and the demand for alternative lifestyles have enabled people to relocate into more isolated rural areas.

Where intensive livestock facilities operate in close geographical proximity to residential land uses, land use conflict may develop because of the emission of externalities including odour, noise, dust and light. The intensity of conflict may increase over time as nearby suburban estates, rural residential zones or individual dwellings are proposed and developed, and as farmers attempt to expand the scale of their operation. Since assessment of externalities is presently largely subjective and individuals' perceptions vary considerably, it is often very difficult to find a solution to such conflict.

Urban expansion has been associated with a range of direct and indirect impacts on agricultural production. Direct impacts include the loss of agricultural land where farmers have sold their property to urban developers. Indirect impacts include the reluctance of farmers to invest in new activities because of uncertainty regarding future urban expansion, land speculation and land use conflict. One traditional assumption underlying this type of assessment is that conflict between properties will result in restrictions on farm management practices, further loss of agricultural production, and new patterns of investment further from the fringe. Increasingly, it is recognised that the urban fringe does not expand without limit, but instead represents the decision making of a multitude of actors. Included in this multifaceted process is the ability of farmers to adapt to economic pressure (Bryant and Johnston, 1992). In Australia, probably due to the complexity of the conflict scenarios, little attention has been given to understanding the nature of land use conflict.

Despite arguments that some forms of environmental issues, including odour, are essentially social or amenity problems 'where the effects are relatively obvious and the remedial measures relatively well known' (Gibbs, 1996:2) this is thought to be rather optimistic. It ignores evidence of conflict involving agricultural activities, including poultry farming (Voris, 1992a,b; 1990), and the long history of conflict on the urban fringe. In regions that are exclusively agricultural, farm related odours, dusts and noises may be dispersed throughout the surrounding area. The encroachment of urban residents (or the over-intensification of particular types of agriculture, including livestock production) creates a particular dilemma where agricultural practices are subsequently challenged. Where farmers claim that they are operating according to normal farming practice, then land use conflict may result. How this conflict can be resolved remains uncertain. In part, this reflects the fact that the urban fringe itself remains understudied as it is 'too urban to attract traditional rural researchers and too rural to incite urban scholarly inquiry' and because of 'the complexity of economic and sociospatial forces shaping the edge' of a metropolitan area (Audirac, 1999:7).

Any attempt to develop a greater understanding of the impact of urban fringe land use conflict on patterns of agricultural investment must recognise a range of processes and actors operating across a variety of geographical scales. A number of key questions follow. Firstly, at a local or property level, concerns relate to the ability of farmers to adapt management practices, to invest in new technological solutions or to resolve conflict through communication. Secondly, at a metropolitan level, despite

suggestions that conflict will decrease with increasing distance, little empirical research has been undertaken to support this. Where local statistical information of farm production provides evidence of urban agriculture relocating because of an advancing urban front (Lawrence, 1988), it is uncertain whether this involves existing farmers relocating or new farmers entering agricultural industries. Key areas of interest involve the ability of inner fringe farmers to sell their existing land and relocate to the outer fringe, the impact of conflict in more remote areas on relocation, and other practical difficulties that may be experienced. Thirdly, at a broader rural scale, there are concerns associated with the impact of vertical integration and contract farming on the intensity of environmental conflict. In addition to the potential contradiction between fulfilling contract relations and satisfying the demands of neighbours, the ability of poultry farmers to resolve conflict may be affected by the involvement of processing companies in farm level decision making. Besides economic conditions, the role of contracting companies in shaping odour, noise and other externalities needs to be examined. Furthermore, where an integrated poultry production system remains closely linked to the urban fringe, perhaps because of capital invested in processing facilities, then the ability of farmers to resolve conflict by relocating may be limited. At this broad rural level, another key issue relates to the ability of agricultural associations to successfully lobby local and state levels of government.

Where agricultural industries are unable to reduce conflict then it is assumed that government will intervene to regulate urban fringe externalities. Inadequate research attention has been given to the ability or willingness of government to regulate urban fringe agriculture. Similarly, 'little work has emerged which overtly explores the geographical consequences of agri-environmental policy on land use patterns' (Evans and Morris, 1997:189). Key issues relate to how government attempts to reduce or prevent conflict through land use planning, environmental regulation and the development approval process, and the way regulation evolves over time within particular geographical regions. Where government responds to environmental issues in an *ad hoc* or incrementalist nature, one implication for agricultural activities may be a step-wise increase in environmental requirements or restrictions on management practices as decision makers attempt to resolve conflict.

Land use conflict presents government with a complex problem since, in addition to the difficulty involved in assessing the legitimacy of complaints, government must mediate between industry representatives arguing that regulatory intervention will impinge on economic viability, and residents demanding stricter enforcement of environmental legislation. Government may attempt to resolve land use conflict by adopting several different strategies. Depending on the perceived severity of environmental impacts and government ideology, it may respond by doing nothing, promoting mediation, implementing right to farm legislation, encouraging industry self-regulation, improving education and research, stimulating market forces, or by adopting more forceful regulatory policies. The latter can be divided between flexible and more mandatory forms of intervention. The extent to which the approach adopted varies between state and local governments remains uncertain, as does the impact of different forms of regulation on agricultural investment.

The impact on individual property owners will depend on the extent to which agricultural industries are consulted in decision making and whether policy makers are aware of the nature of agricultural production. Rigid or mandatory policies, where they are targeted at management practices or farm development, have the potential to severely limit the ability of farmers to operate in viable manner. An additional concern is the comment by Burch *et al.*, (1992:262) that neither 'conservation law nor regulatory policy sufficiently recognise the increasing influence of the agribusiness corporation on a farmer's decision making through mechanisms such as production contracts'. Although farmers may face difficulty in complying with environmental requirements and the impact of agribusiness on farm management, restrictions on farming practices may affect the process of production coordination with associated economic costs for processing companies. The successful resolution of conflict inevitably involves a compromise that enables the interests of competing parties to be taken into account. The form that this compromise might take is of great importance and arguably warrants a closer investigation.

1.2 The Australian Poultry Industry

The poultry industry is one type of livestock production that has undergone a rapid process of intensification during the 20th century. It is perhaps most notable since the 1960-1970s following the widespread introduction of caged bird production systems in the egg industry and the emergence of vertically integrated chicken meat production. In addition to rising consumer demand, especially in the chicken meat industry, causal factors include genetic improvement, specialist feed and advances in shed technology. Benefits of intensification have included accelerated feed conversion ratios, higher rates of lay and lower consumer prices. For farmers, intensification has meant being able to supervise a larger number of birds. In comparison to the egg industry, where eggs are laid in a ready to sell package, intensification in the chicken meat industry is associated with the emergence of contract farming, as mature birds require processing. Under the contract system, farmers supply their land, labour and capital (in the form of shedding) and are paid for growing chickens which remain the property of the processing company. During the growing cycle the contracting company supplies feed, medicines and advice to farmers or growers as they are frequently referred to.

As ownership in the poultry processing industry has become more centralised and as output levels have increased, coordinating production on contract farms and processing lines has become particularly complex. Due to the cost of transporting inputs and outputs to and from contract farms, and the impact of transportation on chicken welfare and quality, intensification is also associated with spatial agglomeration. As a consequence of Australia's population geography and, thus, its distribution of consumers and potential employees, the poultry industry has developed in close proximity to the state capitals. The spatial juxtaposition of agricultural production and residential lifestyle interests is a key factor that underlies present land use conflicts.

1.3 Research Objectives

The aim of this research project is to review the Australian context of land use conflict involving intensive agriculture, with the focus on the poultry industry. It will include an analysis of the issues and possible solutions as viewed by both egg producers and broiler growers, industry and processor representatives, local government officers and representatives of relevant state government agencies. Rather than consulting the general community and representatives of action groups for fear of further exacerbating conflict, concerns from this sector are studied via submissions to councils, media reports and other secondary sources.

1.4 Report Structure

It is probable that this report will be studied by readers from very diverse backgrounds. For this reason, it is structured to enable the readers to bypass sections about which they may be knowledgeable and focus on the research results and discussion. Whilst the report includes many appendices, the text itself is comprehensive, the appendices merely providing either more specialist information or research detail.

The following chapter reviews the Australian poultry industry, tracing structural change, specialisation and intensification, vertical integration, spatial concentration, and future challenges to the industry including trends in consumer preferences and government regulation. Chapter 3 provides a brief overview of the history of urban and rural planning in Australia. It then considers possible policy measures for preventing land use conflict in the more rural areas of Australia, both in the context of new developments and alterations to existing activities.

The research methodology and selection of case study locations is included in Chapter 4, whilst the results of the fieldwork are presented in Chapter 5 for the Perth region and Chapter 6 for the outer Sydney region. Chapter 7 includes a discussion of results from both case study areas and the concluding chapter includes recommendations stemming from the research.

CHAPTER 2: Poultry Farming In Australia

2.1 Introduction

Land use conflict involving the Australian poultry industry has emerged as a key concern during the past decade. Two key reasons for this are continued structural change in the industry and the impact of land development patterns in Australia. Developing a more detailed understanding of the poultry industry, as well as future threats that may influence its evolution, is important for two reasons:

- 1) It is possible to link patterns of production to actual externalities and thus the potential for conflict;
- 2) By developing a greater understanding of the poultry industry it is possible to focus on the impact of government environmental policies in more detail.

2.2 Structural Change in the Australian Poultry Industry

In Australia, poultry farming originated as a side line to other agricultural enterprises. Often located near urban areas, birds were free to roam rural properties under free range conditions (Wilson, 1980) and supplied more localised markets. From these beginnings poultry farming has rapidly intensified, with the outer Sydney metropolitan area, notably Camden, seen as the birth place of the modern specialist industry (Kite, 1995; Cain, 1990; ACMF and AEB, 1985). Since its early beginnings the Australian poultry industry has been associated with a number of trends including: specialisation and intensification; vertical integration and industry concentration; and, spatial concentration and complex coordination patterns.

2.2.1 Specialisation and Intensification

During the 1920s, commercial egg production became a specialist industry with farmers adopting semi-intensive housing systems and mixing their own feed (Morris, 1979). Following their introduction in the United States, cage production systems were introduced during the early 1950s, spreading throughout the industry during the 1960s and 1970s (Milne, 1989). By caging laying hens inside sheds, birds could be protected from unfavourable weather conditions and predators, fighting could be reduced whilst maintaining social interaction, and labour efficiency could be improved. Because manure could fall through raised cages, it accumulated in piles below and thus reduced the risk of manure borne disease and egg contamination (McMaster, 1995; Taverner *et al.*, 1987). In terms of labour efficiency, cage production systems allowed individual birds to be closely monitored, made the application of medicines less troublesome, and enabled farmers to supervise a larger flock. Production levels were further increased with the introduction of artificial lighting to expand day light hours, and automated feed, water and egg collection systems (Milne, 1989). Under normal growing conditions the rate of lay would vary throughout the year, resulting in surpluses in spring and summer and shortages in winter. By employing artificial lighting within sheds, daylight hours could be lengthened and the rate of lay stabilised. Because of these advantages cage production systems continue to dominate, accounting for approximately 95% of commercially sold eggs in Australia (McMaster, 1995).

The 1950s also marked the start of a period of rapid intensification in the Australian chicken meat or broiler industry (Dixson and Burgess, 1998). Prior to this decade the industry was based on the fattening of cockerels unwanted by laying operations (Fairbrother, 1987) and their sale for what ever price was available. The industry developed slowly because of problems in sexing birds until the 1930s (Milne, 1989) and birds were bred for their egg laying potential rather than for their rapid growth (Taverner *et al.*, 1987). Accordingly, Morris (1979) indicates that prior to 1950 it was uncommon for poultry meat to be consumed except during celebrations.

The Australian poultry industry has rapidly intensified during the second half of the twentieth century under quarantine restrictions that have prohibited the import of live poultry, hatching eggs or semen since the mid-1940s (McDermott, 1995). Import restrictions were implemented for two main reasons. Firstly, to minimise the risk of introducing exotic diseases, such as Newcastle Disease or virulent strains

of avian influenza, into Australia. Secondly, the threat that imports might lead to the introduction of human pathogens, including strains of salmonella which were not already present in Australia (McDermott, 1995). Quarantine restrictions slowed the development of the chicken meat industry because of the absence of birds bred specifically for meat consumption, such that growth rates were slow, feed conversion ratios were poor and production was generally uneconomic (Fairbrother, 1987). Over time Australian scientists did manage to develop commercial breeding stock and related vaccines (ACMF and AEB, 1985; Wood, 1978), with Fairbrother (1987:191) suggesting that breeding stock is 'now considered equal to any stock available on the international market'.

During the 1960s the chicken meat industry underwent a rapid period of growth which resulted in a marked decline in prices, greater specialisation and increased production intensity. As in other agricultural industries, the Australian poultry industry has undergone a long run shift towards fewer but larger poultry farms (Taverner *et al.*, 1987). Increasing intensity has been stimulated by the emergence of commercial hatcheries supplying meat breeds in quantities that allowed specialist farmers to achieve a viable size. Other advances included the development of higher quality feeds that reduced overall costs, lower mortality rates because of advances in drugs and vaccines, and improved farm management (Fairbrother, 1973). Changes in shed technology have improved bird welfare and further enhanced growing rates, as chickens are grown in large sheds on a bed of litter, such as wood shavings (deep litter production system). Shavings are deposited so as to absorb moisture from bird droppings and to control odour levels (see Appendix I for an outline of production methods).

Sheds are designed to assist bird growth by maintaining a comfortable temperature range. It is important that birds are not too cold, such that the energy consumed in feed is used in maintaining warmth, and not overly hot, such that they lose appetite or produce wet droppings through increased water consumption (Woolford, 1997). The type of shed technology employed by the industry varies between (as well as within) farms. Three different styles can be identified:

- * Naturally ventilated or open-sided sheds, where side wall shutters or curtains can be raised to enable air to flow through sheds and across birds
- * Controlled environment sheds, which have been constructed since the mid-1960s, enabling greater temperature control
- * Tunnel ventilation systems, which provide more effective control of shed temperature, with large fans continually dragging cool air through the shed and over the birds.

Despite being more costly to operate, tunnel ventilation enables birds to be housed at a higher density. Compared to the older styles of technology, air can be drawn out of point source and there is the potential for air drawn into the sheds to be cooled and for manure to be maintained in a drier condition (Runge, 1998).

The style of shedding varies across Australia depending on local climatic conditions. In high temperature and high humidity areas, such as Queensland, the heat released by chickens as moisture cannot easily be evaporated into the surrounding atmosphere, the only practical way to cool the birds is therefore to increase the air flow to blow heat away. In other climatic areas, which are characterised by high temperature and low humidity, such as Victoria and South Australia, the comfort level of birds can be improved by adding moisture to the air through foggers, as well as through fan ventilation (Woolford, 1997). In colder climates more enclosed sheds are likely to be employed. Although environmentally controlled sheds are also being developed within the egg industry, the majority of layers are kept in open housing with less sophisticated technology (Woolford, 1997).

In reviewing intensive livestock production in Australia, the Select Committee on Animal Welfare observed that although advances in nutrition, genetics and housing design have been made, the main driving forces have been environmental control, labour saving devices and hygiene (SCAW, 1990). The Committee concluded that little attention had been given to the effect of housing on animal behaviour. It is likely that similar conclusions could be made with respect to the generation of externalities as experienced by neighbouring landowners.

By the mid-1980s, Taverner *et al.* (1987:180) indicate that as 'a result of intensive breeding programs and associated improvements in housing, nutrition, health and management it is now possible to produce a chicken in half the time taken 20 years ago'. Representatives from the West Australian chicken meat industry noted that during the mid-1970s, 2.5 kg of feed were required to produce 1kg of chicken meat, whereas by the end of the 1990s it now required 1.8kg of feed. Rather than decreasing periodically, it appears that breed selection, nutrition expertise, shed technology and management practices result in continual improvements.

2.2.2 Vertical Integration and Industry Concentration

Vertical integration refers to the situation where a single company owns different stages of a production process. In industry this may involve a company producing different components required for the finished product, possibly even including some involvement in the extraction and processing of key natural resources. Agricultural examples can also be identified where a single company supplies farm input, owns farmland and is involved in the further processing of agricultural commodities. Compared to other types of agricultural production in Australia, the poultry industry has been noted for having a high degree of vertical integration (ACMF and AEB, 1985). As identified in Figure 2.1 the production of poultry meat for consumer markets can be broken down into several stages. A disease free collection of grandparent birds are maintained in isolated areas, which are used to stock breeder farms. Chicken meat farms receive day old chicks from hatcheries and feed from local feed mills. Upon reaching a marketable age chickens are transported to a processing company for killing, defeathering, evisceration, packaging and distribution either as fresh or frozen products. Following processing, value adding may occur through further processing, including the dissection of birds into various speciality products.

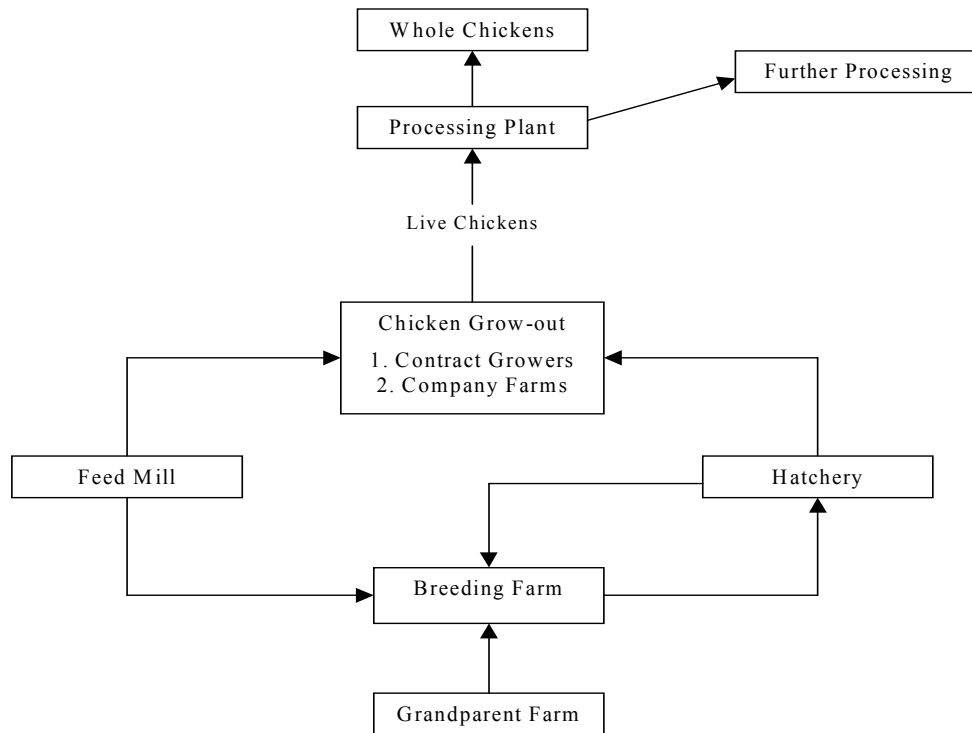
In Australia the tendency has been for one company to own various parts of the production process including breeding stock, breeder farms, feed mills, hatcheries and processing facilities. The integrating company is often referred to as an 'integrator' (Rogers, 1993) or in Australia more loosely described as the processing company. Rather than unique, vertically integrated poultry production is an international trend (Heffernan, 1984), 'led chiefly by the United States which has dominated the world industry in production organisation, technology and breeding/genetics' (Larkin and Heilbron, 1997:2).

Chickens are commonly raised by contract broiler farmers. In exchange for receiving day old chicks, feed, medicine and a growers fee, farmers supply their labour, land and capital in the form of sheds, as is shown in Figure 2.2. Poultry farming is thus unusual in comparison to other forms of animal agriculture because at no stage of the production process does the farmer own the bird. It is for this reason that they are frequently referred to as 'growers' rather than 'farmers' (Dixson and Burgess, 1998). Under contract arrangements, integrators may dictate the type of water and feed, bird density, temperature regimes, breed specifications, when chicks will be delivered and when grown birds will be removed (Lyons, 1996).

Contract broiler growing remains an integral part of poultry production in Australia. Of the estimated \$2billion invested in the poultry industry, 60% is owned by 90 processing companies and 40% is owned by 820 contract farmers. The average contract farm costs over \$1million, with the cost of a new shed approximately \$250,000-\$300,000 (ACGC, 1998:3). In terms of bird numbers it is estimated that contract growers produced 262 million of the 330 million birds grown in 1996, with the remaining 20% grown on farms owned by the processing companies (Dixson and Burgess, 1997:7). An average chicken meat farm produces 50,000-60,000 birds per batch and raises 5-6 batches per year, or 250,000 to 350,000 birds (Heilbron and Roberts, 1995; NSW Agriculture, 1994). As the number of full time workers on a property increases then the farm size increases by multiples of three sheds (Larkin and Heilbron, 1997:2).

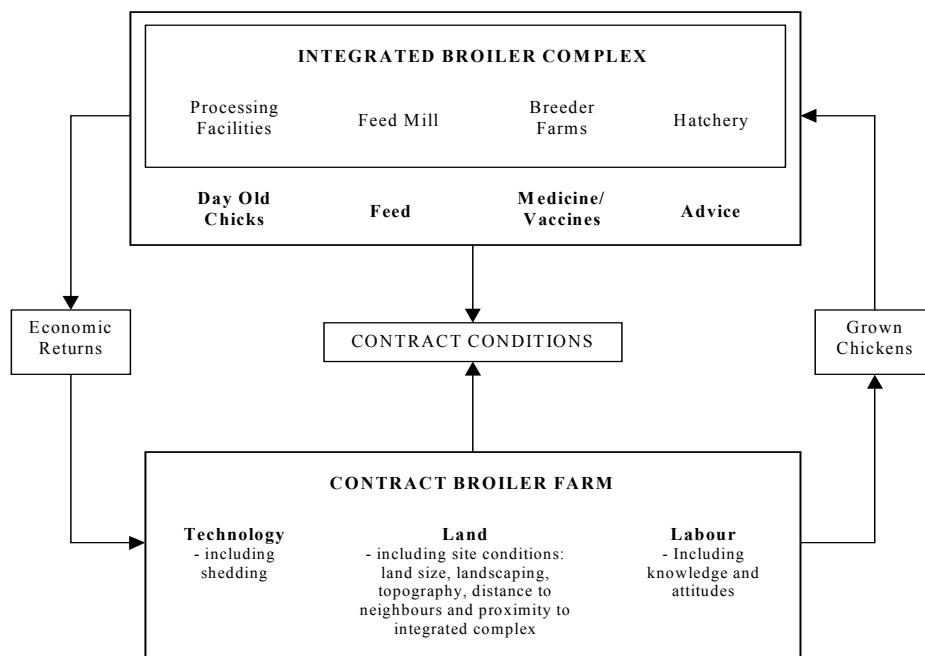
There is some inter-state variation, with NSW generally having the smallest farms (3,903m² of shed floor space), while WA has the highest average farm size (7,483m²), (ACGC, 1998:6). This is partly due to the longer tradition of poultry farming in the Sydney region which has resulted in a number of

Figure 2.1 Components of the Broiler Production Process



Source: Adapted from ACMF and AEB (1985:201)

Figure 2.2 Farm – Processing Company Relationship



older, smaller operations. Because sheds are generally older in NSW, batch throughput is also generally lower. The implication of these inter-state differences is that in NSW farm 'quality and reinvestment has been adversely affected by the poorest returns and the lowest growing fees on the mainland' (ACGC, 1998:6).

Chicken meat farms have adopted contractual operators for various reasons. In the United States, older farmers initially entered contract arrangements as they were dealing with local companies who were members of the local community and often part of the same social circle. Mutual concern for the well being of each other saw both producers and processing companies benefit (Morrison, 1998). Ownership concentration has seen interpersonal relationships collapse and contracts become purely profit driven. Chicken meat farmers have also entered contract relations in the United States because of the need to save the farm from economic depression, land ownership provided the equity necessary to invest in sheds, and a perceived trust or goodwill (Morrison, 1998, Hart and Chestang, 1996). Entering contract relations and receiving guaranteed returns was also thought to counter volatility in market prices (Rogers, 1993).

To maintain a continuous processing line the age of birds varies between different contract farms, with growers under pressure to produce the required birds within the designated time frame. The broiler industry operates on an all-in all-out production system. To reduce the possibility of disease being transferred from older birds to younger birds on the same property, a farm will not receive new chicks until all birds from the previous batch have been removed for processing. If feed conversion ratios and bird growth is below par, then the responsible farmer may be financially penalised. The death of birds during hot weather represents income lost, with growers possibly having to pay for deceased chickens.

The situation facing broiler farmers cannot simply be reduced to the relationship between growers and processing companies, as retailers, most notably supermarkets have influenced the industry's evolution. As noted earlier, the origins of the Australian chicken meat industry were in the Sydney region, as it was from here that frozen chickens were distributed inter-state (Fairbrother, 1987; 1988), primarily to supermarkets (ACMF and AEB, 1985). Competition with regional integrators was intense as supermarkets used chickens as a 'loss leader', by selling it at low cost to attract consumers (Milne, 1989:96). With state based integrators regaining market share by supplying fresh chicken, Inghams Enterprises Limited and Steggle's Limited (Australia's two nationally operating processing companies, though Steggle's was purchased by Bartters Poultry in August 1999) responded by purchasing integrated operations outside of NSW (Cain, 1990).

In 1963 the Western Australian Chicken Meat Association was formed to promote communication between growers and processors following conflict in that state. Similar councils were formed on the east coast of Australia and at the national level with the creation of the Australian Chicken Meat Federation in 1964 (Fairbrother, 1973). Continued concern about grower returns saw the Western Australian Broiler Growers Association form in 1973 (Cain, 1990).

To assist mediation between growers and processors, and to regulate growing fees, state governments across Australia, with the exception of Tasmania, implemented a legislative framework between 1975 and 1977 (Dixson and Burgess, 1998; Larkin and Heilbron, 1997; QDPI, 1991; Cain, 1990). The intention was to provide a forum for negotiating the growing fee in a manner that left the industry as unfettered as possible. The composition and responsibilities of each state legislative committee varied, though in general, representatives from the processing companies and the growers were required to negotiate prices at least twice a year and to mediate disputes between processors and growers (QDPI, 1991). The average fee per bird grown is negotiated by the state legislative committees taking into account a payment for labour, management inputs, operating costs and a return to capital invested in poultry shedding. For individual growers, returns will be above or below this average level depending on how their performance compares to the average for all batches grown during the same period. Performance levels are determined by a combination of bird age, weight and feed conversion.

Interstate variation occurs with respect to issues that can and cannot be addressed under the legislative system. In terms of membership, variation occurs as to whether consumer representatives or independent people are required in addition to processor and grower representatives and a Minister selected chairman. The stipulated functions also vary with the WA legislative model the most extensive, including collective bargaining with approved written agreements, price determination, mediation of growing disputes, provision of information including contract guidelines and arbitration on issues including but not limited to price (ACGC, 1998). In comparison, the NSW model allows for price determination, collective bargaining and some dispute mediation, but no arbitration other than price (ACGC, 1998). One significant implication of the WA model is that restrictions have been imposed on the number of farms, which has resulted in a larger average farm size and higher minimum standards because of more advanced equipment and higher levels of reinvestment (ACGC, 1998).

During the 1990s, Steggles and Inghams have combined to account for approximately 50-60% of the Australian market (Mellish, 1999; ACGC, 1998; Dixon and Burgess, 1998) and 80% of day old broiler chicks sold (Heilbron and Roberts, 1995). Variation exists from state to state, with Steggles and Inghams controlling 100% of production in Western Australia, 90% in Tasmania, 86% in South Australia, and 56% in Victoria (Dixon and Burgess, 1998:11). In addition to Inghams and Steggles, a number of medium sized state based integrators continue to operate including Joes Poultry (South Australia), Eatmore Poultry (Victoria), Marven's Poultry (Victoria), Hazeldene (Victoria), Baiada (NSW), Bartters (NSW), Red Lea (NSW), Cordina (NSW) and Golden Cockerel (Queensland).

In total there are an estimated 90 processing companies in Australia, which, although varying substantially in their size, are all privately owned Australian companies (Dixon, 1999). Although foreign capital investment is negligible and the industry has developed to satisfy the local market, Dixon (1999) recognises that the industry is integrated into the international economy, through the importation of protein meal, processing line equipment and more recently genetic avian stock.

The introduction of regulation controlling growing fees in the broiler industry has been paralleled by the implementation of legislation to reduce market volatility in the egg industry. In response to periods of over or under production, illegal inter-state trade and increasing output per bird, the number of birds able to be owned by an egg farmer was limited during the 1970s. State egg boards had been established to grade eggs, maintain quality standards, undertake consumer promotion, manufacture egg products and to manipulate supply to maintain a price fair to both producers and consumers (ACMF and AEB, 1985; Bureau of Agricultural Economics, 1983). Taverner *et al.* (1987) indicate that egg industry legislation, which was framed around the concept of the family farm, restricted the ability of newcomers to enter the industry and prevented farmers from expanding above a maximum quota level.

Rather than creating a period of stability and security for those in the egg industry, the 1970s could instead be seen as a period of major change, especially because by the end of this decade 90% of commercial layers were housed in cages. It is likely that this had an important impact on the cost of production, farm profitability and the ability of some farmers to purchase quota. Productivity would have been further enhanced as the laying ability of birds increased through genetic improvement. As the annual production of eggs per bird increased, it is likely that the state egg boards would have faced great difficulty in balancing supply and demand. For this reason, changes were introduced that limited the number of permitted birds to a calculated percentage of the original base quota. By the mid-1990s the percentage was set at 70% in Western Australia. At the same time as farm size increased, it is likely that backyard production had an important economic impact on small scale commercial producers. According to one estimate, domestic consumption from backyard operations during this period may have been as high as 30-40%, especially during summer and spring (Gaynor, 1999; Falconer, 1984). The elimination of unlicensed producers was not, however, a key policy concern (Falconer, 1984).

An alternative view of industry regulation therefore is that structural change continued to occur, but it did not reach its full potential (Larkin, 1993), especially in comparison to the chicken meat industry. Despite being regulated, the rationalisation of production capacity occurred in the Western Australia egg industry as the number of licenses reduced from 505 to 105 between 1971 and 1997 (WAPFA,

1998:9). Table 2.1 reveals that the trend towards larger operations is particularly noticeable over this time frame. The average farm size in Australia of approximately 10,000 hens (McMaster, 1995) remains relatively small compared to new egg farms in North America and New Zealand. Four companies dominate the market combining to account for over 90% of Australia's commercial production (Productivity Commission, 1998) of 180 million dozen eggs annually (McMaster, 1995).

Table 2.1 - Size and Number of Licensed Egg Farms in Western Australia 1971 and 1994

Size – No of hens	1971	1993	1997
1-500	261	39	15
501-1000	50	9	9
1001-2000	44	10	5
2001-5000	90	21	6
5001-10000	49	32	26
1000 and over	11	33	44
Total Farms	505	144	105

Source: WAPFA (1998:9)

Industry players are involved in different stages of production. Production can be divided into the breeding, hatching and rearing of pullets, the production and collection of eggs on farms; quality control, including egg cleaning and testing; transport from farm-gate to distributor, wholesaler or retailer; and the sale of eggs to the final consumer. The extent to which these stages have been vertically integrated varies widely in the industry. For example, egg farms vary depending on whether stock is purchased as day old chicks or birds at point of lay, or whether feed is grown or mixed on the property or purchased from a local feed mill. Eggs may either be transported to a centralised point for distribution, packaged and marketed from the farm or sold at the farm gate. It is difficult to draw conclusions about structural change in the egg industry because, compared to the chicken meat industry, research has been limited.

2.2.3 Spatial Concentration and Production Coordination

Strong agglomeration tendencies are identified in relation to chicken meat production based on the need to minimise production costs, including the cost of transporting feed and chickens to and from contract farms (Labrianidis, 1995), and the practical difficulties that may be experienced in coordinating the transfer of marketable birds to achieve a continuously operating processing line. By way of example, the production costs may be increased where farm managers employed by processing companies are forced to travel large distances between contract farms, thus reducing the number of operations that can be reviewed daily. Difficulties may then be experienced in determining the order in which bird pick-up teams should approach contract farms. For similar reasons, there may be a preference for larger as opposed to smaller contract farms. The sensitivity of birds to their surrounding environment creates additional problems as the transportation of birds may cause dehydration, stress, lower quality and even death. For animal welfare reasons, minimising the distance between contract farms and processing facilities is therefore an imperative. Broilers are removed at night for reasons of both welfare and efficiency. To capture the benefits of agglomeration, contract conditions may stipulate that farmers must locate within a certain distance of integrator facilities (Rogers, 1993).

Agglomeration at a regional level can be contrasted with spatial dispersal at a local level because of bio-security or quarantine issues. The potential for diseases to be transferred between properties could result in high chicken mortality and the possibility of an entire farm being quarantined. If too many birds are concentrated on one farm, or if the distance between farms is minimal, then the outbreak of disease would have a greater impact on processing and the ability of a company to fulfil retail contracts. Agglomeration tendencies are also identified internationally, in the United States, an integrated

production complex may involve 150-300 farmers locating within a 40-60km radius of a hatchery, feed-mill, processing plant and field service (Purvis, 1998).

Recent commentaries relating to modern broiler production have identified 'just-in-time' (JIT) principles (Boyd and Watts, 1997; Labriandis, 1995; Aull Hyde *et al.*, 1994) because there is minimal room for error in coordinating the delivery of chicks, farmers, pick-up crews and processing lines in order to fulfil market demands. Aull-Hyde *et al.* (1994), for example, recognise that synchronising the delivery of chickens in accordance with an operating processing line is critical for two key reasons. Firstly, processing sites are not equipped with feed and waste management systems able to store live chickens over extended periods. Secondly, raising chickens beyond their maturity or marketability is not cost-effective as productive capacity is wasted. Boyd and Watts (1997:204) claim that coordinating the rigidity of broiler production demands with market commitments, 'requires a degree of flexibility and inventory control that is more precise and demanding than for any other agro-food commodity'.

In response to the demand for birds of different sizes, processors, rather than removing the birds from a specific farm when they reach a pre-determined weight, may remove birds from a single farm over a period of several weeks. Instead of going into individual sheds once, birds may be collected three to five times. Entering sheds more than once is associated with efficiency losses, because each time feeders and drinkers have to be raised from the ground and temperature control is lost when the doors are opened. Bird growth is affected as it is thought that broilers take a day to return to normal each time birds are collected, creating further difficulty in coordinating production.

An additional concern is that although preliminary orders may be developed a number of weeks in advance, supermarkets may change their demand without advanced warning. Uncertainty may reflect national deals between the processing companies and supermarkets, produce moving between states, and the demand for weekly specials or loss leaders. Compared to five years ago each processing company may have planned a week in advance, today requirements for the following day are often not finalised until late in the previous day. For this reason there is the possibility that a farmer may be given little notice as to when the birds will be collected.

The ability of a modern broiler production complex to rapidly increase output is limited (McGuire, 1999). In simple terms, in addition to the 42 days required to produce one additional meat bird, it may take 6 months before a new bird reaches point of lay on a breeder farm, 6 months for the breeder bird to be produced if additional grand parent stock have to be raised, and a further 6 months if a company is changing the genetic composition of its grand parents. Another assumption is that growers are willing to develop new farms and are able to obtain the development approval to do so. Yet if an integrated production complex cannot achieve the economies of scale required to compete, then its viability may be undermined. For this reason it is important to give greater attention to the impact of geographical conditions that underlie integrated production complexes (Sadler, 1994).

As noted earlier, the origin of the Australian poultry industry is in close proximity to urban centres (Taverner *et al.*, 1987). Today most integrated chicken meat operations are within a 50km radius of Australia's capital cities, a geographical pattern shaped by accessibility to infrastructure, including feed mills and processing plants, availability of labour for processing facilities and access to consumer markets (Kite, 1995; ACMF and AEB, 1985). In addition to locating in close proximity to the main state capitals, broiler production also occurs around a number of larger provincial towns including Tamworth, Newcastle and Griffith in New South Wales, Geelong and Bendigo in Victoria, and Murray Bridge in South Australia (Kite, 1995).

Although the urban fringe remains important, egg farms tend to be located within 50-100km of the major capital cities, with large scale operations also situated close to the grain belt including the Darling Downs region of Queensland and Tamworth, Young and Griffith in NSW (Larkin, 1993). The significance of the peri-metropolitan fringe for chicken meat and egg production is shown in Figure 2.3 and 2.4 respectively. A second important extrapolation from the following figures is the concentration

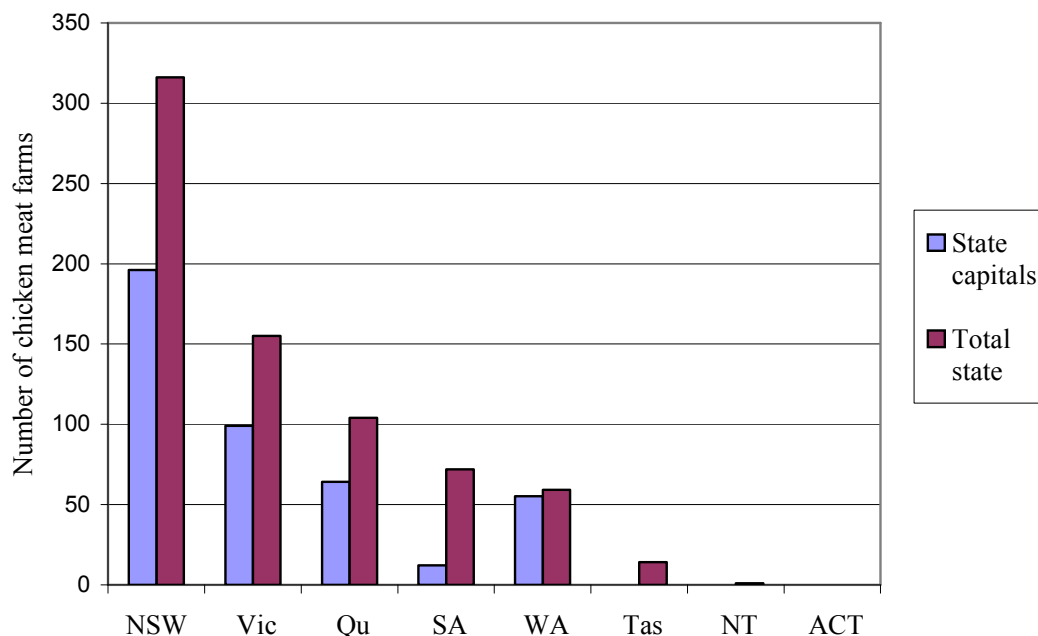
of broiler production in NSW and the Sydney Basin (Wilson, 1980) and the dominance of NSW and Victoria in terms of egg farms.

The distinction between urban fringe livestock production and the location of production in more isolated rural areas has been noted internationally. Since the 1960s, in the United States and Canada, spatial restructuring has seen the relocation of red meat processing facilities from urban centres to rural towns (Bjerklie, 1995; Broadway, 1997; 1995). Instead of transporting live animals to urban processing facilities, relocation required processed meat to be moved to distant markets. In contrast to the red meat sector, which is characterised by an urban exodus and rural industrialisation, changes in the spatial pattern of poultry production in the US reflects the search for new low cost production areas for an expanding industry. Growth has been particularly noticeable in the southern states for reasons that include: lower energy costs for heating and cooling; access to grain from the US mid-west; industrial recruitment strategies such as tax incentives and lax environmental enforcement; and lower wages (Purvis, 1998; Broadway, 1995; Kim and Curry, 1993).

2.3 Future Challenges Facing the Australian Poultry Industry

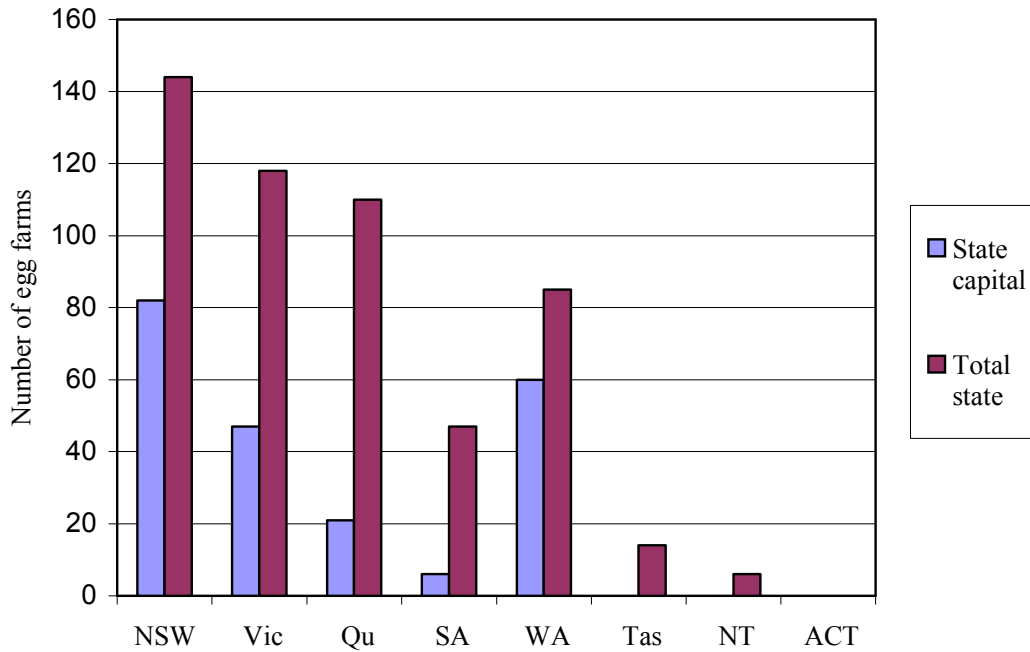
In recent years the structure of the Australian poultry industry has been challenged by a number of threats. Five challenges are outlined in the discussion that follows, including consumption patterns, animal welfare, deregulation, internationalisation and land use conflict. Dixon and Burgess (1997) claim the industry is trapped between the micro-economic reforms encouraged by the National Competition Policy and the Commonwealth Government’s desire to conform to international trade requirements. As indicated by Figure 2.5, it is important to explore the relationship between these various threats as they may influence the ability of the industry to adapt to adversity.

Figure 2.3 Number of Chicken Meat Farms by State Capital and State Total 1995



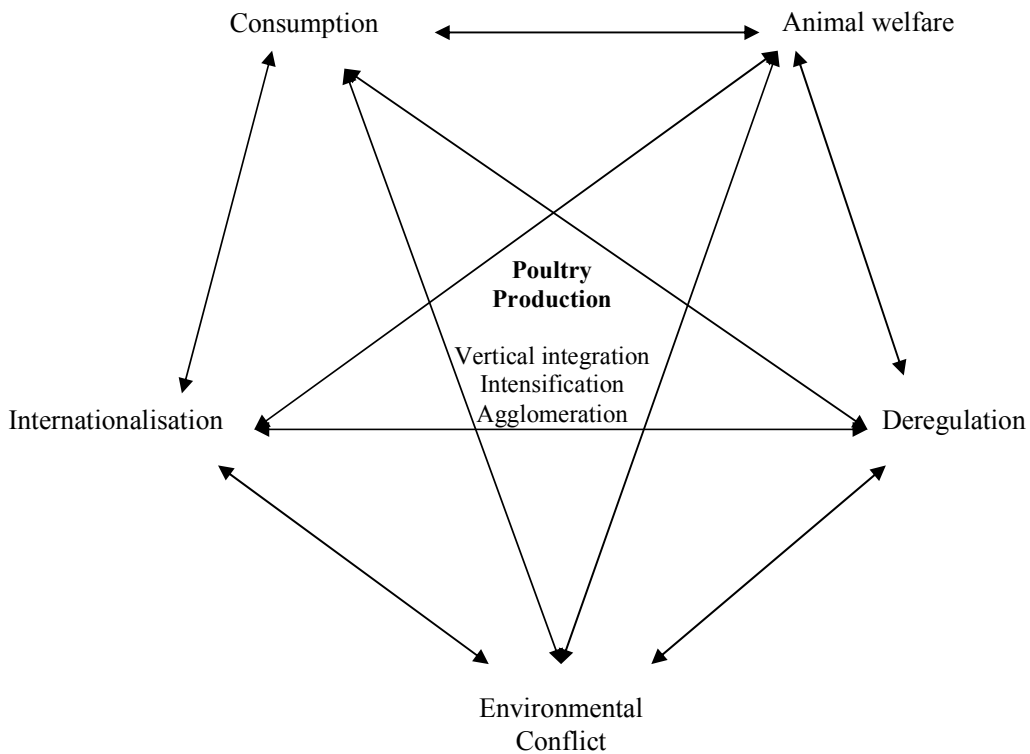
NB: Figures weren’t available for Greater Hobart
 Source: ABS Integrated Regional Database (1997)

Figure 2.4 Number of Egg Farms by State Capital and State Total 1995



NB: Figures were not available for Greater Hobart
 Source: ABS Integrated Regional Database (1997)

Figure 2.5 Challenges Facing the Australian Poultry Industry



2.3.1 Consumption and Animal Welfare

A noticeable distinction exists between the chicken meat and egg industries in relation to consumption trends. Evidence suggests that while egg consumption per head is declining, per capita consumption of poultry meat has continued to rise as is revealed in Table 2.2. Increasing demand for chicken meat over the past three decades has seen poultry rise to become Australia's second most popular meat behind beef and veal (Fairbrother, 1987). Reports suggest that the consumption of poultry meat may overtake red meat within the next ten years (The Land, 1999; Larkin and Heilbron, 1997).

In addition to genetic improvements and technological advances at the farm level, rapid growth in chicken meat consumption since the 1960s has been encouraged by changes off-farm including processing line efficiency and new retail patterns. Automation at processing facilities has reduced labour requirements and increased throughput. In 1961 the first commercially viable continuous processing line was introduced, processing approximately 35,000 birds a week (Fairbrother, 1994). Today a modern facility processes nearly double that each day with some processing around 8,000 birds an hour (Fairbrother, 1994). Larkin and Heilbron (1997:iii) describe the Australian chicken meat industry as the 'most efficient of Australia's meat industries'.

Table 2.2 Consumption of Meat Products in Australia 1956-1995 (kg per person)

Year	Beef and Veal	Mutton and Lamb	Pork	Poultry
1956	58.5	33.8	7.0	4.4
1966	38.6	38.0	9.8	7.4
1976	68.5	20.9	12.1	14.4
1986	41.5	22.6	17.2	22.8
1991	39.2	21.7	18.2	25.0
1993	37.0	19.7	18.4	26.8
1995	35.2	17.1	19.2	27.4

Source: ABARE Australian Commodity Statistics (1997:140)

Retail trends include increasing demand for convenience foods, such as take away chicken, fast food outlets, including KFC from 1968 (Dixon, 1999), and the growth of specialist chicken retailers based on value adding (Dick, 1999; McCosker, 1998). From a market largely dominated by supermarkets in the 1970s, the distribution of chicken meat has fragmented (Fairbrother, 1987). As identified earlier, another notable change involves the industry moving from frozen, to chilled, to specialist chicken portions including deboned, crumbed, stuffed and marinated (Fairbrother, 1987). In addition to convenience, demand has increased for health reasons, as chicken is seen as a 'low fat, low cholesterol, highly nutritious meat' (Fairbrother, 1987). Demographic changes within Australia have added further emphasis with Asian consumers favouring chicken and pork meat (MacAulay *et al.*, 1990).

In contrast to the rising demand for chicken meat, the Australian egg industry is characterised by a long run decline in consumption, as is show in Table 2.3 (Larkin, 1993). Compared to international evidence, Larkin (1993) indicates that Australia has a relatively low consumption per capita because of lifestyle reasons and the availability of a wide range of low cost alternatives. Although the demand for eggs by the processing industry has increased, the sale of shell eggs has declined for a number of reasons (MacAulay *et al.*, 1990).

- Decline in cooked breakfasts and increased demand for ready to eat breakfast cereals.
- Decrease in home cooking and baking
- Association of egg yolk with cholesterol.
- No attempt is made at calculating backyard production and consumption

Table 2.3 Estimated Annual Per Capita Consumption of Eggs and an Index of Prices Received by Egg Farmers Between 1987/88 and 1996/97 in Australia ^a

Year	Eggs per person per year in Australia ^b	Index of farm gate returns for egg farmers ^c
1987/88	153.0	100.0
1988/89	146.0	109.6
1989/90	142.0	101.0
1990/91	142.7	98.3
1991/92	141.0	93.9
1992/93	141.0	97.2
1993/94	140.0	93.2
1994/95	135.0	90.4
1995/96	132.0	103.7
1996/97	132.0	107.2
1997/98	131.7	102.0
1998/99	130.6	87.0

^a base year for price index is 1987/1988

^b Source: Productivity Commission (1998:74)

^c Source: ABARE Australian Commodity Statistics (1997:22) & Australian Commodity Forecasts and Issues (1999:543)

In recent years demand for poultry products has been affected by a concern for animal welfare. Fairbrother (1988) indicates that the animal welfare lobby has come to prominence since the late 1970s. To address welfare concerns, the industry has been proactive in developing codes of practice for the welfare of poultry (Fairbrother, 1988). Two such codes cover concerns related to the transportation of live poultry and the slaughter of poultry at processing facilities (McDermott, 1995).

Perhaps of more concern is the negative reaction to cage bird production (Taverner *et al.*, 1987). Despite codes of practice being developed jointly by government, industry, welfare groups and special interest groups, such as veterinarians (McMaster, 1996; McKinnon, 1996) there is a growing resistance to cage bird production. In 1994 the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) endorsed the *Australian Code of Practice for Domestic Poultry* (1995), which was to take effect from 1 January 1996 (SCARM, 1995). Under certain circumstances farmers were required to provide increased cage space for each individual bird (SCARM, 1995) (see Appendix II for an outline of the requirements). The ability of the industry to adapt to such requirements is clearly influenced by location and whether or not existing farmers have the space in which to expand their operations.

In a national review of the impact of the proposed changes, Stewart (1993:8) found that 23% of farms (34 egg farmers out of 145) particularly those 'in more closely settled areas are now prohibited from further shed expansion due to local government/town planning requirements' (Stewart, 1993:2). To satisfy bird density requirements, farmers would therefore be forced to accept a lower number of birds, with implications for their economic viability, or to relocate their farm in order to remain in the industry (Stewart, 1993). Larkin (1993) also concluded that the farmers facing the tightest development

restrictions are those operating on the basis of 'existing use rights' in what were now urban areas. Where local government has adopted guidelines stipulating minimum distances from poultry sheds to property boundaries, roads, watercourses or neighbouring dwellings then extensions or the construction of new sheds may be impossible.

It is likely that continued concern for animal welfare creates an uncertain environment in which investors are reluctant to commit substantial long-term capital to new investments (Larkin, 1993), thus stunting growth in new environmentally controlled shed designs. In restricting the development of new larger facilities and therefore industry concentration, production may remain substantially distributed across a larger number of smaller players, creating problems in relation to the supervision of management practices. The capacity of larger facilities to obtain development approval will also remain a factor in the process of further restructuring.

Over the past decade new entrants into the egg industry have generally been free-range farmers, where hens are 'free to move over a large area of open ground, but can return to weatherproof sheds for roosting, laying, water, feed and protection' (McMaster, 1995:139). Recently, free range farms account for 3-4% of commercial egg production (McMaster, 1995). An alternative production system, which has been approved by the RSPCA, involves producing eggs in a deep litter system. Referred to as barn-lay, it represents a compromise between free range and caged production and recently accounted for approximately 2% of eggs sold (McMaster, 1995).

2.3.2 Deregulation of Poultry Production

During the 1980s a fundamental ideological shift occurred in the attitude of government in Australia, which saw policy makers question the role of the state in economic management. The free market ideology that rose to dominance resulted in pressure to remove price distortions, such as subsidies, and policies that prevented competition at a state, national and international level. In relation to rural industries, government concern was directed towards marketing regulation or pricing structures that limited industry restructuring, and ultimately its ability to be competitive at an international level (Piggot, 1990).

Government financial contributions to the poultry industry have traditionally been limited to research funding (McMaster, 1995; ACMF and AEB, 1985; Fairbrother, 1973). However, stemming from the shift in market ideology, government questioned whether it should be involved in controlling the production and distribution of eggs, including the extent to which it was unnecessarily restricting private enterprise (GEF, 1989). Throughout the 1980s, questions were raised regarding the effectiveness of regulation in the egg industry (Larkin, 1993) as a number of shortcomings were identified. Concerns related to whether artificially high consumer prices were being maintained because regulation discouraged industry restructuring, including new large scale entrants employing modern technology. Difficulties were also experienced in maintaining market control where farmers operated illegally above their license because of increasing output per bird, the absence of restrictions on inter-state trade and because of the unregulated backyard industry.

Following the changes introduced by the NSW Government in July 1989, egg industry regulation has been removed in most Australian states. The decision was made against the wishes of the majority of farmers, the NSW Farmers Association and Australian egg industry representatives. Horn (1991:15) states that there:

can be no doubt that the decision to deregulate was a political decision designed to placate some consumers and the media, rather than a rational economic decision designed to encourage and reward producers from their restraint and efficiency. The decision was taken by a Government with a strong philosophical commitment to deregulation and the operation of free market competition.

In NSW, the State Government compensated farmers \$15 per quota, an average of \$240,000 per farmer or \$61million in total, in recognition of the capital invested in purchasing quota (McMaster, 1995; Horn, 1991). With restrictions on farm size removed, some farmers used the money to acquire additional stock while others purchased the assets of farmers who upon receiving the compensation decided to leave the industry (McMaster, 1995). A lack of market coordination resulted because, in the new competitive environment, producers were more cautious in sharing information about their intentions.

With slumps also occurring in other Australian states following deregulation, the Australian Egg Industry Association identified the need for improved market information on egg supply, demand and price forecasts (McMaster, 1996b). The success of such a scheme ultimately depends on the willingness of all producers to supply information relating to their flock size, egg production, flock age, and the timing of chick hatching, slaughtering and moulting (Bell and McMaster, 1996; Horn, 1991).

There are grounds for assuming that the severity of cycles will decrease in the future because of industry concentration in the Australian retail sector. Three supermarkets account for approximately 70% of grocery sales (Nayga and Riethmuller, 1995). Larkin (1993) indicates that the major benefactors of deregulation in Australia have been the supermarket chains, who represent the main outlet for eggs, with retailing margins increasing from 6% to 20-30% per dozen. In this environment it is unlikely that farm gate prices will rise much above the cost of production, especially as producers continue to undercut each other to obtain additional market share (Hoy, 1996).

To cope with the deregulated environment and the dominance of supermarkets in Australia, various strategies have been adopted including introducing new product lines and niche marketing to demand premiums (Littleton, 1991). Instead of selling to supermarkets, other farmers have survived because of their long tradition of good service and quality by selling directly to the public or independent supermarkets. In line with the demand by Australia's nationally orientated supermarket for consistent national branding and quality, state based egg companies have shown interest in expanding interstate.

The chicken meat industry has also faced pressure to deregulate. In particular, the chicken meat processing companies have lobbied to replace collective bargaining with individual grower contracts (Dixon and Burgess, 1998). Reasons for this include low profitability, with supermarkets effectively extracting the lowest price from competing processors, the role of the medium sized companies in undercutting the national players (Mitchell, 1994), and an excess supply of chicken meat because of over investment and increased farm output (McGuire, 1999; Lyon, 1998).

In contrast the growers argue that until the high degree of market concentration enjoyed by processing companies and supermarkets is addressed 'no attempt should be made to dismantle the legislation governing their allegedly uncompetitive relationship with the processors' (Dixon, 1999:327). Other arguments for maintaining the present system, include the fact that growers only receive approximately 8-9% of the retail price of fresh chicken (Trinca, 1999; ACGC, 1998) and that farmers who are consistently out performed by other farmers may lose their contracts (Trinca, 1999). The high cost of establishing a broiler operation also places processors in a strong bargaining position, especially because poultry sheds employ highly specialist technology which is not easily adapted to produce different output (ACGC, 1998; QCGA, 1998).

To fully understand industry attitudes towards deregulation it is important to look at a number of geographical dimensions including the location of the industry on the urban fringe, rising levels of environmental conflict and community resistance to industry restructuring. In relation to the egg industry, the impact of deregulation has not been as it was intended. While deregulation may have enabled new production systems to become established where state egg boards previously limited diversity, consumers have not benefited from lower prices to the extent that was expected. Deregulation was thus implemented at the farm level without a full appreciation of the role of supermarkets in linking farmers to consumers. Where members of the egg industry are unwilling to invest in new large capital

intensive cage bird production systems because of community concern for animal welfare or environmental impacts, then it is likely that intended gains of deregulation have been further limited.

Deregulation in the broiler industry may have unexpected consequences where production capacity is located on the urban fringe. The willingness of farmers to invest in new technology may be limited by the uncertainty associated with the urban fringe, as well as deregulation. However, this needs to be balanced against the demands of processing companies for efficient feed conversion ratios and the potential for lower returns.

The industry's geography remains important. Where there are competing processing companies, as well as an expanding market, operating under a hostile environment may result in growers transferring to processors with a more cooperative reputation. For similar reasons, deregulation can not be investigated without exploring the issue of land use conflict and the potential for growers to develop additional sheds. Were environmental conflict to limit the development of new farms and increase the likelihood of unviable farms, with associated consequences for the efficiency of processing, then it is assumed that companies would take a greater interest in compromising with existing growers.

2.3.3 Quarantine Restrictions and Trade in Chicken Meat

During the 1990s, the removal of quarantine barriers to the import of chicken meat for consumption emerged as a third key concern facing the Australian poultry industry (Dixon and Burgess, 1998). Following the relaxation of Australia's quarantine stance in 1989, the US, Thailand and Denmark argued that the export of chicken meat to Australia should be permitted because quarantine restrictions represented non-tariff barriers (Dixon, 1999). An international review of avian diseases in 1991 by the Australian Quarantine and Inspection Service (AQIS), resulted in the release of a position paper in 1994 which indicated that Australia was obliged not to use technical barriers that could not be justified by international scientific scrutiny. Recognising that exotic pathogens, such as Newcastle Disease, could be eliminated by cooking chicken meat according to particular temperature/time regimes, the AQIS recommended that importation of cooked chicken meat should be allowed (RRATLC, 1996). One reason for allowing imports was the realisation that a 'zero risk' environment was impossible since native birds could come into contact with diseases carried by migrating birds.

The poultry industry attempted to resist international forces (Dixon, 1999), by lobbying that the importation of chicken meat would lead to the introduction of exotic disease and human pathogens, and result in economic losses (Dixon and Burgess, 1998; Hall, 1996). Additional arguments were that international producers faced lower environmental standards, cheaper labour supplies, production subsidies, access to low cost feed, lower building costs and high tariff barriers which limited Australian exports (Dixon and Burgess, 1998; Fairbrother, 1996).

The possibility of future changes to quarantine regulations is a continual threat, especially as the Australian poultry industry has been exposed to a number of potentially devastating exotic disease outbreaks (Trinca, 1999). Two types of exotic diseases have been recorded in Australia: Newcastle Disease and avian influenza. Although recent outbreaks have been contained, albeit at considerable expense, the risk of a widespread disease outbreak remains, especially following the recent mutation of previously non-virulent strains of Newcastle Disease in NSW.

Despite coming under attack from international producers, the Australian poultry industry has also identified opportunities to expand exports (Collis, 1996; Fairbrother, 1996; 1994). This follows reports that the international market for poultry products continues to grow, with the highest rates of growth recorded in Asia (Henry and Rothwell, 1995). McDermott (1995) suggests that Australia's clean green image and disease free status will enable the chicken meat industry to 'find niche markets in Asian countries, particularly for our value added cooked chicken products'. The expansion of food service and fast-food industries also provides opportunities (McDermott, 1995) and the adoption of quality assurance programs may further open markets for the Australian industry (Fairbrother, 1996; McDermott, 1995).

To be able to compete in the international arena, achieving greater economies of scale is critical. Currently, economies of scale are limited by the fact that the industry has developed in different locations to supply a dispersed population (Larkin and Heilbron, 1997). An important question is therefore whether greater economies of scale can be achieved in present areas of production or whether industry planning will result in larger integrated regional complexes, which supply produce to more than one state capital. In addition to concerns relating to whether family farmers can continue to invest in larger operations given the cost of shedding, questions must be asked about environmental impacts and community attitudes towards the industry's intensification in Australia.

2.3.4 Land Use Conflict and Industry Relocation

During the mid-1980s the Australian Chicken Meat Federation and the Australian Egg Board recognised a fourth challenge facing the poultry industry. The spatial concentration of the industry near urban centres was creating problems because of the 'attitudes of municipal authorities, planners, urban dwellers and conservationists' towards environmental externalities, raising the possibility that the industry may be forced to relocate to less suitable locations (ACMF and AEB, 1985:201). Land use conflict involving poultry farming has been recognised by other writers (Talyor, 1998: 26; Luckhurst, 1997; 1996; Fairbrother, 1996; Larkin, 1993; Ainsworth, 1992; Taverner *et al.*, 1987). McDermott (1995) acknowledges that conflict will increase as population growth and urban expansion continues and that particular problem areas include the Mornington Peninsula near Melbourne, the Hunter Valley region of New South Wales, and metropolitan Perth.

Poultry farming is associated with a number of externalities, including odour, noise, dust, light and visual intrusion, which develop as a result of farming practices (Mitchell and Derksema, 1998). One reality is that during the production process manure and dead birds are produced. Unless they are carefully managed, odour complaints and fly problems may result (see Appendix III for a list of farm management practices). Good farming practice involves preventing wet manure because higher odour levels are likely to develop. Fogging devices need to be maintained to ensure that a mist is released and that water droplets do not form. Water dispensers need to be carefully monitored to avoid spillage and wet manure needs to be removed. One complexity is that if manure becomes too dry, then dust problems may develop. Careful attention must be given to how manure and dead birds can readily be disposed of, because their on-site storage may produce externalities. A number of different disposal methods are identified in Table 2.4.

In Australia, although piggeries and beef feed lots are associated with nutrient pollution of surface and ground waters, NSW EPA (1995:270) have stated that:

'The environmental effects of poultry farming most commonly impact on community amenity, particularly odour, noise, light and visual impact. These are exacerbated by urban and rural residential encroachment into traditional poultry farming areas'.

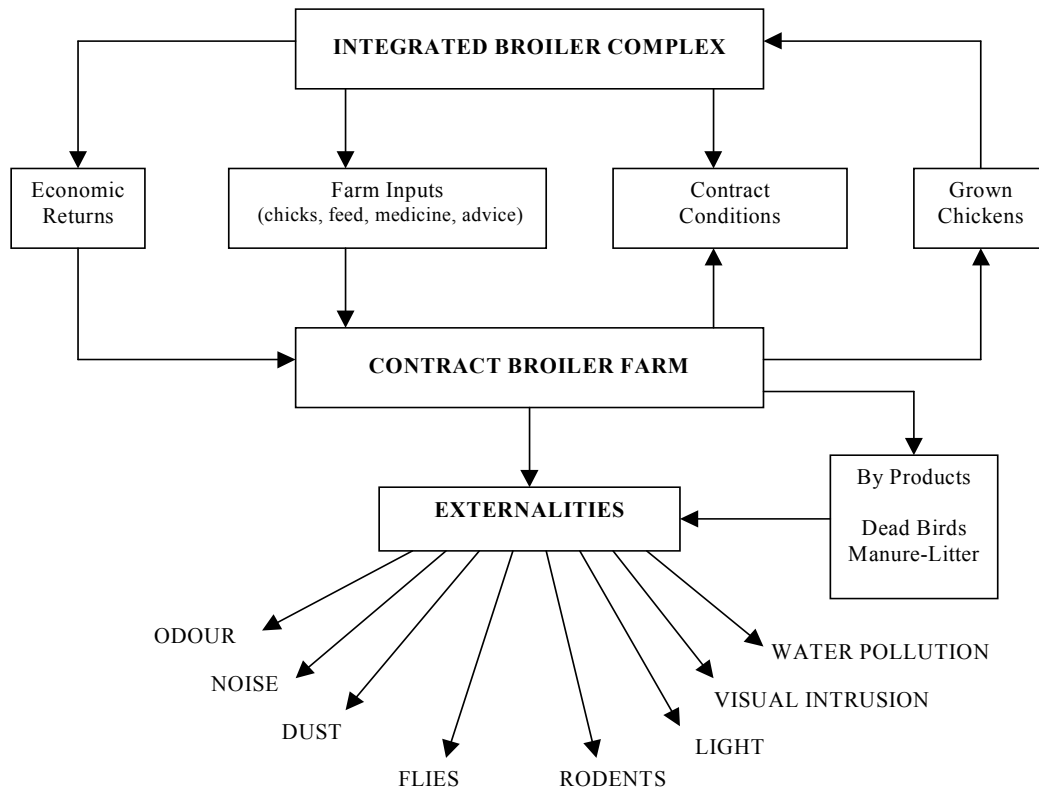
Figure 2.6 recognises that such externalities need to be viewed in the context of a vertically integrated poultry industry. Noise levels reflect the arrival and departure of vehicles transporting feed, birds, floor shavings, manure, natural gas and eggs. Farmers may have little control over the timing of truck movements, either because they are dictated by animal welfare or by market demand. The fact that birds are removed at night from chicken meat farms may also attract complaints depending on noise levels. The quality of both feed and day old chicks delivered by the processing company may result in unpleasant odour where maldigestion occurs. Feed rations have been developed to maximise growth, subject to economic considerations and availability of ingredients, such that it has been common practice to provide excessive nutrients to guard against deficiency (Jongbloed and Henkens, 1996; Rinehart, 1996). Surplus nutrients simply pass through birds into their manure and may be responsible for higher odour levels (Van Horne *et al.*, 1998). Higher odour levels may also result from the

Table 2.4 Utilisation of By-Products from Poultry Farming

Item	Source	Conversion	Product	End Use
Litter	Poultry meat Breeders Semi-intensive egg farms	None	Raw litter	Mushroom Composters Market gardens
		Composting and pelleting	Pellets	Fertiliser
Manure	Caged layers	None	Raw manure	Market gardens
		Composting and pelleting	Pellets	Fertiliser
Spent hens	Egg breeder farms Caged layers	None	Live spent hens	Backyard egg Production
		Slaughter	Nuggets, processed food items	Food industry
Dead birds	All poultry farms	Commercial rendering Composted with litter	Protein meal Fortified litter Compost	Protein material Market gardens Home gardens

Source: Adapted from NSW Agriculture (1994:32)

Figure 2.6 Externalities Relating to Broiler Farming



inappropriate disposal of dead birds. Finally, as the size of an operation increases in terms of bird numbers, then more feed has to be delivered, a greater volume of manure is produced and more dead birds need to be disposed of.

A number of different factors constraining relocation can be identified (Table 2.5). The main factor impeding the relocation of an integrated structure is thought to be the financial cost of replacing facilities. Past estimates suggested that the 'replacement cost of a typical 8,000 bird/hr. plant is around \$7,500,000 while an integrated operation of 300,000 birds/week embracing feed mill, fertile egg production, hatcheries, growout and processing requires around \$40,000,000 in fixed and operating capital' (ACMF and AEB, 1985:204). Cost would have risen appreciably since then. Accordingly, the Australian Chicken Meat Federation indicated that it is likely that 'the relocation of poultry processing plants to decentralised areas will occur when expansion demands require such increases in all the production areas that a totally new integrated complex may be undertaken' (ACMF and AEB, 1985:204). Under these conditions the advantages of lower feed costs, environmental aspects and labour stability could outweigh the benefits of market proximity (ACMF and AEB, 1985).

Poultry farms have an important economic impact, with estimates that broiler farms spend \$100,000 to \$150,000 annually on casual labour, trades, services, bedding materials and other inputs (ACGC, 1998:3). Developing a profitable integrated production complex in rural Australia remains problematic, as revealed by the experience of two NSW poultry companies. Employing approximately 1,500 people in Griffith, Bartters has faced difficulty in accessing sufficient employees (Dick, 1999; Doherty, 1999). In addition to problems in accessing water, the poultry industry has faced land use conflict in the Tamworth area of regional NSW (Agyare, 1995).

2.4 Conclusion

Chicken meat production in Australia is characterised by continued intensification and a system of contract relations that limits farm decision-making. To the extent that processing companies are responsible for farm externalities, including odour levels and the noise generated during the pick-up of birds, farmers may be relatively powerless to resolve conflict. Where contract relations have restricted the location of poultry farms to the urban fringe of Australia's state capitals, then without suitable land use planning the potential for conflict is increased. As the importance of economies of scale have increased for poultry farmers, then externalities have also increased as a larger number of birds potentially produces a greater volume of manure, higher odour levels and more truck movements. Where community resistance to poultry farming has developed, farmers may face greater difficulty in obtaining development approval.

Possible longer term implications include great difficulty in responding to external threats, such as the entry of cheaper international products, the impact of deregulation on market prices and financial returns, and the need to invest in newer production facilities to address bird welfare concerns. Despite this there is a notable absence of research investigating the attitude and experiences of poultry farmers in relation to environmental conflict and the development approval process. Before we can investigate the impact of land use conflict on investment patterns, it is necessary to firstly develop a greater appreciation of the existing regulatory system, including the effectiveness of policies to protect agricultural land on the urban fringe in Australia.

Table 2.5 Factors Influencing Relocation Decisions

Relocation Requirements	Examples
Financial Considerations:	<ul style="list-style-type: none"> -Revenue realised from the existing site -Cost of removing infrastructure and rehabilitating the existing site. -Cost of purchasing land, technology and infrastructure -Cost of satisfying environmental conditions
Environmental Considerations:	<ul style="list-style-type: none"> -Soil composition -Water table levels -Flood plain -Local climatic conditions -Local meteorology -Topography - Storm water disposal -Proximity to sensitive environmental areas, wetlands and water catchments.
Industry Considerations:	<ul style="list-style-type: none"> -Trained workforce -Methods for disposing dead birds, manure and other wastes -Access to: <ul style="list-style-type: none"> -grain fields - road access for feed and livestock vehicles - reliable supply of suitable quality water - electricity supplies - processing plant and feed mill - labour -Scope for future expansion -Quarantine issues
Socio-Political Considerations:	<ul style="list-style-type: none"> -Proximity to existing dwellings and residential zones -Likelihood of future encroachment. -Attitude of the local community -Environmental conditions stipulated by local councils and government departments

Chapter 3: Planning for Agriculture on the Urban Fringe in Australia

3.1 Introduction

Where poultry farms are located on the urban fringe the potential for land use conflict exists. With this in mind it is important to investigate how the planning system endeavours to address land use conflict, both in terms of preventing conflict from occurring and resolving conflict where it does arise. Section 3.2 and Section 3.3, focus on the nature of land use planning, by respectively commenting on whether appropriate policies have been adopted to firstly, constrain the expansion of urban areas and secondly, to prevent the fragmentation of rural land. In the final section (Section 3.4) attention is directed towards how the planning system regulates agricultural developments, and in doing so distinguishes between existing operations and proposed investments.

3.2 Urban Planning in Australia

During the twentieth century Australian cities have sprawled outwards for a variety of reasons, including the arrival of new migrants and the impact of technological change. For example, improvements in farm technology have reduced rural employment and helped stimulate a population shift from rural to urban (or inland to the coast). Continued population growth has resulted in Australia becoming one of the most highly urbanised nations in the world (Whitelaw and Maher, 1988; Chittleborough, 1986). The private automobile, in particular, has added a further dynamic to urban expansion and to the growth of new fringe suburbs.

Concern for the outward expansion of Australia's cities emerged during the middle of the twentieth century because of economic reasons, including the need to plan residential population, employment and basic infrastructure provision in a more coordinated manner (Bunker, 1987). To this day, Sydney's green belt plan of 1951 represents the most ambitious attempt at developing a master plan for an urban area in Australia's history (Forster, 1995). The Cumberland County Council implemented a statutory metropolitan plan that attempted to contain Sydney's urban expansion by designating a green belt in the early 1950s (Freestone, 1992). With the minimum subdivision size in the green belt limited to 5 acres, the intention was to contain Sydney's outward growth and to separate the urban area from surrounding rural towns. At the time, five acres was considered to be the smallest area from which a livelihood could be achieved from agriculture (Freestone, 1992). The green belt was also to provide for rural pursuits, institutional and government requirements, open space reserves and for the spiritual and mental escape from urban living (Golledge, 1960). By limiting the outward expansion of Sydney, the intention was to force the development of vacant land and to use existing infrastructure more efficiently. Independent suburbs within the green belt were to be encouraged to decentralise employment and to reduce commuting (Stretton, 1989).

Although it did not contain a green belt, the 1955 Stephenson-Hepburn Plan for metropolitan Perth was based on urban containment and maintaining independent towns (Yiftachel and Kenworthy, 1992). Like Sydney's green belt, it inevitably failed because of the strength of development interests and the demand for low cost housing on the urban fringe. Implemented in 1963 by the Metropolitan Region Planning Authority as Perth's Metropolitan Region Scheme (MRS), it has been criticised for being overly idealised and for ignoring important natural resources (Singleton, 1992).

In 1968 a new planning strategy was released for metropolitan Sydney. The *Sydney Region Outline Plan* as it was titled, represented a significant movement away from British style utopian plans to an American style strategy based on broad objectives and goals to create greater flexibility (NSWSPA, 1968). Rather than a statutory document, the plan indicated broad areas for future urban development. Future growth was to be directed along two linear corridors. One was to follow the railway west to

Penrith, and the other was to follow the railway south west to Campbelltown. In recognition of increasing car ownership and the demand of the nuclear family for detached dwellings in the suburbs (Bunker, 1987), additional growth was directed towards the urban fringe, eventually leading to the removal of the green belt (Harrison, 1971).

Following Sydney's lead, the Perth's Metropolitan Planning Authority introduced a corridor plan in 1970. Urban growth was to be channelled into four growth corridors which extended outwards to the north west, east, south east and south west. Between the corridors, non-urban or rural wedges were designated separating the corridors to the north and to the south of Perth. Besides allowing for the location of special uses, such as government institutions, the wedges were to provide access to the open countryside and to recreational areas. The non-urban wedges played a similar role to a designated green belt, in that they promoted urban containment, protected country areas and clearly designated the urban area (Yiftachel and Hedgcock, 1989).

The corridor plan reflected contemporary thinking rather than a detailed evaluation of the local environment. While the plan may have appeared logical in relation to the provision of transport and other services, its environmental wisdom has been questioned (Halse, 1985). Singleton (1992:237) indicates that the 'provision of rural wedges, for example, owed more to the logic of the urban corridors than to their intrinsic value as environmental or landscape features'. Little attention was given to agriculture or its requirements, with the exception of the Swan Valley – an important viticulture area. Inadequate understanding of the environmental resources resulted in the designated wedges being extremely infertile and unsuitable to productive agriculture (Singleton, 1992).

The absence of an environmental assessment also meant that the real benefit of the corridor plan was hidden. Although protecting open space and urban lifestyles was the principle role of the rural wedges, their value in relation to water quality only became apparent in the mid-1970s. The discovery of water mounds to the south and north of Perth, that fell within the rural wedges of the corridor plan, continue to represent an important planning constraint (Singleton, 1992). Future protection of the rural wedges is related to the success of sub-regional centres. Unless employment opportunities are created in the corridors, then people will be forced to commute further to work. As this occurs, pressure will be exerted on the less important areas within the rural wedge for both urban and rural residential development (Graham, 1985).

In addition to not fully appreciating the potential for land use conflict, Bunker and Houston (1992) provide three reasons why Australian cities have sprawled outwards over agricultural land in the post World War II period:

- * A belief by farmers agriculture has a limited future on the urban fringe;
- * An entrenched belief among farmers that they have the right to develop their land; and
- * A general expectation that development will occur on the fringe, providing opportunities for low density living.

With a general reduction in household size, and the outward movement of families with young children continuing to occur (Burnley *et al.*, 1997), the population density of inner city areas declined. Arguments emerged for urban consolidation to increase inner city populations to ensure that existing infrastructure, including schools, water and sewerage, were used more efficiently (Forster, 1995; Searle, 1995). Towards the end of the 1980s, urban consolidation and compact city spaces were a feature of state metropolitan planning in Sydney, Melbourne, Adelaide, Perth and Brisbane (Self, 1995a). In relation to Sydney a key principle of *Cities for the 21st Century*, was that a compact city will require fewer resources and therefore be more efficient than a sprawling metropolis (NSWUAP, 1995).

Debate has emerged relating to the effectiveness of urban consolidation, especially given the 'tendency in recent years to promote urban consolidation and push for a more compact urban environment over other possible urban planning and urban development strategies' (Gollner, 1996:140). City planning is limited where inner and outer metropolitan local governments respond to the concerns of their jurisdictions, rather than the interests of the overall metropolitan area.

Environmental concerns have been noted as the smaller property size prevents the adequate disposal of waste, via composting, on site and increases storm water run-off (Forster, 1995). The absence of space between different urban activities, also increases the potential for conflict and legal proceedings (Davison, 1999). Although protection of peripheral agricultural land would obviously result from urban consolidation, it is questionable whether this was one of the main objectives driving policy.

Because inner city urban consolidation is likely to have limited overall effect, the majority of new development in Australia cities will continue to occur on the urban fringe (Forster, 1995; Self, 1995b). Hedgcock (1994) noted that the development industry is too well connected and has too much to gain to be blocked out from the development for too long. Zoning requirements and environmental assessments are likely to be short term at best and development is likely to occur at higher densities because it is more cost effective for providing infrastructure (Kinhill Engineers, 1995).

In Sydney, it is recognised that competition between local governments has created an *ad hoc* pattern of suburban development, as neighbouring councils 'vie for resources and new local businesses' (Gollner, 1996:138). One option is for councils to offer discounted infrastructure costs to attract inward investment. In addition to environmental problems, including air pollution, implications of *ad hoc* development include the loss of agricultural land. As noted in the following section, the underlying perception is often that agriculture can easily relocate and that, through modern technology, alternative locations can be transformed into productive farmland. A second concern is that by reducing property allotment sizes on the urban fringe, urban residents may be forced further into the countryside where they can purchase larger rural blocks to obtain the benefits of the traditional quarter acre block. Scattered developments would undermine the principles of urban containment and result in rural sprawl, though this depends on the nature of strategic planning at the local government level (Self, 1995a). As is recognised in the following section, the demand for small rural holdings and hobby farming has expanded in Australia since the 1960s.

3.3 Rural Planning in Australia

During the second half of the twentieth century, farmers have faced five key transformations that have changed their position in rural Australia, albeit unevenly.

- * The financial prosperity of agricultural production has decreased as product prices have fallen and as state financial support has been reduced.
- * There was the increasingly realisation during the 1980s that government policies had encouraged environmental degradation (Epps, 1993).
- * Agricultural production has diversified with farmers changing from traditional sheep, beef, dairy and grain farming into cotton, viticulture and more specialist outputs. Other farmers have attempted to become more efficient by increasing economies of scale or the intensity of production, such as changing from extensive beef farming into beef feedlots.
- * The significance of agricultural production to the Australian economy has decreased, as its percentage of total GDP, exports and the labour force has continued to decline (Vanclay and Lawrence, 1995).
- * The social structure of many rural communities has changed reflecting the extension of the urban fringe as the distance over which urban residents may commute or own holiday homes has increased, and as people with an urban background relocate into rural areas.

It is this last process that is of particular interest in this section, as possible implications include the loss of agricultural land.

The need to plan for agricultural land has attracted increasing policy attention in Australia since the 1970s (Boer and Hannam, 1992; Campbell and Dumsday, 1990; Leslie and Johnston, 1982). Prior to this, agricultural land has rarely been threatened by opposing land uses, other than the outward expansion of urban suburbs. Where an urban fringe existed it was relatively small in comparison to the areal extent of the city's hinterland. Accordingly, Boer and Hannam, (1992:218) indicate that:

Until the 1970s, 'planning' in relation to rural land was virtually non-existent. Rural land comprised all the land not being used (or not wanted) for urban purposes (i.e. commercial, industrial, residential uses, and in some cases, open space or recreational use). There was thus no control over most rural activities through planning law. The major consequence of not having development control was the reinforcement of an attitude among rural land-users that their activities could not be interfered with.

Interest in agricultural land, for either part time farming or for non-agricultural purposes, has accelerated in Australia since the late-1950s. Initially, the purchase of rural allotments was limited to high income earners, as is inferred by the term 'Pitt-Street' or 'Collins Street' farmer. For many, 'the opportunity to improve an undeveloped farm as a tax deduction (and using subsidised fertiliser and excise exempt fuel) and then to sell the capitally enhanced product free from any taxation, lured many people to rural areas' (Henderson and Epps, 1999:458).

Counterurbanisation or the 'population turnaround', as the process of urban to rural migration became known, occurred both in Australia and overseas. In Australia it resulted in population growth along the coastal strip of NSW (Walmsley *et al.*, 1995; Duncan and Epps, 1993; Sant, 1993) and the Gold Coast of Queensland, spreading to south west Western Australia (Selwood, *et al.*, 1998). Reasons included escaping the perceived negative impact of city living (pollution, noise, congestion, crime) and the benefits of rural locations (health, climate, lifestyle, scenic environment) (Duncan and Epps, 1993). Proximity to coastal resorts, beaches and a warmer climate attracted people from inland rural Australia to relocate or retire to the coast. Increasing real household disposable income represented a major catalyst for relocation. Sorensen and Epps (1993) indicated that rising wealth is 'associated with greater mobility and environmental sensitivity, and a preference for living permanently in attractive surroundings'.

During the 1970s and 1980s, the hobby farming phenomena expanded in Australia, not only along the coastal zone, but inland around rural settlements (Hugo, 1985). In the area surrounding Australia's state capitals, a zone of hobby farms and rural residential living also emerged with residents often taking advantage of improving transportation linkages and freeways to commute to work.

The supply of rural allotments also reflected the tendency for farmers to sell off one or more parcels of land to survive through periods of economic hardship. Closer to the urban fringe, farmers often sold the whole farm to developers who then subdivided the available land for residential living. In some situations, economic changes and urban pressure had rendered the farm non-viable, while in others the farmer had decided to retire (Leslie and Johnston, 1982). As economic returns for farmers declined during the 1980s it is likely that the rate of subdivision increased.

The demand for larger residential properties in more dispersed locations created a number of planning dilemmas for government officials (Edols-Meeves and Knox, 1994). In addition to the loss of agricultural land, implications of rural residential development and hobby farming are thought to include:

- * Loss of rural landscape and scenic appeal;
- * Higher service costs involved in providing water, sewerage, garbage collection, education and community services, through expectations of people from urban areas;
- * Environmental degradation through excessive clearing of vegetation and over grazing as small properties are used intensively, and the spread of vermin and weeds if properties are inadequately maintained (Auster and Epps, 1993);
- * Social problems, including isolation;
- * Land values inflated beyond their agricultural value, higher property rates for farmers, barriers to farm expansion and to new farmers commencing, and the holding of land in non-productive uses on the anticipation of rezoning (Roberts, 1997);
- * Increasing concern for environmental conservation, because of greater community awareness and a preference to live in localities with high environmental quality (Sorensen and Epps, 1993); and

* Increasing conflict between different rural interests, including farmers and rural residential property owners, agriculture and industry, forestry and environmentalists (Young, 1996).

Cultural and political changes can also be identified as in-migration alters the balance between long term rural residents and newcomers. Traditional social relations, including loyalty to one's community, mateship and a willingness to provide assistance, which are often incorporated in to the term 'countrymindedness', are perceived to be eroded by newcomers (Duncan and Epps, 1992). A greater diversity in interests, employment and education, including an awareness of farming practices, may result in conflict. Walhurst (1990:124), recognising that there is no longer a united rural lobby indicates that the 'major political issues of the 1990s and into the future are increasingly likely to cut across the urban-rural dichotomy'.

In relation to Australia's changing population distribution, Sorensen and Epps (1993:30) suggest that there is 'little governments can do to influence any of these events. They cannot readily dictate the lifestyle and leisure preferences or direct the expenditure of ordinary people living in a free society'. Government can affect the local supply of rural living opportunities, and hence settlement patterns, through land use planning.

One planning debate relates to whether hobby farming should be classified as an agricultural activity or whether it represents a form of consumption. The productivity of small rural holdings is frequently viewed negatively, especially when market forces are encouraging farmers to become larger (Campbell and Dumsday, 1990). The environmental and servicing costs identified above are also cause for concern. In contrast, others argue that hobby farming does not represent a threat to agricultural production (Wills, 1994; Campbell and Dumsday, 1990). From the limited evidence that exists, Young (1996b) concludes that there is not necessarily a reduction in physical productivity compared to commercial farms, but there is a significant decrease in economic efficiency.

In regions where the loss of agricultural land is a valid concern, a second debate relates to how the development process should be controlled. Should markets be allowed to function freely (Musgrave, 1986) or should government intervene to limit market failure? Wills (1992:26) argues that 'market prices will incorporate concerns that the loss of high quality land may endanger the quality and quantity of fresh food supplies or Australia's capacity to supply agricultural export markets'. Despite long-term impacts, farmers also favour market forces as they are 'not keen on the idea of planning or planners interfering with the conduct of their private interests' (Bond, 1986:66). Other writers are more critical of the market's ability to reflect productive capacity (Edols-Meeves and Knox, 1996; Johnson, 1992). Roberts (1997) indicates that land values are more affected by regulations determining zoning and subdivision, than any detailed assessment of biophysical constraints.

Intervention may be justified if there is an absence of alternative production sites, if the loss of land is irreversible or if a shift to alternative land use would make the consumer worse off (Wills, 1992; Auster and Epps, 1993). Concluding that the loss of agricultural land does not impose significant costs on the Australian public, Wills (1992) suggests that intervention may be required where externalities cause land use conflict or farmland attracts non-agricultural values. Other authors indicate that there are areas of highly productive agricultural land which lend themselves to specialist produce that need to be preserved (Leslie and Johnston, 1982).

Physical constraints also exist around Australia cities, and with increasing concern for salinity and land degradation in inland Australia, the successful relocation of agricultural activities from the coast cannot be guaranteed. Responding to the role that technology can play in negating the impact of population growth, Flannery (1994:369) states that there 'is no doubt that technology has had some impact, but thus far it has been insufficient to reverse environmental degradation'. For Young (1996:171) 'there is little logic in moving agricultural production to less favourable land when adequate land of poor agricultural quality is available for urban and residential use'. To achieve this, and to avoid agricultural land being prematurely lost from production because of urban sprawl, the strategic planning of rural areas is a necessity.

State government has responded to the subdivision of rural land by encouraging local government to plan for rural residential zones and to introduce minimum allotment sizes. The effectiveness of these instruments is questioned where plans are *ad hoc* rather than comprehensive, where minimum allotments encourage the subdivision of rural land into unnecessarily large blocks, and where decision making remains discretionary.

In Western Australia, restrictions were placed on the subdivision of rural land in the mid-1960s when it was realised that there were a large number of unoccupied rural allotments. By the mid-1970s the situation had changed, and government recognised a rising demand for rural living. The Town Planning Board responded by encouraging local government to provide for rural residential lots by implementing special zones (Keil, 1976). Concerns relating to the siting of these zones resulted in the Board releasing a new rural subdivision policy in 1980 to protect commercial agriculture, important rural landscapes, natural resource deposits and areas in the path of future urban expansion. In assessing suitable sites, local government was to also review the availability of potable water, road access and bush fire safeguards. However, failure to produce detailed local rural plans in many local government areas, meant that *ad hoc* rezoning replaced the problem of *ad hoc* subdivision (Stokes, 1995).

A subsequent review in the late 1980s resulted in the implementation of *Rural Land Use Planning Policy No. DC 3.4* in 1989. The policy required local government to prepare 'local rural strategies' for their jurisdiction as the basis for zoning, subdivision and the development of rural land. Rather than statutory, local rural strategies were to be prepared under the framework of regional policies and were to complement town planning schemes. Implementation problems, including resource deficiencies and problems in accessing land quality information, ultimately limited the effectiveness of the policy and resulted in another review in the late-1990s (WAMP, 1997).

In NSW, the State Planning Authority recommended that local government adopt a 40ha minimum subdivision policy in 1973. In the Sydney Basin the policy replaced the 2ha (5acre) minimum that was implemented by Cumberland Council in 1951. Rather than a fixed policy, the recommended minimum size was to be a holding measure that was to apply until each council undertook a comprehensive investigation of the rural areas in their jurisdiction. Until this occurred it was thought that 40 hectares represented the minimum area required for a viable farming unit. To sell the policy to rural landowners, the State Planning Authority offered a number of concessions, including the option of separating undersized allotments from the main farm. Concessional allotments as they were termed were intended for family members or for farm workers. Over time as labour requirements decreased or as family members died, then concessional allotments were sold off. Where concessional allotments were not rigorously enforced, farmers were able to fulfil the demand for rural residential opportunities.

The 40ha policy was not implemented without criticism, especially by those that saw small hobby farms as a legitimate rural land use (Davidson, 1976). Debate emerged not just in NSW, but in other states where minimum sizes were adopted (Gallusser and Smailes, 1988). There were concerns that the minimum size discriminated against intensive agriculture (Cough, 1993) and efficient small scale agriculture (Musgrave, 1986), and ignored the economic realities facing farmers (Bowie, 1993). As noted earlier rural residential blocks are also associated with environmental issues, for example, the arbitrary minimum size often created allotments with insufficient catchment areas to feed dams (Edols-Meeves and Knox, 1996) or capacity to absorb household waste. Rather than discouraging the alienation of rural land, it often meant that ex-urbanites purchased rural land in larger blocks than they required. For many, the adoption of blunt urban-derived instruments was inappropriate for the rural environment, especially given the changing structure of agriculture (Bowie, 1993; Bunker and Houston, 1992). By itself, the policy could potentially assist in promoting rural sprawl, result in environmentally harmful practices and inflame land use conflict. Accordingly there was the need for more comprehensive planning in NSW, including greater attention to the siting of rural residential development.

In 1979, the *Environmental Planning and Assessment Act* was implemented as the principle legislation controlling land development in New South Wales. The legislation created a three tier system of local environmental plans (LEPs), regional environmental plans (REPs) and state environmental planning policies (SEPPs). LEPs are created by local government to manage development within their jurisdiction, whilst having regard for REPs and SEPPs. Included in the main objectives of the Act is the need to encourage:

the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment.

To assist local government plan for agricultural land, NSW State Government published a rural land evaluation manual in 1981. A classification system was provided that focused on the physical and climatic conditions required for crop and pasture production. The guidelines recognised that certain types of agricultural activities, including pig, poultry and mushroom production, were not dependent on soil quality, and were thus not included in the manual's recommendations (NSWDEP, 1988). The exclusion of agricultural land uses, including poultry farming, from such planning documents raises questions regarding the definition of important or prime agricultural land. This is given greater attention in the discussion that follows.

The official definition of high quality agricultural land varies across Australia. In Queensland, *State Planning Policy 1/92* requires local government to implement policies preserving high quality agricultural land (Queensland Government, 1992). Subsequent policy statements define high quality agricultural land as:

Land which is capable of sustained use for agriculture, without causing degradation of land or other natural resources. In this context, agricultural land is defined as land use for crop or animal production, but excluding intensive animal uses such as feedlots, piggeries, poultry farms and plant nurseries (QDHLGP, 1993:1).

Other policy statements and reviews have adopted a broader definition in recognition that prime agricultural land will vary between different types of farming (Leslie and Johnston, 1982). Recognition needs to be given to regionally concentrated industries and strategically important land as well as soil quality. Residential encroachment into a sugar production area may result in land use conflict because of externalities, and the transfer of rural land to urban purposes may eventually undermine the viability of a regional mill (Roberts, 1997), especially given the economics of transporting sugar cane (Leslie and Johnston, 1982). The Australian chicken meat industry displays similar regional clustering patterns. Other documents have therefore adopted a broader definition of agricultural land worthy of protection. In Western Australia, the Ministry for Planning provides the following definition for prime agricultural land.

Land which: has the most utility for agricultural purposes; has soils with no physical and chemical limitations for agricultural use; has a reliable water supply for irrigation; is not subject to extremes of climate; has little potential for degradation; has involved significant public investment for service facilities such as dams, irrigation schemes, drainage, factories, handling centres; has physical or locational characteristics essential for a specific crop for the domestic or export market or to support a processing industry (WAMP, 1997:13).

Despite the strategic importance of particular geographical areas for certain agricultural industries, local government is under no obligation to assess subdivision applications in their jurisdictions in relation to the total supply of such land in the state. Instead subdivisions are often assessed solely on local factors, involving an assessment of economic impacts rather than any comprehensive review of the costs of rural subdivision (Edols-Meeves and Knox, 1996; Sant and Simons, 1993). Positive attitudes towards

the rights of farmers to develop their land and to realise its capital value also remain 'quite deeply ingrained, even to the extent of being noticeably influential in the decision making process' (Houston, 1994:118). In relation to the north coast of NSW, Edols-Meeves and Knox (1996:26) indicate that:

Although appropriate local and state based planning objectives and controls in relation to land management exist, fragmentation, dispersal and the 'fast tracking' of rural residential housing is still occurring at an increasing rate as these planning objectives are not overseen and implemented.

Where social ties with councillors or favourable attitudes towards development enable subdivision despite zone restrictions, then the precedent established may influence future decision making (Jackson and O'Connor, 1993).

For Roberts (1997:511) 'these are pressing reasons why rezoning decisions on agricultural land should not be left to local authorities in situations where the personal interests of both the shire councillors and elderly farmers work against sound long term planning'. Differences exist between NSW and Western Australia in this respect, because local government does not have the delegated responsibility to approve the rezoning of land in Western Australia. Instead, the Western Australian Planning Commission approves new subdivisions and the Minister for Planning approves the rezoning of land. The system remains subjective as applicants have the right to appeal against subdivisions to the Minister of Planning as well as the Town Planning Appeals Tribunal.

In recent years, increased importance has been given to strategic or forward-looking planning approaches, as opposed to more reactive variants (Roberts, 1995; Jackson and O'Connor, 1993). In a recent review of urban fringe planning issues in Victoria, the review committee identified strategic planning as the key to managing and preventing conflict on the rural-urban interface. From their research 'where there has been strong planning and/or regional planning, with consistency in the implementation strategies, less conflict appears to have arisen' (VAC, 1996:ii). To date, only a small number of councils around Australia are recognised as implementing what are identified as comprehensive strategic planning approaches: Pakenham (Victoria), Willunga (SA) and Wollondilly (NSW) (see Appendix IV for a summary of rural land use planning in the Shire of Wollondilly) (NSWHRC, 1998; Houston, 1994).

In contrast to negative plans which purely restrict specific activities in designated zones, the intention of strategic planning is to create a more forward looking view for an area (Sorensen, 1992). Key aspects include assessing the capability of land for various activities (including different types of agriculture and existing lot distribution), analysing local socio-economic conditions (including population changes and housing demands) and identifying community interests. Extensive community consultation is critical in identifying competing interests, understanding the character of an area, establishing preferred settlement patterns, evaluating planning alternatives and in developing a future vision (Rogers, 1997; NSWDUAP, 1995b). Following the collection of relevant information, strategic planning allocates land over a specific future time period, such as 10-15 years (Roberts, 1995). Once a boundary is determined its effectiveness is dependent on its strict enforcement at least until a future strategic review can take place. To be successful strategic planning requires strong political commitment (Houston, 1994), including a willingness to place restrictions on the development rights of farmers, and stronger public involvement to increase decision making scrutiny.

Difficulties associated with strategic planning, include the fact that land is locked into agricultural production regardless of whether it is profitable (Bowie, 1993) and that there is no guarantee of long term protection as agricultural zones may be subject to review. Nevertheless, strategic planning does provide some reassurance that land will not be rezoned within a specified future timeframe. Perhaps the best that can be expected from land use planning is the orderly transfer of land and the prevention of premature development (Leslie and Johnston, 1982).

Rural planning techniques, which financially compensate farmers for forgoing their development rights, have been implemented in a limited number of cases. There are no state wide schemes encouraging the introduction of PDRs or TDRs, and only a small number of local governments have adopted TDRs (Houston, 1994; Craythorn, 1994; Paterson, 1990). Where such schemes have been adopted, success has been mixed. The introduction of TDRs in the Adelaide Hills to protect a water catchment area collapsed largely because of the administrative complexities and the difficulty in differentiating between areas to be protected and to be developed (Industry Commission, 1998). Bunker and Houston (1992) indicate that the application of TDRs in rural Australia requires additional investigation. Key concerns include the underlying assumption that there is a right to develop (VAC, 1996), the ability of government to restrict development in protected areas, and the local conditions under which such a scheme would be most effective. Auster and Epps (1993) identify two key local characteristics: an area where long established legal and development rights exist and a suitable receiving area close by.

Other authors recognise the need to more equitably allocate infrastructure costs (NSWDUAP, 1995b; Jackson and O'Connor, 1993). If developers were required to pay the full cost of infrastructure provision, then cross-subsidisation of water, electricity, power and rubbish collection between urban residents, farmers and rural residents would be eliminated (Industry Commission, 1998; Edols-Meeves and Knox, 1996). Cross-subsidisation occurs when local government reduces infrastructure charges to attract development, or because new residents with urban service level expectations are successfully able to lobby council. The removal of cross-subsidisation would mean that additional costs would be imposed on home buyers, the urban fringe might no longer be associated with 'discounted' housing, and urban sprawl may be reduced.

A final solution to rationalise rural land use is cluster development, which has been promoted in recent years to overcome rural sprawl, to reduce infrastructure costs and to provide 'attractive and flexible living styles which blend in with the surrounding environment' (Edols-Meeves and Knox, 1996). Individual properties are strategically located to reduce servicing costs (including common roads, effluent treatment, water storage, fire strategies and open space), whilst ensuring privacy and the protection of environmental values (NSWDUAP, 1995b). Community title, for example, which was implemented in NSW in 1989, provides one form of cluster development as it combines freehold lots with joint management of land and facilities (NSWDUAP, 1995b). To conclude, rural planning, like urban planning, is in a state of flux. Policies have been adopted, or in some cases proposed, the success of which remains uncertain. Unless local government is fully committed to land use planning, then the potential for land use conflict is exacerbated.

3.4 Policies to Address Land Use Conflict in Rural Australia

Two different types of land use conflict are identified in relation to agricultural industries: firstly, conflict over the loss of agricultural land and secondly conflict relating to the transfer of externalities across property boundaries. While research, albeit limited, has been directed towards the former in Australia (Young, 1996b; Capelin, 1989), less attention has been given to the nature of land use conflict across property boundaries. Where externalities have been identified, researchers have tended to focus on sugar cane (Hungerford, 1996; Passfield *et al.*, 1996), cotton farming (McHugh, 1996), mushroom farming (Davis, 1994) or poultry (Agyare, 1995). Where conflict has been recognised, it is often mentioned in passing, without researchers conducting a detailed local investigation of how it might be resolved. This is of great concern, because despite recent planning initiatives the potential for land use conflict across property boundaries remains where:

- * Boundaries between incompatible zones have not been strategically positioned making use of roads, parkland and natural features;
- * Agricultural enterprises already exist in areas identified for future rural residential development;
- * The ownership of a rural dwelling changes and the new occupier is less tolerant of agricultural externalities;
- * Rural residential developments are approved by local government in areas with a long tradition of agricultural production;
- * Larger rural properties are purchased for part time agriculture;

- * The owners of full-time agricultural properties object to the intensity of externalities emitted from nearby operations, including chemical and odour drift; and
- * New agricultural activities commence in close proximity to existing residents.

It is difficult for strategic planning to resolve conflict on the peri-metropolitan fringe where urban areas continue to expand outwards and where rural land is already excessively fragmented. Additional concerns relate to how land suitability assessment, including the potential for land use conflict, can be incorporated with land capability assessment into strategic planning techniques.

There are suggestions that land use conflict will not easily be resolved. Problems in addressing land use conflict, is reflective of the wider absence of research and policy attention to the urban fringe in Australia (Bunker and Houston, 1994). Houston (1994) believes that urban fringe agriculture has largely been ignored by government policies addressing urban settlement and sustainable agriculture (for example, ESDWG (1991)), and that this reinforces the image of agricultural areas as land in storage for future development. A number of different reasons for this are presented in relation to the Australian context (Houston, 1994).

- * Absence of coordinated government approaches to the urban fringe limits sharing of information, resources, expertise and experiences;
- * Agriculture is viewed as a sector rather than being influenced by certain processes, thus urban fringe agriculture has not fared so well from past government support for farming;
- * Urban fringe agriculture sits between local council, planning departments and agricultural departments such that no one wants full responsibility and its very nature prevents any one sector from claiming it;
- * Agricultural departments have focused on broad acre export orientated commodities rather than urban fringe farming, perhaps because the latter is seen as too complex, difficult, or even without hope;
- * Lack of consultation means that policy makers do not understand the local agricultural economy, including issues of critical mass, the impermanence syndrome and the dynamics of the land conversion process; and
- * The tendency for rural planning to take the form of managing land resources rather than provide strategic or investment support for urban fringe farming.

In recent years increasing policy attention has been given to urban fringe agriculture, (see Appendix V for evidence of recent planning policies identifying the importance of agricultural land in the Sydney Basin) and to farming activities with the potential to cause conflict. In terms of the former, rather than simply being seen as land in waiting, urban fringe agriculture is associated with a number of positives and negatives, as can be seen in Table 3.1. Some of the benefits are easily identified, such as marketable produce, while others are more uncertain. For example, it is difficult to quantify the relative impacts of urban development versus agriculture on river health (NSWHRC 1998). At the same time it is recognised that certain types of agriculture have the potential to create externalities of a higher intensity. As rural residents place higher value on amenity and environmental quality (Bunker and Houston, 1992), attitudes towards particular types of agriculture may vary.

The farming industries that are most affected by urban expansion are often intensive agricultural pursuits, including horticultural, livestock and mushroom farming. However, government policy has traditionally been orientated towards extensive livestock and cropping, because of their ability to generate foreign currency through international trade. Intensive agricultural pursuits are less well understood or recognised (Davis, 1994). One implication is that as the intensity of production increases through time, it may become increasingly more difficult for the owners to relocate (Davis, 1994). Different policy approaches may need to be developed since the reasons for conflict, the intensity of conflict, and the ability of agricultural industries on the urban fringe to adapt may vary.

In responding to land use conflict two distinct planning issues arise. The first is the management of existing conflict, whilst the second is the prevention of future conflicts, which might be caused by new residential developments or, alternatively, new agricultural investments.

Table 3.1 Benefits and Costs of Urban Fringe Agriculture

Benefits	Costs
Protect air and water quality from urbanisation Flood control Economic returns Availability of fresh produce to urban residents Consumer benefits as transportation costs minimal Employment opportunities for farm workers, trades people and in processing facilities Compatibilities between diverse farming operations Potential to absorb urban wastes and to recycle agricultural by-products, such as manure Scenery, open space and recreational opportunities	Agricultural run-off Loss of water for irrigation Externalities Restrictions on land available for urban expansion Costs associated with urban consolidation, including congestion

3.4.1 Regulating Existing Agricultural Activities

Assessing the extent of conflict is difficult because disputes sometimes occur across property boundaries without local government or state environmental agencies becoming involved. However, when formal complaints are made, the ability of local government to respond is determined by state environmental legislation. In recent years, local government has been officially delegated greater responsibility for environmental issues, extending its traditional role from the provision of rates, rubbish and roads. Because local environmental management is a relatively recent task, it remains in a 'developmental phase where skills, information and administrative structures are only just beginning to evolve' (Keen *et al.*, 1994:59).

Considerable variation exists in the approach adopted by local government to deal with environmental issues (Keen *et al.*, 1994). Local government may not have been allocated sufficient financial resources, or developed organisational structures to resolve environmental problems. In addition, pollution levels 'are set and monitored by state environmental protection agencies and not infrequently are higher than is acceptable to local communities' (Keen *et al.*, 1994:48). The absence of environmental legislation that can be easily implemented is thought to reflect the *ad hoc* nature of policy creation in response to community outcries and the continued dominance of the pro-development paradigm, despite recent environmental rhetoric (Briody and Prenzler, 1998; Waite, 1997).

In relation to farm externalities, such as odour, acceptable threshold levels may simply not have been determined, a problem also prevailing in New Zealand (NZME, 1995; NZPCE, 1991). Further difficulty may be experienced where council officers cannot immediately respond to complaints and because odour control technology remains experimental (NZPCE, 1991). Assessing the legitimacy of complaints may create additional problems given that 'few people make formal odour complaints and people who do volunteer their opinions may tend to overstate their concerns' (NZME, 1995:39). Policies that have been identified to assist local government in more accurately assessing the legitimacy of complaints include: pollution hot lines, more detailed recording of complaints, community surveys and requesting that farmers and neighbours respectively maintain diaries of management practices and externalities experienced (NZME, 1995; NZPCE, 1991). Important adjunct information includes the frequency of externalities, time of day, wind direction, level of unpleasantness, and the perceived source (NZME, 1995).

Environmental legislation is particularly ambiguous in terms of how it should be applied to farm externalities. Like all land users, farmers are obligated to prevent harm to both the environment and to people across property boundaries, yet the extent to which odour, noise and dust are associated with actual harm is contentious (QRPAG, 1993). Although a number of different farm externalities can be

identified, there is a relative absence of research investigating the impact of poultry farming on human health in Australia (Brown, 1990). Research that has been undertaken has largely focused on the welfare of farm workers rather than neighbouring residents. Brown (1990) reports higher prevalence of bronchitis and asthma among broiler farmers in Victoria compared to the total population.

However, as the two following examples from Western Australia and NSW reveal, regulatory uncertainty develops because of the interpretation of ‘unreasonably interferes’, ‘all reasonable and practical measures’ and ‘offensive odour’. One conclusion is that local government, despite resource constraints, must keep up to date with latest techniques to ensure that the best practicable options are being employed (NZPCE, 1991:89), though this is difficult where scientific research is limited and the local applicability of different technologies is questioned.

In Western Australia, poultry farms are regulated under the *Environmental Protection Act, 1986*. Because the poultry industry is not a scheduled activity, two sections of the Act are immediately relevant. Both are very general in their expression and leave their administration somewhat uncertain.

Section 49. (2) Any person who emits or causes or allows to be emitted from any premises noise, odour or electromagnetic radiation which unreasonably interferes with the health, welfare, convenience, comfort or amenity of any person commits an offence.

Section 51. The occupier of any premise who does not –
(a) comply with any prescribed standard for the discharge of waste or the emission of noise, odour or electromagnetic radiation; and
(b) take all reasonable and practicable measures to prevent or minimize the discharge of waste and the emission of noise, odour and electromagnetic radiation, from those premises commits an offence.

Until July 1st 1999 air pollution from poultry farming in NSW has been regulated under the *Clean Air Act, 1961* and *Noise Control Act, 1975*. Poultry farms were non-scheduled premises under the *Clean Air Act, 1961*, and were therefore the responsibility of local government, though the EPA could impose controls if local government was not fulfilling its responsibilities (NSW Agriculture, 1994). Where specific conditions were not prescribed, as was the case with poultry farming, it is the responsibility of the occupier of any premises to operate ‘by using such practical means as may be necessary to prevent or minimise air pollution’ (Section 19(2)). If an authorised council officer considered that a farm was not taking all practicable means to minimise air pollution, then a notice could be issued under Section 20 of the *Clean Air Act, 1961* requiring the owner to install equipment or to take preventative measures within a specified time frame. Poultry farms were also non-scheduled premises under the *Noise Control Act, 1975* and therefore the responsibility of local government (NSW Agriculture, 1994). An offence was judged to be a noise that by reason of its level, nature, character, or quality, unreasonably affects the comfort of a person. A council officer could issue notices specifying either certain noise control equipment or barrier be installed or repaired, or limit the hours within which noise could occur. Notices issued under the *Clean Air Act, 1961* and *Noise Control Act, 1975* could be appealed against via local courts.

Recent changes to environmental legislation in NSW has seen the introduction of the *Protection of the Environment Operations Act, 1997*, which amalgamates a number of earlier acts, including the *Clean Air Act, 1961* and the *Noise Control Act, 1975*. Under the Act, which came into force 1st July 1999, poultry farms over 250,000 birds are scheduled. They now require an annual license and are the regulatory responsibility of the NSW EPA. Under section 129(1) of the Act any scheduled activity ‘must not cause or permit the emission of any offensive odour from the premises to which the licence applies’. For non-scheduled poultry farms, given the absence of odour thresholds, Section 128(2) requires all occupiers to employ ‘all practical means as may be necessary to prevent or minimise air pollution’.

It is perhaps because of this ambiguity in environmental legislation and uncertainty as to how it should be applied within the rural environment, that Luckhurst (1997) indicates that to date there appears to be few cases where local government has attempted to prosecute poultry farmers. Representatives from the mushroom industry indicate that the traditional way of dealing with conflict is through the courts, where 'winners' and 'losers' emerge depending on who can construct the most convincing case. Should a farmer win, legal costs and consultancy fees may still be substantial (Davis, 1994). In the absence of acceptable compromise, farmers may be forced to close regardless of existing rights. Where council is reluctant to issue notices to local farmers, neighbours concerned about externalities have the right to file a common law nuisance suit.

Right to farm legislation has periodically been promoted as being of critical importance to agricultural industries (VFF, 1999). Tasmania is the only state where legislation has been implemented, although its effectiveness requires further investigation because it may be overruled by environmental legislation. In Western Australia, similar legislation was proposed by the Minister for Agriculture in April 1989 (WASCRTF, 1991). A select committee task force was subsequently formed to assess its applicability and relevance to the Western Australian context. The initial rhetoric of 'right to farm' was replaced by a more narrowly focused piece of legislation that focused on resolving disputes rather than upholding rights. As in other states, a number of deficiencies were identified in relation to right to farm legislation, while the perceived advantages of mediation were recognised. The Select Committee questioned the effectiveness of right to farm legislation, arguing that it was long on rhetoric and short on impact, and that it was often vague and open to challenge (WASCRTF, 1991). As a result of this review, a legislative approach was proposed that gave greater importance to mediating disputes.

In Western Australia, the *Agricultural Practices (Disputes) Act, 1995* was proclaimed in June 1996 to provide for the resolution of rural land use conflict between farmers or farmers and rural residents (see Appendix VI for a more detailed description of the Act). The Act endeavours to achieve this through three key mechanisms:

- * through a mediation process;
- * through a tribunal hearing; and
- * by an Agricultural Disputes Board ruling on normal farming practice.

The resolution techniques contained in the legislation are significantly different, because while mediation encourages bottom-up compromise, the latter mechanisms are more top down. The Act does not represent a 'right to farm' style legislation as disputing parties do not lose the right to undertaken litigation. Instead, they are simply postponed while mediation occurs.

By providing for a formal arena to discuss farming practices, the *Agricultural Practices (Disputes) Act, 1995* is unique in the Australian setting. To the extent that mediators are unable to direct participants to identify possible solutions or are unaware of modern farming practices, including increasing intensification and vertical integration, then a specialist process for agriculture would seem warranted.

The effectiveness of mediation is dependent on there being a balance of power between disputing parties, and a clear appreciation of what represents best management practice. Codes of practice have been developed for different rural activities in recent years (Ridley *et al.*, 1994), including poultry farms. Developed either jointly or independently by either industry or government, codes of practice attempt to educate both local government and farmers about normal management practice. They therefore represent an important tool for addressing existing land use conflict (VAC, 1996:44).

Benefits for industry in developing codes of practice include being able to state that 'farmer A' is acting responsibly because the code is adhered to. Local government needs to be careful because, although codes provide useful information, those created by industry may be partial. Standards may therefore not be as appropriate as the affected community would like, nor in step with changes in expectations. A distinction needs to be drawn between 'normal' and 'best' management practice, 'normal' referring to practices employed by the majority of farmers, while 'best' refers to the most advanced environmental practices currently available. Obviously the preference is for all farmers to reach this level. However,

because of financial constraints and farm characteristics, government may have to settle for the best practice that is economically feasible.

Environmental management systems (EMS), such as ISO 14000, provide a structured way for industry to guarantee their environmental performance to the community. Companies are required to identify certain environmental objectives, to devise a plan to meet the objectives, to implement the plan, to continually monitor environmental performance, to take corrective action and to critically review the plan (Gunningham and Sinclair, 1999). An effective plan involves assigning responsibility, employee training, documenting management practices, keeping records and auditing operations (Gunningham and Sinclair, 1999). Although limited to date the application of EMS to rural industries has been promoted (NSW Agriculture, 1999), potential benefits include a greater appreciation of the environmental impacts on a farm wide basis (Spence, 1996:20).

In addition to reduced environmental impacts, benefits for industry in adopting EMS include: cost savings through an improved operational understanding, for example, identifying areas of wastage and recycling; the possibility of securing new markets; reducing pressure for increased regulation; and, being able to show regulatory compliance (Deegan, 1999; Gunningham and Sinclair, 1999; Gunningham, 1998). For government, benefits arise where industry attitudes change from compliance to a process of continual improvement where achieving environmental objectives is paramount (Gunningham and Sinclair, 1999).

EMS is not without concern where adoption is voluntary and often without third party review, though there are exceptions where EMS is required by government or supply chain pressure. Concerns for the farming sector include the possibility that a system may be designed which may achieve very little, that operators may become more conscious of documentation than actually undertaking environmental protection and that duplication may occur between health and safety, and food quality management systems (Spence, 1996). The adoption of EMS has been limited in Australia, with industry expressing concerns about the level of paperwork, pride in existing in-house monitoring systems, especially where they have been designed for specific industries, and a reluctance to commit to external auditing (Gunningham and Sinclair, 1999). The absence of buyers demanding environmentally acceptable produce from suppliers as a surrogate form of government, provides an additional reason (Gunningham and Sinclair, 1999) as may a low profile in consumer markets (Gunningham, 1998).

To encourage adoption of EMS, incentives may need to be offered including freedom from being prosecuted where breaches are identified or where targets have not been achieved, and economic incentives, such as lower license costs, logos for public relations and advantages in government procurement (Gunningham and Sinclair, 1999; Gunningham, 1998). Participants need to be reassured that the benefits of participating are greater than the likely costs, including benefits in beating competitors to adopt EMS (Gunningham, 1998). ISO certification does not provide guaranteed improvement in environmental outcomes, but could form part of a comprehensive approach involving third party reviewing, public participation, and underlying government regulation.

In contrast to self-regulation and industry-community agreements, an alternative form of environmental regulation thought to overcome a number of problems associated with command and control approaches, is the introduction of market forces and economic incentives (Christoff, 1995; Eckersley, 1995; OECD, 1995). The polluter pays principle has been widely promoted by the OECD and adopted internationally since the 1970s (NSWEPA, 1998). With the exception of water charges, economic incentives are relatively rare in rural Australia compared to the wider economy and to international experience (Curran, 2000). Christoff (1995) identifies a widespread reluctance to implement market-based instruments, and that government has instead replaced regulation with voluntary agreements with industry (Eckersley, 1995). Economic incentives or disincentives allow individuals or companies flexibility to choose to modify management practices in the most cost-effective way, or to alternatively face financial disadvantages. In addition to financial charges or higher input prices, farmers may forgo tax deductions or possible payments for undertaking certain management practices or for investing in

cleaner technology. No evidence has been found relating to the application of market based techniques to the transfer of odour, noise, dust and other externalities between properties.

3.4.2 Regulating Proposed Agricultural Activities

In addition to regulating existing operations, government may attempt to minimise environmental externalities and resultant conflict, by restricting new developments. Traditionally, however, planning control over agricultural activities has been limited (Gardiner, 1998) as no development consent was required to conduct agricultural practices, including the erection of buildings or the clearing land, in Australia (NSWEPA, 1995). In more recent years as recognition of environmental issues has increased, agricultural activities with a high pollution potential may be required to obtain development approval, irrespective of their location. Intensive livestock operations, including poultry sheds, is one activity that falls into this category. Incorporated more closely into the regulatory system, agricultural activities may be affected by more general changes in development planning in Australia. For this reason, the trend towards increasing public participation in the decision making process in recent years may have consequences for agricultural investment.

Inter-state differences exist in Australia in relation to the development approval process, with reports that NSW and Victoria are more conscious of pollution than the more pro-development attitude of Western Australia and Queensland (Briody and Prenzler, 1998; Bonyhady, 1995; Christoff, 1995). Even where environmental legislation has been implemented, involving environmental impact statements and public participation, state or federal government in Australia may circumvent such processes where favoured developments are proposed (Christoff, 1998; Alviano and Mercer, 1996; Christoff, 1995). For Keen *et al.* (1994), the role of local government in the assessment process lacks clarity as it varies from state to state, and between different environmental issues. Even when decision-making has been devolved, local government does not have the final say, because through a *de facto* form of centralisation, higher levels of government may overrule local decisions through appeal processes. Comparing the development approval process for beef feedlots between different Australian states, Ridley *et al.* (1994) note that the NSW regulatory framework was more time consuming and complex than those of other states, and that the approval process could provide disincentives to invest.

In New South Wales, the regulation of intensive livestock production falls under the *Environmental Planning & Assessment Act, 1979*. To receive development approval, farms must comply with local environmental plans (LEPs) and development control plans (DCPs), regional environmental planning policies (REPPs) and state environmental planning policies (SEPPs). LEPs define whether intensive livestock farming is 'permitted', 'permitted with consent' or 'prohibited' in particular zones. Development control plans, which are also created by local government, stipulate management practices and approval requirements for particular activities. The development approval process for poultry sheds is outlined in Figure 3.1 (NSW Agriculture, 1994:20). Included in the diagram is a distinction between applications for new farms and those relating to the expansion of existing operations. The planning focus meeting, which is optional, provides the opportunity for a farmer to conduct a site inspection with relevant government departments and council officers to identify their concerns. Participating in such a planning focus meeting at an early stage of a development proposal enables an applicant to satisfy any identified problems.

The level of information to be supplied with a development application depends on whether an activity is identified as a designated development under Schedule 3 of *the Environmental Planning and Assessment Regulation, 1980*. If an activity is listed, then it is required to submit an environmental impact statement, rather than a less comprehensive statement of environmental effects. In NSW a poultry farm is a designated activity when poultry sheds are located within:

- * 100m of a natural water body or wetlands; or
- * a drinking water catchment; or
- * 500m of another poultry farm; or
- * 500m of a residential zone or 150m of a dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions,

likely to significantly affect the amenity of the neighbourhood by reasons of noise, odour, dust, lights, traffic or waste.

Local government is generally the responsible decision making agent, where development consent is required, unless for some reason the Minister for Planning is made the consent authority. Under SEPP 34, for example, all intensive livestock operations which regularly employ at least 20 people or involve a capital investment of at least \$20 million require the consent of the Minister. Where an applicant is unhappy with the decision of council or the Minister, then the applicant may appeal to the Land and Environment Court in NSW.

The development appeal process for new poultry sheds to be constructed within metropolitan Perth, Western Australia is presented in Figure 3.2. The process is noticeably more complicated as farmers have to obtain the approval of council under local Town Planning Schemes and the Western Australian Planning Commission (WAPC) for compliance with the Metropolitan Region Scheme (MRS) if applications relate to new sheds or extensions of 100m² in rural zones. Approval under the MRS was centralised to the commission in November 1994 under a Notice of Delegation, the main reason being to ensure that poultry farm developments were consistent with the future planning of the Perth Metropolitan Region. WAPC was reluctant to allow new farms or shed expansions to be approved in areas zoned urban deferred. Morrison-Saunders (1994:221) indicates that the present system in Western Australia can 'create unnecessary delays and duplication of effort in the assessment' of development applications. For poultry sheds proposed outside of Perth metropolitan area, local government has authority to refuse, approve or support the application subject to conditions.

Unlike the NSW system, an EIA is not required for poultry farms in Western Australia and third parties or objectors do not have the right to appeal decisions (Barker, 1994). In Western Australia, the applicant has the right to appeal to either the Town Planning and Appeals Tribunal or the Minister for Planning. Barker (1994:63) describes the latter process as 'totally indefensible', as the Minister is not obliged to provide the rationale for decisions, there is no right to be heard, decisions may be made on political grounds and decisions may vary between ministers. Furthermore, there is no provision in the planning system for objector or third party appeals following the approval of any development application. Applicants tend to appeal to the Minister rather than the Tribunal on a ratio of 10 to 1 (Barker, 1994).

In relation to agricultural developments it is recognised that 'there is minimal scope for modifying most agricultural activities; once an enterprise is operational' (Gardiner, 1998:14). Since environmental impacts may only become apparent in the long term, techniques need to be implemented to allow for early recognition and implementation of necessary works. For Gardiner (1998) some form of environmental impact assessment (EIA) is therefore critical.

A number of concerns have emerged in relation to EIA processes (Gardiner, 1998; Bonyhady, 1995; Brown and McDonald, 1995). Firstly, because projects are assessed on an individual basis, cumulative impacts on the environment within particular regions may be overlooked (James, 1995). This is thought to have particular relevance given the tendency for certain agricultural industries to cluster. Secondly, environmental impact assessments may be used simply as a tool to justify a proposed development, and are often prepared after considerable time and finance have been invested. Impact statements may be viewed negatively by developers for being unnecessary and time-consuming (Roberts, 1997), rather than as a management tool to 'help the proponent gain a better understanding of the environmental problems associated with the proposal' (James, 1995:80). Thirdly, the integrity of EIA processes may be questioned because of difficulty in predicting, preventing and mitigating adverse impacts, the quality of scientific investigation, and the temptation of consultants to achieve an outcome favoured by applicants (James, 1995). With respect to agriculture, somewhat erroneously 'objectors are asked to take on trust, that 100% best management procedures will be followed every day to ensure the reported minimum environmental effects' (Roberts, 1995:260).

In the United Kingdom, Weston and Prenton-Jones (1997) raise a number of concerns relating to the quality of environmental impact statements as they relate to intensive livestock facilities. Reasons include limited financial resources, consultants with limited or no prior experience in producing EIAs, little specific guidance, limited local government experience in assessing statements and the failure to employ specialist consultants able to assess key areas of impact, including landscaping, odour and noise. The assessment of odour, which generally involved modelling dispersal patterns, was criticised for using meteorological data collected from monitoring stations some distance from the proposed site. Where odour levels were averaged over time during modelling, then there was the possibility that unrecorded peak concentrations may exceed desired thresholds (Wallis, 1998; Weston and Prenton-Jones, 1997) - a concern that reflects the cost involved in using monitoring equipment over extended periods and in different positions around a particular land use (Wallis, 1998). Seasonal climatic factors and periodic variation in farming practices may therefore be ignored where assessment occurs over a limited period of time. The complexity or the arbitrariness of the science involved may also prove too difficult for government officials or resource stricken departments responsible for making land use decisions. Similarly, sophisticated modelling may undermine any attempt to improve the transparency involved in decision making, where the public is left in a state of confusion (Wallis, 1998).

Performance standards are promoted in Australia (VAC, 1996), as they have internationally, to overcome the inflexibility of traditional zone based forms of planning, where activities are either prohibited or permitted (or permitted with consent). The main concern is that performance standards are knowledge intensive. Where potential impacts are difficult to assess, or even misrepresented, then there is the potential for incompatible land uses to be juxtaposed. To the extent that performance standards simply add to conflict, are difficult to police or are hindered by information, then it is likely that planners will prefer using the greater certainty and rigidity of zoning (Sorensen, 1992).

Placing greater onus on the 'precautionary principle' will equally have important ramifications as the onus of proving minimal environmental harm is placed on the proponent rather than on planning officials or community residents to show that impacts are unreasonable (Brown and McDonald, 1995). Evidence presented in Appendix VII from the Administrative Appeals Tribunal reveals a considerable change in attitude towards the environmental impact of poultry farming in Victoria. In recent years, population growth and increased tourism in the Mornington Peninsula region to the south east of Melbourne has resulted in increasing community concern, despite the poultry industry having a long history in the area. Former arguments regarding the impact of industry technology on environmental externalities are increasingly questioned requiring the poultry industry to provide greater justification for why developments should proceed. The need to provide more comprehensive justification for poultry farm proposals is also recognised in South Australia, as evident in Appendix VIII.

Other suggested improvements to the EIA process involve greater community involvement in the scoping phase of the EIA process, which draws attention to public participation in the development approval process more generally (Gardiner, 1998; James, 1995). Opportunities for participation tend to occur after a development application has been implemented, when community residents can comment on exhibited EIA documents or the proposal to the relevant decision maker within the allowable time frame (Gardiner, 1998). Incorporating public participation at an early stage in the development approval process is thought to be beneficial in determining the social acceptability of possible impacts (Gardiner, 1998), reducing community backlash (Morrison-Saunders, 1994) and in making officials more accountable for their decisions (Barker, 1994). Opening development applications for community comment is not without problems as it may frustrate planning, by lengthening the time of decision making and allowing the approval process to be hijacked by vocal minorities (Forster, 1995). Fearing a community backlash, council may try to avoid responsibility for their decisions, by refusing an application and forcing it to appeal, they can argue that they had no control over the outcome (Murphy, 1998). Thus inconsistencies may also emerge between different LGAs in how they address planning issues.

Figure 3.1 Development Approval Process in New South Wales

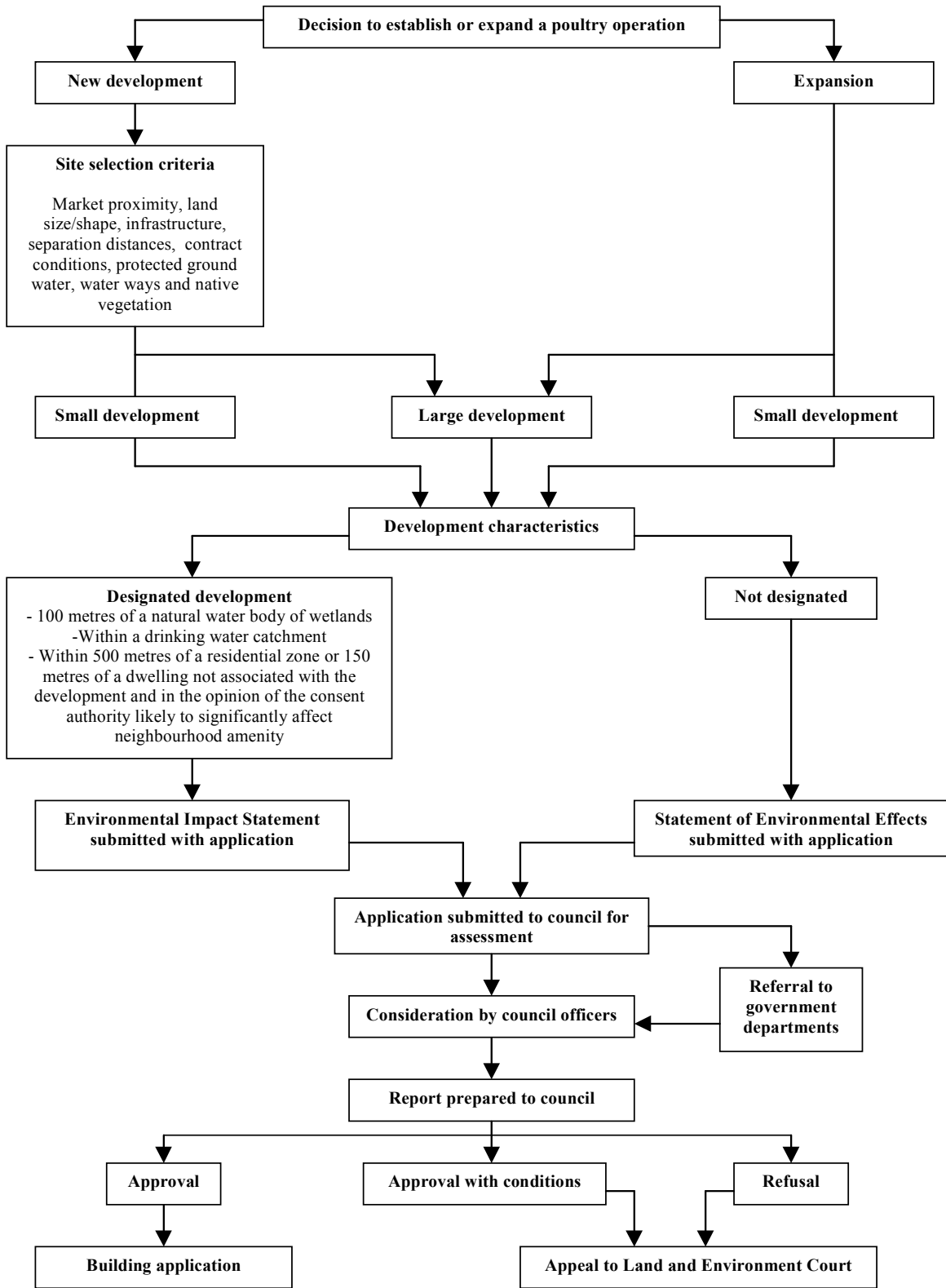
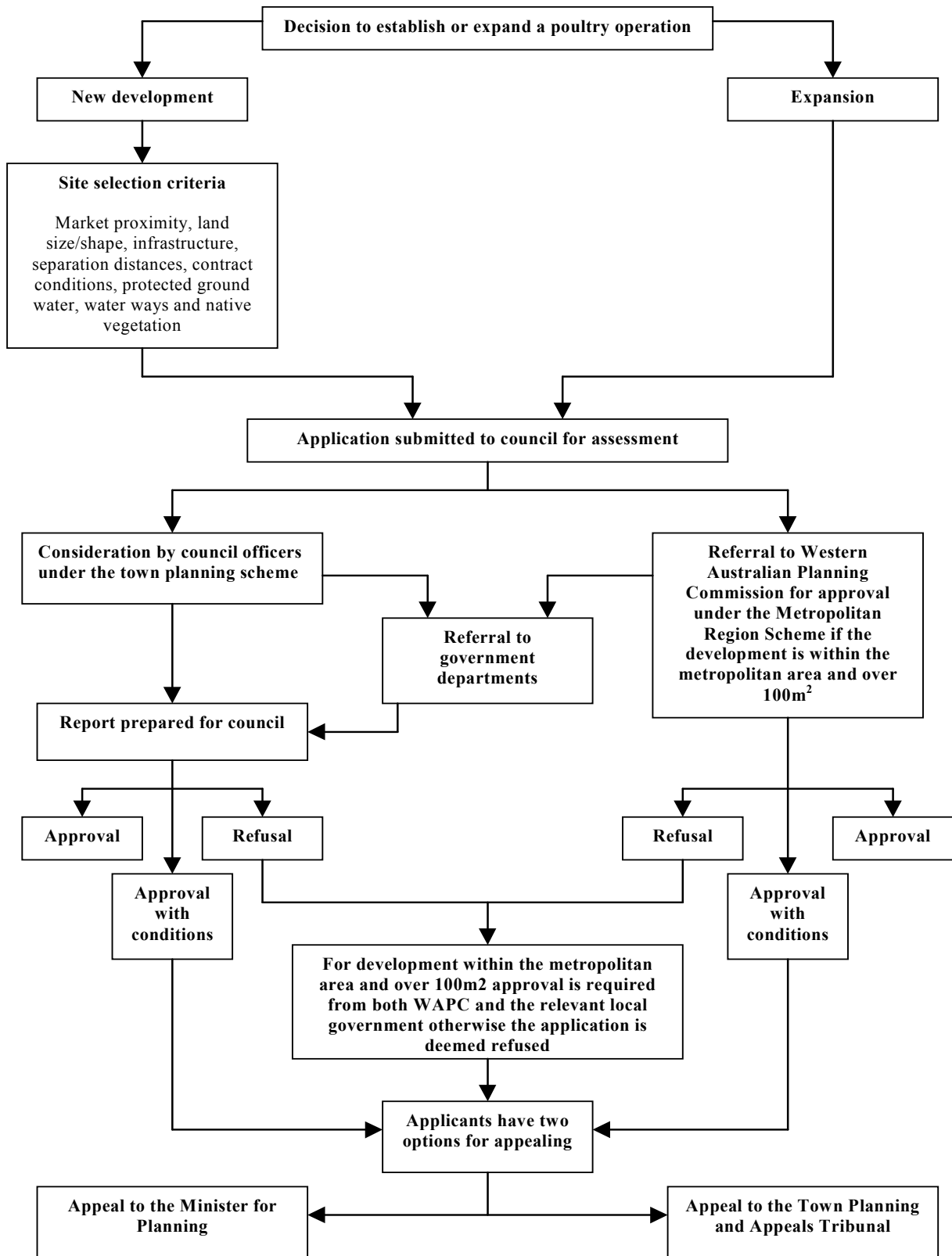


Figure 3.2 Development Approval Process in Western Australia



By way of example two areas of uncertainty in relation to livestock production are the right of an 'existing use' to expand following the rezoning of land and internal site requirements. Both are addressed in more detail below. With the intention of resolving conflict involving livestock operations, government may adopt two strategies in relation to farm expansions, an approval may be granted with the entire farm forced to satisfy certain consent conditions or the application may be refused outright. The ability of government to adopt the second strategy may be limited by the significance given to 'existing use' or 'non-conforming use' rights. Included in Australian planning legislation, existing use rights mean that 'where the land has been approved for use for a particular purpose under a zoning scheme, the power on the part of a local authority to change or restrict this use is limited in most circumstances' (Boer and Hannam, 1992:219), especially where a development has been approved without development conditions or has commenced prior to planning controls. Government cannot regulate externalities under planning law but must instead refer to the powers it possesses under environmental and health legislation.

Where an area of land has been approved for a farm, then an important question is whether existing use provides the right to construct additional shedding (or alternatively to remove vegetation). In relation to constructing additional farm buildings, existing use rights may be overruled by environmental concerns. In contrast in a recent appeal case held by South Australia's Environment Resources and Development Court, the judge ruled that the proposed extension of a broiler farm 'should not be refused if that would amount to a prevention of the continued use of the existing farm in a viable manner' (SAERDC, 1995). The proviso was that the expansion had to be considered 'reasonable'. 'Reasonable' expansion referred to the proportionate increase in floor space, the increased number of birds, the area of land occupied by all the sheds relative to the total area and whether the essential nature of the development would be materially altered. Given that rulings of 'reasonableness' are likely to vary significantly, the industry is likely to face considerable uncertainty.

Reference to site conditions draws attention to the second example noted above. Buffer distances, in particular, have been recognised as an important planning mechanism for reducing conflict between incompatible land uses. Uncertainty has developed in the development approval process because estimates of reasonable distances have changed over time. In comparison to other types of intensive livestock farming, poultry farming recommended buffer distances do not take into consideration farm characteristics, such as number of stock or management practices. It is important to distinguish between internal and external buffer distances - internal buffer distances refer to the distance between poultry sheds and farm boundaries - external buffer distances refer to the separation between poultry sheds and other sensitive land uses, such as residential dwellings, urban zones or other poultry farms (in relation to disease transferral). (see Appendix IX for a list of buffer distances recommended by various state government departments and local government areas in Australia).

Rather than the main strategy for conflict resolution, buffer distances are recognised by policy statements as a second order strategy with improved management practice the first priority. Buffer distances provide an important support role when externalities are higher than normal because of adverse conditions or because it may not be financially possible to invest in the most advanced technology. In relation to poultry farming it is recognised that even if best management practices are employed, odour, noise, dust and other externalities may still develop. By enforcing separation distances and allowing externalities to dissipate across space, conflict levels may be reduced. In Western Australia, the Department of Environmental Protection *Environmental Code of Practice Poultry Industry* recommended the implementation of buffer distances (WADEP, 1991). The main reason was that odour could not be completely eliminated and hence poultry farms should be separated from residential development.

Odours associated with poultry sheds constitute an aesthetic nuisance for many neighbours. For existing sheds, the only effective means of control is to keep the poultry sheds distanced from populated areas. It is essential at the planning stage to prevent residential development (other than homes on the poultry farm) proceeding too close to established poultry sheds. (WADEP, 1991:6)

The enforcement of buffer distances is likely to depend on the answer to three key questions. Firstly, should buffer distances be scientifically generated based on an assessment of local factors, including surrounding vegetation, technology, farm size and local topography, or remain somewhat rigid and arbitrary. Policy statements generally recommend minimum standards, allowing for buffer distances to be increased if warranted on a case by case assessment. Allowance is made for buffer distances to be reduced, for example, because of technological improvement. However, any reduction may require detailed scientific evidence of dispersal.

The second question relates to the extent to which buffer distances are enforced for new residential developments, as well as poultry shed applications. Government policies support the application of separation distances to residential dwellings, but allow for recommendations to be reduced where accompanied by adequate information. There is a notable absence of documentation on what this might involve in planning guidelines for poultry farming. Without detailed understanding of the relationship between farm characteristics, odour levels and the offensiveness of externalities, there is the potential for assumptions to be wrongly made, for encroachment to occur and for land use conflict to follow.

Thirdly, buffer distances raise questions of ownership – should the incoming land user own the required land or should the owner of the activity attracting complaints. Policy documents provide contrasting statements on ownership issues, some noting that it is the responsibility of the proposed land user, whilst others suggest that it should be the polluting activity. For practical reasons, including financial limitations, it may be difficult for an existing poultry farmer to purchase the area over which externalities might be experienced. The retrospective purchase or implementation of buffer distances is especially difficult on the urban fringe where speculation may increase land prices beyond their agricultural value. Satisfying buffer distance requirements is not a costless venture for developers as the potential number of allotments may have to be significantly reduced. One outcome is that the required internal buffer distances for new farms have increased in recent years in different government jurisdictions, including Western Australia and several NSW LGAs, thus forcing farmers to own a larger proportion of the land over which externalities may extend. A second outcome is the reduced pressure experienced by government in having to prohibit development because the neighbouring land use cannot control their externalities.

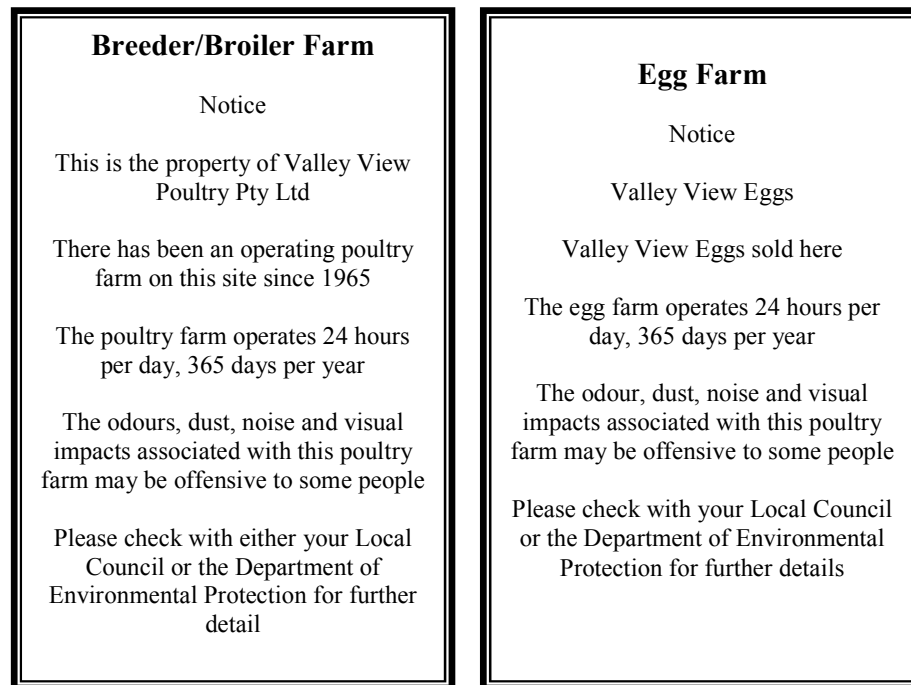
Possible implications for the poultry industry in having to satisfy larger internal buffer distances, are that existing farms on small properties may no longer comply, especially where recommendations are strictly enforced. This is despite the fact that farmers complied with existing regulation when they commenced operating. Poultry farming policy statements generally recognise the need for flexibility in implementing internal buffer distances for existing farms, including recognising property characteristics, surrounding land uses and the potential for increased externalities.

A third layer of policies to address conflict involving poultry farms is also evident in planning documents. Where government is unwilling or unable to restrict urban encroachment, then consent conditions may be applied to new residential developments including: orientating houses away from poultry farms; establishing vegetative buffers; erecting fences and other physical barriers; staging subdivision to enable impacts to be monitored as new land is released, and strategically positioning open space requirements. To limit demand for allotments in new residential releases, policy documents identify the need for legal or real estate professionals to disclose relevant information to potential buyers or for notification to be placed on property titles. In NSW, for example, Section 149 certificates are required under *the Environmental Planning and Assessment Act, 1979* as part of the contract to sell land. They stipulate local planning zones and other relevant issues associated with a parcel of land, and could refer to the location of nearby poultry farms. In Western Australia, in addition to purchaser notification systems, *Planning Policy DC No 3.5 Poultry Farms* recommended that local government as a condition of approval should require new or expanding farmers to erect signs to advertise the poultry operation. Figure 3.3 reveals that farm gate signs should indicate the type of operation, the hours of operation, and the possibility of environmental impacts (WAPC, 1995). Although educating potential buyers remains a crucial step in conflict resolution, it is unlikely to be completely successful in the longer term.

3.5 Conclusion

The urban fringe represents a dynamic environment in which incompatible land uses are often juxtaposed. Conflict with agricultural land has noticeably increased during the past decade in Australia as the area affected by urban settlements has expanded. Improved road networks have enabled people to commute longer distances and the demand for rural living opportunities has seen the growth of rural residential living and various forms of part-time farming, including hobby farming. A traditional neglect for both the environment and the significance of agricultural land has seen valuable land lost from farming and various enterprises forced to relocate further from metropolitan areas. In addition to the loss of high quality agricultural land, urban sprawl has the potential to increase land use conflict, especially where the process of agricultural intensification limits the ability of existing enterprises to relocate. Despite the potential for land use conflict, there is a noticeable absence of research investigating government policy making, the allocation of property rights and policy implementation on the urban fringe. In relation to the poultry industry, government may attempt to resolve conflict through the land use planning system by preventing encroachment, the development approval process by ensuring environmentally sensitive developments, or by administering environmental legislation. The effectiveness of these forms of regulation in addressing land use conflict is uncertain, as is their impact on poultry farm investments. It is therefore important to investigate the relationship between government, (including both state and local, given the limited involvement of the federal government in local environmental issues), and the poultry industry (including farmers, farm representatives and agribusiness) through local studies.

Figure 3.3 Roadside Signs for Poultry Farms in Western Australia



Source: WAPC (1995)

Chapter 4: Case Study Selection Process and Research Methodology

4.1 Introduction

Given that the intention is to explore the nature of land use conflict on the urban fringe, regulatory approaches and implications for the poultry industry, the information required covers a number of key areas. Firstly, an understanding of how the nature of land use conflict varies across and between urban fringe environments. Secondly, the nature of the current regulatory system and its impact on the intensity of land use conflict, including the development approval process, environmental legislation and land use planning. Thirdly, the ability of the poultry industry to address land use conflict by becoming politically active, through the farm-agribusiness relationship or by adapting farming practices and future patterns of investment. Fourthly, alternative policy approaches that could be implemented to address land use conflict more effectively. The purpose of this chapter is to outline the methodology employed to investigate these areas of interest, including the process through which case studies and interviewees were selected.

4.2 National Overview and State Selection Process

From chapters 2 and 3, it is possible to conclude that poultry farms are distributed throughout Australia and that they are regulated by different state planning and environmental legislation. Recognising that resources would not permit a detailed national investigation of land use conflict, the decision was made to comprehensively focus on two states. The selection process involved the researcher conducting interviews in each of Australia's five main poultry producing states: Western Australia, South Australia, Victoria, New South Wales and Queensland. One week was spent in each state between mid-1997 and mid-1998 during which the researcher interviewed a range of industry and government representatives to obtain a general overview of environmental and land-use planning issues facing poultry farmers on the urban fringe. Industry representatives were approached initially, as it was anticipated that through a snowballing process (Minichiello *et al.*, 1995) it would be possible to identify relevant local and state government officials.

Although time constraints meant that there was some variation in relation to who was interviewed, in general, information was collected from state poultry associations, processing companies, egg companies, urban fringe local governments and state agencies, including those responsible for agriculture, planning and the environment. The objective was to identify government policies targeting the poultry industry, including codes of practice. A brief outline of the findings from each state is provided below.

4.2.1 South Australia

Interviews with egg industry representatives revealed that farms were generally located within 100km of Adelaide and that the majority were not threatened by urban sprawl. Investment in the industry was thought to be fairly static with no new sheds planned in the foreseeable future. Fly control and the inadequate experience of council officers were identified as concerns. One farmer reported being told to spray manure each week with insecticide as the relevant officer would not listen to his argument that manure contained beetles that assisted decomposition and that spraying should therefore be limited. It was recognised that the industry's image needed to be improved, but deregulation had resulted in the industry's fragmentation.

Interviews with broiler industry representatives revealed that investment would be constrained on the northern fringe of Adelaide, where the industry faces urban encroachment, and in the Adelaide Hills where farms are sited in a water catchment area. Two possible relocation areas were towards Mallala to

the north of Adelaide and Murray Bridge to the east. Farmers noted that growers needed to improve their farm's visual appearance and that the processors were reluctant to apply pressure because there was currently a shortage of sheds. An additional concern was that growers haven't been adequately compensated for growing a smaller number of larger birds and that lower incomes impacted on the quality of employees and shed technology.

Government officials noted that government by its very nature is reactionary, such that conflict wasn't envisaged as a problem until it was too late. In the rural planning context, the possibility of conflict between poultry farms and broad acre emu or ostrich farming because of the transfer of diseases between properties was unrecognised. Difficulties in regulating poultry farms related to the absence of odour thresholds and the inability of government to influence developments constructed prior to the implementation of development controls. Unless farms represent a gross health hazard, or consent conditions can be applied following the application for a new shed, then local government had little authority. Reluctance by the EPA to intervene and by local government to issue notices of prosecution was reported. Rather than a comprehensive approach to overcoming conflict, government dealt with issues of conflict as they developed.

In the period since interviews were conducted, a new Code of Practice has been implemented (*Guidelines for the Establishment and Operation of Poultry Farms in South Australia (SAFF, 1998)*) which has the potential to severely impact on future industry investment. Larger separation distances from poultry sheds were recommended including 1000m to an urban zone, 500m to a non-farm dwelling and 300m to a side or rear boundary.

4.2.2 Victoria

Government officials noted that the egg industry did not present the same urban fringe planning problems as the broiler industry. One possible reason for this was that the owners of larger egg farms were reported to have planned for the future and were not located near Melbourne. For the broiler industry, considerable conflict was identified on the Mornington Peninsula to the south east of Melbourne as the area has attracted an increasing number of retirees, commuters and recreationalists in recent years. Environmental complaints have intensified with odour identified as the main problem followed by noise levels.

In the late-1990s the Environmental Protection Authority (EPA) argued that the number of complaints had significantly increased and that larger buffer distances were required. An EPA officer noted that until the broiler industry addressed issues such as night time noise, feed quality, stocking densities, fogging systems, odour dispersal, equipment maintenance, and employee education, the EPA would be promoting a 500m separation distance between sheds and the nearest off-farm dwelling. Industry representatives expressed concern as this figure was adopted from the EPA publication *Recommended Buffer Distances from Residual Air Emissions* (1990) rather than *Broiler Farming, A Policy for the Western Port Region* (1988) which recommended a distance of 100m. Implications for the industry were thought to include the inability of existing farmers to expand. Responding to the EPA's position, the Administrative Appeals Tribunal refused a proposed poultry farm in 1997. Broiler farms were seen as producing offensive odours despite industry arguments regarding the impact of technological change. Existing buffer distance recommendations were seen as outdated and lacking scientific justification.

In the period since interviews were conducted, a draft *Victorian Code for Best Practice Broiler Chicken Farms* was released by the Office of the Minister For Planning and Local Government and the Minister for Agriculture and Resources in 1999 to deal with new farm developments. A simplified and more rapid approval process (including reduced requirements for public notification, proposal exhibition and limited rights of appeal) is proposed for farms that satisfy best practice and where separation distance requirements are met within property boundaries. Distances range from 250m from a central point determined by shed layout and design to the nearest boundary for farms below 80,000 birds, to 450m for 280,001-320,000 birds.

4.2.3 Queensland

The Queensland egg industry was identified as having developed in the Darling Downs area to the west of Brisbane in close proximity to grain production. Although some conflict was experienced near Toowoomba, it was thought that conflict was more likely to be experienced by the chicken meat industry as it was located closer to Brisbane. Broiler industry representatives acknowledged that although there were a small number of farmers experiencing heightened conflict near Beaudesert, Capalaba, Caboolture and Logan, the majority faced minimal conflict. Odour and night time noise were identified as the main problems facing the industry. While some farmers were willing to do anything to minimise complaints, industry representatives noted that other farmers took the attitude that they were there first. The Queensland Chicken Growers Association acknowledged that an attitude change from certain farmers was required and as a result they were stressing the importance of the 'out of sight out of mind' principle.

The regulation of poultry farms was identified as being in a state of uncertainty. With the introduction of the *Environmental Protection Act, 1994* farmers housing over 200,000 birds are classified as Level 1 poultry farms and require an annual license costing \$400. As there are fewer than five poultry farms in Queensland housing greater than this number, environmental regulation remains the responsibility of local government. For this reason, poultry farming differs from other types of intensive livestock production which remain under the legislative framework of the Department of Primary Industries. With the DPI reluctant to intervene and with earlier guidelines (*Guidelines for Poultry Farming in Queensland*) now outdated, the industry has experienced inconsistencies in the approach adopted by local government (QPAB, 1988). Both the Queensland Contract Egg Farmers Association and the Queensland Chicken Meat Association were independently developing guidelines with the intention of having them approved by the Department of Environment. Other regulatory problems relate to the difficulties associated with odour, including the linkage between odour levels and health impacts.

Environmental Management Programs (EMP) (as allowed for under *Environmental Protection Policy (Air) 1997*) were identified as one option to address odour concerns where enterprises cannot immediately achieve required standards. The EMP outlines the timetable over which the farm will achieve an environmental standard and is submitted to the administering authority for approval. Provided the farmer is in compliance, an approved EMP offers legal protection from the *Environmental Protection Act, 1994*. Enterprises are given up to three years to implement the strategies identified within the EMP, with public consultation occurring if the period is exceeded. For poultry farming, strategies may include the introduction of high pressured fogging systems, improved waste management methods, limits on the re-use of litter, compost systems to replace incineration, isolating fans from buildings to eliminate vibrations, noise barriers and vegetation to reduce visibility.

The absence of planning and the *ad hoc* approval of development were seen as having allowed urban encroachment in the past. Restricting development in a legal sense was identified as difficult where land had been rezoned residential and because poultry farms were essentially using neighbouring land as a buffer zone. Solicitors were recognised as having advised industry representatives that farmers would be unsuccessful in suing decision-makers for allowing encroachment. Representatives thought that the *Integrated Planning Act, 1997* had the potential to limit encroachment though this remains uncertain. With the implementation of *State Planning Policy 1/92 Development and Conservation of Agricultural Land* local authorities are expected to include provisions for the conservation of good quality agricultural land (Queensland Government, 1992). Its impact on the poultry industry will be limited as poultry farms are excluded from the definition of good quality agricultural land. *State Planning Policy 1/97 Conservation of Koala in the Koala Coast* identifies poultry farming as compatible with the conservation of koala habitats (Queensland Government, 1997). The use of vegetation around the poultry sheds was seen as an approach to guard against disease spread, provide a buffer for odour and a visual barrier between residential land use. This contrasted with the past practice of vegetation removal for improving shed ventilation. One processing company was recognised as identifying sites for future investment and erecting signs indicating that the land will be developed for poultry farming in the near future.

4.2.4 New South Wales

During interviews with government officials, the egg industry was identified as being less affected by land use conflict than the broiler industry because odour, dust and truck movements were of a lower intensity. In urban fringe local government areas (LGAs), such as Blacktown, which have land designated for urban release, government officials acknowledged that poultry farms would inevitably be bought out. In other areas of the Sydney region the need for comprehensive rural land use planning was recognised. All LGAs within the Sydney region with poultry farms were thought to be attracting at least some level of environmental complaint.

Recent policy statements, including *Sustainable Agriculture in the Sydney Basin* (NSW Agriculture, 1998) and *Hawkesbury-Nepean Sydney Regional Environmental Plan No 20 (1997)* (DUAP, 1997), recognise the need to give priority to agriculture in rural zones, to maintain appropriate separation distances and to educate the public and new home buyers. The Shire of Wollondilly was identified as one local government area that had initiated a detailed review of rural land to identify land suitable for agriculture. Industry representatives were concerned that land use planning was being promoted after *ad hoc* decision making had already excessively fragmented rural land. The Shire of Wollondilly was also identified as one LGA in which it was extremely difficult to obtain development approval for poultry sheds. Planning strategies that emphasise education and community involvement were criticised for ignoring the realities of agricultural production and the intensity of conflict facing the poultry industry.

With local government experiencing difficulty in regulating poultry farms (including assessing odour levels and determining whether farmers were doing everything practical to reduce externalities) and with the EPA reluctant to intervene, the poultry industry was identified as falling through a regulatory gap. In the Shire of Wollondilly, community concern relating to externalities resulted in the formation of the Poultry Farm Neighbours Support Group in the mid-1990s. Councillors have since been placed under pressure to impose development restrictions on new poultry sheds and to prevent externalities crossing property boundaries. One response has been the formation of a working group involving community, industry and government representatives to identify solutions to land use conflict.

4.2.5 Western Australia

Major problems in relation to poultry farms were identified in the LGAs of Wanneroo and Gosnells. In addition to attracting complaints in relation to odour and noise, poultry farms were in the path of urban expansion. Egg farms were thought to be attracting fewer environmental complaints than the broiler industry. Officers from the Department of Environmental Protection recognised that odour was the main concern and that, as a policy issue, it had been ignored.

At the time of interviewing there was no strategy to assist poultry farmers to relocate though the issue had been explored by a government-industry relocation committee. One poultry farm that had experienced considerable conflict following urban encroachment was financially assisted to relocate from the City of Gosnells to the Shire of Serpentine-Jarrahdale. Industry relocation to the Shire of Serpentine-Jarrahdale was criticised for not solving the problem, as the area has experienced growth in hobby farms and lifestyle developments in recent years. Strong opposition to industry investment was noted for this reason. The *Agricultural Practices (Disputes) Act 1995* was implemented to allow for the mediation of environmental complaints involving agricultural activities.

4.2.6 State Selection Process

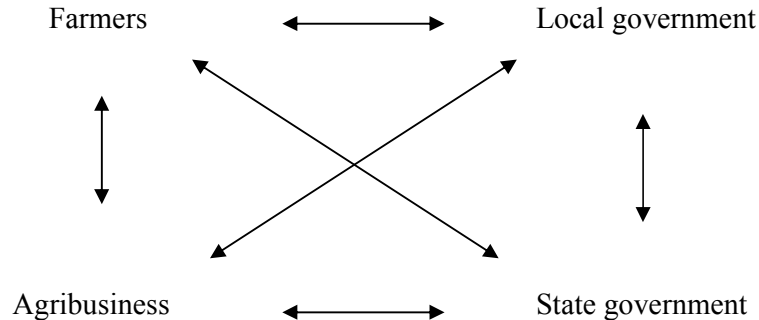
The overview of the Australian poultry industry revealed that land use conflict involving poultry farmers was a common problem on the metropolitan fringe of Australia's state capitals. There was a notable absence of policies that had been implemented to effectively address land use conflict. Given this, the subsequent decision was made to focus in more detail on the metropolitan fringe of Perth in Western Australia (WA) and Sydney in New South Wales (NSW). Metropolitan Perth has one of the

fastest growing populations among Australia's state capitals, and an extremely high concentration of the state's poultry production (Figure 2.3 and 2.4). NSW, in contrast, is the largest poultry producing state in Australia (Figure 2.3 and 2.4), and the historical origins of the Australian poultry industry are in the Sydney Region. The two states also differ in that conflict involving poultry farms has primarily been addressed at a state level in WA (e.g Poultry Farm Relocation Working Committee and *Agricultural Practices (Disputes) Act, 1995*), while in NSW, local government has been forced to adopt a more proactive stance (e.g Wollondilly Poultry Farm Working Group). Other noticeable differences are that the egg industry in NSW, unlike WA, has been deregulated, and that NSW has a large number of contracting processing companies compared to just two in Western Australia.

4.3 Primary and Secondary Sources of Information

To obtain the information required to explore the nature of land use conflict on the urban fringe, regulatory approaches and possible implications for the poultry industry, four key sectors were identified - poultry farmers, agribusiness, local government and state government (see Figure 4.1).

Figure 4.1 Key Sectors for the Research



Although the residential neighbours of poultry farms could have provided another perspective on land use conflict the decision to exclude them from the present study was made for a number of reasons.

* Methodological problems including which farmers could be considered representative, how many neighbours would need to be interviewed, and over what distance. (Interviews with local residential or environmental action groups could have been employed but the representativeness of such groups is questionable).

* Conducting interviews with the neighbours of poultry farmers or community interest groups risks further inflaming conflict and raises serious issues regarding research ethics.

* Recognising that poultry farms do produce externalities and that local government is required to verify any complaint that is lodged, a more important research interest is the nature of government's response and the willingness or ability of farmers to reduce nuisance levels. Local government thus effectively becomes a conduit for community opinions.

* In addition, the media provides a further perspective, though it may be dominated by the more vocal components of a local community.

By obtaining information relating to land use conflict, associated regulation and industry responses from each of the actors identified in Figure 4.1, a range of different attitudes can be collected. Referred to as 'triangulation', the method of assessing a problem through the eyes of different interest groups is thought to improve the validity and reliability of research findings (Baxter and Eyles, 1997; Sarantakos, 1993). For example, where the poultry industry's assessment of land use conflict is similar to that of local government the argument for implementing new regulatory approaches is stronger.

To further improve the reliability of research, information from secondary sources was collected: documentary evidence including council minutes, planning documents and local newspaper articles. As Eyles (1988:10) notes, written material can help to 'build up a picture of the relevant past, or to obtain statements, views and meanings unobtainable through interaction'. Council documents, for example, can help to verify consent conditions on farm developments and to provide a historical perspective unobtainable from interviewing because of the turnover of council staff. It was also thought that obtaining access to community submissions relating to poultry development proposals would provide some documentation of the environmental concerns of local residents. Care must be taken in employing triangulation as it does not guarantee a more complete picture and inconsistencies between information sources may create assessment difficulties (Baxter and Eyles, 1997).

The decision was made to employ a semi-structured research approach which followed a predominantly qualitative methodology. Flexibility was thought to be critical because, on the one hand, the involvement of poultry farmers in the regulatory system would vary widely yet, on the other hand, a detailed understanding of government decision making was required (Robinson, 1998; Sarantakos, 1993). At the same time, it would enable a series of prompts or areas of interest to be developed to ensure that responses relating to similar topics would be received from all interviewees. In choosing the approach, it was also recognised that the underlying objective involved generating 'multiple perspectives rather than absolute truths' (Quinn Patton, 1990:483).

An interview schedule was designed for industry leaders, farmers, local government and state government (See Appendix X for a copy of the interview schedule used in relation to farmers). Although the sequencing of questions varied because of personal circumstances, the interview schedule covered five key areas: a general overview of land use conflict and the reasons for conflict, the development approval process, land use planning, environmental legislation, and forward planning by both the industry and government. The interview schedule was further divided into a number of initial questions followed by a series of secondary prompts.

Although the interview schedule could have been administered through telephone interviews, it is more difficult to establish a trusting relationship via the telephone. Key people were instead interviewed in person. The interviewer kept extensive notes rather than a tape recording of conversation. One criticism of note taking is that the researcher may not be able to participate in a detailed discussion. However, note taking whilst interviewing is satisfactory provided all notes are reviewed and annotated where necessary immediately after the interview. The process of note taking still allows the interviewer to write key quotes and also enables a degree of filtering out of extraneous issues. The impact of the researcher on the quality of the information collected is acknowledged. Schoenberger (1991:186), for example, indicates that if the respondent feels that the investigator understands the issues 'discussion is likely to be both more open and more detailed'. It is further argued that tape recording may inhibit responses (Robinson, 1998; Healey and Rawlinson, 1993) and that note taking may encourage openness 'since some people think that the interviewer who records notes takes their views very seriously' (Sarantakos, 1993:192). Finally, the absence of a recorder may allow conversation to cover a wider range of controversial issues in more detail. The interview schedule was given clearance by the University of New England ethics committee.

4.4 Interviewee Selection Process in WA and NSW

Within both NSW and WA, the intention was to interview a selection of industry leaders (including representatives from farming organisations, farm managers from processing companies and representatives from egg companies or marketing authorities), egg and chicken meat farmers, local government officials (planners and environmental officers), and state government agencies (including those responsible for agriculture, planning, environment, health and water). Interviews would also be conducted with other relevant parties where a direct involvement in poultry farming issues was established. Because of resource constraints and the practicalities of distance, it was impossible to interview poultry farmers and local governments across the urban fringe. A case study approach was required instead.

One case study option was to identify individual councils experiencing conflict. However, it was felt that determining why a particular local government area was not having to respond to environmental complaints could be as important as why others faced regular complaints. By alternatively adopting an urban transect and investigating conflict along a corridor it would be possible to comment on how the experiences of farmers and local government vary with increasing distance from the urban fringe. Another advantage was that a wider cross-section of opinions could be collected. Policy issues for inner fringe LGA would relate to urban estate development, middle fringe LGAs would deal with rural residential development and land use conflict relating to farm expansion, and outer fringe areas would have to resolve land use conflict involving new farm developments. For similar reasons the experiences of poultry farmers would vary with increasing distance from the urban fringe. For these reasons, a case study area consisting of four contiguous LGAs extending outwards from suburbia was chosen.

On the metropolitan fringe of Perth a south east corridor was selected including the LGAs of Gosnells, Armadale, Serpentine-Jarrahdale and Murray (Figure 4.2). A south west corridor was chosen in the Sydney Region, which included the LGAs of Liverpool, Camden, Wollondilly and Wingecarribee (Figure 4.3). The respective corridors were selected following reports that conflict was particularly intense in the LGAs of Gosnells and Serpentine Jarrahdale in WA and Wollondilly in NSW.

It was anticipated that two egg producers and two chicken meat farmers would be interviewed within each LGA, giving a total of 16 farmers in both states. In selecting this sample size it was recognised that it is inappropriate to interview all farmers when an overview of land use conflict and the regulatory system can be obtained from a smaller selection. By interviewing industry leaders the intention was also to obtain a broader metropolitan perspective on relevant issues. To ensure that a range of perspectives were collected the researcher requested industry leaders to identify potential interviewees. A number of selection criteria were developed, in part to make industry leaders aware that the experiences of poultry farmers differed, and that their ability to comment on the planning system would vary. Selection criteria included:

- 1) Farmers which have faced conflict with neighbours, local government and state environmental agencies over environmental issues
- 2) Farmers that have faced conflict in the past but have managed to address environmental issues to the extent that complaints have decreased
- 3) Farmers that were aware of urban encroachment, the potential for land use conflict and have successfully planned in advance
- 4) Farmers that have had difficulty expanding because of land use conflict with neighbours or local government
- 5) Farms which have relocated to new areas
- 6) New farm developments.

Using industry leaders to select relevant farmers was justified for several reasons. It was felt that farmers would be more willing to participate if the researcher went through official industry channels because both the chicken meat and egg industries are subject to public criticism for animal welfare reasons. An alternative option would have been for the researcher to ask local government officials to identify suitable candidates. However it was felt that farmers would be less receptive to this approach. It also raised important quarantine issues, because the unrestrained movement between poultry farms could result in the transfer of infectious diseases between properties. In WA, broiler industry representatives raised concerns about approaching an egg farm prior to interviewing on a chicken meat farm on the same day. For quarantine reasons the number of farmers that could ultimately be interviewed was limited and it was more appropriate for the researcher to identify farmers via industry.

Figure 4.2 Location of Poultry Farmers Interviewed on the Urban Fringe of Sydney

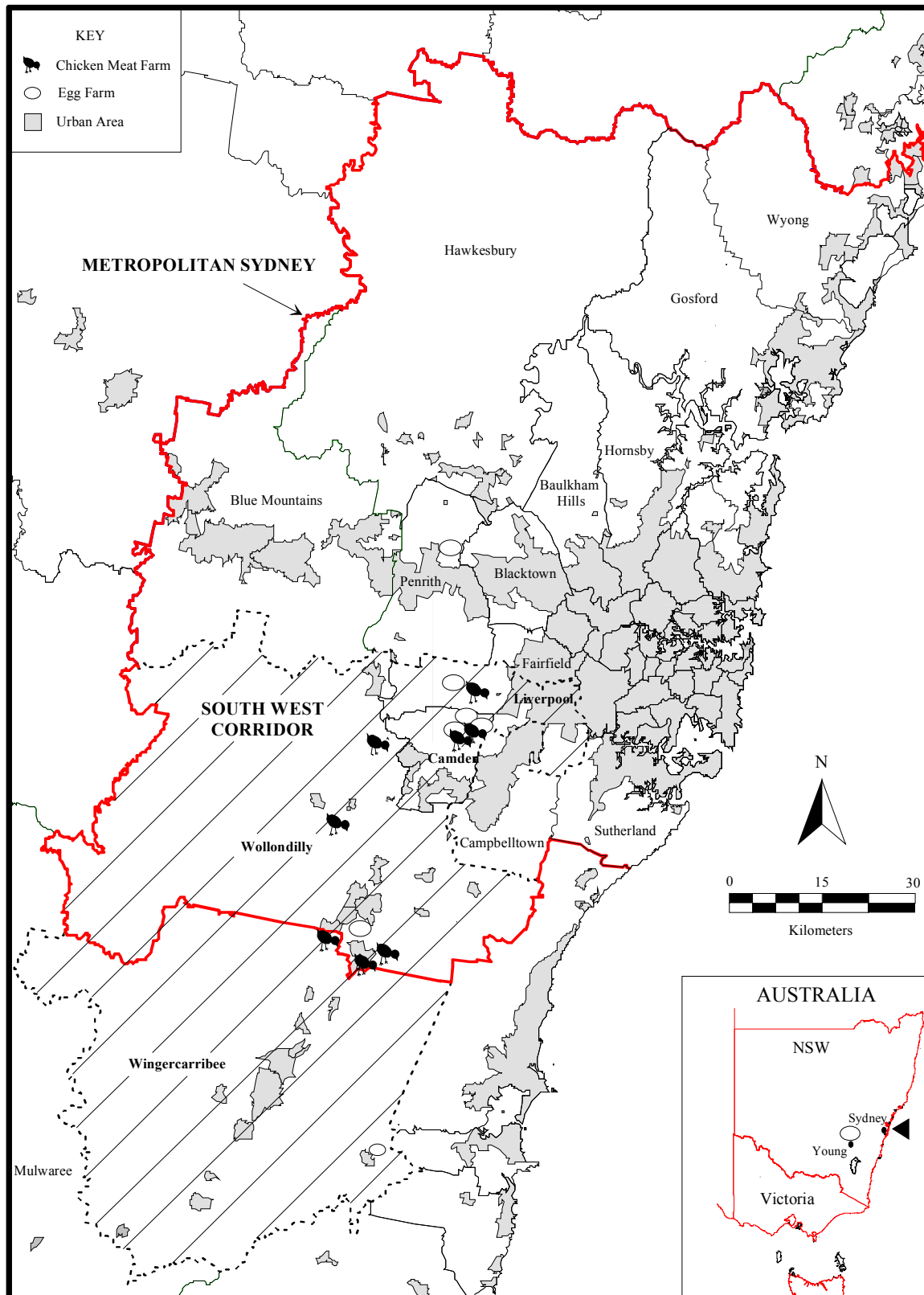
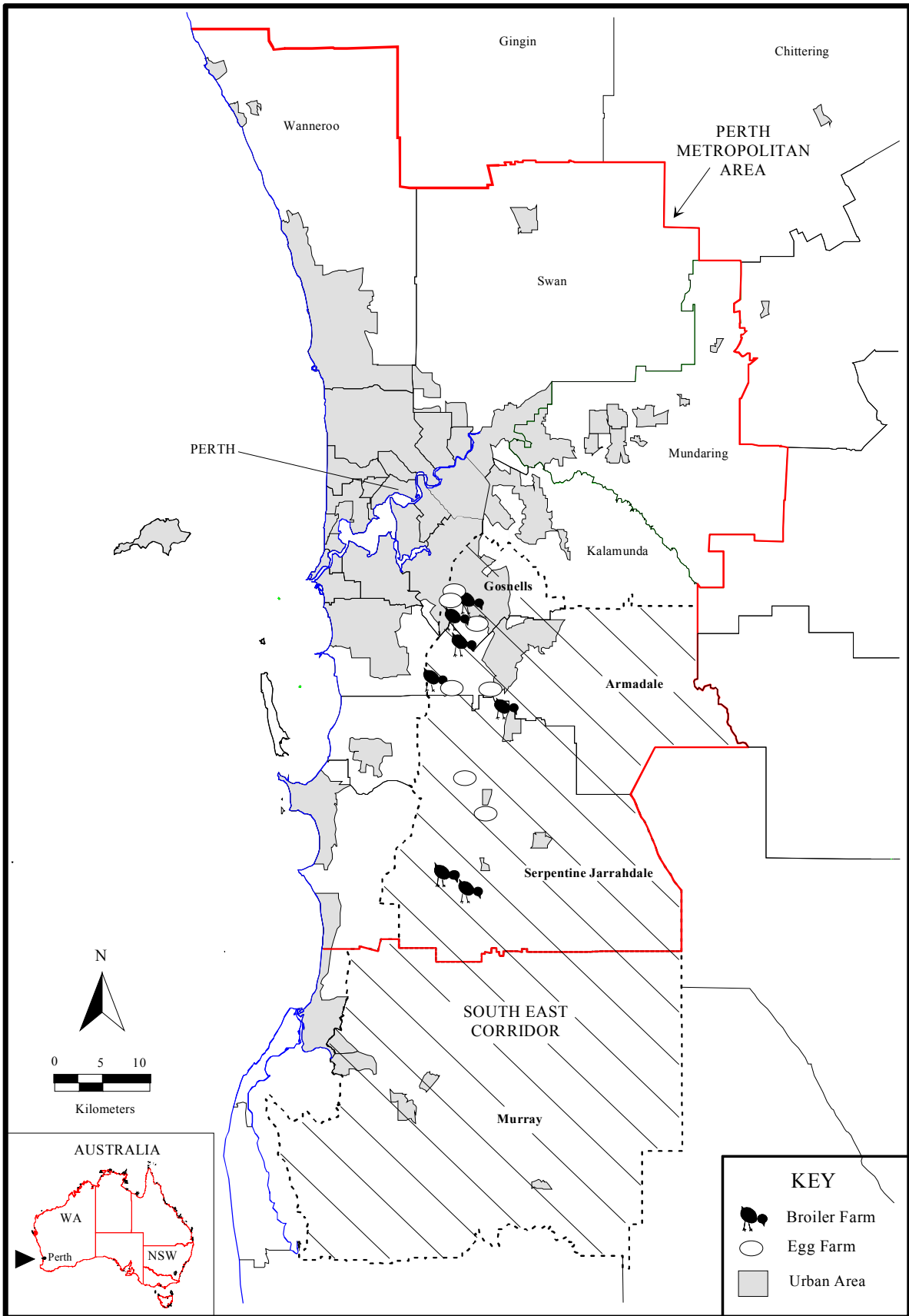


Figure 4.3 Location of Poultry Farmers Interviewed on the Urban Fringe of Perth



4.5 Interviews Conducted

4.5.1 Western Australia

Between July and October 1998, interviews were conducted in Perth with the following industry representatives:

- * Presidents of the Western Australian Poultry Farmers Association and the Western Australia Broiler Growers Association;
- * Two farm managers with Stegges Poultry Limited;
- * One farm manager at Inghams Enterprises Pty Ltd;
- * Chief executive of Golden Egg Farms (the Western Australian Egg Marketing Authority); and
- * A representative from Altona Hatcheries.

Interviews were conducted with 7 egg farmers (3 in Gosnells, 2 in Armadale and 2 in Serpentine-Jarrahdale) and 7 broiler farmers (2 in Gosnells, 2 in Armadale and 3 in Serpentine-Jarrahdale) (Figure 4.2). Interviews were conducted with 6 council officers, including a planner and an environmental health officer from the LGAs of Gosnells. In Serpentine-Jarrahdale, a planner was interviewed with an environmental officer and an environmental health officer present. In the Shire of Murray, a joint-interview was conducted with a planner and environmental health officer.

State government level interviews were conducted with representatives from:

- * Western Australian Planning Commission;
- * Department of Environmental Protection;
- * Water and Rivers Commission;
- * Department of Agriculture; and
- * Health Western Australia.

In addition, interviews were held with the Chairman of the Agricultural Disputes Board and the Chairman of the Poultry Farm Relocation Working Committee. The total number of interviews in WA was 35.

4.5.2 New South Wales

During October 1998 a number of industry leaders were interviewed in NSW, but it wasn't until May-June 1999 that the remaining interviews were conducted. The delay was primarily caused by the outbreak of Newcastle Disease in the Sydney region in late 1998 and again in early 1999. Industry interviews were conducted with:

- * Two members from the NSW Chicken Growers Council;
- * Farm managers from Baiada Poultry Limited, Inghams Enterprises and Red Lea;
- * Two representatives from each of Cordina Poultry and Stegges Limited
- * Chairman of the Egg Producers Committee of the NSW Farmers' Association;
- * The intensive livestock assistant director from NSW Farmers' Association;
- * A representative from Pace Farms; and
- * Two members of Eggbert Eggs.

In all, 8 broiler farmers (1 in Liverpool, 3 in Camden, 3 in Wollondilly and 1 in Wingecarribee) and 8 egg farmers with some involvement in the south west corridor were interviewed (1 in Liverpool, 2 in Camden, 4 in Wollondilly, and 1 in Wingecarribee) (Figure 4.3). In total, 5 interviews were conducted with local government. One interview was conducted in each of Liverpool, Wollondilly and Wingecarribee, with a development officer and an environmental officer interviewed separately in Camden Council. In both Liverpool and Wollondilly more than one person was present providing a wider perspective of land use and environmental issues.

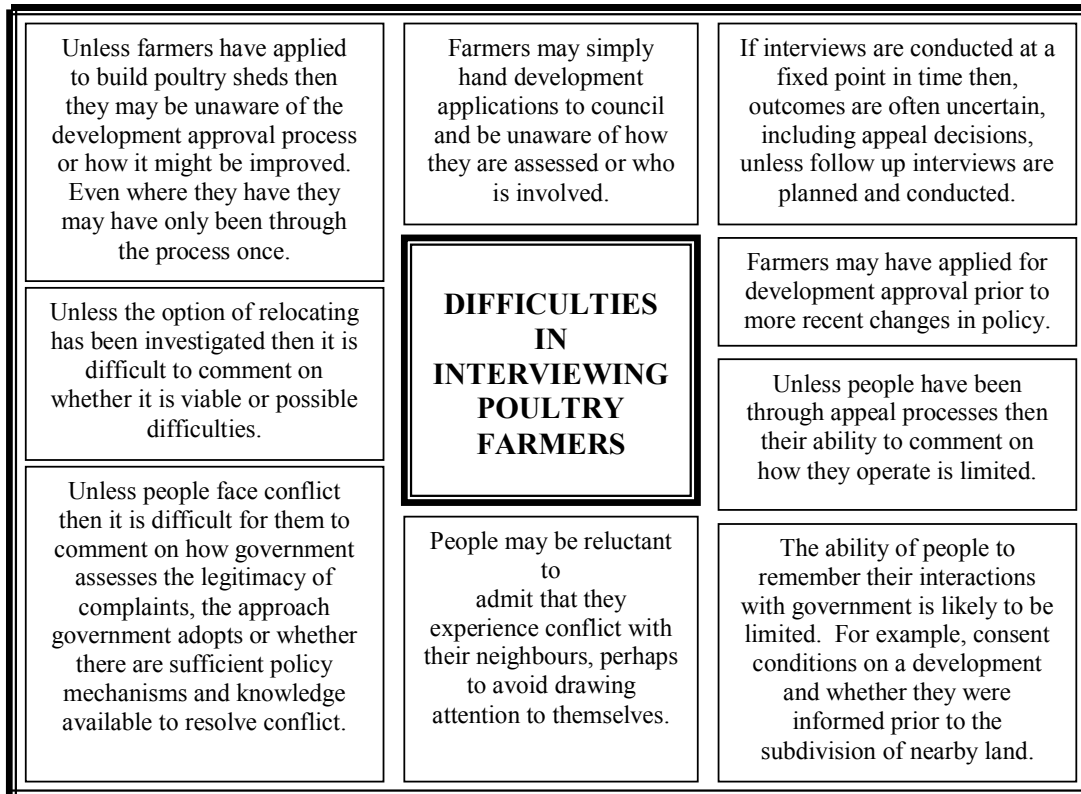
- At the state government level interviews were conducted with:
- * Officers from the Department of Urban Affairs and Planning;
 - * Water Corporation;
 - * Two staff with NSW Agriculture; and
 - * Environmental Protection Authority.

A telephone interview was conducted with the NSW Health Department because of their limited involvement in poultry farming issues. In total 43 interviews were carried out in NSW.

4.6 Limitations of the Interviews Conducted

Some of the problems encountered in the field research are acknowledged below, including difficulties in interviewing poultry farmers (see Figure 4.4)

Figure 4.4 Difficulties in Interviewing Poultry Farmers



A number of limitations should be noted in relation to investigating land use conflict that may have affected the reliability of the information. In reflection, conflict is a difficult issue to investigate because interviewees are likely to have different impressions of when it develops or what constitutes conflict. Complaints to local government cannot be equated to conflict as they may simply represent objections to farming externalities. Only when farmers have been consulted and their unwillingness to change management practices apparent might neighbours feel that they are in a situation of land use conflict. Farmers themselves may not feel that they are party to a conflict unless government has forcibly required them to change management practices or their neighbour has retaliated to their inaction. Local governments faced difficulty in estimating the intensity of land use conflict as they only become involved in a boundary dispute when a complaint is lodged.

In recognising the limitations discussed above, two important points need to be made. Firstly, in drawing conclusions about possible improvements to the regulatory system it is important to recognise that poultry farming is but one land use activity. Government may be reluctant to adapt existing legislation to satisfy the interests of the poultry industry where it involves creating a planning precedent. Secondly, it is important to conclude by stating that the main objectives of the study are not to make firm policy conclusions, but to explore the nature of land use conflict and to identify possible regulatory alternatives. Given the exploratory nature of the research it is concluded that the information collected is suitably comprehensive and reliable.

Chapter 5: Results – Western Australia

5.1 Land Use Conflict on the Fringe of Metropolitan Perth

Poultry farms have traditionally been located on the fringe of Metropolitan Perth, where they were often established on 5 acre blocks in what were rural areas during the 1960s-1970s. Often initially consisting of a single building, they have since been expanded through the construction of additional sheds as a consequence of market forces and opportunities. During this period, rising population levels, greater wealth and technological change have resulted in the outward expansion of Perth, both through expansion at urban density levels and more sprawling forms of rural residential development. Conflict between poultry farms and their residential neighbours emerged during the mid-1980s, most notably in the Shires of Wanneroo to the north of Perth and Forrestdale to the south east. The present research indicated the intensity of conflict has increased during the 1990s and that it is more intense to the south of Perth, particularly in the local government areas of Gosnells and Serpentine-Jarrahdale. Compared to the broiler industry, egg farmers were reported as experiencing less conflict, though two farmers in the Shire of Kalamunda were identified as attracting a weekly visit from council because of repetitive complaints. Case study box 5.1 gives greater attention to variation in the reasons for complaint between egg farms and broiler farms.

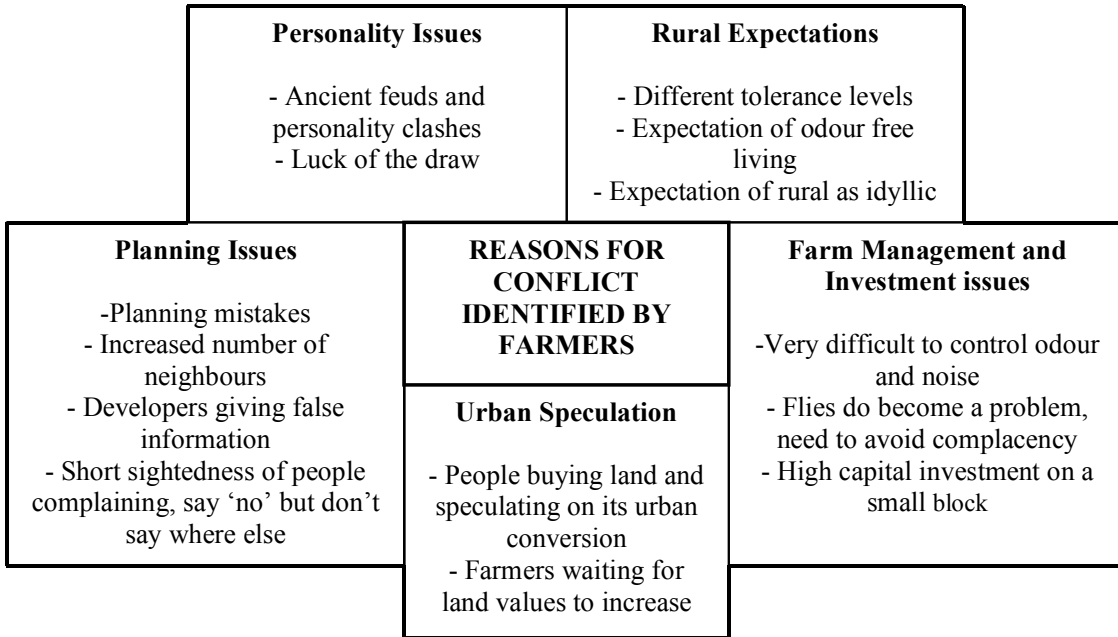
Case Study Box 5.1 - Variation in the Complaints Attracted between Egg and Broiler Farms

In relation to farm management, egg farmers indicated that the main complaint facing their industry related to flies, and to a lesser extent odour. Through appropriate farm management, it was thought that fly problems could be prevented. Broiler farmers, in contrast, identified odour and noise as the main reasons for complaint. While noise could be controlled to a certain extent, it was felt that odour was more difficult to manage as it was influenced by a wide variety of factors. Similar conclusions regarding externalities facing the poultry industry were collected from local government, with egg farms more likely to generate complaints relating to flies and broiler farms attracting odour complaints, with noise and dust of secondary significance for the latter. This conclusion was supported by officers from the Department of Agriculture. The latter acknowledging that flies were a management concern because adequate knowledge of how to control flies existed, and that odour was a planning problem because regardless of how well a broiler farm was managed, odour may still be emitted.

Industry leaders provided a range of opinions about why people complained about poultry farms. At times complaints were seen as reasonable because odour levels may build up when sheds are closed during cold conditions, or where an odour plume is prevented from dissipating by calm conditions or an inversion layer. In other situations complaints were considered unreasonable for rural areas. Notable concerns included people complaining about truck movements when larger trucks have impeded traffic, dogs that bring home chickens when they shouldn't be allowed to stray and that poultry sheds are incompatible with people's perceptions of trees and horses in special rural areas. The legitimacy of complaints was questioned with the industry leaders suspicious of nose bleeds and eye irritations that developed overnight when people had been residing in an area over a much longer period. One industry leader claimed valid complaints were limited as the majority reflect speculative interests and concern about the loss of subdivision rights. An equally broad spectrum of attitudes towards land use conflict was collected from farmers, as is presented in Figure 5.1. Council officers noted that while complaints were often genuine, at times conflict reflected community misconceptions and unreasonable amenity expectations.

Besides different management practices, a second key reason why the experiences of the chicken meat and egg industries vary relates to patterns of investment. Broiler industry representatives noted that there were currently 51 contract chicken growers in WA and that, traditionally, growers have been located within 25km of the centre of Perth to enable access to feed mills, hatcheries and processing facilities. As Perth has expanded, growers were required to locate within 50km, and now more recently

Figure 5.1 A Spectrum of Farmer Attitudes towards Land Use Conflict

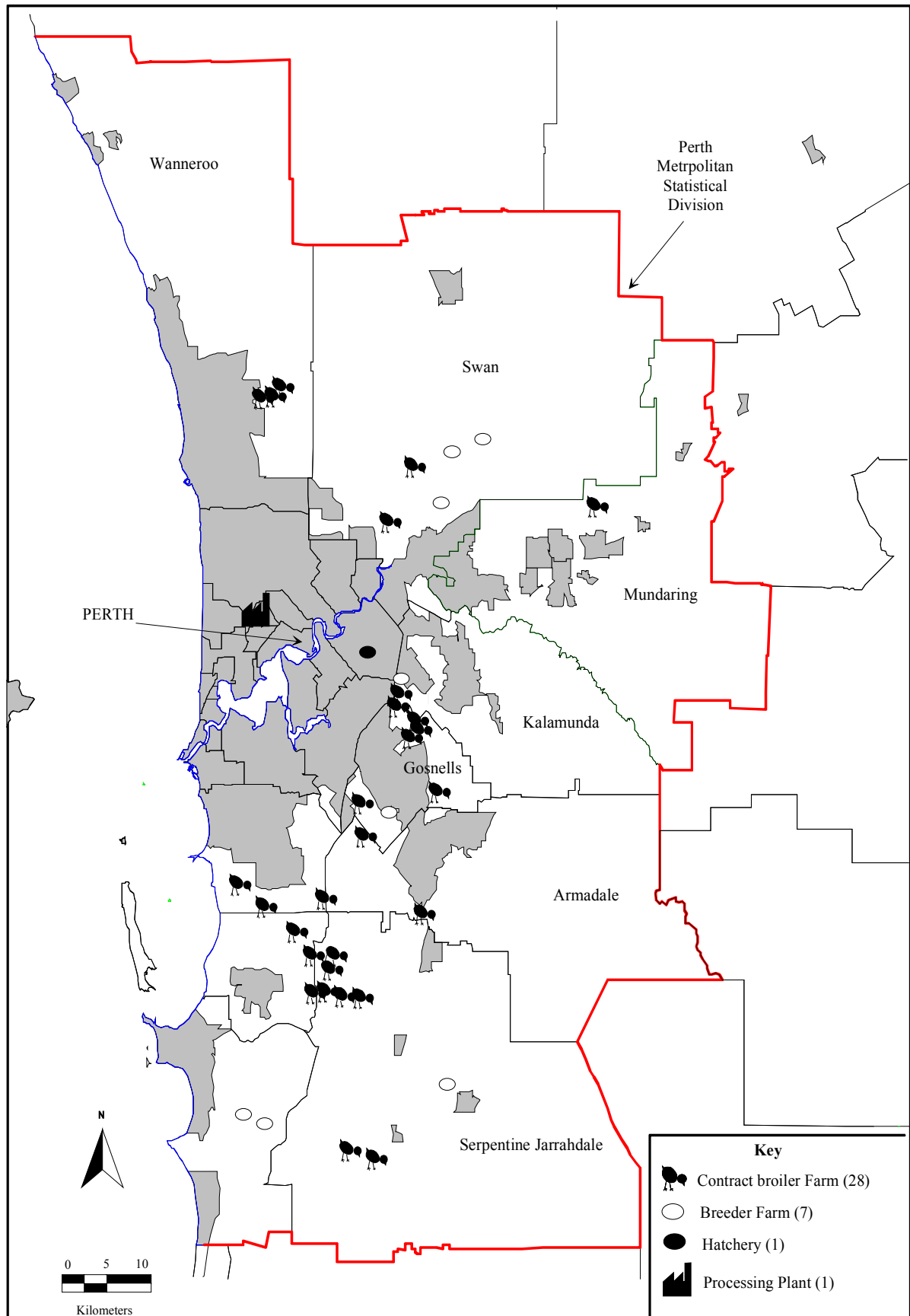


a 70-80km boundary from Perth has been imposed by the industry. Although new farm construction has been limited for most of the 1990s, the latter part of the decade has seen a number of new farms developed to the south of the Shire of Serpentine-Jarrahdale, to the north of the city of Wanneroo, and in the Shire of Gingin to the north of Perth. In 1997, Steggles Ltd. offered 10 new sheds to its contract growers, eight of these were accepted by existing farmers wanting to expand and one shed each was allocated to two farms relocating from the City of Gosnells to the Shire of Serpentine-Jarrahdale. During the mid-1990s, a third Steggles grower developed a contract farm to the south of the Shire of Serpentine-Jarrahdale, though in this case the contract of a retiring farmer was purchased. At the time of interviewing, a fourth broiler farm was being developed in close proximity to the above-mentioned farms, though in this case the farmer did not have a contract.

Despite the outward movement of broiler farms, industry infrastructure remains fixed with both Inghams Enterprises and Steggles Ltd. operating processing facilities in Osborne Park, 5km to the north of central Perth. Inghams also operates a company hatchery and feed mill in the local government area of Wanneroo, 20km to the north of Perth. As portrayed in Figure 5.2, Steggles Ltd. has 28 growers mainly to the south of Perth, a hatchery based in Kewdale, and a contract feed mill operating in Welshpool in the inner eastern suburbs. Both Steggles and Inghams have investigated relocating breeder farms, and Steggles has recently shown interest in relocating its hatchery further to the south, towards the Shire of Murray, because of urban encroachment. There appeared to be no immediate plans to relocate the processing facilities from Osborne Park. Such a plan was seen as complex, costing approximately \$50 million and restricted spatially by the need to access labour, sewage and water.

In contrast to investment in new broiler sheds, the WA egg industry has remained relatively stationary, with a total of approximately 60 farms located within the metropolitan area. One industry leader noted that there hasn't been the same urgency to expand as existing farmers have been able to maintain a comfortable living under state egg marketing regulation. The impact of changes to animal welfare codes appeared to be minimal, with the regulated bird quota system resulting in under-utilised cage capacity. It was further suggested that there was virtual compliance with the new regulations anyway. With the exception of a recent syndicate farm to the north of Perth, two farmers were identified as relocating within the metropolitan area during the past decade. Both moved from the inner fringe of Gosnells, with

Figure 5.2 Steggles Ltd. Poultry Operation on the Fringe of Metropolitan Perth 1998



one reinvesting to the south west of the City of Armadale and the other to the north of the Shire of Serpentine-Jarrahdale. Urban encroachment was not simply a problem for egg farmers with the state marketing authority's (Golden Egg Farms) grading, packing and distribution centre, located in Palmyra to the South of Perth, facing complaints from neighbours in recent years. Although the centre was established 20 years ago in a rural area, when it was encouraged by the local government because it offered employment for 100 people, neighbours concerned about early morning truck movements have since complained to council.

To conclude this brief introduction of the nature of land use conflict facing the Western Australian poultry industry, it is important to recognise that contract broiler farms and egg farms are scattered across a large number of local governments in the metropolitan area. Table 5.1 identifies the number of poultry establishments in each peri-metropolitan local government area. The strategic importance of the northern area for the broiler industry, the eastern zone for the egg industry and the south east area for both the egg and broiler industries is apparent. Because of this scattered pattern, farmers operate in a range of different contexts varying from abutting urban or rural residential development, to being in the path of future urban development to being located in more isolated rural zones. Recognising that this pattern has implications for the nature of conflict and the effectiveness of different policy responses, the following section focuses on the regulatory system in Western Australia.

Table 5.1 Poultry Establishments in Perth Metropolitan Area 1997

Metropolitan Subdivision	Local Government Area	Egg Farms	Broiler Farms
South East Metropolitan		19	19
	Gosnells (C)	9	7
	Armadale (C)	6	3
	Serpentine-Jarrahdale (S)	4	8
	Belmont	0	1
South West Metropolitan		12	5
	Rockingham (C)	4	2
	Kwinana (T)	4	2
	Cockburn/	4	1
East Metropolitan		25	10
	Swan (S)	11	7
	Kalamunda (S)	10	2
	Mundaring (S)	4	1
North Metropolitan		4	17
	Wanneroo (C)	4	17
Perth		60	51
Western Australia		84	55
Australia		506	732

Source: ABS IRDB (1999) – Estimated number of farms where poultry is the only or major activity. Excludes those establishments making only a small contribution to agricultural production. From 1991/92 the scope of the agricultural census was farms with an estimated value of agricultural operations of \$22,500 or more.

5.2 The Present Regulatory System

5.2.1 Environmental Code of Practice Poultry Industry (1991)

During the early-1980s, poultry farmers were identified as employing unacceptable practices. For example, where farmers used external sprinklers to reduce roof temperature, water leaked into sheds through areas of rust or nail holes. Wet manure would result in the dispersal of unpleasant odours across property boundaries, with government administering pollution abatement notices and the industry exerting pressure for farmers to improve management practices. In the mid-1980s a meeting of officials

from the Western Australia Environmental Protection Authority identified poultry farming as one of a number of environmental problem areas where greater policy guidance was required. Environmental officers would respond to complaints, often finding that farmers were using best practice and therefore thought not to be in breach of the *Environmental Protection Act, 1986*. Conflict continued following urban encroachment with neighbours demanding that farmers be forced to keep their externalities within the confines of their property. Acknowledging that this was unpractical, the Department of Environmental Protection (DEP) responded by drafting a code of practice which offered greater flexibility than legislation. In areas where there were incompatible land uses it could be diligently adhered to, while in others it could be implemented on a case by case basis (WADEP, 1991). Management practices appropriate for an inner urban fringe farm may not be suitable for a farm located in more remote rural areas. Following the release of a draft code in 1989, the poultry industry raised similar concerns in relation to the requirement that sheds be developed with concrete floors. While the construction of sheds on concrete floors had been adopted as industry practice for new broiler farms, it was felt that by including it in the code, local government could apply pressure to existing non-complying farmers, perhaps even forcing their closure. Any reference to concrete floors was subsequently removed when the *Environmental Code of Practice, Poultry Industry* was released in 1991 (WADEP, 1991).

The code attempted to address the potential for conflict in two ways: firstly it outlined best management practices, and secondly, a series of separation distances were recommended as it was recognised that management could not completely eliminate odour. A list of the recommended separation distances between poultry sheds and sensitive land uses is shown in Table 5.2. Figures 5.3 and Figure 5.4 show the recommended buffer distances diagrammatically. Rather than scientifically estimated, the proposed buffer distances are arbitrary in that they are based on an assessment of the distance over which complaints are frequently generated. As noted in case study box 5.2 the poultry industry's policy that sheds on separate farms should be 1000metres apart was also included. The Environmental Code of Practice provided a general list of best management practices rather than a series of odour, noise and other environmental thresholds that could more readily be enforced. As a surrogate assessment of odour levels, the guidelines contained the requirement that poultry litter with moisture levels exceeding 60% must be removed from a litter based housing system, as the optimum level was 30-40% (WADEP, 1991). In general, it provided a list of best practices to reduce odour, noise, fugitive light, run-off and quarantine risks. Issues neglected in the code of practice included: internal shed layout and technology; different types of farming, such as free range; management techniques for flies; and required separation distances to waterways and wetlands. The code nevertheless resolved a number of problems that were being experienced by the Department of Environmental Protection. Although accepted by government and the industry, environmental groups continued to argue that legislation was required as industry often ignores codes of practice.

Case Study Box 5.2 – Quarantine Buffer Distances

There was some uncertainty in relation to when poultry buffer distances should be implemented and what is a suitable quarantine buffer. Local government noted that the Department of Agriculture has traditionally supported a 1000m separation distance and that the Department of Environmental Protection's *Environmental Code of Practice, Poultry Industry* (WADEP, 1991) makes reference to a similar distance. In more recent years, council officers suggested that the Department of Agriculture was less willing to confirm the distance, that the broiler farms have been proposed in breach of the conditions, and that existing poultry farmers have threatened to sue local government for developing under false expectations. In response to these concerns, industry leaders indicated that local government was not responsible for quarantine issues as they are controlled by self-regulation. There was also evidence that local government had used the recommended distances as an argument for refusing applications. It is for these reasons that quarantine distances do not appear in Planning Policy No. 3.5 (or the more recent Planning Policy No. 5) (WAPC, 1995). One reason the generic 1000m policy may be inappropriate is that it fails to take account of different forms of poultry farming. It was noted that while a broiler farm requires a 1km buffer distance from any egg farm, an egg farm can locate next to another egg farm. The main reason for the difference is that an

egg farm, unlike a broiler farm, is not completely cleaned out and disinfected on a regular basis to prevent diseases being passed on from one generation to the next.

Table 5.2 Recommended Separation Distances from Poultry Sheds in Western Australia

	Urban residential zone	Rural residential zone	Nearest single Dwelling outside of boundaries	Front boundary	Side or rear boundary	Minimum separation between poultry farms
Environmental Code of Practice Poultry Industry (WADEP, 1991) – New poultry sheds	500m	300m	100m	50m	30m	1000m
Policy No DC 3.5 (WAPC, 1995) – Sheds on a new poultry farm	500m (or future urban)	300m (or future rural residential zone)		100m	100m	

Figure 5.3 External Buffer Distance Requirements for a Broiler Farm based on WA DEP Environmental Code of Practice Poultry Industry (1991)

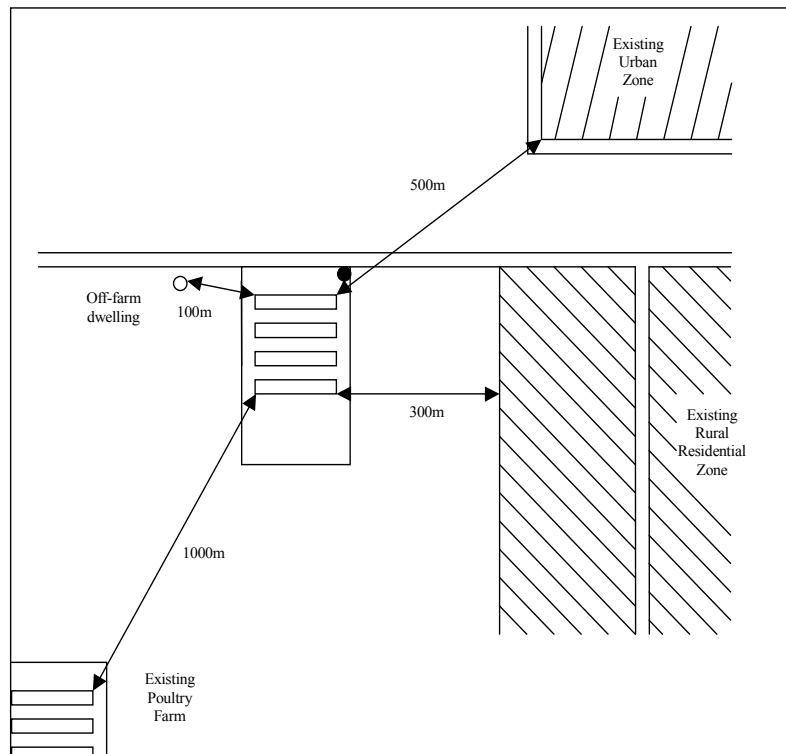
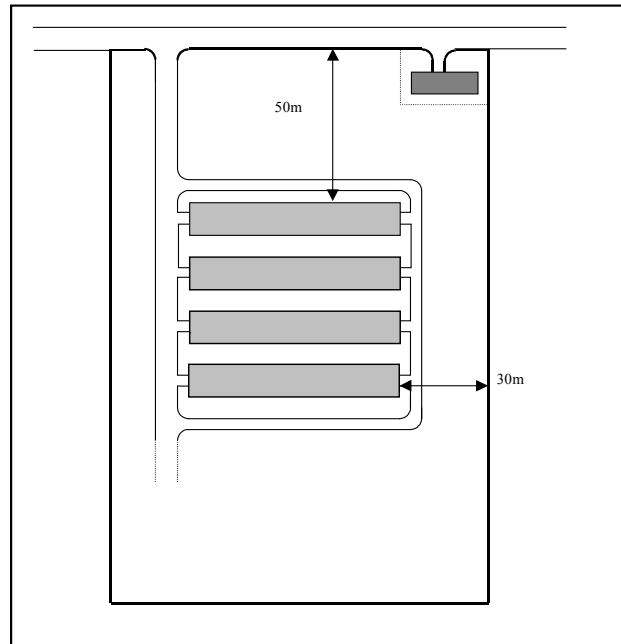


Figure 5.4 Internal Buffer Distance Requirements for a Broiler Farm based on WA DEP Environmental Code of Practice Poultry Industry (1991)



5.2.2 Policy No. DC 3.5 Poultry Farms (1995)

In Western Australia, by recommending that a buffer area around poultry farms be maintained unless suitable evidence can be provided, the DEP's Poultry Farm Code of Practice caused anxiety amongst urban developers. This eventually led to the Minister of Planning establishing a subcommittee to review buffer distances. With the subsequent release of the draft Policy No. DC 3.5 Poultry Farms in 1993 by the State Planning Commission, the Minister for Planning contacted the poultry industry for comment. In response to a high degree of concern, a committee was established to undertake a more detailed review of the policy. Industry's main criticism was that blame was being directed towards poultry farmers, ignoring the fact that conflict only developed following urban encroachment. While it was obvious that the industry was seen as a nuisance because of the potential for smell, noise, dust and flies, the emergence of conflict also reflected poor planning decisions. A reformulated policy was released by the Western Australia Planning Commission (WAPC) in March 1995 (WAPC, 1995). The policy recognised that the earlier EPA code had stated that a new dwelling proposed within 100m of existing poultry sheds should not be allowed. Thus the situation could develop where a poultry farmer owned 30m of the 100m, with 70m of the neighbouring property effectively sterilised from development. Given the arbitrariness of recommended buffers and issues of equity, Policy No. DC 3.5 required the 100m be included within the boundaries of a new farm (See Table 5.2 for the proposed buffer distances).

5.3 Ability of the Regulatory System to Address Land Use Conflict

The system of environmental regulation can be divided into three separate systems – the development approval process, environmental regulation and land use planning. The discussion that follows concentrates on the development approval process and environmental legislation, before Section 5.4 gives greater attention to land use planning.

5.3.1 Development Approval Process

In relation to the development approval process, farmers faced difficulty in expanding because of confusing policy statements, decision making duplication and poor communication between different government tiers. WAPC's *Policy No. DC 3.5 Poultry Farms* created uncertainty as it differed from the DEP's *Environmental Code of Practice*, and left local government in somewhat of a dilemma. Policy measure 4.1 of WAPC's document dealt with new farms, and indicated that new sheds were not to be permitted within 500m of an existing or future urban residential zone, 300m of an existing or future rural residential zone, and '100m of the boundary of the poultry farm to the nearest adjoining property'. In relation to the expansion of existing farms, policy measure 4.2 stated that 'new sheds on an existing poultry farm should be no closer than 100 metres to the nearest property boundary or closer than any existing shed to the nearest property boundary' (WAPC, 1995:3).

The application of these policies is particularly complex as it is logically difficult for a poultry farm to be 100m from the boundary of the nearest adjoining property. Rather than 100m between properties the intention was for poultry sheds to be a minimum of 100m from farm boundaries. In relation to the expansion of existing farms the wording of Planning Policy No. DC 3.5 is equally ill defined. Its intended meaning is that new sheds should be no closer than 100m to the nearest property boundary, unless a precedent has been established. One controversy that has emerged is whether this minimum precedent is transferable to other property boundaries on the same farm. Despite the industry arguing for this interpretation, the intention of the policy is that if sheds are constructed, say 40m, from one boundary then additional sheds should not be allowed closer than the same distance. Of added concern is whether the same interpretation applies when poultry sheds are 5m from property boundaries, given that the policy makes no reference to the DEP's Code of Practice. Conflict has also emerged where council has applied the 100m internal requirement to existing farms and refused expansion proposals. The poultry industry has instead argued that sheds should be approved unless they are proposed within 100m of an off-farm dwelling.

Although the broiler industry indicated that it had successfully appealed against refused development applications proposing additional sheds in recent years, an officer from WAPC acknowledged that it was important to look at the circumstances surrounding each proposal. In one case, the shed was permitted as WAPC didn't originally realise that the neighbouring property was a rubbish tip, and in another, a decision was overturned provided the proposed shed was located further from property boundaries. Although flexibly implementing buffer distances according to local circumstances has its merits, case study box 5.3 recognises the difficulties that may follow in the longer term.

Case Study Box 5.3 – Flexible Implementation of Buffer Distances

One broiler farmer had built his first shed in 1970 on a 5.3ha block, and had since expanded to 6 sheds producing 110,000 birds per cycle. Within 500m of the farm there were only 3 dwellings, as a large proportion of the surrounding area had been designated for native vegetation and wetland protection. The farmer indicated that he had not received any environmental complaints. A recent application to expand had been refused as the shed was to be constructed within 100m of a non-farm dwelling. This was despite the owner of the partly constructed building, that had only recently been approved, being unconcerned about the added potential for externalities. In this situation, determining whether buffer distances should be flexibly implemented remains a difficult dilemma. Often the attitude is that it is best not to allow the development to proceed because if the circumstances of the neighbours change, then favourable relations may quickly disappear.

The Western Australian planning system is notable for incorporating more decision making duplication than other Australian states (see Figure 3.2). Since 1994, any poultry shed proposed in a rural zone within the metropolitan area and over 100m² must be approved by local government for compliance with local town planning schemes and WAPC for compliance with the metropolitan regional planning scheme (MRS). The main reason is for WAPC to maintain control over the development of poultry

sheds in areas that are zoned rural under town planning schemes, but urban deferred under the MRS, because enterprise expansion may increase economic viability and extend the life of an inappropriately sited land use. Because of the duplication in the system, upon receiving a relevant proposal, local government may send the application to the Water and Rivers Commission, Department of Agriculture and Department of Environmental Protection. The application must also be sent to WAPC, who in turn may send it to the same government departments to facilitate its assessment under the MRS. For farmers, there is the distinct possibility that an approval may be received from council one week, only for a refusal to be received from WAPC in the following week, or vice versa.

Local government officers did not believe that duplication in the decision making process was cause for concern provided that council assessed applications according to their merits. In this situation it was likely that a similar conclusion would be drawn. Farmers were somewhat concerned about the systems increased centralisation, feeling that:

- * a more comprehensive application had to be implemented;
- * that local government was becoming redundant; and
- * that delays in decision making may occur, because you can at least approach council directly.

It is questionable whether duplication has resulted in farmers having to submit more comprehensive applications as it may equally reflect growing environmentalism. Case study box 5.4 provides one example of the difficulties farmers experienced because of duplication in the decision-making process.

Case Study Box 5.4 – Duplication in the Decision Making Process

In September 1997 one broiler farmer, who had owned a 12ha property in a rural zone that was surrounded by an intensive horticulture, grazing land and vacant land, submitted a development application to construct two additional sheds. Armadale City Council referred the application to the Water and Rivers Commission and the DEP who both gave their approval. In a December 1997 meeting of Armadale Council it was recommended informing WAPC that it had no objection to the proposed development (Armadale DSC, 1997:58). WAPC announced its decision to refuse the proposal in June 1998 believing the sheds to be contrary to Policy No. DC 3.5 (WAPC, 1995). They had argued that the sheds were less than 300m from an existing rural residential development, that they had insufficient side set backs and that its intensification would be detrimental to local amenity. The farmer, who was in the process of lodging an appeal, argued that the required distance to a rural residential zone applied to new farms rather than existing farms. Regardless of this the closest rural residential zone, which fell in the neighbouring LGA area, was approximately 550 metres from the sheds. An objection was also raised that the farm did not comply with internal buffer distance requirements, as the set back to the southern boundary of 11m would be equivalent to that to the north. WAPC's concern for amenity was questioned as traffic noise would not be significant. Although there would be a marginal increase in truck traffic, the majority of stock feed is delivered during the day. Further, the farm was constructed of non-reflective colourbond material, the normal operation of a broiler farm prevents fly infestation, and there is no evidence of poultry farms causing ground water contamination.

Irrespective of these arguments the farmer was uncertain whether the appeal would be successful because council had made a mistake in processing the application. Council had misunderstood its responsibilities and referred the application to WAPC believing decision making to be centralised. It was unaware that it was required to formally assess the application for compliance under the local Town Planning Scheme. The farmer was therefore required to re-lodge a second application for determination by council. Between initially applying and receiving notification that he must reapply, the neighbour, who owned the nearby vacant rural land, had applied to build a dwelling in full knowledge that the poultry farmer had applied for an expansion. A building licence was issued in July 1998 for a dwelling 97m from the proposed poultry sheds, which now no longer complied with the DEP's code of practice.

While some industry interviewees questioned the time taken to receive approvals others were more ambivalent. One farmer noted that the process was always time consuming, and that it couldn't really be improved in any way. Because council meets once a month, delays will occur unless the proposal can be placed on the agenda. Another felt that although achieving an approval seemed difficult at the time, in reflection it was normal. In this case council had met and decided that a DEP report was required which added another month to the process. According to one industry leader, time shouldn't be a problem, because if you are planning to build a farm for 30-40 years then you shouldn't leave it to the last minute. If you need to obtain the approval of a number of parties, including the processing company, and it is likely to take four months, then you need to plan four months in advance.

No serious problems were noted in relation to State Government departments, with some interviewees indicating they simply dealt with local government, or that the state agencies were fairly quick. No serious problems were experienced with the involvement of the DEP or the Waters and Rivers Commission in the assessment of development applications. Both were perceived to be involved with the threat of pollution to waterways and ground water contamination, which for some suggested a degree of overlap. Although poultry farms are not allowed on ground water 'priority 1' areas, they are assessed on their merits in priority 2 areas. That they are even considered reflects the fact that manure and dead birds are disposed off-farm, that concrete floors prevent leaching and that the industry is not seen as a major polluter. Another implication of this is that the industry does not have to submit an environmental impact statement with development applications. Representatives from the Western Australian Broiler industry indicated that they would have no problems if the Water and Rivers Commission was to introduce licensing for poultry farms because they have nothing to hide. Local government acknowledged that the DEP was unwilling to undertake a formal assessment of a poultry farm unless there was significant clearing of vegetation. DEP officers indicated that they would not formally assess poultry farms because they did not believe them to be an environmental risk and issues such as odour dust and noise did not warrant formal assessment.

Most farmers and industry leaders indicated that their main concern was with the implementation of the system rather than how it was designed. Local government was identified as the main stumbling block with respect to receiving an approval. Farmers suggested there were councillors who were anti-poultry, since the industry was either faced with a long list of consent conditions or outright refusal. Industry leaders augmented this conclusion acknowledging that council would vote against proposals to maintain public support, yet realised that their decision would most likely be overturned on appeal. Herein lies the advantage of the WA planning system for the poultry industry, as farmers can appeal directly to the Planning Minister at a cost that is much lower than the more formal Town Planning Appeals Tribunal. Interviewees were unaware of any poultry shed applications where appeals were directed to the Tribunal. This is reflective of the wider situation as approximately 90% of cases go to the Minister who is generally thought to be more compassionate to all forms of development. One reason for this is that the Minister does not have to provide written justification for any determination.

In the Shire of Serpentine-Jarrahdale it was noted that council responded to community concern following a spate of new poultry shed applications by outrightly refusing one proposal in early 1998. The case was subsequently won on appeal without consent conditions being applied. Since this case, the Shire has adopted a different approach as it has tended to approve poultry sheds on their merits and introduced more stringent development conditions. Consent conditions have included night time curfews on feed delivery trucks and \$4000-5000 bonds on landscaping. In recent years the council has indicated its preference for a 300m internal buffer distance, as opposed to 100m (Serpentine-Jarrahdale PSDC, 1998a). Table 5.3 provides evidence of the complaints submitted in relation to a recently proposed broiler farm to the south of the Shire of Serpentine-Jarrahdale.

In addition to politically motivated decision making, problems may develop because of the inability of local government to adequately plan for poultry farming or to appropriately assess applications. One difficulty relates to the classification of poultry farms in local planning schemes as poultry sheds are either designated as residential or industrial sheds. Where they are deemed industrial, fire systems are required despite the absence of combustible materials. One planning issue with the potential to cause

Table 5.3 Community Submissions Relating to a Proposed Broiler Farm (1998)

Complaint	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No objection	✓	✓													
Odours				✓						✓				✓	
Noise				✓					✓	✓				✓	✓
Dust						✓								✓	
Flies, including stable fly					✓		✓				✓			✓	✓
Pests						✓									✓
Amenity impacts														✓	
Land values				✓					✓						
Vehicles/traffic				✓		✓	✓	✓						✓	
Road damage						✓			✓		✓		✓		✓
Proximity to turkey farm			✓			✓	✓		✓	✓	✓		✓	✓	
Impact statement required								✓					✓		
Limitations on rural residential rezoning												✓			
Chemical use														✓	
Water table contamination															✓

Source: Serpentine-Jarrahdale Shire Council

problems for the poultry industry was the exclusion of farms from zones designated exclusively for horticulture. Were such zonings to occur, then the close relationship between poultry farming and horticulture would be affected, and quarantine concerns could develop if increased spatial concentration resulted.

Local governments understanding of poultry farming was also questioned. Apparently a common mistake was for council to confuse poultry farms with market gardens, when specialist poultry operations do not utilise manure on-farm. For similar reasons there was the misconception that poultry farms were associated with stable fly outbreaks around Perth when the main breeding ground is the off-farm disposal of manure (see case study box 5.15). A major difficulty for local government was in establishing the relationship between farm technology and externalities, with the DEP's code of practice failing to describe the benefit of different styles of shedding. It was further noted that although the code required litter to be removed it does not indicate how in any detail. Variation therefore existed between different farms as to whether high-pressure or high-volume water sprays were used. Such uncertainty has resulted in inconsistent assessment and consent conditions between local government areas. Where technological uncertainty hinders the approval process it was noted that additional scientific information needed to be developed to alleviate community fears. As noted in case study box 5.5, two possible improvements to the current regulatory system were identified by industry representatives.

Case Study Box 5.5 - Improvements to the Development Approval Process

Two possible options for improving the present development approval process were noted by industry representatives. Firstly, introducing a mediation stage earlier in the development approval process could help to address community fears or ignorance. By giving people a chance to sound their concerns and to allow the developer to present the application, it was thought that people could consider things with a more open mind. Secondly, if a poultry farm is proposed in a rural zone and complies with certain established criteria then it shouldn't be able to be refused. Established at a regional or state level then the concern for inconsistencies between LGAs could be addressed. If this type of policy was introduced then it was further suggested that mediatory stages wouldn't be required. Herein lies an important distinction between involving community in siting strategies and relying on government to initiate top-down solutions.

5.3.2 Environmental Regulation

The second area of concern relates to the system of environmental regulation. Under present legislation complaints tend to be addressed to local government as poultry farms do not require environmental licenses. Industry representatives indicated that the involvement of the DEP was limited, though it was acknowledged that it would become involved if a protracted dispute emerged. For instance, the DEP became involved when one Swan Valley poultry farm was changing from a breeder to a broiler farm, a change which involved the implementation of tunnel ventilation on a 10 acre block. With less than one hundred metres to the nearest non-farm dwelling in the direction that air was to be expelled, the DEP demanded that emissions be controlled to cushion the effect. Responding to a perceived lack of technical knowledge in controlling odour the owners responded by erecting large physical barriers to direct air flows. For council, obtaining the involvement of the DEP was reported to be more difficult with increasing distance from CBD Perth and if it was perceived that poor council planning had created the problem. An additional belief was that although the DEP would tell landowners what to do, they were more reluctant to issue notices under the *Environmental Protection Act, 1986*. Insufficient resources were thought to be one reason for this.

In response to complaints, appraisal was largely based on the DEP's code of practice with local government undertaking a visual assessment to ensure that a farmer was adequately disposing of manure and dead birds. As one farmer indicated, council officers look for the obvious things rather than going into the sheds and turning the manure over. Assessment tended not to be based on analysing different thresholds or performance standards. Some concern was noted in relation to the implementation of odour thresholds with industry representatives acknowledging that it was impossible to give a 100% guarantee that odour could be maintained below a pre-determined level. In one instance where noise readings were taken outside the bedroom window of one neighbour, it was suggested that insects were by far the loudest source. Council officers acknowledged their limited expertise in odour assessment, and that they could call in the DEP if a case warranted it. As case study box 5.6 indicates, some variation in the response of local government was reported.

Case Study Box 5.6 – Variation in the Response by Local Government to Environmental Complaints

Variation in the response adopted by environmental officers was noted with some being more knowledgeable and cooperative, while others were more dictatorial. One farmer indicated that local government generally discussed complaints with farmers with the aim of identifying possible solutions. If there was no cooperation then a stronger approach might be taken, including threatening prosecution. Another farmer acknowledged that local government can be quite dictatorial, perhaps stating that dead chickens must be removed or flies controlled within a particular time frame. Although farmers preferred the more cooperative approach, the difficulty for local government is that if a fly breeding source is discovered, only quick measures will prevent a more serious fly problem developing.

Industry representatives indicated that educating local and state government officials can be a never ending process. It was thought that new young graduates were often given responsibility for poultry farming because no one else was willing to deal with them. One implication is that new graduates can be quite peremptory in enforcing general pollution legislation. For the poultry industry this meant frequently explaining that farmers were doing their best and conforming to the present code of practice. Council interest in the use of chemicals to control odour was criticised by industry representatives as many have not been adequately tested and it is the intention of the industry to become chemical free.

Farmers were uncertain as to what powers local government possessed, with some suggesting that government could prosecute a farmer and others that it could close an operation down. Different farmers thought that local government wouldn't be able to close a farm but could make life difficult, for example, it could send inspectors out each day to check on flies, manure and management practices.

Uncertainty as to what authority government possessed would seem to reflect how uncommon it was for council to take the next step in dealing with problem farms. Farmers believed that most operators were doing everything possible to control odour because they did not want to get on the wrong side of government. The fact that egg farms were declared an offensive trade in 1969 and listed in Schedule 2 of the *Health Act, 1911*, means that they are to be inspected 3-4 times a year by local government to ensure their compliance with health standards. Management practices are therefore regularly monitored, though it was suggested that if a farm is not breeding flies or attracting complaints, it may only be inspected once a year.

Local government faces a number of practical difficulties in regulating poultry farms. For example, where complaints are lodged during the final weeks of the growing cycle, the birds may have been removed for processing before council officers can undertake an inspection. Another difficulty that may prevent officers from undertaking a more comprehensive assessment is in isolating the cause of wet manure, as it may reflect the health of the bird, feed quality or shed mismanagement. Farmers' relationships with their processing companies adds further complexity where the intensity of externalities is influenced. Not being specialists in the management of poultry farms, processors may be unable to suggest improvements and reluctant to admit their lack of knowledge. Despite these concerns broiler industry representatives acknowledged that it was in the interests of a farmer to do everything they could to control odour within growing sheds, as high odour levels have the potential to impact on bird health and feed conversion ratios.

Local government can address environmental complaints through various legislative approaches in Western Australia. Where a poultry farm has been approved and consent conditions implemented then local government has the authority to enforce these conditions or to prosecute for non-compliance. One reason why this might occur is that local government is often guilty of not rigorously enforcing conditions, at least until complaints are lodged, because of resource constraints. For example, given the period of time over which trees reach maturity, ensuring early compliance would appear critical. Where relevant consent conditions have not been attached to a construction approval, such as vegetation barriers or farm landscaping, they cannot be enforced as the DEP's code of practice is not a legal document. Council can address environmental complaints under the *Health Act, 1911*, *Fly Eradication Regulations, 1961*, and the *Environmental Protection Act, 1986*.

Health Act, 1911

If an egg farm, as an offensive trade, is creating health concerns or is unable to control odour then local government could decide against renewing the annual license. One farmer acknowledged a council indicated that if the farmer failed to renew the license, then council would not reissue a new one. Council's decision to withdraw the license is appealable to the Minister for Health. As broiler farmers tended to attract more complaints, it was noted that local government was concerned that egg farms required offensive trade licenses and broiler farms did not.

Under the powers delegated by the Health Act, 1911, local by-laws indicate that no person should create noise, dust or fugitive light to the extent that it causes a nuisance for other people. Once a problem or 'offensive matter' is identified, notices may indicate that the problem is to be rectified or else a farmer will be prosecuted and fined up to a maximum of \$1000. One council officer indicated a reluctance to use the regulation as Section 181 (3) of the Act requires local government to itself undertake the specified action, should it not have been carried out, and then recover the costs. Without careful implementation a complaint could quickly result in litigation. Another government officer indicated that it would be difficult to prosecute farmers for causing an odour nuisance because it would be difficult to find a solicitor willing to accept the brief.

Fly Eradication Regulations, 1961

In 1961 the Health Act, 1911 was amended to include the Fly Eradication Regulations. The regulations provide council officers with the right to provide written notice that certain measures be undertaken to

control or eradicate flies and to prevent flies from breeding within a specified time period. Fines liable were to be no less than \$100 in the first offence, \$200 in the second, and \$500 in the third, though less than \$1000. Industry representatives expressed concern because prosecution could occur if a farmer was only attracting flies. During interviews with Health Department representatives it was revealed that the fly eradication regulations were not intended to be relevant to the poultry industry, but more to the end user of poultry manure. As noted in case study box 5.7, local government has applied them as a last resort to regulate poultry farms causing nuisance by threatening prosecution. Proposals to increase the fines associated with the regulations and to implement on the spot fines to manage stable fly outbreaks in WA should therefore be cause for concern for the industry (see case study box 5.15).

Case Study Box 5.7 – Use of the Fly Eradication Regulations to Regulate Egg Farms

For one farmer who was located in the south east corridor, a second farm was operated in the nearby Shire of Kalamunda. Although the Kalamunda farm did not attract odour complaints it had faced complaints relating to flies. Along with another egg farmer, council had summonsed them to appear in court for breaching the Fly Eradication Regulations of the Western Australian *Health Act, 1911* (as amended). The farmer indicated that the council threatened to take further action under the fly regulations for 18 months, during which time it demanded certain actions be undertaken. Conditions included spraying all manure once a week and removing manure once a year, whereas it could be left for five years in a high rise operation. Despite informing council that appropriate fly control and odour management involved protecting the beetles that help to break down manure, the farmer's arguments were overlooked.

Environmental Protection Act, 1986

Under the Environmental Protection Act, 1986, local government is empowered to take measures to determine whether a farm is in breach of the noise standards for rural areas and to issue noise abatement notices. A person who does not comply is causing an offence and can be prosecuted. To date no such measure had been taken. Reports suggested that poultry farms have, to date, been exempt from a number of different noise requirements (see case study box 5.20).

The application of the *Environmental Protection Act, 1986* to odour complaints received different responses. Council officers indicated that it would be easier to regulate poultry farms if they were a prescribed activity because management practices could be prohibited or restricted. Difficulty in determining whether odour levels are offensive may result in local government threatening prosecution if certain activities are not undertaken, and then referring the complaint to the DEP if no changes are made. The difficulty, even for the DEP, is that odour remains subjective as there are no stated odour thresholds that can be readily enforced. Other difficulties relate to whether odour constitutes a health risk. For this reason if a farmer is operating according to the Environmental Code of Practice, then there is little that local government can do. According to one DEP officer it was possible to make the distinction between the smell of 100,000 warm birds with fresh litter, the smell of wet putrid litter and dead birds. Where a farm was clearly causing a problem, then it was possible to prosecute under the Environmental Protection Act, 1986. The relevant information to convince a magistrate would include litter samples from inside sheds, written complaints from neighbours and photographs of the property, including piles of manure.

By way of conclusion, because the local governments interviewed had not been involved in long running complaints, it was difficult for officials to comment on how the system could be improved. Even though a number of limitations of the existing system have been identified, the need to introduce stronger measures was questioned. Legislating the code of practice was one option. However, council officers indicated that farmers had generally willingly adopted it or that there was not a lot more that farmers could do. In relation to the broiler industry, council officers identified self-regulation as one reason for this. Officers from the DEP thought that farm management practices have improved, that offensive odours have decreased and that complaints generally reflected the unpleasantness of fresh

excreta and warm birds. Though as noted by industry representatives and Health Department officers, there were still a number of poultry sheds that were not conforming to best management practices.

Mediation

Farmers were uncertain of what conflict mediation procedures were available. Local government officers indicated that there was nothing relating to conflict mediation in the *Environmental Protection Act, 1986* or the *Health Act, 1911*. Awareness of the *Agricultural Practices (Disputes) Act, 1995* was limited at the time of interviewing. The Act was criticised by one local government official for being just another process biased towards farmers. Where a farmer is deemed to be using normal farming practice, then concern was raised as the complaint may be thrown out, regardless of whether the complaint has valid aspects or whether normal farming practices could be adapted slightly. Though, as noted in case study box 5.8, the Act stipulates that mediation is to occur prior to a formal board hearing. Some farmers thought mediation would be an important tool and that through negotiating improvements to management, middle ground could be found. Others were more hesitant realising that if people were unreasonable, unwilling to participate, or if neighbours simply disliked one another, then mediation would be unsuccessful. The attitude of industry leaders was also mixed. In contrast to those who saw mediation as a cost-effective method for resolving conflict, others thought it would be difficult to establish a middle ground where expensive capital investment is required. At the time of interviewing it was too early to evaluate the impact of the *Agricultural Practices (Disputes) Act, 1995*.

Case Study Box 5.8 – Agricultural Practices (Disputes) Act, 1995

In WA, the *Agricultural Practices (Disputes) Act, 1995* was implemented in June 1996 to provide for the resolution of rural land use conflict between farmers or farmers and rural residents. The Act endeavours to achieve this through three key mechanisms: firstly, through a mediation process, secondly, through a tribunal hearing and, thirdly, through a full meeting of the Agricultural Disputes Board where a ruling on normal farming practice is made. The resolution techniques contained in the Act are significantly different, because while mediation encourages neighbours to compromise, the latter mechanisms involve top down decisions by appointed officials. The Act does not represent a 'right to farm' style legislation as the disputing parties do not lose the right to undertake litigation. Instead, these rights are simply postponed while mediation occurs. After paying a \$100 administration fee, a neighbour can only raise concerns about a specific range of nuisances including odour, noise, dust, smoke, fumes, fugitive light and spray drift from agricultural properties. The land from which the complaint emanates must be located in a rural zone. In promoting mediation to resolve land use conflict involving agricultural operations the Act is quite unique in Australia.

The role of community approaches, such as Landcare, was questioned. Planting vegetation was not seen as the ultimate solution as conflict existed near farms surrounded by trees. Local government also criticised the effectiveness of vegetation for not really preventing odour or noise and for not resolving conflicts which had a long history. Others thought that vegetation nevertheless played an important strategy in improving aesthetics, and that 'out of sight out of mind' remained an important principle. Rather than the ultimate solution, mediation did not reduce the need to plan appropriately, local government officials suggesting that there was no middle ground and that conflict could only be resolved by buffer distances or one party deciding to relocate. Evidence of the need for effective planning is provided in case study box 5.9.

Case Study Box 5.9 – The Case of Raintree Broiler Farm in the City of Gosnells.

Following the release of a corridor plan in 1970 to direct Perth's future growth, a structure plan was prepared for the south east corridor in 1978 to identify the most appropriate location, scale and sequence for urban development. The State Government subsequently gazetted major amendments to the Metropolitan Region Scheme (MRS) in December 1978 (Amendment No 250/31) and 1980 (Amendment No 300/33), which involved rezoning formerly rural areas in the City of Gosnells to

urban and urban deferred. The Metropolitan Regional Planning Authority (MRPA) received several submissions from poultry farmers, including the owners of Raintree broiler farm who stated that:

Rezoning of subject lands to Urban Deferred will limit the future use of land, lead to a reduction in land value and be generally detrimental to the business operations. Express concern at possible rate increases. (MRPA 1980: Submission No 7).

After considering the evidence, the MRPA indicated that it was satisfied that the proposed amendment was in the public interest and that it was necessary for the orderly and proper planning of the locality. It concluded that poultry farms would possess non-conforming use rights and may be able to negotiate urban farmland rates with local government (MRPA, 1980). Clearly the potential for land use conflict was overlooked.

On the 5th of April 1989 the State Government subsequently rezoned the land around Raintree broiler farm to residential under the MRS. The broiler farm, which was 3.2ha in size, had been operating since 1976. To comply with the MRPA, the City of Gosnells rezoned the land to urban in September 1989 by amending its town planning scheme (TPS). Importantly, Town Planning Scheme No. 17 made no reference to the poultry farm or to relocating non-conforming uses (WABGA, 1994). With the area surrounding the farm zoned as urban under the MRS and the local TPS, a series of approvals were given for adjoining lots to be subdivided. As a result, over 300 lots were developed within 250 metres of the farm, with 14 dwellings being constructed within 30 metres of the existing chicken sheds. These residents were in turn subject to an array of problems including dust, noise, odour and property devaluation. As a result the farm attracted significant media attention and television coverage in Western Australia (Gosnells Community Comment News, 9/5/1996).

Various reasons have been proposed for why development was allowed along the boundary of the poultry farm. On the one hand it is argued that council made no mention of the poultry farm to the state planning department when the subdivision was being assessed and, accordingly, it was not identified as a land use constraint and was never referred to the EPA for consideration (WABGA, 1994). A similar argument was that council was at fault for calling the operation an intensive horticultural operation instead of a poultry farm (Australian Chicken Farmer, 1993; Birkhead, 1992). Alternatively, it has been suggested that the EPA was consulted and that they dismissed the potential for conflict. Regardless of these arguments it is difficult to restrict a conforming development where land has been rezoned for a particular land use. While urban residences in close proximity to the poultry farm may have been prevented by informing potential neighbours, residents argued that developers gave the impression that the farm would be relocated in the short term.

Facing rising levels of complaint that were difficult to resolve because of the limited separation distance in the mid-1990s, Gosnells City Council proposed acquiring the farm. It indicated that it would provide funds equivalent to what it could acquire following the farm's subdivision into 45 lots and that the Commission should fund the difference between the purchase price and the sale price. By August 1995, the Planning Commission had decided against contributing to the purchase of the farm, with the exception of purchasing a portion of parkland required under the Metropolitan Region Scheme at a cost of approximately \$45,000. Instead it indicated that the City of Gosnells should use its powers under the provisions of Town Planning Scheme No. 17 to purchase the farm or to implement a specific area rate under Section 548(4) of the *Local Government Act, 1995* to the area subject to TPS No. 17. The Council considered this unacceptable as the Minister for Planning and WAPC were partially responsible for approving the initial rezoning and subdivision of land. In a September 1995 meeting the Council decided that it would not proceed without financial assistance from the state (Gosnells PSC, 1995c). It wasn't until July 1996, when WAPC increased its contribution to \$500,000, that the council was prepared to make a final offer of \$1.45 million to the owner of the broiler farm (Gosnells PSC, 1996:79). An agreement was reached to close the farm by 22nd April 1998. Although the farmer applied for an extension to this date following problems in obtaining approval for a new farm in March 1998, the request was refused (Gosnells PSC, 1998).

Despite suggestions from council that the farmer was holding them to ransom, industry representatives indicated that the full cost of relocation had not been covered, the property itself was valued at \$1.525million in 1994 (Gosnells PSC, 1998:9). Public pressure and the stress placed on the farm family encouraged the grower to accept the offer. In paying the farmer to relocate, the Planning Commission made it clear that it was not establishing a precedent.

5.4 Issues Relating to the Relocation of Poultry Farms

5.4.1 Attitudes towards relocation

The attitude of farmers towards the possibility of relocating from their present site to a new location varied (see Appendix XI for a range of different poultry farmer attitudes). Commonly noted difficulties related to property size, as it was questioned whether the capital that could be realised would be sufficient to fund the cost of relocation. This clearly becomes a greater problem where farmers are required to invest in larger properties to satisfy internal buffer distance requirements. In relation to egg farming there was the added difficulty of having to purchase additional bird quota to achieve the economies of scale required to make relocating financially viable. As noted in case study box 5.10 one alternative option is to join a syndicate farm. Another factor discouraging egg farmers from relocating was the threat of deregulation. On the one hand, investment was thought unwise if deregulation was to occur in the near future, and on the other, relocation wouldn't be viable if deregulation occurred. Their views were influenced by an overwhelming negative attitude to the impact of deregulation on farm returns on the east coast of Australia. Finally, relocation may be viewed negatively because it has become increasingly difficult to invest in outer fringe areas. Case study box 5.11 provides one example of the land use conflict that can emerge in more remote rural areas.

Case Study Box 5.10 – Relocation in the Egg Industry by Establishing a Syndicate Farm

The future structure of the Western Australia egg industry underwent a sudden change towards the end of the 1990s when six urban fringe egg farmers decided to aggregate their individual 30,000 bird quotas, and to construct one large syndicate farm of approximately 180,000 laying hens. They acquired a 380 acre block of land in the Shire of Gingin 100km north of Perth. By combining their quota it was possible to achieve a production level which enabled economies of scale to be achieved in purchasing a larger rural property. The benefits include greater labour flexibility in the management of hens, because the constant production of eggs provides few holiday opportunities for individual family farmers.

Egg farmers suggested that additional syndicate farms may be developed, with interviewees indicating that they would willingly belong. Other farmers were more circumspect indicating that the formation of a syndicate farm will depend on whether like-minded people existed in an industry fragmented by age, ethnicity and personal beliefs. The future deregulation of the industry raised additional questions, with the allowable quota being increased from 30,000 birds to 75,000 to pave the way for regulatory change. While noting the cost involved in purchasing additional quota, this potentially allows farmers to achieve the economies of scale required to make relocation viable. It also suggested that it was possible for 11 farms, each housing 75,000 birds, to satisfy the demand for eggs in Western Australia.

Case Study Box 5.11 – Land Use Conflict on the Outer Urban Fringe

One farmer who operated a broiler farm to the south of the Shire of Jarrahdale-Serpentine indicated that conflict had been experienced with one neighbour. The farmer had purchased a contract from a retiring farmer and finished constructing a 50acre, four shed, 133,000 bird broiler farm late in 1994. It was the first new farm to be constructed in the Shire for more than a decade and was approximately 65km from Perth. The farmer had one of the most efficient conversion ratios in the Steggle's Group and had invested in over 3000 trees. His intention was for people to drive past the

property and to wonder what was there rather than to see the farm and think poultry. Despite having no houses within 500 metres of the property, the farmer indicated that one neighbour would seemingly complain to council whenever he got the chance. During one verbal incident, the neighbour allegedly indicated that he would remain long after the farm had been removed. Following one complaint, the farmer showed the environmental officer a bale of maggot infested rotting hay on the neighbour's property. It was noted that since council told the neighbour to remove the offending bale the intensity of conflict had decreased. The main cause of conflict was thought to be the determination of the neighbour to subdivide his property in a rural zone. At one point the neighbour had suggested that the broiler farmer purchase his property for \$400,000 when it was known that it had been bought for \$128,000. One reason why conflict might have risen in the following situation relates to the positive impact poultry farmers may have on land values, especially where the number of suitable farm blocks is limited. Local government officials indicated there were instances where farmers had encouraged conflict by paying too much for land, and thus artificially increasing the expectations of surrounding landowners. When they attempted to sell at the inflated price, they complained that the neighbouring poultry farm was depreciating land values.

Different responses were collected relating to whether there was a role for government in relocation. Although one broiler farmer thought relocation was viable if assessed in the long term, and could use the contract relation as security, farmers were generally of the opinion that if government wanted a farmer to relocate then some assistance should be given. A second argument was that it is the role of government to harmonise relations between neighbours. Presently this involved providing drainage, sewerage, open space and roads to minimise social conflict. Based on similar reasoning, it was suggested that government had a social responsibility to remove incompatible land uses to encourage community harmony. According to this argument, relocating a poultry farm is no different than providing for community infrastructure as both add to quality of life. Thirdly, it was suggested that government should attempt to rationally plan for poultry farming, as the alternative cost of compulsory purchase would be far greater.

Arguments against government intervention, focused on the fact that farmers should have seen encroachment coming. In addition, since poultry farmers are dependent on markets created by an expanding population, they are under some obligation to relocate when land is required. The reality is that such arguments may simply prolong conflict as they fail to address equity issues. Farmers, in relocating, may be exposed to a financially inferior situation and forced to face social costs in terms of access to schools, shops, employment and friends. As one industry representative indicated 'why should we go bankrupt to allow developers to make a quid'.

5.4.2 Poultry Farm Relocation Working Group

In May 1995, the State Government initiated a Poultry Farm Relocation Working Group (PFRWG) to investigate the issue of relocating poultry farms. Its formation was prompted by reports that if a 500m buffer distance was enforced around all existing poultry farms, then as much as 30% of the land designated for future urban growth could be sterilised. Figure 5.4 provides evidence of the large number of poultry farms that are currently in the path of urban expansion corridors to the north, north east, south east and south of Perth as outlined in the Metroplan (WADPUD, 1990). This section outlines the findings of the Group, State Government's reaction, and industry and local government responses to this determination.

The PFRWG consisted of representatives from WAPC, Ministry for Planning, Department of Agriculture, DEP, local government, development industry, processing companies, Western Australian Broiler Growers Association (WABGA) and the Poultry Farmers Association (PFA) which represented the interests of egg farmers. PFRWG recognised that in the traditional process of urban expansion, poultry farms would respond to changing circumstances by relocating to the outer urban fringe. Given favourable market forces, it was thought that the majority of poultry farmers would continue to relocate on their own. Other farmers were identified as facing greater difficulty because they had over-capitalised by investing in a large number of poultry sheds on a small property. In this situation the

capital recovered from selling the existing holdings would not cover relocation to outer areas. Because each farmer was in a different situation the need to identify how farms facing exceptional problems could be relocated was recognised. The identification of problem farms was not based on any detailed financial analysis, but more the realisation that urban expansion would at some point overlap existing poultry farms. Three main objectives stated below were formulated and are examined in more detail in the following discussion.

- Identifying all existing poultry farms in the path of future urban development
- Developing strategies to relocate poultry farms away from land required for future urban development
- Determining land in the vicinity of the metropolitan region which was suitable for the long term relocation of poultry farms

Objective 1: Identification of poultry farms in the path of urban expansion

The first objective facing PFRWG was to identify the present location of poultry farms and to then overlap this with WAPC's metropolitan scheme showing the projected direction of Perth's urban expansion. This information was readily obtainable from the broiler industry, though less forthcoming from the egg industry. In 1994, WABGA had compiled a detailed submission on the structure of the broiler industry, the location of contract farmers, surrounding land uses and possible ameliorative measures to overcome urban encroachment for the state planning department (WABGA, 1994). The same level of information was not available from the PFA and the Golden Egg Board was reluctant to release producer details because of privacy constraints.

Areas within the four urban corridors, as proposed by the Metroplan and the earlier corridor plan, that were designated as urban, urban deferred or with the potential for long term conversion were identified. The two maps were overlaid to identify which farms would need to be relocated in the short term (within five years), medium term (5-10 years) and long term (over 10 years). Of the 150 poultry farms located in the Perth metropolitan area (including breeder farms, turkey farms), 57 were identified as being located in or near the path of future urban growth. The identified farms consisted of a mixture of broiler, egg and turkey farms, located across a number of different LGAs. It was estimated that 20 of these would need to be relocated over 0-5 years, 20 in the medium term and 4 in the longer term. The remaining 13 were expected to relocate on their own or with the assistance of developers. Of the 20 that needed to be relocated in the short term, 7 egg farms were located in Gosnells, 5 egg farms in Rockingham, 3 egg farms and 2 broiler farms in Swan and 3 egg farms and 1 broiler farm in Wanneroo.

Although the scale of investment in an egg farm was generally less than a broiler operation, a large number of egg farms were identified as problematic because the owners were more reluctant to relocate. The inner urban fringe is more important to the egg industry, with the identified farms often dependent on a lucrative roadside trade. In contrast, it was recognised that the broiler industry was generally willing to relocate, but that it might require some financial assistance.

Objective 2: Strategies to Assist Relocation

The PFRWG explored a number of different alternatives for addressing urban fringe conflict involving poultry farms.

- 1) Do nothing, allowing urban encroachment to occur whilst hoping that this creates pressure for farmers to relocate. This planning approach was deemed irresponsible as it would create unacceptable levels of conflict over an uncertain time frame.
- 2) Preclude any development within 500m. This was seen as ineffective as it had the potential to sterilise a larger area of land indefinitely.

3) Allow encroachment to occur but require a land caveat to be attached to allotments warning prospective buyers that they might be subject to unpleasant externalities. The effectiveness of this approach was questioned because caveats do not stop people from lodging complaints.

4) Introducing a levy on farm produce to assist relocation. This approach was criticised by industry from an efficiency point of view, as it would undermine their competitiveness in comparison to the eastern states. From an equity perspective, it also ignored the fact that only some farmers were affected and that those that had made wise investment decisions would be unfairly penalised.

5) Encourage local government to implement a guided development scheme that financially assists relocation by levying new allotments. This strategy was criticised because it required a substantial amount of initial capital. From an efficiency point of view, the broiler industry requires a continual supply of meat birds to ensure that processing lines are operating at full capacity. This may be affected unless produce can be removed from the inner fringe farm a week before new chicks are delivered to the newly constructed outer fringe farm. One impediment to relocation is therefore having sufficient capital up front to invest in land and new sheds, prior to selling the existing property. Local government opposed the option of providing capital and developing the vacant land to regain the initial outlay, arguing that the development and marketing of land is not its traditional role. An additional concern for local government was that by relocating poultry farms it would set a precedent for other noxious activities.

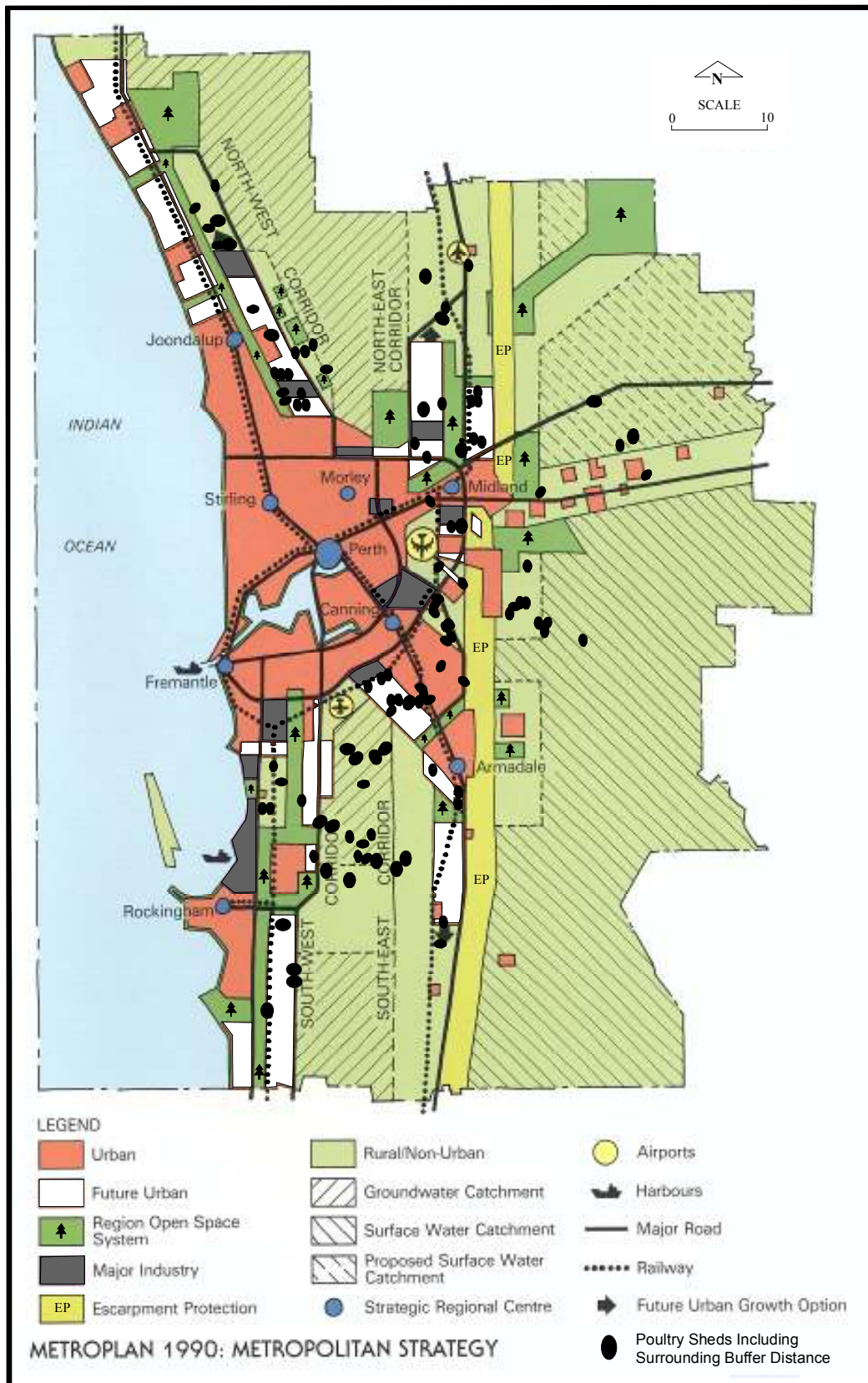
6) Encouraging greater State Government involvement. Under section 37A of the *Metropolitan Region Town Planning Scheme Act, 1959* WAPC with the agreement of the Minister and Governor, could declare a poultry farm and the surrounding area an 'improved plan area'. Once contained in an improvement plan, WAPC could use the Metropolitan Region Improvement Fund (MRIF) to purchase the farm and to then develop, subdivide and sell the land. In addition to the complicated and lengthy administrative and legal procedures involved, creating a precedent for other noxious activities was again a concern. The Planning Commission was reluctant to use the MRIF to purchase land other than that reserved under the MRS for public benefit including highways, regional parks and state forests. WAPC had not in the past used the fund to purchase land for private residential development and argued that a line had to be drawn somewhere.

After assessing the identified options, the Working Group proposed that the best option involved establishing a fund to finance the relocation of affected poultry farms and to then recoup the money expended by levying land subdivided within the buffer zone. This was despite the concept being rejected by the Urban Development Institute who argued that developers could not sustain any additions to present infrastructure costs and planning scheme requirements. Three key principles of the PFRWG proposal are addressed below.

1) Setting up a relocation fund for the affected poultry farms

Three options were proposed for creating a relocation fund. The first proposal involved local government declaring a special area around a poultry farm and levying properties or development lots within this area. When sufficient funds had been accumulated the farm could be given assistance to relocate. Alternatively, local government could finance relocation through borrowed money and repay loans through subsequent 'special area' levies and developer contributions. Under this option it is likely that the land would be developed for residential purposes more quickly and thus enable local government to increase rateable income. The second proposal involved WAPC applying for loans from State Government consolidated funds to establish a sinking fund, which could be used to assist relocation and then be replenished when funds were collected from lot contributions. The size of the precinct would be determined by the funds required to assist relocation. Rather than a continually replenishing fund, the third proposal involved WAPC applying to the consolidated fund on a case by case basis. PFRWG preferred the second option because farms at times may need to be quickly relocated.

Figure 5.4 Location of Poultry Farms in the Path of Perth's Future Urban Expansion (WADPUD, 1990)



2) Relocation costs to be limited to the cost of establishing a model farm with the present number of birds

The second principle dealt with the cost of relocation. Concerns related to the extent that financial assistance should pay for the total cost of relocation, including the development of a model size farm. For example, arguments that poultry sheds depreciate over time and are likely to be written off after 20 years, were thought to ignore the fact that they may still function adequately and that relocation involves a considerable capital outlay. WABGA was in favour of the full cost of relocation being financed (Birkhead, 1992). The main problem that needs to be overcome is that a grower is moving from a position of relative security to one that is more financially insecure. Whereas an existing farmer has the equity in land to fall back on, relocation may require a large loan to purchase land, technology and equipment. Relocation may involve the loss of equity, savings and a considerable step backward in one's lifecycle. It was suggested that this was one reason that few existing farmers had actually relocated. The broiler industry was noted to be different from the egg industry in this respect, as egg farmers can always fall back on the capital invested in bird licences to realise money, at approximately \$28 per bird. For this reason it was suggested that egg farmers should be more confident in making the decision to relocate. The above argument assumes that contracts transfer between broiler growers without a price being paid, or that there is no goodwill component in the exchange. One interviewee indicated that there was an inherent value in a broiler industry contract which is currently estimated at around \$2 to \$3 per bird.

Two relocation proposals were presented to the WAPC, differing in relation to the level of financial assistance to be provided. The first referred to funding the cost of establishing a model sized farm (7483m²), with the second and final draft based on the principle that no one should benefit excessively from the relocation process. Assistance would therefore be limited to the cost of establishing sheds capable of holding the same number of birds, with each farmer having to fund the difference if a model broiler farm was to be developed. With relocation costs estimated at \$142.48m² for the broiler industry and \$40.02 per bird in the egg industry, a total capital fund of approximately \$10 million would be required, although the actual capital requirement would be less due to the cyclical nature of the funding.

3) Implementation of incentives to encourage relocation

Perhaps since relocation would only be partially funded by government, the third principle acknowledged that additional incentives were necessary. One suggestion was that local government should give consideration to allowing farmers to temporarily continue to retail eggs on the existing farm. A second suggestion was that the broiler industry should make arrangements for affected farms to produce increased numbers of birds until the new farms are fully relocated (assuming that relocation occurred in stages). Another way farmers could obtain additional capital to finance relocation, was for local government to zone the farm area for medium density development. To overcome the time delay between financing relocation and receiving development levies, a fourth possibility was allowing subdivision to occur on the proviso that the farm would be relocated within a specified time period.

Objective 3: Identification of Land Suitable for Farm Relocation

The PFRWG's third objective was to identify areas that would be free from urban pressure for at least forty years and which satisfied a number of selection criteria. Because of the integrated nature of the broiler industry, and the need to minimise transport costs, perhaps the most influential criterion was maintaining a 50-60km radius from existing feed mills. Because the egg industry did not display the same degree of vertical integration, location was of a lesser importance to the safe carriage of eggs. Although proximity to Golden Egg Farms grading room and distribution centre to the south of Perth will have a bearing on costs, the state marketing authority is required by legislation to collect unsold eggs across a large portion of south west Western Australia, including the Perth Metropolitan Region. It was for these reasons that the identification of future investment areas was largely based on the requirements of the broiler industry. Important selection criteria included:

- * Land zoned rural in the MRS or rural in local government areas outside of the metropolitan region;
- * Land at least 500 metres from existing and future urban areas and 300 metres from existing and future rural residential areas;
- * Land located not in excess of 50-60km of the Perth central area;
- * Land which is located in sensitive environmental areas, including System 6 areas (land reserved for conservation and recreation), wetlands, water courses and areas of rare flora and fauna;
- * Land which is clear of future priority 1 ground water and surface catchment areas; and
- * The size of the lots is sufficient to provide a setback of 100m from poultry sheds to all property boundaries.

With a 50km circle drawn around feed mills centred in Welshpool in the south eastern suburbs of Perth and Wanneroo to the north, two relocation areas were identified. The first was to the north, towards the Shires of Chittering and Gingin, and the second was to the south within the Shires of Serpentine-Jarrahdale and Murray. The area to the east of the Darling escarpment was excluded for having poor access to water and inappropriate climatic conditions. Farms along the coastal strip also have the benefit of a coastal breeze. For similar reasons this area is appropriate for residential development, creating the problem of future conflict because as the city of Perth expands both urban developers and poultry farms demand flat well drained land.

The PFRWG participated in formal meetings with councils, with the exception of the Shire of Serpentine-Jarrahdale where a more informal meeting was held. It was perhaps for this reason that the latter Shire indicated that there was no record of being consulted. Although the Minister for Planning apparently wrote a letter asking for its attitude to poultry farming within its boundary, the council is unable to find the letter as it was never brought before the council. One participant on the PFRWG indicated that the Shire's main concern was for environmental issues, but that no major consultation occurred. Ultimately environmental issues, including the thin coastal strip, water catchment areas and distance constraints, restricted the number of suitable LGAs, even before consultation commenced.

Although the reasons varied, all shires were reported to have responded to the possibility of poultry farms with a degree of reluctance. The shires to the north indicated that they did not want the industry believing that it would be incompatible with the proposed future growth in rural residential subdivisions. The Shire of Murray proclaimed itself to be a dairying region to the PFRWG, indicating that the poultry industry would bring odour and other externalities into a more traditional agricultural area. Despite dairying producing odours, council indicated that unless the industry could guarantee that its impact could be contained within property boundaries it would be unwanted. The response of the Shire of Serpentine-Jarrahdale was reported to differ from the other LGAs as it was more concerned for the physical environment and the potential for contamination of waterways and catchment zones.

Determination of the Minister for Planning

Neither WAPC, nor the Minister of Planning, supported PFRWG's proposal for a sinking fund to assist in relocating poultry farms. The Minister agreed with the Planning Commission that it is not its function or responsibility to establish an ongoing fund to relocate poultry farms. A number of reasons were given, including:

- * It disrupts the process of poultry farms relocating on their own under the normal urban development process.
- * It gives the false expectation that every farm in the path of urban development will receive assistance from the 'sinking fund', when it is recognised that the majority will relocate on their own.
- * It is difficult to justify a 'sinking fund' for poultry farms without establishing similar funds to relocate other activities with the potential to impede urban development, such as piggeries, mushroom farms, feed lots, market gardens and rural processing industries.

In recognition that there are exceptional situations where it is impossible or impractical for poultry farms to relocate, the Minister indicated that the Planning Commission could use its own funds or apply to borrow from consolidated funds. This would involve each farm being assessed on a case by case basis rather than establishing an on-going relocation pool. To further distance the Planning Commission from any obligation, the Minister indicated that the issue, like any planning constraint, should be dealt with at the local planning level. By creating a guided development scheme it was indicated that local government could raise the necessary funds and plan for the best use of the farm (Gosnells PSC, 1996b).

Local government was critical of the Minister's statement for two main reasons. Firstly, it was acknowledged that the problem spanned across a large number of Perth's urban fringe local governments and should therefore be addressed at a regional level. The second concern was that the State Government, by being responsible for approving the rezoning of land, had intensified conflict levels and should therefore be actively involved in their resolution (Gosnells PSC, 1996b). Despite these concerns, a new State Government was elected in WA in 1996 with the new Minister for Planning indicating that market forces would eventually solve the problem. In arguing for more active state intervention, there was a realisation among the council officers interviewed that it was difficult to assist poultry without assisting other types of prescribed premises or noxious activities. With State Government hesitant to assist relocation, maintaining the 500m was seen as critical if market forces were to be stimulated.

Case study box 5.12 provides evidence of the difficulty that local government may experience in retaining buffer distances. Poultry industry representatives acknowledged that, following the problems experienced in relation to Raintree broiler farm in the City of Gosnells (see case study box 5.9), local governments in the metropolitan area were reluctant to allow development within the recommended 500m buffer distance. State support for maintaining a 500m buffer distance has been mixed, with the Minister for Planning having overruled the DEP's environmental code of practice and allowed urban encroachment to occur. In one recent case, in the City of Gosnells, where the buffer distance of two egg farms overlapped, the Minister had overturned the 500m guideline after the owner of one farm had proposed an urban development. Because the other farm was an egg operation it was thought that odour would be negligible and that fly breeding could be minimised by appropriate management. Support for buffer distances was seen as depending on the minister of the day, with past officials often unsupportive of the 500m despite objections from the Department of Environmental Protection. Interviews with WAPC officials revealed their support for separation distances to avoid conflict.

Case Study Box 5.12 - Problems in Restricting Urban Encroachment

One difficulty in preserving a 500m buffer is that a large amount of land is effectively sterilised from urban development without giving any attention to local conditions. Planners may face pressure to permit residential dwellings where developers' reports use local climatic patterns to estimate odour dispersal. In one example from the Shire of Swan, developers argued that there were no adverse impacts when they visited the site, that there was no history of complaints and that there was no need for a buffer. They ignored the potential for the intensity of production to increase over time and the nature of surrounding land uses, which included a golf course, playing fields and grazing land. An environmental investigation based on wind patterns was submitted arguing that residents of the proposed development would be subjected to nuisances for only 22 days of the year - the percentage of time in which annual winds were reported to blow in the direction of the proposed development. Accordingly, by simply orientating the houses, landscaping properties and constructing fences, the impacts could be reduced (Birkhead, 1992). The basis of these arguments was questioned by one council officer who acknowledged that odour is often at its worst on hot humid still days, when the plume remains intact and its drift unpredictable. Developers were reported to complain that appropriate odour dispersal models were not available and that there were no laboratories in Western Australia where odour could be assessed. Whilst one council officer suggested that it was relatively easy to refuse development applications as they were often based on wind impacts rather than odour modelling, another acknowledged that local government lacks

sufficient resources, including specialist skills. The latter stated that a developer's report may be referred to State Government departments for comment, where it is hoped that they have the time and commitment to offer suitable advice. The reality was that comments were often lacking in detail and decisiveness. A typical response would make one suggestion and then indicate that the presence of other factors may make the situation different.

Egg farmers interviewed acknowledged that government intervention was unlikely, and that market forces would most likely resolve the problem of land use conflict. As one farmer indicated, anyone who is waiting for government to assist relocation is foolish. Egg industry leaders offered similar opinions. While they were not against government assisting relocation, they thought it unlikely to occur. Broiler farmers, in contrast, were more supportive of an essentially strategic approach to farm relocation, perhaps because of the higher level of capital investment involved. Another reason may be WABGA's argument that poultry farms and residential dwellings are essentially incompatible, that people shouldn't have their development rights restricted, and that through rational planning the problem can be easily resolved. Case study box 5.13 provides an outline of the broiler industry's arguments for a strategic approach to relocation.

Case Study Box 5.13 - Industry Arguments for a Strategic Approach to Relocation

A strategic approach was identified consisting of several elements, which need not involve State Government financial investment.

1) It is imperative that government maintain a buffer distance around poultry farms to encourage developers to assist relocation. One difficulty is that the developer may have to pay a poultry farmer a higher price per acre than for other neighbouring land. It was suggested that this wouldn't necessarily be a problem, because, provided that the buffer distance is maintained, none of the neighbours within the buffer zone could subdivide.

2) An alternative option, which received the support of WAPC, was for council to create a guided development scheme, in which lots would be levied in a similar manner to which they were levied for drainage and infrastructure. If a 500m buffer was protected then potentially 2000 blocks could be created after relocation. If each was levied \$400, then an \$800,000 kitty would be created to assist relocation. Although local government complained about the administrative costs involved, it was suggested that consultancy costs could be extracted from the kitty. Another argument of the industry was that if relocation cost was unlikely to be met, the area over which lots were levied could be expanded. (This would appear to undermine the credibility of recommended buffer distances.)

3) Local government could assist relocation by implementing town planning schemes in a more flexible manner. Industry representatives indicated that each residential estate required a shopping centre that involved development at a higher density. If the poultry farm is zoned at this higher density, then developers will be willing to pay a higher price for the land, and thus assist the financial cost of relocation. One local government concern relating to this proposal was the fact that demand for higher density developments may not be appropriate where the poultry farm is not located near a major thoroughfare. Where the actual site of the poultry farm is inappropriate, then transferable development rights (TDRs) could be introduced. Although transferring development rights to a commercial area was theoretically possible, council officers believed the concept would represent a significant challenge. TDRs would also contradict the current ethos of limiting government interference in normal market functions. It was further recognised that experience in the implementation of TDRs has been limited and that the resources and skills required may surpass those held by local government.

4) Broiler industry representatives recognised the need for the industry to assist the relocation process. There appeared to be two ways in which this could occur. Firstly, processing companies could strategically offer additional sheds to farmers, who were considering relocating, to decrease

the time over which relocation would be viable. Secondly, the chicken meat industry is not against relocation, and has adopted the internal requirement that there should be no resistance to urban expansion. If a developer offers a reasonable deal, which need not include compensation for social costs of relocating, then the farmer should agree to the package. As one farmer indicated, if you are offered a satisfactory amount and you don't take it, then this is unreasonable and you may lose the future support of the Association.

Despite arguing that government should adopt a more strategic style of planning, it appears that developers have assisted poultry farms to relocate or to leave the industry. In other cases agreements have been reached with processing companies to assist relocation.

5.5 Strategies Adopted by the Poultry Industry to Address Conflict

In reviewing industry activism in the WA poultry industry, three key issues need to be investigated in relation to both the chicken meat and egg industries: the response of farmers to land use conflict, the role of off-farm interests in shaping environmental conflict, and the ability of both industries to adapt in the future (see Appendix XII for a range of different poultry farmer attitudes). These areas of interest are investigated first in relation to the broiler industry and secondly with respect to the egg industry.

5.5.1 Western Australia Broiler Industry

The broiler industry was identified by both local government and industry representatives as being one of the most pro-active agricultural organisations in WA, if not Australia. The current president of the WABGA was identified as being very politically minded, helping to both unite the industry and to argue the industry's case with government. Others were uncertain where the industry would be without the president, and whether the industry will be as influential without him as lobbying will need to continue. With high expectations of both farmers and the processors, it was noted that the president was willing to criticise farmers if they were not up to scratch, and to lobby hard for farmers facing difficulty in expanding. One farmer proclaimed that the broiler industry was second to none in terms of lobbying, political influence and the number of submissions to government. The president himself noted that the strength of WABGA reflected the support he received from both the processors and farmers. Local government officers also acknowledged that the industry was lucky to have the current president, as he was both pro-active and able to develop sound arguments.

While another officer suggested that his council had not experienced any lobbying and that it must be occurring at the state level, this is thought to reflect the lack of industry investment in certain LGAs. Rather than an interest group participating in different government committees, the broiler industry was identified as a key instigator. Case study box 5.14 provides the example of a recent Poultry Industry Information Exchange in Western Australia. WABGA has also been active in lobbying against urban encroachment around poultry farms. In 1991, WABGA sent a copy of DEP's Environmental Code of Practice to various local governments in the metropolitan area threatening legal action if buffer distances were breached.

Case Study Box 5.14 – Western Australia Poultry Industry Information Exchange

In September 1998, the Western Australia broiler industry organised the Poultry Industry Information Exchange as a one-day conference to be attended by industry, local government and State Government departments. During the morning session government agencies, including the Planning Commission, DEP, Rivers and Water Commission and the Agricultural Disputes Board presented their current policies and commentary on proposed changes. An afternoon field trip offered those in attendance the opportunity to visit a number of new broiler farms in the Shire of Gingin, where the operation of a normal farm and the possible industry standards were described.

One issue discussed at the Poultry Industry Information Exchange was a complete ban on the disposal of raw manure on market gardens and broad acre farming, with a preliminary dead line set for December 1999. The ban was adopted as a method to control the outbreak of stable fly in WA. As a result the broiler industry was actively exploring options for the disposal of poultry manure, with options including methane power generation and composting by the total industry. An outline of the concerns relating to stable fly outbreaks is presented in case study box 5.15. Already, the WA broiler industry has solved the issue of dead bird collection, such that no dead broilers are buried or incinerated in the state. It remains the only Australian state to employ an industry wide collection service that operates 6 days a week to transport dead birds to the Talloman rendering plant, located in Hazelmere in Eastern Perth. During 1998 a cool room was added to the cost of production for new broiler farms to allow dead birds to be appropriately stored on farm prior to their transportation. Previously farms had attracted odour complaints as dead birds had overheated in plastic rubbish bins.

At the property level, individual farmers have also been proactive in addressing conflict. One farmer recognised the importance of writing a submission where a new development was proposed in close proximity to a poultry farm. Rather than necessarily objecting, the intention was to encourage council to place notification on property titles to make people aware that they may experience noise and odours. Ensuring that local government was well aware that encroachment might impact on a farm's future viability was effected by hand delivering the letter, ensuring that its receipt was stamped and keeping a personal copy.

Case Study Box 5.15 - Stable Fly Management in Western Australia

The stable fly (*Stomoxys Calcitrans*) has been present in WA since the turn of the century but has only become a major concern since the late 1980s. With the female stable fly requiring blood in order to lay eggs, it is considered a major pest both in relation to the condition of short haired livestock and to the lifestyle of humans. The scale of the problem is unique to WA with complaints particularly widespread in the Shires of Wanneroo, Gingin, Kwinana and Serpentine-Jarrahdale. A stable fly management project was established in early 1996 involving both government and agricultural industries identifying possible breeding grounds. The working group established that the use of poultry manure on horticultural properties is a major source of the stable fly. In August 1998, PFRWG made recommendations to the Minister for Agriculture: firstly, banning the application of raw poultry manure to land after December 31, 1999; and secondly, the adoption of measures to encourage horticulturalists and turf farmers to implement best management practice. The Health Department of Western Australia recommended amending the Health Act, (1911) to raise fly breeding penalties under the Fly Eradication Regulations to a maximum of \$5,000 with a minimum fine of \$750 for a first offence. The proposal recognises that fines under the present regulations are too low to act as a deterrent and that local government was reluctant to initiate prosecutions as a result. Allowing environmental health officers to administer infringement notices similar to on the spot fines was recommended to reduce the time and costs involved in legal prosecutions (Cook *et al.*, 1998; Paulin *et al.*, 1998; Robertson, 1998).

The broiler industry was not without criticism from both industry and government representatives. Farmers noted that while WABGA promoted the planting of vegetation, some growers had apparently done nothing. Others suggested that some farms were a disaster and that the industry was in need of some constructive criticism. Local government officials recognised that the broiler industry had spent a lot of time selling the industry to local and state government, but less time improving relations with immediate neighbours and the community at large. One exception was a community meeting involving WABGA in the Shire of Serpentine-Jarrahdale chaired by a councillor. By the end of the meeting reports suggested that there remained only a couple of unhappy people and that if people had any concerns then they weren't lodged at the meeting. A final criticism, which is addressed in more detail below, is the need to take on issues as an industry, with reports that the processing companies needed to become more involved. Case study box 5.16 recognises that the broiler industry has been united in addressing its overall efficiency.

Case Study Box 5.16 – Spatial Restructuring in the Western Australian Broiler Industry

One area where there has been an industry wide approach relates to the spatial restructuring of the WA broiler industry. The recent spate of new shed applications to the south east of Perth reflects an industry wide approach to increase the average size of contract farmers. This policy is also having a bearing on the geographical structure of the industry. Two key processes are driving the restructuring process. Firstly, the WA broiler industry was reduced to two contracting processing companies when Steggles Ltd. purchased Festive Foods in 1993, resulting in Steggles obtaining a large number of contract growers operating below the industry's model farm size. Secondly, for quarantine reasons, it appears that investment in new farms contracted to Inghams is occurring to the north of Perth, while new farms contracted to Steggles are being constructed to the south. Reports suggest that at least 10 new farms, including breeder and grower farms, are to be developed in the Shire of Gingin, while as noted earlier three new Steggles farms have been approved in the Shire of Serpentine-Jarrahdale.

The north-south geographical divide has become more noticeable in recent years following the transfer of two Steggles farms located to the north of Perth to Inghams with another two likely to change in the near future. No farms have transferred to Steggles and there is only one Inghams farm south of the Swan River in the Shire of Kalamunda. The underlying objective is to improve the industry's efficiency by increasing the average farm size. This process is assisted by industry legislation that allows arbitration of non-price issues. Traditionally, the allocation of poultry sheds has been based on a rolling system, with the next person on the list being offered the next shed to be built. In recent years the allocation process has been more strategic, with expansion rights automatically given to small farms and farms wishing to relocate. With the transfer of contract farms, Steggles has been able to offer additional sheds to farms below the model farm size to expand. Where this is impossible on the existing site because of property size, then additional sheds have been offered to encourage relocation. To further assist the relocation process, farmers have been given two years from receiving council approval to relocate their entire operation. For farmers, benefits include being able to stagger investment over a period of time, rather than immediately investing in four new sheds and transferring production following construction - a much larger capital outlay. In the case of one farmer interviewed, two sheds had been built, and another two had to be constructed within the following year. By increasing the average farm size, the model farm also increases, with economies of scale allowing the contract price to be reduced. As this occurs, the viability of those farms that can't expand or who are unwilling to relocate is limited. In recent years, despite the allocation of new sheds to farms below the designated industry model being labelled as uncompetitive, the WA State Government voted in favour of maintaining regulatory control over the contract payments. Rather than a mechanism to resolve land use conflict, support for recent industry restructuring is likely to reflect the potential for consumers to benefit from lower prices.

Although there has been cooperation to increase industry efficiency, the involvement of processing companies in farm level environmental issues has been more limited. One company representative acknowledged that they have limited involvement in development applications despite the potential for consent conditions to impact on their operation. Land use conflict was primarily being fought by individual farmers or collectively through WABGA, with the processing companies perhaps participating in final discussions. Two concerns noted by farmers were that, firstly, the processing companies were encouraging investment in certain areas but were unwilling to assist farmers battling with council, and secondly, that although farmers received complaints the processing companies are partly responsible for the generation of externalities. Farmers reported that they had little influence over night time pick-up, that feed rations may influence odour levels and that the farmer is dependent on the processor supplying healthy day old chicks. Despite these concerns, it was noted that the processors have become more involved in recent years, as they are now more concerned about the disposal of manure and dead birds, and are avoiding night delivery of feed to farms involved in conflict. In relation to Steggles Ltd., one farmer indicated that a potential benefit of increasing the degree of vertical integration by utilising a company owned feed mill could be greater control over feed quality.

Contract conditions represent an important factor influencing farm management practices. If a farmer was to limit investment in new or replacement technology, then this may be reflected in their efficiency ratio or feed conversion ratio compared to other growers. In WA, where the contract growing price is 51 cents per bird, a farmer operating at 100% efficiency would receive 51cents per bird. If a farmer regularly achieves a lower efficiency rate than other growers (less than 96% efficiency for 6 straight batches), then the processing company may become more demanding. A delegation of farmers may firstly visit the farm to identify where improvements can be made. Where no improvement results, then the farmer may be offered fewer birds to provide the financial incentive to improve feed conversion. If there is still no improvement then the farmer may be asked to sell the contract. In response to farmer concerns that efficiency is affected by the quality of chicks and the nature of feed, the processors argue that returns are more influenced by management and shed design. Farmers may be given one bad batch of chickens or poor quality feed once during the year, but that is only one bad batch during a 12 month period, which does not justify a continually poor feed to weight conversion ratio.

Farm managers belonging to each processing company also visit contract farms each week to assess how a farm is being managed. Under the contract arrangement farmers are required to prevent manure from becoming wet, provide a minimum amount of floor litter, and ensure that there are no dead birds or manure lying around outside of the sheds. Less attention is given to a farm's external appearance, including landscaping and vegetation. Processing company representatives acknowledged that they could apply pressure to farmers to improve their farm's visual appearance. Perhaps suggesting that if 'Mr Woolworths' comes out and doesn't like the way a farm looks, then birds from that farm may not be wanted. At the annual Steggles grower dinner, in addition to efficiency awards, a new award had been offered for the farm with the best appearance. In addition to the role of processing companies in shaping farm externalities, case study box 5.17 recognises that retailers may limit the ability of farmers to achieve environmental requirements.

Case Study Box 5.17 – Impact of Retailers on Farm Management.

In response to the demand of retailers, including supermarkets, for birds of different sizes, processing companies may remove birds from a single farm over a period of several weeks rather than removing all birds when they reach a pre-determined weight. Instead of entering individual sheds once, birds may be collected three to five times. During the first catch, small birds are removed for rotisserie or whole bird markets, while at a later date larger birds are removed for dissection into chicken pieces. One possibility is that processors may harvest chickens at three different periods, at about 35 days where 1.8 kg birds are collected, at 42 days where 2 kg birds are collected, and up to 56 days where birds are more than 2 kg. With the removal of birds at 35 days, additional shed space is provided for growing larger birds. Entering sheds more than once is associated with efficiency losses, because each time feeders and drinkers have to be raised from the ground and temperature control is lost when the doors are opened. Bird growth is affected as it takes a day for feed conversion to return to normal after bird collection, which adds further complexity to the process of coordinating production.

An additional concern relating to the retail sector is that although preliminary orders may be developed a number of weeks in advance, supermarkets may change their requirements with minimal warning. Uncertainty which may reflect: national deals between the processing companies and supermarkets; produce moving between states; and the demand for weekly specials or loss leaders. Compared to five years ago when each processing company may have planned a week in advance, requirements for the following day are often not finalised until the previous afternoon. For this reason there is the possibility that a farmer may be given little notice of bird collection. With coordination driven more by retail demand, production inefficiencies may result at the farm level. One possibility is that a farm which has been reduced to 3000 birds may not be cleaned out on the anticipated night due to market demand changes or requirements for birds of a different size. The implication is that everything is put out of kilter as the farmer must now reschedule the contractor who is to remove the manure, the fumigator who may be employed to sterilise the shed, and the delivery of floor shavings. The type of feed used towards the end of growing cycle may have been

depleted, requiring feed to quickly be delivered to the farm. This is a cause for concern where night time curfews restrict delivery hours.

In terms of the future it was suggested that the problem of land use conflict would never disappear but the level may be controlled. One recommendation was that farmers needed to do more to visually hide themselves, though other interviewees suggested that the industry needed to do more than simply hide farms. It was suggested by one farmer that new sheds should be conditional on replacing older existing sheds, though it was recognised that well maintained old sheds can continue to produce efficiently. New technology would alleviate some concerns, with more recent changes, including changes to bird drinkers and foggers, helping to maintain litter in a drier state. Although tunnel ventilation enabled a more constant flow of air through sheds, appropriate planning was required, including larger blocks, as the fans employed to remove air make a droning sound. Noise levels could be managed to a certain extent, including managing the timing of truck deliveries, though the use of fewer larger trucks may be limited by property size and farm layout. Odour, in particular, was seen as a complex issue because it is influenced by many factors. As encroachment would inevitably result in conflict, there were only two guaranteed ways that the industry could adapt. The first involved relocation and the second was to purchase larger blocks of land and construct sheds in the middle of a 50-100 acre property. Case study box 5.18 focuses on the impact of larger property sizes on industry efficiency. Industry could not adapt to fully address land use conflict, it was suggested by its leaders, even if farmers were to employ best management practices. The reality is that manure smells and it is difficult to adapt existing sheds without major investment. Accordingly, it was argued that government needed to give greater attention to the relocation strategies mentioned earlier.

Case Study Box 5.18 – Impact of Property Size on the Efficiency of Broiler Production

Industry leaders thought that structural change in the broiler industry would involve a continuing trend towards larger and fewer broiler farms, especially as environmental conditions became more stringent, including larger land requirements. The objective was to increase to at least five sheds, with optimal economic efficiency requiring 7-8 sheds. Larger farms involve a compromise between economics, quarantine issues and the ability of a farmer to manage a larger number of birds. The industry's policy of 'all in all out', results in inefficiencies where a farm's productive capacity is not fully utilised. As a farm's size increases, this inefficiency becomes more noticeable. The uneconomical use of facilities is balanced against the efficiency a larger operation provides for bird collection and feed delivery at one location, which becomes increasingly more important as contract farms locate further from processing plants and feed mills. From a quarantine perspective, the outbreak of a disease on a larger farm has greater impact on the operation of a processing line.

5.5.2 Western Australian Egg Industry

In comparison to their industry, broiler farmers felt that the egg industry was not as well united as an organisation, though there were a number of politically motivated individuals. One implication is that the egg industry has benefited from the broiler industry's pro-activeness, as they are often regulated as one industry. Similar responses were collected from egg farmers, though the majority saw the Western Australian Poultry Farmers Association (WAPFA) as a successful organisation in its own right. Department of Agriculture representatives identified the broiler industry as being more politically active though indicated that it wasn't as critical for the egg industry because the broiler industry was more expansion orientated.

Egg farmers recognised that members of the Association's executive were dealing directly with government departments, that the WAPFA would fight an issue if requested by a farmer, and that it would assist in providing legal and general advice when required. Submissions had been lodged with government in relation to animal welfare and the statutory marketing authority in WA. No submissions had been developed in relation to land use planning, with egg industry leaders questioning the need as they had direct representation on government committees. It was noted that the only issue that the industry had been unsuccessful with was relocation, with some producers suggesting that the industry could shout from the roof tops and nothing would happen. If a development similar to that proposed

around Raintree broiler farm was to occur (see case study box 5.9), then a rule of the WAPFA was not to sit back but to put government on notice that they will take full responsibility for their decision making.

One example of industry activism was the WAPFA's involvement in educating children by constructing a model scaled farm for three schools. In the past the egg industry also showed school trips around farms, but there was now a reluctance as it simply allowed the industry to be misread and open to criticism. At an individual level, farmers had also adopted strategies to encourage government approval. To inform local government of the benefit of new technology, members from the syndicate farm provided brochures of the type of shedding they were installing to highlight the improved technology. A line of communication was also established by the applicants between Gingin Council and an environmental health officer in Victoria, as there were no controlled environment egg sheds (for reference purposes) in WA. An offer was made to fly a council officer to Victoria where the new style could be inspected, but this proved unnecessary.

Although the WAPFA encourages members to maintain management practices, it cannot direct farmers to improve their environmental performance. In comparison to the business-like nature of the broiler industry, one egg industry leader suggested that the average egg farmer was attracted more by the lifestyle. It is possible for farmers to manage a small flock of layers well into retirement and the scope for selling eggs from the farm-gate was attractive. Because of this dimension to the industry, farmers were often unwilling to relocate and there was a reluctance among farmers to undertake large capital investments when they were near future urban development. Activities that might not be undertaken included thorough cleaning, repairing silos, replacing drinking lines, upgrading roads, planting vegetation, or investing in insulation because of minimal short term returns. One farmer indicated that while he should have undertaken improvements, he decided against it because of future uncertainty.

Department of Agriculture officials also recognised that egg farmers were often reluctant to undertake expenditure, such as investing in fly management or replacing leaking drinking lines. This was thought to reflect tight margins and the reluctance of farmers to invest where they have uncertain future time frames and old facilities. In contrast to the role of processing companies in shaping environmental impacts on broiler farms, Golden Egg Farms was recognised as having no involvement at all. Case study box 5.19 indicates that it may have an indirect role through the introduction of quality assurance systems. Although there are not the same contract conditions and efficiency requirements as those facing broiler farmers, there continue to be economic incentives for egg farmers to maintain a high level of management. In addition to the impact of high odour levels on the rate of lay, wet manure is of concern where farmers have to pay to have it removed rather than being paid.

Case Study Box 5.19 – Farmer Attitudes Towards Quality Assurance

Indirectly, the Golden Egg Farms will have a greater impact in the future, as the introduction of quality assurance standards and the accreditation systems will improve management practices, with implications for the lifestyle farmers mentioned above. Although implemented to guarantee egg quality, environmental benefits will follow as farmers need to be more diligent in managing rodents, dead birds, dust and fly breeding. Odour levels might also be reduced as general farm cleanliness is improved. All practices will need to be documented and then signed off when completed, with the date and time noted. The process, which is being encouraged by retailers such as McDonalds, Woolworths and Coles, may result in financial penalties where farmers cannot achieve certain performance requirements. Egg industry leaders recognised that the introduction of quality assurance, including HACCP (Hazards Analysis Critical Control Points), would cause a shake up in the industry. One suggested outcome was that older farmers may decide to retire from the industry rather than attempt to achieve the new standards. Poultry specialists from the Department of Agriculture also recognised that quality assurance programs might cause structural change in the industry, though this depended on what allowance was given for older farms.

Technological change was identified as having implications for future environmental externalities. Controlled environment sheds were recognised as the style for the future, with their attractive external appearance, ability to control odour and noise levels and automated removal of manure virtually allowing them to be placed in suburbia. This noted, farmers indicated a reluctance to invest in such technology on their present site, as the period over which invested capital could be recovered might extend to over 30 years and the economics of relocating was questioned. Difficulty in implementing new technology into existing sheds may therefore result in future land use conflict as urban encroachment occurs.

5.5.3 Government Attitudes

The attitude of one council officer to the ability of the poultry industry in general to adapt was that it couldn't really, as there weren't a lot of changes that could be made. Changes to night-time pick up were thought limited from the animal welfare viewpoint. New shed designs were another option though their effectiveness was questioned where neighbours had zero tolerance. As one government official acknowledged, environmental problems were not as great with new farms. Instead it was older farms that posed greater concern and methods need to be found to improve older facilities. Not all technology was seen as practical. For example, the retrofitting of existing sheds and introducing filters may not be cost effective. For some council interviewees relocation was the only possible way that the industry could adapt.

The need for additional industry research was identified, including investigating the impact of feed types, bedding, vegetation and the application of odour mitigating strategies to tunnel ventilation because air is emitted through a point source. In recognising that such research would be expensive, it was indicated that unless money was spent finding solutions then effective low cost strategies may never be discovered. The Department of Environmental Protection indicated that it would be desirable for the industry to do more to reduce odour impacts, and that if it didn't, the time may come when farmers have to purchase their own buffer distances. Case study box 5.20 outlines the Department of Environmental Protection's attitude towards night time noise levels.

Case Study Box 5.20 - Department of Environmental Protection Poultry Farm Noise Policy

At the Information Exchange mentioned in Case Study Box 5.14 the Department of Environmental Protection indicated that the required noise limit for the poultry industry was less than 35dA(b) for 90% of the time and less than 45dA(b) for 99% of the time (WADEP, 1997). One contentious issue relates to the time space over which levels are calculated, including whether they are evaluated on any individual night or over the length of a growing cycle. The DEP assesses noise levels over three daily periods: day, evening and night. Noise readings from one broiler farm in WA revealed that the fans from tunnel ventilated sheds may create noise levels of 50-52 dB(A). Readings at 80m during bird collection saw noise levels increase over 70 dB(A) and fluctuate around 55dB(A). Whilst acknowledging that there are valid reasons for catching birds at night, the DEP encouraged the industry to take strategic action, as failing to address complaints could lead to more stringent and costly regulation. Strategies suggested by the DEP included consulting with acoustic specialists, recognising that the cheapest propeller fans were not necessarily the best, avoiding trucks reversing and revving their engines, considering farm layout and investigating electric rather than diesel fork lifts. Road quality was also important, with gravel thought to be more effective in minimising noise compared to bitumen and concrete. A 10dB(A) variation was identified due to the actions of drivers. The effectiveness of trees was questioned by the DEP. Where there was no wind or background noise, and the vegetative barrier was not particularly dense, then noise levels may not be reduced. A positive psychological effect, however, was again mentioned.

5.6 Future Issues Facing the Western Australian Poultry Industry

5.6.1 Statement of Planning Policy No. 5 - Poultry Farms Policy (1998)

Responding to the demands of the poultry industry for greater consistency in the interpretation of policy between local government areas and a more strategic approach to relocation, WAPC converted *Policy No. DC 3.5 Poultry Farms* into *Statement of Planning Policy No. 5 Poultry Farms Policy* in December 1998 (WAPC, 1998). Prepared in accordance with Section 5AA of the *Town Planning and Development Act, 1928*, all local governments in WA are under a statutory obligation to consult Planning Policy No. 5. Provided that a new farm meets the established criteria then it is more difficult for local government to refuse applications for poultry sheds. Industry sources suggested that it would virtually provide the industry with the right to farm. The president of WABGA indicated that once Planning Policy No 5 was implemented there would be no need for further government intervention. For new farms, the policy deals largely with site requirements, and effectively prevents local government from adopting larger buffer distances. For existing farms, buffer distances that were previously recommendations are now supported by legislation. Potentially the consequences would now be severe if the buffer distances were overturned and residential outcries resulted. Farmers noted that it would take a brave council to breach the policy. Department of Agriculture officers felt that Planning Policy No. 5 would ensure greater standardisation between local governments and send a strong message that buffer distances cannot be taken lightly. Despite the industry's optimism, council could refuse a farm where environmental impacts are thought to be excessive, though this determination would remain appealable.

Case Study Box 5.21 – State Planning Policy No 5 Poultry Industry (WAPC, 1998)

In implementing the new policy, a number of changes were made to Policy DC 3.5.

1) Planning Policy No. 5 extended the objectives of the earlier policy in relation to appropriately siting poultry farms, minimising the impact of poultry farms on incompatible land uses and protecting the rights of farmers facing urban encroachment, to encouraging the 'relocation of poultry farms on land required for residential or rural-residential development'.

2) Secondly, the introduction gives greater attention to the role local government can play in assisting relocation.

The vast majority of poultry farms in future urban development areas will relocate on their own as urban development approaches... There are exceptional circumstances where it is impractical or impossible for affected farms to relocate within the desired time frame for development. In these cases the Commission could support the rezoning of the poultry farm and adjacent land affected by farm operations for urban or urban deferred development. However, there is a presumption against the subdivision of affected land unless it can be demonstrated that the impacts are acceptable. Local governments can assist in the relocation of poultry farms which cannot relocate by themselves by raising special area levies, use of guided development schemes and considering zoning land to higher value land use (WAPC, 1998)

3) Rather than stating that poultry sheds on new poultry farms 'should not generally be permitted within' certain specified distances of particular land uses and property boundaries, Planning Policy No. 5 indicated that new poultry sheds 'will only be permitted' within the previously mentioned distances. Any flexibility that might be required because of oblong block sizes in rural areas or native forests is limited. Initially the WAPC requested 500m from the shed to the property boundary, a distance the industry thought was unreasonable, necessitating an area in excess of 200acres. Negotiations eventually settled on 100m, as in the previous Poultry Policy No 3.5.

4) In terms of new sheds on existing farms, the new policy was careful in its wording indicating

that the 100m principle can be flexibly adopted depending on surrounding land uses, that precedence only applied to the closest boundary, and the DEP code of practice was to be consulted. WAPC felt that it made no planning sense to allow the minimum distance to be transferable. Other industries did not have the right to build 1m from the boundary, so it would be an inappropriate precedent to establish.

5) A clause stating that the Commission could impose consent conditions on new shed approvals that indicated when the farm was to close (ie a sunset clause) was also removed in the more recent policy. The industry argued that approving the development of a \$200,000 shed and then indicating that it should close in 5 years prior to recovering the investment was simply unpractical and would prohibit any investment. Earlier attempts by WAPC to attach this condition had been overturned on appeal.

6) All applications for development of poultry farm sheds in excess of 100 m² in urban, urban deferred or rural zones should now be referred to the Commission, rather than simply those proposed in rural areas within the metropolitan area.

By implementing Planning Policy No. 5, WAPC officials acknowledged that greater weighting was being given to urban and rural residential buffer distances around poultry farms. Accordingly there was little that could be done to shift a farmer reluctant to move, barring compulsory purchase. In doing so, the intention of WAPC was to encourage developers to negotiate with farmers and for local government to assist relocation where possible. Case study box 5.22 acknowledges some of the difficulties that poultry farmers may experience in dealing with developers. In relation to the involvement of local government in relocating poultry farms, the City of Gosnells was critical of Planning Policy No. 5 as it:

gives a perception that the relocation of poultry farms or the rezoning of farms for urban development is a relatively simple process. Our experience has shown that poultry farms will not relocate on their own as urban development approaches and circumstances where it is impractical or impossible are not “exceptional” but are the “norm”. At this stage there is no acceptable method that can demonstrate that impacts from subdivision are acceptable and the raising of special area levies, guided development schemes and special zoning improvements is cost prohibitive. (Gosnells OCM 1997:79)

Egg industry representatives were less optimistic than the broiler industry towards Planning Policy No. 5, indicating that a developer is able to build within 500m of a poultry farm following the submission of an impact statement. Like Policy No. DC 3.5, State Planning Policy No. 5 states that the ‘Commission and/or local government may require an assessment to show that the operation of the poultry farm will not adversely affect the amenity of the new residents’. Where encroachment occurs, impacts include greater difficulty in levying sufficient funds to assist relocation.

Case Study Box 5.22 – Difficulties Experienced by Farmers in Dealing with Developers

The benefit in retaining buffer distances around poultry farms is the positive incentive it provides for developers to purchase the entire buffer zone, including the poultry farm. Evidence from Gosnells LGA suggests that this can become a complicated process on the urban fringe. One farmer indicated that his 6ha, 64,000 bird broiler farm had been rezoned ‘urban deferred’ under the MRS but remained rural under the local town planning scheme. With council reluctant to allow urban development within the 500m buffer distance, the farmer had received offers from four developers, all of which had collapsed, and was currently negotiating with another three. The development process was being affected by WAPC who had delayed publishing its policy for the protection of natural bush corridors in the metropolitan area – a document that was released in 1999. While waiting for the release of the policy, developers were unwilling to invest as it was uncertain how much land would have to be protected in the local area. The farmer also expressed concern at certain clauses in developer contracts, including those requiring him to remove the concrete floors of sheds that had cost \$30,000 to establish and for him to leave within 180 days (thought unpractical

considering the time required to find a new property, obtain an approval and to build new sheds). With the farm likely to be closed in the near future, the farmer questioned whether investing in the farm was warranted. Council indicated that any proposal for new sheds would be refused. The farmer felt that he had been placed in the 'too hard basket' for the last three to four years, over which time his family's livelihood had been affected and income had been foregone each year by not being able to expand. He did not face conflict with his surrounding neighbours, suggesting that they realised that the farm had been operating since the 1970s and that it was not the farmer who was slowing the development process.

5.6.2 Odour Modelling

Since the mid-1990s greater attention has been given to the scientific estimation of buffer distances to avoid the unnecessary sterilisation of land around poultry farms. In 1996 a Poultry Farm Odour Study Steering Committee was established comprising representatives from the DEP, Ministry for Planning, WABGA, PFA, City of Wanneroo, City of Gosnells, Water Corporation, and Kwinana Industries Council. The Committee, which was established to quantitatively assess odour from poultry farms, had two key objectives. Firstly, it was recognised that the DEP receives on average 140 complaints a month relating to a wide range of activities, 40% of which relate to odour. In response to the EPA's request for a formal odour policy, the DEP decided that this should be preceded by a study of poultry farms using olfactometry. By doing so DEP officers could develop a more comprehensive knowledge of olfactometry and thus develop a more far-reaching odour policy. The second objective related to the arbitrary nature of buffer distances in the poultry industry and the realisation that by applying a generic 500m, a large area of land area is sterilised from residential development. Rigid separation distances were further criticised for omitting farm characteristics including size, local topography and wind conditions. For these reasons it is argued that, by employing quantitative odour assessment, a more efficient and justified land use pattern could be obtained. Case Study Box 5.23 provides an indication of the research that is currently being undertaken both in Western Australia and nationally.

Case Study Box 5.23 - Scientific Estimation of Buffer Distances

During March 1997 odour samples were taken from three broiler farms and one egg farm in WA by the University of NSW's Centre for Water and Waste Technology on behalf of the Odour Steering Committee. Samples were taken at varying distances around each farm and the ventilation rates of the surveyed sheds were monitored. While other factors such as the feed type, on-site disposal of birds and the application of litter to crops may influence odour levels on a particular farm, these factors were considered outside the scope of the study (Jiang and Sands, 1998). The working group employed dynamic olfactometry in conjunction with the dispersal model, Ausplume, a method that has been adopted internationally to assess odour and its spatial impact (Jiang and Sands, 1998). Dynamic olfactometry involves collecting samples of odorous air, using an olfactometer to present diluted samples to a panel of people with average olfactory sensitivity, and then noting responses in relation to the presence or absence of odour. While odour may be able to be measured, the underlying difficulty remains that neither odour frequency, perceived intensity, duration of exposure, offensiveness and location of receptor have been linked to a numerical level of nuisance (Jiang and Sands, 1998).

An odour impact criterion of 10 OU/M³ 99.5 percent of the time was adopted by the researchers. The impact radius for the three broiler farms was 340m for farm P which had a total of 7 sheds (137,000 birds), 250m for farm G with a total of 7 sheds (88,000 birds) and 780m for farm D with 8 sheds (200,000 birds) (Jiang and Sands, 1998). While the survey size was limited and the odour samples were fixed in time, preliminary results indicate that the buffer distances, as promoted by the Department of Environmental Protection are to some extent justified. Results from the egg farm survey showed a much smaller odour impact area. At the odour impact criterion of 10 OU/M³, the impact area was estimated to be less than 100metres. Although a more comprehensive investigation is occurring in NSW, the preliminary research in WA provides justification for the argument among government interviewees that buffer distances for egg farms could be less. An officer from WAPC

indicated that they would be prepared to approve a 250m buffer provided there was sufficient scientific estimation.

Research investigating the scientific measurement of separation distances was viewed positively by council officers who realised that recommended distances were currently without basis. They hoped that greater scientific understanding would provide developers and consultants more guidance as to what issues should be taken into account. Possible outcomes were thought to include reduced separation distances around egg farms and a buffer distance more sensitive to bird numbers for the broiler industry. Although controlling urban development around existing poultry farms was the main concern, the DEP indicated that they would expect similar odour modelling for farm expansions. For this reason, industry leaders suggested that any calculation of odour dispersal around a poultry farm should take into account the potential for a farmer to expand on the existing site. One option being to estimate the total number of birds, recognising that site conditions would limit the ability of the farmer to construct additional sheds.

5.6.3 Cross-Government Code of Practice

Following their development, odour modelling principles will be contained in a new cross-government code of practice. The code is to be one of a series of new environmental management guidelines dealing with poultry farming, vineyards, horse stables and intensive agriculture. In relation to poultry farming, broiler industry representatives saw the process as largely being promoted by WABGA who intended to combine the DEP Code of Practice, State Planning Policy No. 5, Water and River Commission's poultry guide and NSW Agriculture's poultry industry guidelines (NSW Agriculture, 1994). The Water and Rivers Commission, for example, requires poultry sheds to be 200m from highly significant wetlands and 50m from those of lesser importance. The main aim is to ensure that the state departments, including agriculture, health, planning, environment and water and resources, have similar requirements. Although the main inconsistency in the past related to buffer distances, the cross-government code would also allow increased attention to free range production. DEP officers indicated that the code would most likely encourage odour modelling studies to be referred to them for consideration. The argument was that this would provide developers with the incentive to undertake a detailed study, as the DEP may request the raw data.

Chapter 6: Results – New South Wales

6.1. Land Use Conflict on the Fringe of Metropolitan Sydney

Land use conflict involving poultry farming was identified as a potential concern as early as the 1970s. In 1973, the NSW Poultry Advisory Board identified in its publication, *Guidelines for Standards of Poultry Farming in NSW* that the

‘mixing of urban and rural activities is bound to result in some tension and create a potential for conflict of interest. This is a situation which requires rational and objective administration by all bodies and individuals involved, to ensure an equitable solution to problems. The situation should be considered now in order to program long term developments rather than inflict sudden and drastic action at a later date’ (NSWPAB, 1973:ii)

Two decades later, NSW Agriculture in its review of agriculture in the Sydney Basin, indicated that the poultry industry, in addition to being the most rapidly expanding agricultural industry, was under constant pressure to relocate outside the region. Key forces include the impact of urban encroachment on land values and rates, residential dweller opposition to odours, dust and noise, and increased land requirements because of separation distances (NSW Agriculture, 1995). If current trends continue, NSW Agriculture suggested that the poultry industry is likely to be relocated outside the Sydney Basin in 10-20 years, possibly including feed mills, processing plants, hatcheries and growing facilities (NSW Agriculture, 1995).

Any attempt to assess the intensity of land use conflict in the Sydney Basin represents a difficult problem for government as there are no accurate figures recording the number of poultry farmers attracting formal or informal complaints. Formal complaints are those directed to local or state governments, and informal complaints are directed across property boundaries. The Chairman of the NSW Farmers Egg Producers Committee indicated that it was difficult to estimate the extent of conflict because farmers had not approached the Committee seeking assistance. Representatives from the NSW Chicken Meat Association thought that farmers either faced conflict which was particularly intense or experienced no conflict at all. Only a small number of farmers were thought to experience intense conflict. No farmer was reported to have faced a situation similar to Raintree broiler farm in WA, both in terms of attracting widespread media attention and government relocation assistance. This noted, it was felt that land use conflict was more intense in the Sydney Basin than on the fringe of Perth because the majority of farms were on 5 acre blocks and a number of farmers had residential dwellings adjacent to their boundaries. As noted in the previous chapter, the enforcement of buffer distances in WA in recent years provides another reason for this. Case study box 6.1 recognises that land use conflict is particularly intense in the Shire of Wollondilly.

Case Study Box 6.1 – Land Use Conflict in the Shire of Wollondilly

Interviewees noted that the poultry industry has a long history in the Shire of Wollondilly. One farmer acknowledging that 50 years ago, Soldier Settlement Schemes had resulted in a large number of farms with 4,000-5,000 birds near Tahmoor and Thirlmere. From these early beginnings, and with the encouragement of local government, the industry has rapidly expanded. By the mid-1990s it was reported that \$87m of the Shire’s total value of agricultural production of \$94m was contributed by the broiler industry. In the early 1990s, local government’s continued support for development applications (DA) was noted.

Wollondilly on the outer fringe of the south west Sydney Region was recommended by the NSW Department of Agriculture as the LGA in the Sydney Basin most committed to the preservation of its agricultural industry. The extent of this commitment is

demonstrated by the release of Wollondilly Shire Council Agricultural Lands Study prepared by the Department of Planning and Community Development in April 1993. Wollondilly prepared this report because of its concern about the loss of agricultural land and the issue of rural land use conflict. The general feeling at Wollondilly was that DAs to extend shedding for egg farmers would be successful. However, a council officer did caution that when it comes to DAs the outcome is never certain. (Larkin, 1993:7.3.4)

In more recent years, Council's attitude has changed as the area has attracted urban people intending to retire or to commute to Sydney, including Liverpool and Campbelltown, for employment. With the Shire adopting a favourable attitude towards residential development because of perceived economic benefits, one industry representative noted that the area has been 'overtaken by yuppies with unrealistic expectations'. Rather than having a long tradition, farmers recognised that conflict had emerged during the past decade. A period that coincides with not only residential development, but with continued industry expansion, an increasingly active residential action group and the emergence of problems that the industry has not been able to address. According to poultry farmers, Council was not without fault, having promoted the Shire as a haven for rural residential development by erecting promotional signs with the catch phrase 'rural living, room to grow'. Following the influx of newcomers intent on protecting the environment to which they were attracted, the slogan had been reduced to 'rural living'.

During the mid-1990s a Poultry Farm Neighbours Support Group was formed in Wollondilly Shire. The main protagonist initially had a good relationship with his poultry farming neighbour and collected manure from the farm. Following a change in ownership and the farm's intensification, relations soured and conflict resulted. Poultry farmers noted that the Group was active in preventing proposed developments and in raising concerns regarding existing operations. For one farmer this meant being more concerned about organised residential action groups than conflict with immediate neighbours. A State Government officer reported the example of a farmer who had managed to establish a good relationship with the local community. Communication included annual farm visits by the local primary school. The relationship apparently soured when the Support Group delivered letters stating how the poultry farm was affecting their health and neighbours started lodging complaints.

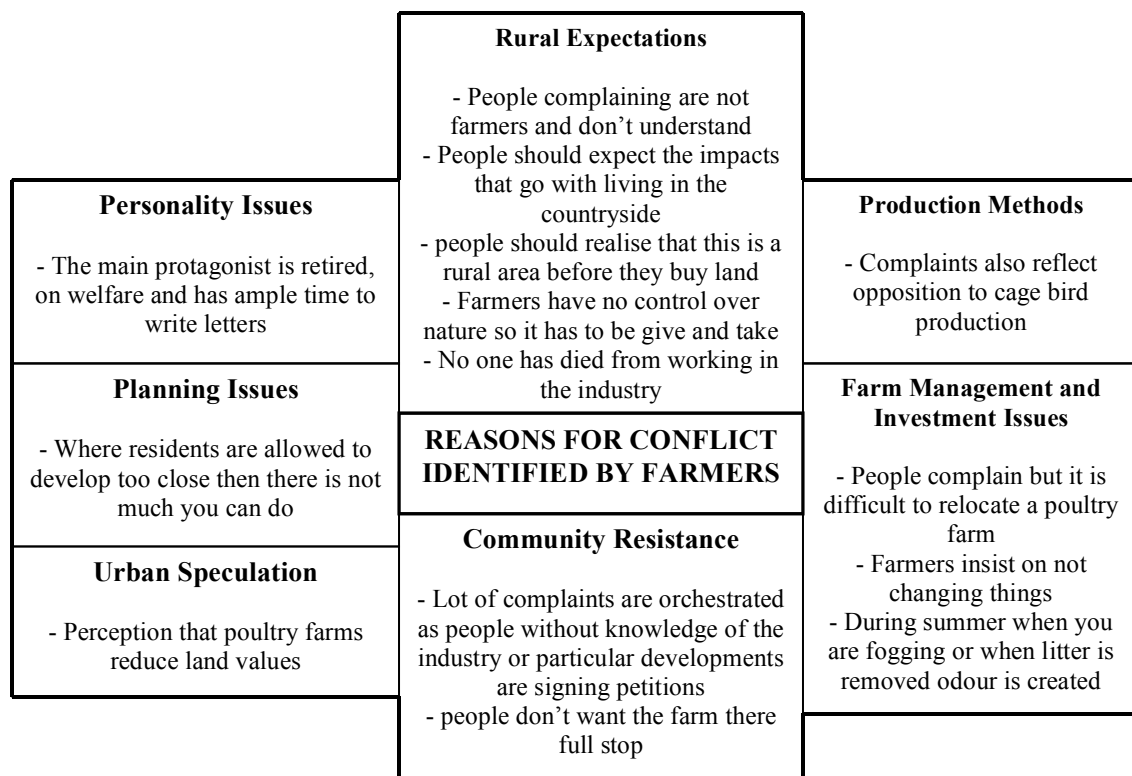
Rather than referring to 'poultry farms', the Support Group identifies poultry operations as 'poultry factory farms'. Their main concerns are that odour, dust and noise pollution cross property boundaries, that farmers do not employ all practicable methods to minimise impacts (WSC, 1998a) and that neighbouring land is sterilised (Picton News, 1994a). It appears that their main concerns relate to broiler farms rather than to the egg industry. Practices endorsed by the Group to control air pollution include reducing bird density, fully enclosing sheds, filtering expelled air, vegetative screening, earth mounds, odour control chemicals and higher quality bedding materials (WSC, 1998a). Importantly for the poultry industry the influence of the group is not limited to Wollondilly. A broiler farmer in the City of Liverpool indicated that a neighbour had received a letter from the Support Group stating how it was possible to have a proposed expansion refused or a farm closed down.

Local papers serving the Wollondilly area frequently include letters from members of the Poultry Farm Neighbours Support Group. Topics of concern include health impacts from odour and dust (District Reporter, 1998a; Picton News, 1995a,b), respiratory problems facing poultry farmers, (Picton News, 1995c), contaminated rainwater tanks and water ways (District Reporter, 1998b), and the fact that poultry is no longer a rural occupation (District Reporter, 1999a,b). Because of the regularity and frequency of production cycles it is suggested the poultry farming should be legislated as an industrial activity (Picton News, 1994b). The Support Group has also seized upon recent disease outbreaks in the industry, questioning whether they are 'exotic' or 'created' and, if created by the over use of antibiotics, should government be paying compensation (District Reporter, 1999c). In relation to land use planning the Group demands more professional planning

because of the impact of poultry on rural amenity and tourism potential (Picton News, 1995d,e) and the enforcement of buffer distances in relation to new subdivisions (Picton News, 1995f). Local residents have also been encouraged to vote wisely in local elections to avoid ‘agricultural slums’ (Picton News, 1995f,g). Other suggestions are that poultry farms should be located on large acreages at a distance from established areas (Picton News, 1995a) and that a full environmental inquiry should proceed the introduction of new legislation controlling the industry (Picton News, 1995b).

The attitude of industry leaders towards the legitimacy of complaints was mixed. Neighbours were identified as either being over sensitive or having a long-standing personality clash with nearby poultry farmers. One egg industry representative suggested that as many as two thirds of complaints are not related to environmental issues. Some people were thought to complain about anything to bring the industry into disrepute, when the underlying concern was for animal welfare. In other cases, neighbours from an urban background were thought to be less tolerant or to have unrealistic rural expectations. One reason for this was that newcomers were often younger than poultry farmers and in different social circles. The intensity of conflict is influenced by the involvement of residential action groups and the fact that complaints may be orchestrated. Examples of the latter include reports that neighbours have been assigned days on which to complain, that complaints have been lodged by people holidaying outside of the area and that petitions have been circulated at local sporting events. In other cases complaints were legitimate with the scale of poultry farming continuing to increase in recent years. As outlined in Figure 6.1 variation in the attitude of farmers was also experienced.

Figure 6.1 A Spectrum of Farmer Attitudes towards Land Use Conflict



6.1.1 Conflict Experienced by the Broiler Industry

Odour was identified as the main complaint attracted by broiler farmers, with noise and dust of lesser significance because they can be partially controlled by technology. Case study box 6.2 identifies a

number of changes to the process of broiler pick-up in recent years. Following urban encroachment odour complaints may develop for a large number of reasons. Where best practice suggests that poultry sheds should be closed overnight to conserve heat, as ventilation begins in the morning, it may take 20 minutes for the accumulated odour to dissipate. Odour levels were identified as being more offensive during summer when water consumption increases, humidity levels are higher, and the proliferation of diseases may affect digestion. The demand for larger birds meant that birds were housed for longer and that the volume of manure produced was greater. As one farmer added, during a summer heat wave, the single most important objective is keeping the birds alive, all other issues including odour generation become irrelevant. Despite public opinion that the industry can turn odour off and on, emissions were just as much a mystery for the industry. Nevertheless, examples were noted where farmers were not doing everything reasonable to reduce environmental impacts, such as not disposing of dead birds or litter in the appropriate manner.

Case Study Box 6.2 – Changes to the Management of Night-Time Pick-Up

The night time pick-up of birds was identified as an important issue facing the broiler industry in the Sydney Basin. People were either intolerant of truck movements or complaints were thought justified because of the frequency of movements. A number of industry leaders acknowledged that complaints often developed following urban encroachment as there was little that the industry could do to reduce noise. Despite this argument, a number of changes to the management of bird collection have occurred in recent years.

Firstly, rather than picking up chickens once, pick-up crews arrived two or three times each batch between the 6th and 8th week. More than one farm may therefore be approached in one night to fulfil the daily needs of the processing line. One farmer provided a similar experience noting that prior to centralising its processing capacity, Inghams Enterprises used to send birds to small private processors such that birds were removed in smaller amounts over a longer period of time.

Secondly, there have been changes to technology with implications for the speed of pick-up and the time when it occurs. Interviews revealed that 15-20 years ago the companies would bring in a semi-trailer, run a plank of wood up the side, and that workers would pick-up birds from the sheds and run back to the truck. Over time as the pick-up process became more efficient and the time required decreased, the companies realised that the birds were on the trailers longer than they had to be and were unnecessarily losing weight. Pick-up therefore started in the early hours of the morning. In more recent years, the speed of bird pick-up has increased as the process has become more mechanical. By employing fork lifts pick-up crews are able to concentrate on filling plastic crates with birds. The process has also become more efficient with trailers delivered to farms prior to collection, enabling the pick-up crew to move between farms and the truck driver to continually travel between contract farms and processing facilities.

Thirdly, the manner in which some processing companies balance economic and disease issues may have changed over time. One farmer acknowledged that his company instead, of collecting the smallest birds first and then the largest to prevent disease transferral between farms, was now more inclined to start at the furthest farm and work back towards the processing plant to minimise the costs involved in transportation.

Recognising these changes in the impact of increasing the frequency of bird collection, it is still uncertain as to the impact of collection on complaints.

6.1.2 Conflict Experienced by the Egg Industry

The egg farmers interviewed appeared to experience less conflict than the farmers who were interviewed in the broiler industry. Where complaints are lodged against members of the egg industry the main concern relates to flies. At times complaints were apparently justified as poor farm management allowed wet litter to build up. Another example where legitimate complaints might

develop was following the introduction of a new breed of hen. For one egg company a new bird had produced wetter manure and increased the potential for fly breeding.

The example of an egg farmer who was quarantined following an outbreak of Newcastle Disease in 1998 provides evidence of variable management practices in the egg industry. Concern by NSW Agriculture that cleaning the farm involved removing 20 years of old cages and rubbish, as well as dead birds and manure, resulted in a proposal that compensation should be limited where a farm is found to be untidy.

In parallel with the WA experience is the realisation that land use conflict is likely to be less for the egg industry because it is not expanding to the same extent as the broiler industry. Egg industry representatives acknowledged that there had not been as much development as there should be, given the need to replace a number of older farms. According to one farmer, many of the industry's sheds were falling down and in need of replacement. Rather than land use conflict being the main threat to the egg industry, other challenges were seen as more important. In relation to the urban fringe, increasing incidences of trespass, malicious damage and stealing were thought to be of greater concern following encroachment than environmental complaints. Other industry interviewees believed the depressed economic returns received by egg farmers was a greater challenge for the industry.

Statistical evidence on structural change in both the broiler and egg industries is unavailable as no detailed information is kept on the number of new farms or shed expansions. Despite this, it is possible to conclude that poultry farms are spread throughout the Sydney Basin as presented in Table 6.1. As in WA it is possible to conclude that the experiences of farmers will vary depending on whether they are abutting urban development or rural residential development, whether they are in a more remote rural area or whether they are intending to construct additional sheds or a new farm. Examples of poultry farmers operating near urban development were limited in the south east corridor as many had sold as development approached, though cases were noted where farmers were thought to be holding developers to ransom by requesting extraordinary amounts.

In Liverpool there was one egg farmer within 120m of an urban estate, and a broiler farm in Camden was less than 80m from a new estate development. Residential encroachment had also occurred around poultry farms in the Cities of Blacktown and Baulkham Hills. The main distribution centre of Pace Farms backed on to suburbia, and Inghams Enterprises Liverpool processing plant was surrounded by urban development. Despite these examples, the greater concern was for rural residential allotments and the subdivision aspirations of rural land holders. For example, with the exception of the egg farm noted above there were no poultry farms located in areas designated for urban release in the local government area of Liverpool. The westward expansion of suburbia is limited by a green belt which separated Liverpool township from poultry farms located in the rural areas of Kemps Creek and Austral. The green belt consists of a Department of Urban Affairs and Planning (DUAP) designated regional park, a recreational reserve and open space. Land immediately to the west of the Sydney has been designated for rural residential development, with an airport proposed further to the west in Badgery's Creek. Rural residential development in the Leppington region to the north of the City of Camden threatens to further increase the intensity of land use conflict in the future.

6.1.3 Assessment of Conflict by Local Government and State Government Departments

Local government officers provided similar reasons for conflict recognising that it was partly justified because of the proximity of neighbours and the management practices being employed. At the same time it also reflected the lower tolerance levels of newcomers. These three factors are addressed below in greater detail. Firstly, poor land use planning in the past was one reason for conflict today. Where rural properties have been subdivided, rural lots sizes have decreased and the separation distance between different land uses has been reduced. Secondly, complaints were related to general management practices, including the stockpiling of manure, the cleaning out of sheds and dead bird disposal. Broiler farms were identified as attracting a higher level of complaint compared to the egg

Table 6.1 Location of Poultry Establishments in Sydney Metropolitan Area, NSW 1997

Metropolitan Subdivision	Local Government Area	Egg Farms	Broiler Farms
Fairfield-Liverpool		17	41
	Fairfield	7	8
	Liverpool	10	33
Outer South Western Sydney		12	49
	Camden	7	15
	Campbelltown	0	6
	Wollondilly	5	28
Blacktown-Baulkham Hills		24	25
	Blacktown	18	20
	Baulkham Hills	6	5
Outer Western Sydney		15	23
	Penrith	9	17
	Hawkesbury	6	6
Hornsby-Ku-ring-gai		2	7
	Hornsby	2	7
Gosford-Wyong		7	53
	Gosford	5	43
	Wyong	2	10
Northern Beaches		1	0
	Warringah	1	0
Central Western Sydney		1	0
	Parramatta	1	0
Sydney		78	198
South Eastern (including Young and Mulwaree)		9	0
Northern Slopes (including Parry and Tamworth)		23	14
Hunter		9	104
New South Wales		141	328
Australia		506	743

Source: ABS IRDB 1999– Estimated number of farms where poultry is the only or major activity. Excludes those establishments making only a small contribution to agricultural production. From 1991/92 the scope of the agricultural census was farms with an estimated value of agricultural operations of \$22,500 or more.

industry. Variation in management practices was one possible reason with caged egg layers less of a problem if the manure is able to remain dry below laying cages. The practice of storing manure outside prior to it being bagged and sold was seen as encouraging complaints, as the relocation of manure releases odour in the short term. For the industry, restrictions on the on-site storage of manure may limit important economic strategies. Thirdly, it was realised that newcomers wanted a rural lifestyle but were generally intolerant of agriculture. Local government officers identified odour as the main problem, with variable attitudes towards the significance of night time noise (a major concern in the Shire of Wollondilly).

Poultry farms were identified as attracting conflict of a higher intensity than other types of agricultural production. Despite having the potential for widespread impacts, conflict involving piggeries was not thought to be as intense, though it was unclear whether this reflected larger buffer distances or a

consequence of the EPA licensing. As noted by one environmental officer, the fact that the poultry industry attracts a higher level of complaint may simply reflect the number of farms relative to other types of farming.

Interviews with State Government departments provided similar conclusions. Firstly, land use conflict involved a combination of farmers wanting to continue as they have operated in the past and the amenity expectation of neighbours. In other instances, concerns were thought to be inappropriate with the visibility of poultry sheds resulting in complaints when the neighbouring market gardener may be at fault. According to one NSW Agriculture officer, up to 90% of complaints were based on personalities rather than management practices. In other cases, complaints were thought valid, with small to medium sized poultry farmers on small lots of land who were unable to upgrade causing major concern. Secondly, interviews with officers from NSW Agriculture and the EPA revealed that the egg industry was causing fewer concerns as odour and noise levels were lower compared to the broiler industry.

6.2 Current Regulatory System

6.2.1 NSW Agriculture's Poultry Farming Guidelines (1994)

In the Shire of Wollondilly one of the earliest signals of the rising level of land use conflict came in 1992 when the council refused a turkey farm after 70 residents attended a council meeting in protest (Australian Chicken Farmer, 1992). Industry leaders responded by requesting that NSW Agriculture create greater uniformity and rationality in council decision making (Australian Chicken Farmer 1992). Their calls were partly answered in 1994 when NSW Agriculture updated their earlier poultry farming guidelines. NSW Agriculture's *Poultry Farming Guidelines* provided information on management practices and recommended a number of separation distances which are presented in Table 6.2. The separation distances recommended by the NSW Poultry Advisory Board in earlier guidelines are included in Table 6.2 to provide evidence of change over time. Rather than being scientifically estimated, the recommendations are based on anecdotal evidence of the distance over which complaints are likely to emerge. Although the planning significance of separation distances was acknowledged, greater priority was given to improving farm management practices.

Buffer zones must not be relied on to cure all the problems associated with urban encroachment into poultry farming areas. On established poultry farms, good farm management practices are more important than relying on buffer zones to deal with potential environmental problems. A poorly run farm can cause an environmental impact even if normally effective buffer zones are in place. (NSW Agriculture, 1994:5)

One concern relating to codes of practice is their target audience. Farmers may believe that codes of practice are a good way of educating government but that they have little personal relevance as farmers are already aware of what constitutes good farming practice. In contrast, local government may believe that codes of practice are developed to educate farmers about normal farming practice, as they provide little assistance in the regulation of poultry farms, especially because of the absence of acceptable thresholds that can readily be monitored. For this reason, one council officer indicated that the only real benefit of the guidelines are the recommended buffer distances.

The ability of NSW Agriculture's guidelines to ensure greater decision making uniformity is limited without legislative support. In response to community activism, the Shire of Wollondilly adapted the guideline by formally adopting the recommended 150m separation distance between poultry sheds and off-farm dwellings as its internal buffer distance in April 1995 (WSC, 1995). At the relevant council meeting, the Poultry Farm Neighbours Support Group was able to argue against the opinions of others and reasoned that if council did not have sufficient resources to police offending farmers then it should enforce greater separation. Under pressure, the Council agreed that poultry sheds should be 150m from farm boundaries (Australian Chicken Farmer, 1995). This was despite submissions from NSW Chicken Growers Association indicating that the 'proposal would prohibit the expansion of any existing contract style farm in the area'. The policy was thought to be highly discriminatory against family farming as the

Table 6.2 Recommended Separation Distances from Poultry Sheds in New South Wales

	Settlements of 10 or more dwellings	Urban residential zone	Dwellings on the same property	Dwellings on another property	Public roads	Property boundaries	Water-courses	Area	Minimum Separation between farms
Poultry farming guidelines – NSWPAB (1973)					50 feet	10feet		Minimum of 2 ha (5 acres)	
Guidelines for Standards of Poultry Farming in NSW, Dept. of Agric (1982)	300m		100m	150m	100m	30m	100m		250m
NSW Poultry Farming Guidelines – NSW Agriculture (1994)	300m	500m	50m	150m	100m	30 to 50 m	50m*	Roof area should represent no more than 8-10% of total farm area	500m

*Developments within 100m are designated developments and may be subject to detailed assessment

only developments that could be considered economic would be large company farms (Australian Chicken Farmer, 1995). The Egg Industry Committee of NSW Farmers’ Federation wrote to council expressing their concern at the proposal, believing it to be unrealistic and that it would effectively force farms out of the area by limiting expansion opportunities. Case study box 6.3 provides an example of how Wollondilly Shire Council has attempted to introduce its policy.

Case Study Box 6.3 – Implementation of Separation Distances in the Shire of Wollondilly

One turkey farmer located in the Shire of Wollondilly initially received Council’s approval to build four sheds on a 14.16ha property in an Agricultural 1(a) Zone in 1994. In 1998, the farm lodged an application to build two additional sheds in uniformity with existing sheds. Rather than increasing the total number of birds the farmer’s intention was to reduce the stocking density from 7,000 birds per shed to 4,000, and to reduce the total number of birds from 28,000 to 24,000. The proposed sheds were 206m and 300m from the nearest off-farm dwellings. In December 1998, the planned two shed expansion was approved subject to a number of conditions, including maintaining a 150m buffer distance to property boundaries. Rather than the new sheds being built 50m from one boundary in conformity with those that already existed, the new sheds would have to be located 90 degrees to the present sheds. This was despite the original application being supported by the EPA and NSW Agriculture Officers, and neighbouring residents giving their support at council meetings. Other consent conditions included limiting the stocking density as indicated in the development proposal, restricting hours of operation from 7am to 10pm, removing all litter from outside sheds and no offensive odours at property boundaries. Plans were also to be submitted outlining odour, dust, soil and water management, in addition to a landscape plan, the latter to include the planting of advanced trees (WSC, 1999).

With farmers indicating that it was one of the newest and best managed farms in the Shire, it was reported that 7 out of 9 nearby neighbours had no problems with the expansion, and the 8th and 9th had never complained. The main protagonist, who delivered a petition with 200 signatures to council, was approximately 500m from the proposed sheds. Neighbours revealed their allegiance to the farm by writing a letter to the editor of a local newspaper indicating their support for the farm’s expansion and that it was time for the silent majority to take control from minority anti-poultry farming groups (Camden and Wollondilly Advertiser, 1999b). The letter invoked a backlash from the local Poultry Farm Neighbours Support Group, who indicated that they were not against poultry farms as long as

they kept their externalities within their boundaries, as they are 'toxic and laden with bacteria and faecal organisms' (Camden and Wollondilly Advertiser, 1999b). Another resident indicated that the Council had taken a step in the right direction by implementing the 150m internal buffer as a means of protecting the community and stopping the problem from escalating (Camden and Wollondilly Advertiser, 1999d). The Support Group indicated that Council should honour its commitment to the policy (Camden and Wollondilly Times, 1999a). The attitude of the councillors was mixed, some noting how well managed the farm was and suggested that 50m would be appropriate while others were concerned about the precedent that would be established (Camden and Wollondilly Times, 1999a).

A further division could be seen within council with local planning officers approving the development application prior to its refusal at a council meeting. Planning officers were reluctant to go to the Land and Environment Court suggesting that the farmer should instead encourage council to modify the consent conditions under Section 96 of the Environmental Protection and Assessment Act, 1979. If he did plan to do so he was advised to wait until after local council elections were held. The underlying perception was that the farmer would win the appeal case as the 150m requirement represents a guideline rather than a legislative requirement. Council's Development Control Plan for poultry farming also states that each application will be treated on its merits. To date the 150m has not been challenged in a court of law, with council officers questioning whether it could be successfully enforced as it had no scientific basis and varied from NSW Agriculture's guidelines.

In other local government areas, decision-makers have taken a fairly rigid line in implementing the guidelines rather than assessing each shed proposal on its merits. Officers from Camden City Council indicated that they would employ NSW Agriculture's guidelines in a fairly strict manner, and under certain circumstances would increase the recommended distance. A distinction between the development of new farms and the expansion of existing farms was noted with Council thought to be more favourable towards existing farmers with a positive management record. While some farmers recognised that it was reasonable for Council to restrict expansion if residences were nearby, others thought that the same rules should apply as when a farmer initially developed the property, and that people should realise this before investing in the area. Despite suggestions that government could be more flexible in its interpretation of buffer distances, industry representatives had difficulty in suggesting what would constitute a reasonable internal buffer requirement. The need to take into account location and farming practices was noted, because if a farm was poorly managed then the buffer would have a minimal impact and its relevance to farms located in remote areas was questioned. In contrast to those suggesting 150m was excessive, other farmers thought that it was probably appropriate for new farms and that farms on five acres shouldn't be able to build new sheds anyway. One industry leader explained that the internal buffer distance played two roles, it reduced externalities from a poultry farm and also limited the impact of neighbouring land uses on the farm.

6.3 Ability of the Regulatory System to Deal with Conflict

As in WA, the regulatory system can be divided into three separate systems: the development approval process, environmental regulation and land use planning. Each of these is now individually addressed.

6.3.1 Development Approval Process in NSW

Rather than having problems with how the development approval process is designed, poultry industry representatives indicated that their concerns related to misconceptions about the industry and the influence of vocal minorities over the decision making process. Both are addressed in more detail below (see also Figure 3.2).

Impact of Misconceptions on the Development Approval Process

A number of different misconceptions were identified during interviewing. Firstly, uncertainty existed in relation to the classification of poultry sheds. When sheds were classified as an industrial activity,

then fire precautions, including illuminated exit signs, might be demanded despite the low fire risk associated with poultry farming. Often such misconceptions reflect the desire of the poultry industry to invest in new areas of production or the arrival of new planning officers. Officers from coastal Australia were identified as approving developments subject to conditions that were unnecessary for regional areas, including requiring farmers to use colourbond panels on shed roofs and green coloured silos. A second concern related to government's demand for public car parking when the preference of farmers is to discourage visitors for quarantine reasons. Thirdly, for other industry representatives the concern shown by councils and the EPA for water run-off was considered an over-reaction as drainage and retention dams were not necessary. Prohibiting farmers from stockpiling litter outside sheds was questioned because after the first day, manure which is stacked and covered was thought not to smell unless it was continually turned over. To overcome some of these misconceptions the option of encouraging decision-makers to inspect existing farms was noted.

Impact of Community Pressure on the Development Approval Process

Industry representatives raised concern that voters intimidated local government because development applications were often refused despite complying with the recommended guidelines or having received the support of State Government agencies. Apparently, another local government response was to demand additional environmental information, including noise and odour reports, with the intention of delaying decision making. This was viewed negatively by the industry, especially when farmers knew what management practices were required. Interviewees had difficulty in determining whether they had a preference for providing a comprehensive environmental statement at an early stage of an application or facing council's demand for additional information over an extended period of time. It was considered that the less contact with government the better. It was claimed by farmers that in the past it would take 3-4 weeks to obtain an approval whereas now you were lucky if it took less than 12 months. For this reason, some farmers indicated a preference to know and present what information was required from the outset.

Council officers acknowledged that additional information might be required at different stages of the approval process. In the Shire of Wollondilly, one reason for this was that the need for an odour consultancy report was recognised following the adoption of the council's Development Control Plan for Poultry Farming in 1995 (WSC, 1995). A second reason was the nature of the approval process itself. After a development application is placed on council's front desk, the duty officer would check to see if all required documents were present. At the next meeting of council's planning officers, the application would be allocated to a responsible agent, who would organise a site inspection. A basic assessment of the application and site would be conducted by council and there is a 21 day period during which council can ask for additional information. After receiving the required information, neighbours would be notified and the application would be referred to relevant State Government departments. If it is approved by the state agencies, then a report is written to council. If the state refuses or requests more information, then the process can be prolonged. Relevant state departments might include the EPA, Mines and Subsidence, Land and Water Conservation, DUAP and NSW Agriculture. Further delays may occur where council officers request additional information.

An officer from NSW Agriculture criticised any concern that council might continually request additional information. People making such claims were thought to be ignorant of the development approval process and the role of the planning focus meeting (PFM) in NSW. Case study box 6.4 provides additional information on the PFM in NSW.

Case Study Box 6.4 – Role of the Planning Focus Meeting in NSW

In the late-1980s conflict between residential development and intensive livestock industries became an important public policy issue following the submission of a number of applications for new feedlots. In particular, a proposal for a 40,000 head feedlot near Yanco caused considerable outcry forcing local government to balance the creation of employment with threat of damage to the water table. Concern by investors for the inconsistencies that existed between different government

departments and the complexity of the development approval process encouraged the State Premier to establish a Feedlot Advisory Committee (Ridley *et al.*, 1994). In 1992 the Advisory Committee evolved into the Inter-departmental Committee on Intensive Animal Industries, which was established to facilitate a broader investigation of agricultural development. Relevant investments included cattle feedlots, intensive piggeries, dairies, major poultry establishments, abattoirs, wool scours and tanneries. The Committee included senior officials from State Government departments, including NSW Agriculture, EPA, DUAP, Land and Water Conservation, Local Government and Shires Association and other agencies where appropriate. Industry associations are also brought into meetings to discuss recommendations regarding animal welfare and environmental issues.

One outcome encouraged by NSW Agriculture, was the introduction of PFMs, as provided for by the *Environmental Protection and Assessment Act, 1979*, into the realm of agricultural developments (NSW Water Resources *et al.*, 1993). To assist the development process the intention was for appropriate government departments to meet with the proponent on the farm site to identify any problems or requirements that would need to be satisfied at an early stage of the proposal. Although the PFM attempted to reduce some of the conflict involved in the development approval process, reports suggested that it does not always achieve this. For example, government departments may initially send junior officials when the final assessment is the responsibility of more senior staff.

Wollondilly Shire Council had employed PFMs in the past for poultry farm developments. Rather than compulsory, PFMs are undertaken at the request of the applicant or where a proposal is considered locally significant. For some poultry industry leaders the PFM was a valuable tool that could be employed before a farmer went too far down the track of buying a property, though properties are often purchased subject to development approval. An additional benefit was that farmers would be more aware of what information would be required at an earlier stage. Other industry leaders were more negative indicating that the industry would be reluctant to participate as 'the more people who stick their noses into it the more problems you get'. One interviewee acknowledged that this was an unfortunate way of looking at the decision making process but the reality was that council was intimidated by local voters.

A second alternative to having to continuously provide additional information is to provide a comprehensive environmental impact statement (EIS). Case study box 6.5 describes the attitude of farmers to having to submit an EIS. Under the Environmental Planning and Assessment Act, 1979, if a proposal is a 'designated development' then it is required to submit an EIS. Non-designated developments are required to provide a less comprehensive statement of environmental effects. As identified in Figure 6.2 separation distances to sensitive land uses determines whether a poultry shed is a designated development rather than the total number of birds. In 1994, when poultry farms first became designated, an assessment of poultry farm location, size and complaints by DUAP revealed that the farms that faced conflict did not always have the largest number of birds. For farms up to 40,000 birds, there tended to be few problems and only location concerns. Farms carrying between 40,000 and 120,000, and especially in the 60,000 to 80,000 bird range, caused the most concern. The largest farms often employed the most advanced technology and professional managers, and were considered a lesser problem. It was therefore decided that size was not as important as location.

Case Study Box 6.5 – Attitude towards Environmental Impact Statements

A concern of farmers in having to submit an environmental impact statement was the realisation that there was no guarantee that people would actually examine it. As one farmer stated, even if someone was to undertake research into dead birds, odour levels and wind directions, an approval is not guaranteed as the consultancy report may be ignored. Other concerns related to the need to move quickly when a development opportunity emerged, and the additional expenditure involved. Despite suggestions that the cost was small in relation to total farm investment, industry sources were concerned about having to outlay \$20,000 for an EIS and \$20,000 or so for other associated costs. Small farmers might also be discouraged from investing.

The majority of poultry sheds are not categorised as designated developments and no EIS is required. Council officers, however, thought that a statement of environmental effects, plus an odour and noise report was very similar to an EIS in terms of the information provided. From their experience it appeared that the willingness of farmers to supply the required information was mixed. One officer thought that although farmers were reluctant to undertake an EIS because of the costs involved, they didn't refuse to supply additional evidence because they could see the benefits in helping to justify decisions. Another officer questioned whether farmers were willing to provide the information required by local government. The example was noted of one farmer who would periodically approach council wanting to develop. Officers would then outline the information required and the farmer would leave. Later the same farmer would approach council and again describe what he intended to do. It was concluded that the farmer wanted to expand but was reluctant to spend the money on the required information. Farmers themselves recognised that whereas in the past they could apply to develop sheds, they now had to employ consultants because of the additional information required. A further reason why farmers might criticise the development process was that for most individuals, participation was infrequent, unfamiliar, and therefore substantially daunting.

Any suggestion that all farms should have to submit an EIS were criticised as it was not necessary in all occasions and that the need for additional information was often questionable. The perceptions that the accuracy of an impact statement is limited needs to be balanced against arguments that it provides a positive farm management tool. Industry leaders noted that it is difficult to predict the impact of climatic conditions, inversion layers and topography on odour drift as not a lot of research has been undertaken. Similarly, at the same time as council requested odour, noise and dust reports where poultry farms were proposed in sensitive areas, officers noted that any such reports do not provide conclusive evidence as there are no prescribed standards. Local government also doesn't have specialists for every activity it might be responsible for. To check on the reliability of consultancy reports, local government indicated that it would employ its own consultants to see whether they would come up with similar assumptions and determinations given the data presented. One reason was the lack of uniformity in consultancy reports, with different standards and research findings adopted from within Australia and internationally. The downfall of other reports was that they did not evaluate odour, but simply said that it would be minimal because of management practices or the new style of shedding being employed.

The assessment of a poultry farm in NSW has not changed with the introduction of *the Integrated Planning Act* in 1998 as poultry farms generally do not require permits from government departments. Only when a poultry farm is located in Sydney's water catchment areas or within a certain distance of a waterway is the approval of Sydney Water and the Department of Land and Water Conservation required. For farms over 250,000 birds then an EPA licence is required. Generally it was thought that State Government departments have a limited involvement. Officers from Wollondilly Shire Council indicated that they usually sent shed applications to the EPA and NSW Agriculture for comment, though it was felt that neither could provide a comprehensive assessment of likely impacts. Of further concern for council was the perception that the EPA was moving away from assessing poultry farms under 250,000 birds, as it reinforced the tendency for additional responsibilities to be devolved without the allocation of sufficient resources or expertise. Development officers from Camden and Liverpool Councils indicated that they were now more likely to refer poultry shed applications to government departments, including NSW Agriculture, for comment. This suggests that they are becoming more aware of the potential for land use conflict. It is also likely to create the perception that Liverpool City Council has been quite supportive of existing farms wanting to expand.

Appeal Processes in NSW

There were differing opinions as to whether local government simply did not want poultry farms or whether council realised that a refusal could be easily overturned at the Land and Environment Court, thus allowing it to maintain the political support of the local community. An officer from the EPA offered a different opinion, stating that provided applicants had enough money they could appeal to the Court where decisions could be overturned. It was suggested that applications were sometimes engineered so that council would refuse them. On appeal, the applicant would then tone down the

application and receive an approval through the court system. At the same time it was noted that council was reluctant to take cases to the Land and Environment Court, but if applications were unpractical then they had no choice. This conclusion appears to conflict with the general reluctance of farmers to appeal to the Land and Environment Court as noted in case study box 6.6. Unless people have directly been involved in Land and Environment Court cases, then it is difficult for them to offer recommendations for improving the appeal process. Egg farmers seemed to be less aware of the Land and Environment Court, or whether it had ruled on cases involving egg farms. Broiler farmers noted the need for a more informal tribunal indicating that they would perhaps be willing to pay \$5,000 for a ruling instead of \$40,000 via the Court. Council officers acknowledged that they were reluctant to take cases to the Land and Environment Court, especially because outcomes were uncertain. However, it was nevertheless the system they had to operate within.

Case Study Box 6.6 – Attitudes towards the Appeal Process

Unlike WA, farmers in NSW cannot appeal directly to the Minister for Planning, instead lodging their case with the Land and Environment Court. Interviews with poultry industry representatives revealed negative attitudes towards the appeal system. With court costs of approximately \$40,000, farmers were generally reluctant to lodge appeals. A second concern was whether it was worth fighting a case through the Land and Environment Court when neighbours were complaining before a farm was even operational. Thirdly, farmers may be reluctant to appeal against decisions where they realise that they can relocate to other areas and more easily receive an approval. A fourth reason relates to farm characteristics, including age, likelihood of succession, and personal attitude. For some it may not be a battle they are used to fighting, believing instead that government will recognise and support their interests.

One Wollondilly farmer indicated that there was the potential to build an additional shed without reducing the separation distance to nearby neighbours. However, his perception was that it was becoming too much of a hassle to obtain development approval. Perhaps if he was younger and more ambitious then he might try appealing to the Land and Environment Court. In contrast another farmer from the Wollondilly area indicated that he would approach the situation differently by letting council know that their decision was going to be strongly contested.

Community Involvement in the Development Approval Process

Different attitudes were collected in relation to the effectiveness of holding public meetings during the proposal stage. On the one hand it was suggested that those favourable to a development or those without a strong view would not turn up and the process would be biased. On the other, the idea of a public meeting at an earlier stage had merits as it allowed the proponent to present the project, and to hopefully stem any false information that might emerge. Community meetings would also assist in finding a supportive environment, which was considered essential when multi-million dollar investments may be involved. The experience of one farmer suggests that the success of such meetings may be limited. Having received one complaint during the past 32 years, the farmer submitted a development application and attracted four objections. When council asked whether they wanted to be involved in a mediation process they were reported to have been unwilling. One interpretation is that the neighbours did not have a legitimate reason for complaining, but were somewhat concerned about the possibility of increased externalities.

State Government Intervention in the Development Approval Process

Rather than changing the appeal process, industry representatives thought that the development approval process needed to be improved at an earlier stage, such as ensuring that people with an understanding of agriculture were making decisions. Interviewees recognised that there was no location that the industry could develop unopposed and that local government was too powerful. Accordingly, there was a need for either greater input from local planners, for council to take greater notice of consultancy reports or for State Government to intervene by stating that under these conditions and in

these agricultural areas, poultry farms will be allowed. Greater State Government involvement was also associated with greater consistency between local government areas. It was realised that some local governments are responsible for environmentally sensitive areas and that policy requirements needed to vary between urban fringe areas and more remote regions. In the former it was deemed fair for a proposed poultry shed to face greater scrutiny, including compliance with general principles, while in rural Australia it was thought proposals should be judged on their merits (although some interviews highlighted the difficulty that the industry experiences in developing in more remote rural areas). In urban fringe areas, the need for flexibility was identified, perhaps along similar lines to WA, with an allowance made for farmers expanding to a non-sensitive boundary.

Approval with Consent Conditions

In addition to refusing farm development applications, local government may approve proposals subject to consent conditions. For one council officer, the development approval process was dynamic, with consent conditions becoming more strictly enforced and extensive over time. If the imposed consent conditions failed to address environmental issues then additional conditions would be introduced. Case study box 6.7 provides some evidence of consent conditions recently implemented in NSW. The importance of carefully wording consent conditions was noted. Requiring farmers to develop a vegetation barrier must also include details of the height, width or characteristics of the trees to be planted. The need to plant multiple rows of trees and shrubs was identified, because if one row is planted, at some point in time, neighbours may be able to view the sheds from under the canopy. A second concern related to council strictly implementing NSW Agriculture's code of practice. In addition to the internal buffer distance, the required distance between poultry sheds was identified as problematic. The guidelines were thought to be unpractical in relation to automatic egg collection, as the time taken from the point of lay to a centralised collection point given minimum separation distance recommendations would be excessive, and the costs exorbitant. Thirdly, egg industry interviewees indicated that a lot of conditions being applied to the broiler industry were inappropriately being applied to egg farms. Curfews, for example, were considered less important in the egg industry.

Case Study Box 6.7 – Consent Conditions Placed on Recent Development Applications

- No manure or spent litter external to the sheds;
- Spent litter shall be removed from the shed at the removal of each batch of birds from each shed and replaced with fresh shavings;
- Pick-up of birds shall not take place between the hours of 10.00pm and 7am;
- There shall be no offensive odours at property boundaries;
- A \$20,000 (others \$5,000) bond on landscaping, repayable after a 12 month period provided that the landscaping meets council's satisfaction;
- Planting of well-advanced trees;
- Application of odour neutralising compounds, such as 'wotsmell', to litter to control odours;
- Construction of vertical venting stacks constructed to a height of 1m above the ridge line of the sheds;
- Records of the date and time of all cleaning activities, as well as special notes relating to any accidents, during the clean out process;
- If noise levels exceed background levels plus 5db(A) at the nearest off site dwelling, then a noise consultant will be employed to make recommendations, which shall be implemented as soon as reasonably possible;
- Provision of an annual environmental audit report to council; and
- Separation of 300-500m from existing dwellings on adjoining properties and 150m from property boundaries

Even where consent conditions are being implemented, councils' enforcement was considered poor. Given that vegetative barriers may take a decade or more to develop, enforcing consent conditions in an *ad hoc* fashion does not help conflict resolution. Accordingly, some local governments have taken a more active stance by introducing financial bonds to encourage compliance. Recognising that the

enforcement of consent conditions is also one way in which local government can respond to environmental complaints, attention is drawn to the implementation of environmental regulation.

6.3.2 Environmental Regulation in NSW

Farmers acknowledged that it was local government that responded to environmental complaints as the involvement of the EPA was limited unless the concern related to waterways. In response to complaints, council officers would visit the relevant farm to assess management practices. Rather than entering poultry sheds or taking measurements, officers generally undertook a visual assessment. Although farmers might be required to remove dead birds or manure from the property, or to adopt sufficient practices to minimise flies, it was suggested that nothing unreasonable had been required to date. It seemed that on few occasions had local government adopted a stricter regulatory approach, such that farmers were somewhat uncertain due to a lack of precedents. A number of reasons can be suggested for this. Firstly, despite uncertainty about future urban development, continued capital investment in poultry farms is essential for maintaining an efficient feed-conversion ratio. For example, if water dispensers and feed lines are ineffective then profitability may be affected and contract arrangements investigated. Secondly, it was noted that the majority of farmers did not want to operate in an environment of conflict and are equally affected by externalities. Where farmers were not doing everything possible, it was thought that local government could not close a farm but that they could make life difficult by restricting expansion or by enforcing conditions when a farmer was experiencing problems in disposing of manure and dead birds. No examples were noted where a farm had been closed for environmental reasons. Case study box 6.8 draws a distinction between different approaches to environmental complaints by government officers.

Case Study Box 6.8 - Variation in Governments Response to Environmental Complaints

One interviewee identified two types of government officers: the technical-social officer and the policeman-bureaucrat, distinguishing between the approach of different officers responding to environmental complaints. When the technical-social officer receives a complaint, the officer visits the farmer, sits down and talks about the problem and what the farmer has been doing recently. In doing so a cooperative environment is created. The officer might then write an official letter to the farmer outlining certain practices to be undertaken. The policeman type officer often demanded unworkable conditions from the outset, believing that they are wasting their time if they don't issue an order.

Environmental Regulation in NSW prior to the 1st July 1999

Up until July 1st 1999 local government had a number of different avenues through which environmental complaints could be addressed. Firstly, council could wait until a farmer submitted a development application before applying consent conditions to the total operation. By doing so, local government could overcome the problem of being unable to retrospectively attach development conditions under the *Environment Protection and Assessment Act, 1979*. Secondly, local government could address poultry farm externalities under the *Local Government Act, 1993*, although council and Health Department officials noted that research showing a relationship between odour and public health is limited. The difficulty of disseminating this information to people suffering from headaches and asthma was duly noted. Thirdly, local government could use the *Clean Air Act, 1961*, and the *Noise Control Act, 1975*, to address issues of odour and noise. Noise was identified as a lesser problem because it was quite easily measured and mitigating options were available. One council officer said that it was relatively easy to restrict hours of operation under the *Noise Control Act, 1975*. Although such conditions could be appealed through local courts, cases were often treated in an uncompromising manner. An additional concern was that assessment could be based on an extreme measurement rather than a daily average.

Odour was identified as being more difficult to address under the *Clean Air Act, 1961*. While it was possible to administer prevention notices, legal advice given to one council was that they would have to inform farmers of the practices that needed to be adopted. This represented a difficult task given that officers are not specialists in poultry farming. Although manure and dead bird management could be assessed, council officers admitted that feed quality and fan layout were more difficult issues to address. Cessnock Council, in the Hunter Valley to the north of Sydney, was identified as one LGA that had gone further in adopting a legislative approach. In 1993, notices of prosecution were placed on two broiler farms requiring all spent litter to be removed from the farm at the time of cleaning, rather than stockpiled, and that all dead birds were to be disposed of off-farm. In the following year, council again served notices under Section 20(1) of the *Clean Air Act, 1961*, to two broiler farms, requiring owners to install control equipment, such as deodorising equipment or odour suppressants, so that there would be no detectable odour or noise at property boundaries (Parker, 1995). For industry, there is the concern that even if farmers were to invest in expensive technological fixes they are not necessarily given any additional protection in the future.

Council experienced additional problems in validating complaints where available resources limited their ability to respond instantaneously. By the time they actually visited the farm, the externality may have dissipated. Case study box 6.9 provides one example of the complexities experienced by poultry farmers and local government in relation to environmental complaints. Even where local government is able to immediately respond to complaints, its ability to determine the legitimacy of complaints is hindered by the absence of assessable thresholds. The inability of local government to validate complaints can be both positive and negative for the poultry industry. While it may discourage local government from taking a stronger regulatory stance, council also assesses performance based on the total number of complaints rather than the number of substantiated complaints. This has important ramifications when local government is deciding how it will respond to environmental complaints or to farm expansion proposals, where multiple complaints are used as some indication of legitimacy. Industry representatives therefore argued that farmers should be innocent until proven guilty. If local government could measure and assess the offensiveness of odour, implications for the poultry industry would clearly depend on the threshold level.

Case Study Box 6.9 - An Example of the Complexities Involved in Regulating Externalities

One farmer indicated that a council officer had approached the farm following a complaint. However, because the officer had been on another farm that morning, the farmer informed her that she could not inspect the property for quarantine reasons. The farmer acknowledged that the farm was more odorous than normal as the company had been compensating for the outbreak of disease in other areas of NSW by growing larger birds in the local region. In addition to raising the birds for 9 weeks instead of 7, the weather at the time had been particularly hot and fogging was being employed. By the time the officer returned the farm had been cleaned out, a new batch of chickens had been delivered, and the situation had completely changed. The officer was informed that in an attempt to reduce odour levels, the farm was in the process of changing over from watering cups to nipple drinkers, a costly process that was thought to reduce wet manure. By being able to indicate that something positive was being undertaken, the officer left satisfied. The farmer felt that planting more trees at the front of the property would be an appropriate additional strategic measure.

Other practical difficulties noted by council involved communicating with farmers. Holding community meetings was identified as one way of addressing the need to educate farmers. Council officers suggested that they had inadequate resources to employ such as strategy and that council by its very nature was reactionary rather than pro-active. Case study box 6.10 identifies uncertainty regarding what constitutes appropriate management practices as another problem facing regulators.

Case Study Box 6.10 – Contrasting Industry Attitudes towards Management Practices

The ability of government officers to respond to complaints is affected by conflicting interpretations of normal farming practice. One area of uncertainty relates to the removal of litter. Government

interviewees indicated that the industry generally regarded the regular removal of litter as a good investment as the birds were generally healthier and death rates were reduced. There remains an economic trade off between a higher death rate and the cost of floor shavings. In relation to this trade-off, it is likely that practices will depend on whether the processing companies are concerned about high mortality rates or whether they provide sufficient time between bird removal and the delivery of day old chicks to undertake a shed clean out. At least one company was using multiple batch litter on the basis of the results equalling any other system. The company also noted that the recent disease outbreak in the Sydney region occurred in areas of single batch litter. An added benefit was that the demand for multiple batch litter was higher compared to single batch. One farmer stated that the farm was not cleaned out after every batch as there was often only 2-3 days between bird removal and the arrival of day old chicks. Irrespective of this, the farmer reported that cleaning out involved a lot of organisation and was generally only undertaken once a year.

Leaving the legislative approach adopted by Cessnock Council aside, the reality is that local government faces difficulty in regulating odour from poultry farms under the *Clean Air Act, 1961*. In some instances this may create the perception that the industry is self-regulating when in reality poultry farming may be falling through a regulatory gap between Local and State Government. Concurrent with the EPA redirecting complaints to local government because poultry farms were not scheduled under the *Clean Air Act, 1961*, local government felt that its own ability to deal with such complaints was limited. According to one EPA officer, residents often expected that they could fix the problem, when in reality there was no single solution or technological fix that could be readily enforced. In cases where the EPA has become involved, farmers have often been informed that odour and noise levels needed to be reduced as there was a reluctance to prosecute. It was suggested that pressure from higher levels within the EPA also limited such intervention.

Protection of the Environment Operations Act, 1997

Conflict between the different tiers of government became apparent during the formulation of the *Protection of the Environment Operations Act, 1997* (POEO) which came into effect on 1st July 1999. The Act unified a number of different pieces of environmental legislation, including the *Clean Air Act, 1961* and the *Noise Control Act, 1975* into one overall regulatory framework. With the introduction of POEO, farms over 250,000 birds became the responsibility of the EPA and require a license to operate. Determining the threshold above which the EPA would be responsible under POEO proved contentious. The EPA sought to establish a high bird threshold in accordance with its policy of devolving responsibility and to address its own inadequate resources at the ground level to regulate poultry farming. Local government demanded a low threshold because of financial restrictions, practical constraints and its preference for the EPA to take greater responsibility. The fact that there are a small number of farms with over 250,000 birds in NSW is linked to the EPA's reluctance to deal with the industry. Earlier evidence from DUAP that farmers housing between 60,000 and 80,000 birds cause the most concern is another indication.

According to one officer from the EPA, POEO does not make it easier for local government to deal with non-scheduled premises, such as poultry farms. Like the *Clean Air Act, 1961*, local government is required to investigate whether a farmer is employing best practical means to control externalities as there are no odour unit thresholds included in the Act. The same EPA officer thought that the ability of local government to address conflict was restricted by its limited understanding of what powers it possessed and its reluctance to use the powers it was aware of. Forced to balance between community opposition and the regulation of important local employers, local government was thought to lean towards the side of the latter. Ground level officers were also thought to be reluctant to enforce regulation where they are sympathetic to the plight of contract farmers, realising that they are not penalising the party causing the problem. One council officer indicated that because environmental legislation is orientated towards the landowner, it was up to the farmer to apply pressure on the processing companies.

Mediation

During interviews, mediation was proposed as one possible improvement to the current regulatory system. Council officers noted the absence of formal mediation strategies to deal with disputes. However, an EPA officer questioned whether formal policies were required as local forms of mediation, including community justice centres, were available. It is questioned whether the latter have a history of dealing with conflict involving agriculture or indeed whether local government directs conflicts to them. Farmers thought that mediation policies weren't required because, provided complaints were legitimate, then concerns could be addressed across property boundaries. It was suggested that neighbours should approach farmers directly to bring problems into the open, and so that strategies can be adopted to address their concerns. Strategies might include relocating dead bird containers or removing dead birds more regularly. One farmer indicated that upon receiving a complaint from a neighbour they conducted a tour of the farm. At the end, the neighbour was apparently surprised at the absence of odour, at which point the broiler farmer cast the neighbour's attention to the nearby market gardener who had spread manure and not worked it into the soil for 3-4 days.

One factor limiting the effectiveness of mediation is the ability and willingness of farmers to adapt management practices. For one broiler farmer mediation was not required as farmers were already doing their best and generally knew what was required. It was questioned that if mediation was straightforward then why do people go to council and not directly to the farmer? Where conflict involves long standing feuds and where the relevant parties are unwilling to understand the interests of others then mediation will be limited. One broiler farmer indicated that although the Association promoted talking with neighbours it was difficult where neighbours were uninterested in communicating. He therefore thought that farmers should take care of their side of the fence, and neighbours should take care of theirs, especially since parties, trail bikes and other activities also impact on poultry farmers. Rural living was identified as being very much about giving and taking. Case study box 6.11 recognises that farmers may be reluctant to participate in mediation because of the complexities associated with poultry farming.

Case Study Box 6.11 - Attitudes towards Mediation

Despite preferring residents to approach them in the first instance, and for local government to release the names of those complaining, farmers were not always willing to communicate with neighbours. Poultry farmers, in particular broiler growers, noted that their lifestyle was highly stressful as they are under pressure to produce stock on time and in the right condition for their processing company. If performance was low, then the speed of the processing line would be slowed. In response to the possibility of mediation one farm responded.

Poultry farming is really a bit complex, one mistake can be critical. During summer you have to remain with the birds 24 hours a day. It's very stressful for the farmer, you can't have days off, you are a slave to the company, 24 hours a day, 7 days a week, nights included. The thought of having to be organised with the neighbours as well is too much. You have to sacrifice yourself as your life is spent on the farm, you can't just walk out and leave.

In contrast to this statement, industry leaders suggested that there was scope to inform neighbours about bird collection as greater communication at an early stage could prevent conflict.

Government officials did not recognise mediation as the ultimate solution, but that it was nevertheless part of the overall solution to land use conflict. It was realised that often by the time that conflict is formally recognised it is too late for mediation, as neighbours are verbally abusing each other. Council officers were equally sceptical noting that on some farms conflict was so high that it would be difficult to change management practices to resolve the problem.

6.3.3. Land Use Planning in NSW

Buffer Distances

According to poultry farmers interviewed, there isn't a system in place to restrict encroachment around poultry farms. Although NSW Agriculture's poultry farming guidelines included recommended buffer distances between poultry farms and proposed residential developments, it was evident that such distances were not enforced. Local government was seen as yielding to developer pressure because of the potential to increase rateable income.

Council officers noted that agricultural land has been lost in the past because agriculture was not seen as a planning constraint. Reasons for this include the failure to recognise that some of the best quality agricultural land in NSW is in the Sydney Basin, and perhaps the anticipation that the impacts of agricultural activities can be controlled by environmental legislation. In addition to urban expansion, rural residential development was identified as a major problem because it had been inadequately planned for in the past. Officers recognised that local government was not totally blameless but stressed that decisions were made on the best information available at the time. Today it is realised that the distance between poultry farms and residential neighbours is often inadequate.

Officers from NSW Agriculture suggested that local government had failed to take into consideration Section 79c of the *Environmental Planning and Assessment Act, 1979*. The clause requires a consent authority to take into account a number of different matters in ruling on a development application, including the 'likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality'. With DUAP reluctant to overturn decisions of local significance (NSW Agriculture, 1998), there was concern that local government would continue to make the same mistakes by allowing encroachment to occur today. Increasing rateable income was seen as a powerful incentive. An additional reason for failing to take into account the potential for conflict was thought to be inadequate communication with local government between planners who make development decisions and environmental officers who have to respond to future complaints. Encouraging whole-of-council strategic planning (including state of the environment reports) was seen to be beneficial for this reason.

Planning to resolve land use conflict was seen as difficult because buffer distances remained arbitrary recommendations, lacking in both scientific justification, inter-government recognition and legal support. Formally, DUAP has only given its support to 400m separation distances around sewerage treatment plants, though these are also being challenged by the strength of the urban consolidation movement in Sydney. Council officers offered different opinions: one suggesting that there was no problem as NSW Agriculture is supposed to be the authority in relation to such issues, another questioning whether the buffer distances would survive legal scrutiny without some form of scientific justification. NSW Agriculture officers questioned why local government could not enforce arbitrary buffer distances when council had enforced the 40ha subdivision policy, which was also without scientific basis. An important distinction here is that the 40ha policy seeks to protect agricultural land for the benefit of society, whereas the enforcement of buffer distances essentially states that you can not develop land because the neighbouring farm cannot control its externalities. It is difficult to make strong conclusions because NSW Agriculture's buffer distance recommendations have not been challenged in the Land and Environment Court. Facing uncertainty as to whether they can restrict development rights, unless proposals contradict with the objectives of rural zones, councils such as Wollondilly have responded by demanding larger internal buffer distances for poultry farms. Case study box 6.12 identifies another debate on the merits of flexible versus rigid separation distances.

Case Study Box 6.12 – Rigid versus Flexible Buffer Distances

While the buffer distances currently recommended by NSW Agriculture are essentially rigid in that they do not take into account local circumstances, including operational size, there are arguments both for and against flexible buffer distances. Industry representatives noted that a 500metre

separation distance to an urban zone was inappropriate for every farm as it did not take into account management practices, wind direction, topography or buffer elements, including densely wooded forests. Regardless, it was evident that the industry was reluctant to encourage rigid forms of government intervention as overly prescriptive methods may have future consequences. An alternative industry concern was that if flexible separation distances were implemented and complaints continued, then the effectiveness of such buffers could be questioned. For this reason some industry leaders demanded flexible buffer distances as well as 'right to farm' legislation of some form.

For government, they may undermine investment security, although flexible or scientifically estimated buffer distances gave greater recognition to management practices and reduced the likelihood that land would be unnecessarily sterilised from urban development. Rigid buffer distances also reduced the need to make decisions regarding local circumstances.

Education and Right to Farm

A number of industry representatives recognised that government cannot really stop urban expansion, but that people can either be better educated or lose the right to complain. The latter was seen as important because, increasingly, being located in an area first meant nothing. As more people entered a particular area, decision making became a battle of numbers, with farmers often losing control of their destiny. A general lack of understanding of agriculture or normal farming practice was thought to provide additional justification for such protection. Farming was identified as a full time commitment with farmers working hard for the benefit of the wider community. Where people complained, they were seen as being too busy watching others instead of actively contributing themselves. An additional concern was that they might undermine economic benefits for the local area.

Placing memorials on property titles indicating that a poultry farm is operating in close proximity was recognised as one method to educate potential buyers, though government officials acknowledged that they were not a magical solution as they are likely to be checked by lawyers rather than residents. There remains the possibility that real estate agents may incorrectly inform property buyers that nearby offensive activities may close in the short term to encourage investment. An additional concern was that even where neighbours are informed, they do not lose the right to complain and that local government is still legislatively required to respond to any complaint. Despite concerns that such notification may raise the issue of compensation where land values are affected, the reality is that betterment is not taxed so why should land value depreciation be compensated?

Right to farm legislation received support from a number of industry leaders. NSW Agriculture officers were more critical recognising that although it may protect farmers from common law action, they are not protected from environmental legislation. Another policy option was to legislate a poultry industry code of practice. Potentially it could then be used to show that farmers were operating responsibly and that government can not prosecute. Greater decision making consistency between local government areas might also be instigated. One concern was that farmers are not required to continually upgrade their technology or to achieve particular future emission targets when basic management practices are legislated. Difficulty in being able to dispose of dead birds or manure would also affect farmers differently, potentially with severe ramifications.

Where encroachment around poultry farms cannot be prevented then another possibility for addressing conflict is to attach consent conditions to residential developments. Industry representatives suggested that this wasn't occurring at the present time. Difficulty in implementing conditions, such as vegetation, on individual properties was probable because of decreasing property sizes. Maintaining a suitable distance through the strategic allocation of open space or green areas was problematic.

Strategic Planning

Strategic land use planning was identified as another land use planning tool that could help to reduce land use conflict. Wollondilly Shire Council, for example, developed a strategic plan that has segmented the Shire into different land uses, including agricultural production zones. In this zone, council is obliged to assess any new farm application on its merits and to restrict future subdivision to genuine agricultural purposes, with a 20ha minimum. Industry representatives, although recognising the merits of strategic planning, indicated that Wollondilly has attempted to 'close the stable door after the horse has bolted'. One factor that the industry apparently needed to comprehend was that although strategic planning will protect certain farmers, the long term future for others may be less certain. In contrast to the Shire of Wollondilly, Liverpool City Council officers indicated that they had no idea how many poultry farms were in their Shire, but that they were both in the process of undertaking a strategic review of their rural areas. Camden Council officers indicated that they were undertaking a similar task but that the process was being driven by the need to keep an accurate record of farmers in case of a disease outbreak. Its rural land use policy had apparently not reached a draft stage as they lacked the necessary staff and resources. Where satisfactory planning has not occurred there is concern that conflict between residential development and agriculture will continue to intensify through incremental decisions. Even where plans are adopted they are not legal documents and can be easily overturned or amended by newly elected councillors.

Because local councillors are often unaware of the importance of agriculture in the Sydney Basin or the potential for land use conflict following the rezoning of land, NSW Agriculture officers indicated that they have attempted to educate local government. One way in which this has occurred is through the planning document '*Sustainable Agriculture in the Sydney Basin*' (NSW Agriculture, 1998). Poultry industry representatives were not altogether convinced about the planning document, suggesting that it ignores the realities of agriculture, including the intensity of investment in poultry farming and conflict levels. As noted earlier, communication with neighbours and the education of people buying rural land are not the ultimate solutions.

Planning for Relocation

More far reaching planning suggestions involved: developing a more dictatorial system to reduce politically or economically motivated council decision making; increasing the rigidity of land use plans; and compensating farmers where changes were made. Another alternative was for government to financially assist relocation where land near existing poultry farms was to be developed. Although a role for government and developers in planning for conflict resolution was identified, the arguments for assisted relocation were not as well developed as in WA. One industry leader noted the example where a school was built within 50m of a poultry farm and suggested that if government had planned appropriately and assisted the farm to relocate, then all parties could have benefited from the increase in local land values. In addition to financing relocation through land value appreciation, the question of whether the industry could obtain access to rural business development schemes was raised because grants were available for feasibility studies, relocation costs and labour training.

Another way that government might provide strategic assistance was if it recommended that production could occur in selected areas or that sufficient water was available in these locations. Other interviewees thought the effectiveness of this would be limited as the reality was that any investor would continue to undertake a detailed investigation to determine the most economically advantageous area. Despite these examples of possible government assistance, other industry representatives felt that if farmers were to relocate then it would be due to market forces. It was also considered pointless for government to assist relocation if there is legislation in force that will allow conflict to emerge in the future.

6.4 Wollondilly Poultry Farming Working Group

The Shire of Wollondilly is one local government area that is identified as having adopted a strategic approach to land use conflict in response to the difficulties it has faced. In addition to undertaking a forward looking rural planning approach to identify and protect important agricultural land, the Shire has brought industry, community and government representatives together to find a negotiated solution to conflict.

In February 1994 a steering committee was established by Wollondilly Shire Council, including council staff, State Government departments, residents and poultry representatives to prepare a development control plan (DCP) for poultry shed applications (Picton News, 1994c). For one farmer in attendance, the effectiveness of meetings was limited as certain members of the community turned the forum into a personal crusade against the industry. In response, the farmer informed the committee that he was reluctant to participate if residents continued to attack the poultry industry through local papers. With the Councillors also the target of criticism, the 150m internal buffer distance requirement was incorporated into the DCP.

From this initial committee, the Poultry Farm Working Group (PFWG) was formed in January 1995 (WSC 1998a) to investigate conflict involving existing farms rather than new farm developments. The group comprised representatives from NSW Agriculture, EPA, Inghams Enterprises, Red Lea Chickens, NSW Farmers Association, Poultry Farm Neighbourhood Support Group, a practising chicken farmer and a number of councillors and council officers. The objective was to identify farmers experiencing conflict with their neighbours and to identify how complaints could be reduced on each individual farm. To this end, 6 chicken meat and 2 turkey farms were identified from the 50 poultry farms operating in the Shire. Seven of the farms were in rural residential areas and one was near a residential community. In seeking to address conflict, the group had no legislative power and was instead reliant on negotiation between poultry farmers and neighbours (WSC, 1998a). Odour, noise and dust were identified as the main externalities encouraging conflict. Odour and dust were thought to be affected by the type of bird, bird age, litter condition, climatic conditions, topography, landscaping and layout. Noise complaints were primarily related to the late night pick-up of mature birds (WSC, 1998a).

Strategies Adopted by the PFWG

As in other LGAs, Wollondilly experienced difficulty in distinguishing between real and vexatious complaint, such that farming properties would often be investigated without the legitimacy of complaints being verified. In response, Wollondilly Shire Council established a 24-hour complaints phone line for residents in recognition that by the time officers arrived at the property it was often too late. Poultry industry representatives felt that they had been unfairly targeted with poultry farming singled out from other activities facing complaint. A survey was also undertaken to gauge the extent of conflict near each farm. Both farmers and their neighbours were asked to complete a diary over a period of 12-20 weeks. Residents documented any odour, noise or dust concerns and farmers recorded major farming activities. Unfortunately, because of a low participation rate, few data were collected and it was difficult to draw conclusions. It was tentatively suggested that problems increased with the length of the growing cycle and during warmer weather.

Another initiative was to experiment with odour suppressants able to be applied to manure. The experiment involved the collaboration of a pump manufacturing company and a chemical company. Farmer representatives indicated that neighbouring landowners were uninterested in the results, preferring the farm to close, and tampered with the project. The contracted companies were apparently unprepared to operate under the prevailing circumstances and left. Council was more inclined to argue that the project failed after the two companies involved fell into conflict (WSC, 1998a). Although no meaningful data were collected (WSC 1998a), one farmer thought that the spray had been very effective, as odour levels were reduced significantly when the suppressant was applied to isolated patches of wet litter. On another farm council noted that Inghams and the EPA erected a screen barrier made of shade cloth but they had not yet been informed of the results (WSC, 1998a). NSW Agriculture

visited each of the identified farms and suggested changes to management practices. Recommendations included improving vegetative screening, avoiding on-farm storage of litter, earlier pick-up times, replacement of shed insulation, employment of odour ameliorants, upgrading fans, redirecting air flows, introduction of high pressured foggers, and that neighbours should receive 1 week's notice of all major farming activities (WSC, 1998b). Council officers suggested that the management issues identified by NSW Agriculture would not resolve all of the problems as there remained the difficult issue of what should be done where a farmer is using best management practices but externalities are still considered offensive. Because it may be financially difficult or unpractical for farmers to invest in new shedding or costly capital solutions, this was identified as the '\$64 question'.

An Assessment of the Effectiveness of the PFWG

Despite the problems noted above, a number of interviewees thought that the PFWG had had a positive impact. When complaints arose which were outside the control of contract farmers, they were referred to processing companies. Because of their involvement, it was felt that the companies now had a better idea about noise levels at night, including the impact of vehicle maintenance and the behaviour of pick-up teams. Council officers thought that the group had been successful in reducing noise complaints with changes including replacing chains, steel cages and noisy fork lifts, and the education of pick-up crews. One farmer from the committee thought that several dust concerns had also been addressed. Another farmer felt that the impact on noise levels was more marginal, and that the only positive development was the planting of vegetation. Interviews with the relevant processing companies revealed that the group had taken a lot of the intensity out of the conflict, with the initial 8 farms reduced to 3 or 4 that would require more problem resolution.

The PFWG collapsed in 1998 after it attempted to obtain financial assistance from State Government departments and the processing companies. The intention was to raise approximately \$20,000 to employ a part time administrator to collate the information that was being generated. NSW Agriculture was the only member to offer financial assistance (WSC, 1998a). Council responded by writing to each participant in October 1998 requesting a report outlining the group's achievements and possible future directions. By December 1998 reports had been received from the EPA and the Poultry Farm Neighbours Support Group (WSC, 1998a).

Different reasons were given for the PFWG's lack of success. Interviews with NSW Agriculture officers revealed that the PFWG was an excellent initiative, and that it failed not because of the participants but the absence of sufficient finance to employ a facilitator to coordinate the process and to encourage participants to reach negotiated deadlines. Council also acknowledged that a major constraint was the lack of financial resources to assist with the groups operation (WSC, 1998a).

Farmers responded favourably to the PFWG believing that problems were being identified and overcome. However, it was felt that the Poultry Farm Neighbours Support Group was being overly obstructive. It was indicated that problems would be discussed and an agreement reached but, by the next meeting, the same issues would be discussed again and again. For one farmer in attendance, it was felt that more could be achieved if the Support Group was absent. Rather than attempting to reduce environmental concerns, it was felt that there were two farms that the Support Group wanted to close because of subdivision aspirations. Where the underlying intention was to shut down a farming operation rather than to reduce its impact, then farmers noted that it was difficult to find a middle ground.

Other participants of the Wollondilly PFWG had different reasons for its failure. The Poultry Farm Neighbours Support Group indicated that although some progress had been made in reducing noise levels, the PFWG had failed to solve the problems of odour, dust and feathers. It was felt that the PFWG could not provide further solutions and that council should enforce the relevant legislation (WSC, 1998a). If a deadline was set after which the industry was to comply with legislation, then it is thought that industry may have been encouraged to act seriously and the group could have worked together to achieve the required end result (WSC, 1998a).

According to an official from the EPA, the Group was undermined by the unwillingness of the industry to contribute to the process. Rather than supportive it was felt that their intention was to protest against anything that would have negatively impacted on the way they presently operated. The perception was that the industry couldn't overlook the fact that it was being victimised and had consequently adopted a defensive position. It thus failed to see the benefits of adopting a more strategic approach. For example, processing companies would argue that it was unpractical to provide feed on a farm by farm basis when feed was produced in bulk and uneconomical to introduce additives to the bulk feed supply. Wollondilly Council officers also suggested that the reluctance of the industry to make any concessions was a key to the PFWG's failure. Compared to the pig and the feedlot industries, the poultry industry was identified as being less pro-active in addressing environmental problems, even to the point of not acknowledging that a problem exists. One possible reason was the pressure on these other forms of livestock production to deal with the environmental risks associated with liquid manure.

It was concluded that the poultry industry needed to think more strategically and to develop innovative solutions. Rather than simply saying we are going to pick-up your chickens now, it was felt that the industry needed to give special attention to the farmers facing conflict. The main difficulties recognised by council officers were that farmers tend to employ old style open shedding, where opportunities to limit odour and dust are limited, and that broiler farmers were small businesses which could not afford to make expensive changes. Although new practices in recent years include the introduction of plastic crates for mature birds and material strapping to secure crates to trucks, other changes needed to be investigated including enclosed cool room trucks, odour suppressants and the possibility of filtering air from tunnel ventilation sheds. It was further argued that there is little research available investigating alternative odour reduction methods and, despite the large number of private companies promoting odour reduction chemicals, relatively little is known about their effectiveness. Criticism was directed at the argument that the industry is currently undertaking research, as such investigations were thought to be unpublished. A research project investigating odour dispersal, which was currently being undertaken through the University of NSW (see case study box 5.23), was identified as the only pro-active response by the broiler industry.

Developments following the PFWG's Collapse

Recognising the limited success of the PFWG and the fact that environmental officers were failing to fulfil their responsibilities as described under environmental legislation, Wollondilly Shire Council disbanded the PFWG in December 1998. Another committee has subsequently formed to address land use conflict, though this time without the involvement of the industry. Although the potential for success would appear limited without the industry, the ultimate intention is to incorporate other local governments into the process. If this was to occur then there is the potential for councils to share information on how they have independently dealt with the issue in the past. In stimulating communication across local government borders there are advantages for EPA officers. Despite senior staff within the EPA indicating their opposition to officers becoming involved in poultry farming issues, improving communication between local governments reduces the possibility that EPA officers at a regional level may be required to advise neighbouring LGAs on similar issues. Thus, in the longer term there is the potential for reduced involvement. An additional reason was that the EPA is committed to providing local government with the skills necessary to undertake its responsibilities as documented in the *Protection of the Environment Operations Act, 1997*.

An EPA officer noted that local government has quite widespread powers under the *Local Government Act, 1993* if different councils decided to work together. Under Section 159 of the *NSW Local Government Act, 1993*, local government may prepare a draft local orders policy, which might specify the criteria that council must take into consideration in determining whether or not a landowner is creating a nuisance. Although the EPA will not lead the umbrella organisation inter-local government strategy, if the approach was to be adopted then it was noted that local government would be able to drive change.

One example where greater communication could prove devastating for the industry relates to the decision by Wollondilly Shire Council to place a notice on a broiler farm for breaching the *Noise Act, 1975* during the night time pick-up of birds in 1998. Rather than preventing bird pick-up, the notice indicates that noise levels must not be above EPA limits. With the potential to drastically impact on cost and quality of production, Inghams took a stand by lodging an appeal against the decision. With Inghams losing the case, it is recognised that there is the potential to create a precedent across the Sydney Basin. Government officials indicated that this sent a clear message to the industry that it was not above the law.

6.5 Issues Relating to the Relocation of Poultry Farms

Where farmers are unable to expand their existing operation and face difficulty in being able to conduct normal management practices, such as the disposal of dead birds and manure, then there may be few options but to relocate. To date it would appear that farmers have been bought out by developers and have retired from the industry rather than relocating. In relation to the farmers interviewed, one broiler grower had relocated from Camden Council to the Shire of Wollondilly, and another broiler farmer from Camden Council had conducted a site inspection of a property in the Shire of Mulwaree. In relation to the egg industry, the decision by one farmer to develop a new operation in the Shire of Lithgow to the west of Sydney was considered to be the first major move out of the Sydney Basin. Farmers tended to view relocation negatively whilst, at the same time, they indicated that poultry farms would ultimately be forced out of the Sydney Basin. The speed at which this would occur was uncertain with estimates varying from 10-15 years to 30-40 years (see Appendix XIII for a range of different poultry farmer attitudes).

Economic Constraints

According to one representative from the NSW Chicken Growers Association, a common misconception was that farmers could relocate as urban development moved closer. Farmers and other industry leaders drew similar conclusions. Generally, if the sheds were relatively new, if the property was small or if the farmer had over-invested in sheds, then relocation was thought to be less viable. Reports suggested that it might cost \$2 million for a new broiler farm and that this is out of the reach of the average family farmer. The threat of deregulation may provide an additional reason discouraging relocation.

Contrasting opinions were collected from other interviewees. To develop a new egg farm capable of housing 30,000 birds the cost was estimated at \$1.2-1.5million dollars, with alternative estimates suggesting \$35 per bird. According to one egg industry representative, relocation was viable as a 5acre block of land carrying 16,000 hens had recently been sold in the Sydney Basin for \$1.5million. From other reports, agricultural enterprises with 5acres in the Prestons area of Liverpool City Council are holding out for a \$2million payment (Stevenson, 2000). For this reason a number of industry leaders thought land values could resolve a number of problems or potential conflicts.

Economic benefits were also identified in relocating to regional Australia, including Goulburn, Tamworth and Young, because of cheaper land and feed supplies. Additional benefits relate to transportation because at present rates of feed conversion, it takes 2kg of feed to produce 1 kg of eggs or 1kg of chicken meat. Considering that feed accounts for approximately 70% of production costs, it is theoretically cheaper to transport produce to the market rather than feed to distant farms. However, the cost of transporting eggs or chicken meat would be higher per kilo.

Social and Lifestyle Constraints

In addition to economic restrictions, social and lifestyle factors may discourage farmers from relocating. An important characteristic of the poultry industry is a high proportion of ethnic minorities amongst the farmers. It was felt that some farmers would be reluctant to leave their present location for fear of losing the support of people from a similar ethnic background. For farm families in general there were impacts

in having to leave existing social circles and institutional connections, and to develop new relationships in distant locations. The Goulburn area was recognised as being 2.5 hours from Sydney, compared to one hour from parts of the Shire of Wollondilly. For at least one farmer there were definitely social benefits in being able to access a large metropolitan area. For farmers near retirement, or where there are no family successors, then relocation was not a serious concern. Recognising that the owners of poultry farms need to work 7 days a week and that it is hard work it was thought not to be an attractive form of employment for the younger generations.

Climatic Constraints

A third reason relocation was viewed negatively relates to the climatic conditions surrounding inland towns. Despite recognising that their processing company was encouraging relocation to the Goulburn area, a number of farmers felt that their present location was ideal for growing chickens. One suggested that at an elevation of 400m there was an even temperature as air movement provided relatively cool summer nights. In contrast, Goulburn was identified as hot and dry in summer and subject to frosts and cold in winter, a climate that considerably increased the cost of growing chickens.

Constraints on Relocation facing Broiler Farmers

For broiler farmers, one factor that has discouraged relocation in the past has been the reluctance of processing companies to move. Reasons for this reluctance were thought to include the fact that relocation has resulted in the loss of customers in the past, such as following the decision by Steggles Ltd to close its Marsden Park processing plant and to centralise its operation in Beresfield to the north of Sydney. The higher costs involved in transporting live chickens to Sydney for processing has also been viewed as a disadvantage. Realising that poultry farmers could not simply close existing facilities and develop new properties without having some strategic direction from the companies, one State Government official approached the broiler industry with the intention of developing a coordinated strategy. Although an industry wide approach was inevitably rejected, there are signs that the relocation process is starting to occur independently with Inghams and Cordina Poultry showing interest in heading towards the Goulburn area, and Baiada Poultry has recently moved a larger proportion of its investment to Tamworth. Case study box 6.13 provides evidence of the relocation of Inghams Enterprises to the Shire of Mulwaree, which surrounds Goulburn.

Case Study Box 6.13 – Relocation of Inghams Enterprises to the Shire of Mulwaree

Facing difficulty in developing new broiler farms in the Shires of Wollondilly and Wingecarribee, industry sources suggested that they are now looking further afield, with the Shire of Mulwaree, which surrounds Goulburn, likely to attract future growth. In addition to constructing a feed mill in the neighbouring Shire of Wingecarribee, Inghams Enterprises has signalled its intention of withdrawing from the Sydney Basin by investing in a quarantine facility at Bungonia and a breeder farm operation on 339ha, 16km to the south of Goulburn (Southern Highland News, 1998a). At the time of interviewing, two turkey farms and one chicken farm were operational and another chicken meat farm was in the process of being developed. All were apparently new farmers with the exception of one who had relocated from Couridjah in the Shire of Wollondilly.

It was suggested that Mulwaree Shire is welcoming the broiler industry with open hands. The benefits reported in newspapers include employment opportunities and economic impacts through the demand for construction materials, energy, feed supplies, building maintenance and transport services (Southern Highland News, 1998a). Achieving council's approval has involved overcoming a number of misconceptions. One farmer reported that Inghams had organised a number of officials from the Shire of Mulwaree to undertake an inspection of his farm in the Shire of Wollondilly. Council officers were reported to have arrived in white coats and masks because of the perception that odour and ammonia levels were extremely high. To plan for the industry, Mulwaree Shire Council adopted a guideline for poultry farm developments in July 1998 (Mulwaree SC, 1998). Site criteria included that farms have a minimum lot size of 40ha and that the farm must satisfy

separation distances, including 200m from a public road, 150m from property boundaries and 300m from an existing dwelling. Depending on the location, a separation distance of 1 or 2 km from any urban, urban investigated or rural residential area was stipulated. One source of concern is the uncertainty as to whether the recommended distances are calculated from the farm boundaries or from the sheds themselves.

Constraints on Relocation facing Egg Farmers

A number of additional reasons were identified as to why egg farmers were reluctant to relocate. Three main concerns can be distinguished from interviews with industry representatives: the dominance of the Sydney market, economic conditions and pressure to abolish caged bird production.

Interviews revealed that farmers were particularly orientated to the Sydney market compared to regional NSW. Regional markets were identified as limited in scale, such that moving produce to Sydney would be a constant necessity. At the farm level, responses were divided between small producers who supplied local independent supermarkets or fruit and vegetable shops, and larger companies, such as Eggbert Eggs and Pace Farms, who dealt directly with the major supermarkets. The former appeared reluctant to relocate outside of the Sydney Basin arguing that their customers preferred personal contact with their suppliers. There was also the potential to sell directly to consumers via roadside stalls when operating on the urban fringe. Where farmers had attempted to relocate outside of the Sydney Basin, difficulties in maintaining market relations had resulted in farmers supplying the larger egg marketers. This was identified as a concern as returns were equalised between farmers without regard for variation in the cost of production.

Maintaining market relations created additional relocation problems. Unless farmers can collect eggs from an existing farm one day and eggs from a new farm the next, then it is likely that existing relationships will collapse. Rather than closing one operation, selling the land and then reinvesting elsewhere, farmers need to slowly transfer production over time. The financial cost of investing in land prior to selling the existing block may limit relocation. This is thought to be a lesser concern in a regulated market.

A second reason egg farmers were reluctant to relocate related to the state of the egg market. From anecdotal evidence, one farmer noted that 4-5 farms had closed in the Prestons area in Liverpool City Council over the past 5 years. Rather than relocating all had retired and found jobs elsewhere as they didn't believe the industry was viable enough to justify relocation.

The third reason why relocation is limited is the rising influence of the animal welfare lobby. There was a reluctance to invest in new caged bird production systems because of lobbying for free range and barn lay farming systems. The need for greater clarity in policy was recognised as farmers did not want to spend in excess of \$1million when the future is uncertain. According to one industry leader, three new developments outside the Sydney Basin, and one within, have been shelved because of actions by the Royal Society for the Prevention of Cruelty to Animals (RSPCA). For one interviewee who owned an egg farm near Young, the option of adding an additional \$1million dollar shed was being explored, at the same time as the opportunity of purchasing the neighbours 1200 acre farming and grazing property developed. The latter option was considered the wisest investment given RSPCA activism and the current financial state of the egg industry.

Egg industry representatives questioned the nature of activism by the RSPCA. It was thought ironic that in protesting against caged bird production, one result was the reluctance of farmers to invest in new state of the art environmentally controlled sheds. In the mean time, birds were housed in older production systems, with less temperature control and ventilation, and thus lower welfare conditions. Additional concerns included the RSPCA's failure to acknowledge the problems associated with other production systems, including the practicalities of supplying a nation, and the possibility of having to import eggs from overseas where animal welfare may be suspect. Despite consumers supporting the

RSPCA's stance in public questionnaires, it was noted that market demand revealed a different picture with the purchase of barn lay and free range eggs quite limited.

Problems relating to the Development Approval Process

Finally, both egg farmers and broiler farmers recognised that relocation was difficult because of the problems experienced in obtaining the approval to construct a new farm. Case study box 6.14 provides evidence of this by commenting on the difficulty one broiler farmer had in obtaining development approval in the Shire of Wingecarribee. The reluctance of the Shire to allow poultry farms to develop has resulted in new industry investment having to leap over both Wollondilly and Wingecarribee to the Shire of Mulwaree. Case study box 6.15 provides an example of the difficulties experienced by an egg farmer attempting to relocate outside the Sydney Basin. Objections to poultry farm developments were thought to be occurring across NSW with farmers in traditional poultry producing areas, such as Tamworth, experiencing difficulties. This noted, it was realised that local government in many regional areas was not saying no absolutely. In addition to securing proximity to suitable grain and water supplies at a regional level, farms need to carefully select future production sites. Areas likely to be set aside for rural residential development need to be identified and avoided.

Unless carefully managed, the potential for conflict to emerge in rural areas, such as Goulburn, remained, especially as it is along a future growth corridor between Sydney and Canberra. Bartters Poultry operation near Griffith was identified as a good model for future industry investment as it developed around a regional NSW town with sheds on larger rural properties which are also used to grow grain. It was further suggested that everyone in Griffith would know at least one person who worked for the company. Environmental conflict was thought to be lower because farms were approximately 5km apart and local government was favourably inclined towards the relocation of processing facilities rather than simply farms because of the additional employment generated.

Case Study Box 6.14 - Difficulties Experienced by Broiler Farmers in Developing in the Shire of Wingecarribee

During interviews with broiler farmers it was revealed that a new broiler farm had been proposed in the Shire of Wingecarribee in late 1997. The application was for 8 tunnel-ventilated sheds, with approximately 28,000 birds per shed, to be constructed on a 110acre property that was surrounded on two sides by crown land. The sheds were to be built 517m, 150m, 150m and 210m from property boundaries and were therefore in compliance with NSW Agriculture's guidelines for poultry farming. The land was in a rural 1(a) zone, with grazing, hobby farms and intensive livestock farming in the form of a piggery and a goat farm on nearby lots. The proposal was not a designated development and the farmer did not request a planning focus meeting. Council was, however, approached and the application was discussed with planning officers. The two nearest dwellings were approximately 600m from the proposed sheds, though the farm was at the end of a no exit road and, as such, service trucks would need to pass by a number of roadside houses. It was estimated that there would be approximately 851 truck movements each year or 2.3 per day, involving the transportation of chicks, gas, spent litter, feed and mature birds (Southern Highland News, 1998b).

Initially, 9 local residents lodged formal complaints with objections relating to ground water contamination, dust levels, waste water seepage, odour, loss of amenity through noise and traffic, economic impacts, pests, visual appearance and that the development was contrary to the interests of ratepayers (Southern Highland News, 1998b). There were also suspicions that the farmer had tried to quietly obtain an approval by submitting the application before the Christmas period (Southern Highland News, 1998b). Other complaints were that council did not have a poultry development control plan, that the farm would contradict the council's mission statement of making 'Wingecarribee Shire a better place to live', and that unless a strong message was sent, other poultry farmers might apply (Southern Highland News, 1998c). The area surrounding the proposed site was recognised as attracting tourism and rural residential development, and it was argued that

land values would fall because of the farm (Southern Highland News, 1998c). There was evidence that the Wollondilly Poultry Farm Neighbours Support Group had contacted Wingecarribee Shire expressing their concern at the development.

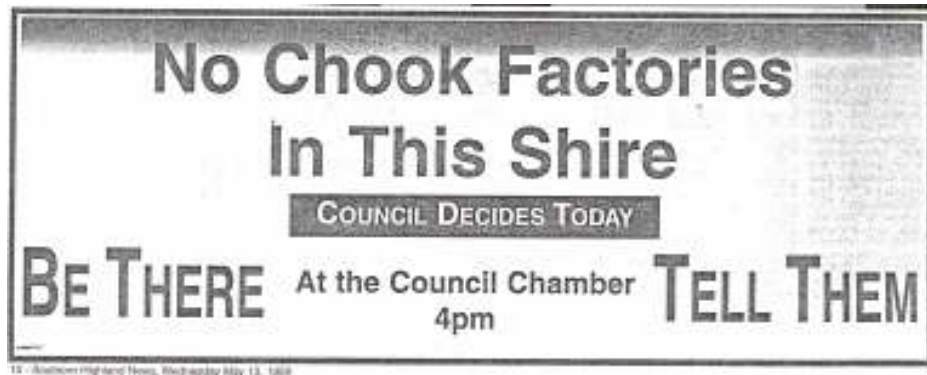
Submissions were received from four government departments none of which had any problem with the development, though they did stipulate a number of conditions (Southern Highland News, 1998b). Sydney Water indicated that no shed should be within 100m of a watercourse, no manure or dead birds should be stockpiled, all litter was to be disposed of off the farm, water used to clean sheds should be recycled and run-off was to be directed to a holding dam. Land and Water Conservation required adequate erosion and sediment control, a license for bore water and sedimentation dams. The EPA indicated that the farm was below the threshold which required EPA licensing, that it was not a serious threat to the environment, that council should make vegetative screening conditional to approval and that it might consider attaching the condition that there should be no detectable odours beyond site boundaries. NSW agriculture was concerned about the potential for odour drift and cumulative impacts on the local catchment given that there was also a piggery in the immediate area.

Approximately, 50 residents from the local area attended the relevant council meeting. At the meeting, Council deferred making the decision subject to the issuing of an appropriate bore licence and an environmental audit of existing ground water as the basis for future audits (Southern Highland News, 1998b). It was also felt that many would be objectors had not been formally notified (Southern Highland News, 1998b). Figure 6.2 provides evidence from a local newspaper of the notification approach adopted by local residents. At the following meeting petitions were presented signed by 136 and 219 ratepayers (Southern Highland News, 1998d). During the meeting spokes people claimed that odour could travel 16km, that poultry sheds increased bush fire risk, that there was the risk of disease being transferred between livestock and potentially to humans and that other poultry areas had high rates of respiratory problems because of dust (Southern Highland News, 1998d). The applicants indicated that they would comply with the listed consent conditions, that the farm would be screened with native vegetation and that the distance between the sheds would be four times greater than normal to reduce odour. In addition the farm would be fully computerised, larger feed silos would reduce truck movements, and odour emissions would be reduced by new shed technology (Southern Highlands News, 1998b; 1998d). Supporters of the development indicated that semi-trailers collected milk from the Shire's 40 dairy farms each day yet there was no complaint and thousands of tonnes of poultry manure was spread on local farms without one case of ill-health reported (Southern Highlands News, 1998d).

Although support had been received from various State Government departments, council voted 10 to 1 against the farm. In refusing the application council indicated that the farm would adversely affect local amenity because of the hours of operation, emission of odour and dust and increased heavy traffic on rural roads. The meeting itself was reported to be completely demoralising for the farm family as there was 'booing' during the meeting and 'cheering' following the council's decision (Southern Highland News, 1998d).

The farmers interviewed were concerned as there had been an extensive advertising campaign against the farm (Southern Highlands News, 1998b), that there were no residents within 600m and that a lot of the concerns were unjustified. Of added concern was that the proposal was so comprehensively rejected by council despite employing what industry representatives would call best management practice and that it was not a designated development. For one broiler farmer, the local residents simply did not want the farm regardless of its layout or management. Despite the overwhelming refusal, the Shire of Wingecarribee was identified as an appropriate site for poultry farming as its cooler summers would place birds under less stress, reduce the need for fogging and lower production costs.

Figure 6.2



Source: Southern Highlands News (1998e:10)

During an interview with a NSW Agriculture officer it was noted that there were concerns relating to the number of houses along local roads and whether odour and noise were inadequately addressed. Simply stating that, because of the technology employed, there will be no odour or noise concerns was not seen as a comprehensive argument. A council officer from Wingecarribee added that they had problems with the noise from feed trucks, night time pick-up and traffic moving through rural residential areas. In response to the decision, local papers reported that ‘if you want something done in council, turn up in overpoweringly large numbers and you will have to be a chance’ (Southern Highland News, 1998f:5). Despite criticism of the Council’s decision it was suggested that the farmer would have easily won in the Land and Environment Court had the applicants been willing to challenge the decision.

Case Study Box 6.15 – Relocation of Egg Farmers outside of the Sydney Basin

Egg industry representatives were optimistic that more remote local governments facing high unemployment or stunted economic growth would be more favourable towards investment. It is difficult to provide evidence for this as new investment in the egg industry has been limited. One egg farmer who was located in the south west Corridor of Sydney had lodged an application for 11 egg sheds on 120 acres in a Rural 1A zone in the Shire of Lithgow. The intention was not to construct all of the sheds, but to develop the required infrastructure to enable the farm to expand over time. Initially one \$500,000 shed was being built to house 30,000 laying birds, and \$450,000 was to be spent on power, water, roads, workshops and other infrastructure. The application had to comply with NSW Agriculture’s poultry guidelines and the water catchment requirements of the Department of Land and Water Conservation. The farmer indicated that council attempted to involve the EPA in the assessment process but, because it was under 250,000 birds, it was outside their responsibility. Council received a number of community submissions protesting against the farm, as presented in Table 6.3.

Table 6.3 Community Submissions Received in Relation to a Proposed Egg Farm

<p>Community Issues</p> <ul style="list-style-type: none"> - Area is becoming more rural residential - Council forgetting local ratepayers - Every option will be taken to stop the development 	<p>Environmental Issues</p> <ul style="list-style-type: none"> -Run-off - Flood prone area - Temperature inversions 	<p>Disease Issues</p> <p>Spread of disease to residents and wildlife</p>	<p>Planning Issues</p> <ul style="list-style-type: none"> - Inappropriate for the area's rural character - Alternative sites available - Concern at precedent being set - Council creating future problems
<p>Production Methods</p> <ul style="list-style-type: none"> - Industrial rather than agricultural activity 	<p>Lifestyle Issues</p> <ul style="list-style-type: none"> - Odour - Visual intrusion - Increased traffic 	<p>Health Issues</p> <ul style="list-style-type: none"> - Unfiltered air - Dust - Pathogens 	<p>Development Approval Process</p> <ul style="list-style-type: none"> - EIS required - Misinformation - Poor notification - Limited State Government involvement - Council is incompetent

Consent conditions attached to the farm's approval included a \$5,000 bond on landscaping and vegetation, a curfew on hours of operation and the shed's fans were to be located on the southern end. Other conditions included that no manure was to be outside the sheds, that dead birds were to be composted as suggested by the applicant, and that no offensive odours were to cross property boundaries. Although the farmer opposed restricting egg collection to between 8am and 6pm, indicating that during summer it may still be 40 degrees at 6pm, and realised that he had 28 days to challenge the conditions from the date of approval, no appeal was lodged. One reason was that the farmer never received a list of conditions until two weeks after approval was granted.

6.6. Strategies Adopted by the Poultry Industry to Address Conflict

To review industry activism in NSW, a similar structure to the previous chapter has been employed. Three key issues need to be investigated in relation to both the chicken meat and egg industries, including: the response of farmers to land use conflict; the role of off-farm interests in shaping environmental conflict; and the ability of both industries to adapt in the future (see Appendix XIV for a range of different poultry farmer attitudes). These areas of interest are investigated first in relation to the broiler industry and secondly with respect to the egg industry.

6.6.1 NSW Chicken Meat Industry

Political Activism

Different attitudes were presented as to whether the industry had to more actively promote itself to the community. For one representative of the NSW Chicken Growers Association the preference was instead to establish vegetation barriers around existing farms. In addition to hiding farms, other benefits were thought to include a reduction in noise and odour levels, though this depended on the type of tree.

Some were identified as releasing their own fragrance and others were thought to be more effective in trapping dust particles. That trees are actively promoted represents a change in industry policy, because two decades ago the processing companies apparently wouldn't allow farmers to plant trees for fear that wild birds and diseases might be attracted and that natural ventilation would be limited. As sheds have become more mechanised, the latter has become a lesser concern. Public communication was viewed negatively because any information provided by the industry could be used against it in the future.

As opposed to simply hiding the problem, other broiler farmers thought that active involvement in the community was critical, especially as communication would help to overcome a number of misconceptions about the industry. Farmers noted that despite the fact that no steroids have been used in the industry for over 35 years, they were constantly asked about the rate of bird growth at social engagements. The media was identified as creating a false image of the industry by adding to the perception that broilers were grown in cages rather than deep litter systems. An additional concern was the limited coverage of the industry on the Australian Broadcasting Corporation program Landline and in the newspaper 'the Land'.

At least one farmer noted that the broiler industry was one of the most profitable agricultural industries in Australia, and as such did not require anyone's help. The industry was apparently able to respond to any predicament having successfully overcome the threat of imports. Other farms were more circumspect about the industry's future, indicating that although there were plenty of people lobbying government there were few people listening. The fact that the industry has been forced to jump over Wollondilly and Wingecarribee to the Shire of Mulwaree was seen as evidence of this. An additional concern is the possibility that resources will be directed towards the threat of deregulation and internationalisation and that environmental conflict will be overlooked. Whilst recognising the need to become locally active, one broiler farmer noted that he had been politically active in negotiating growing conditions with processing companies for over ten years, and that he had therefore made his contribution to the industry. Local government felt that the broiler industry had done little to address the community concerns that are frequently raised in local papers and development submissions. At the farm level, case study box 6.16 and 6.17 recognise that strategies have been adopted with the aim of resolving land use conflict. Not all farmers will be able to adopt innovative responses on smaller properties as it may be difficult to establish a vegetative barrier or to cater for larger trucks.

Case Study Box 6.16 - Examples of the Strategies Adopted by Farmers

A number of broiler farmers in Wollondilly Shire had attracted complaints from existing neighbours and had adopted strategies to resolve conflict. One farmer indicated that although the relationship with his neighbour was currently good, he had faced complaints relating to odour and noise levels during bird pick-ups and feed delivery. Reduced complaints in more recent years was thought to reflect the planting of trees to screen the farm from surrounding dwellings, as well as changes to the nature of bird pick up. The main complainant, who lived on an adjacent property, was involved in a confrontation with a poultry company truck driver in the early 1990s, ending with the driver threatening to run over the neighbour if she did not get off the road. Complaint levels increased and the broiler farmer has not talked to the neighbour since.

Another farmer who operated a turkey farm in the Shire of Wollondilly adopted a different strategy following complaints. The farm commenced operation in the early 1960s, which was about the same time as a new neighbour moved into the area. During the mid-1990s the neighbour became increasingly upset as his intention was to subdivide his 30acres, which included three 10acre blocks, into 1acre allotments. When Wollondilly Shire released its rural land use policy in 1994, the local area was zoned Agricultural Production 1A. The farmer indicated that the neighbour commenced complaining when he believed that the poultry farm was the reason that he could not subdivide his land. Despite believing that the complaints had no environmental basis, the turkey farmer purchased the closest 10acre block.

In contrast another farmer invested in new technology to reduce the intensity of complaint attracted by his broiler farm. Following the decision by Wollondilly Shire to extend the water supply of a nearby town, residential dwellings encroached to within 200m of his poultry sheds and a number of environmental complaints resulted. By replacing the existing drinking lines with new technology it was possible to reduce water spillage, wet manure and odour levels.

Case Study Box 6.17 – The Adoption of Landcare by Poultry Farmers in the Shire of Wollondilly

Broiler farmers were positive towards vegetation indicating that council and their processing company actively encouraged planting and that if you can't see a farm then a lot of problems can be eliminated. With this in mind, chicken meat farmers in the Shire of Wollondilly established a Landcare group in 1997. The group encourages farmers to plant trees and to become more aware of what is occurring around them. Despite not receiving government funding, the group has attracted guest speakers and held open days on member farms. Issues of discussion relate to propagating trees, selecting suitable trees and how to establish an appropriate buffer. Members saw the group as being successful with thousands of trees planted. Criticisms relate to the absence of community participation in the group and the reality that the majority of poultry farms in the Sydney Basin continue to be in full view of the public (Poole, 1998). As one farmer acknowledged, some farmers are doing a lot, others a bit and yet another group of farmers were doing nothing at all.

Involvement of Processing Companies

Farmers raised concern as to whether environmental conflict could be resolved because of the nature of integration and the involvement of processing companies in farm level activities. The tight schedule between mature birds being removed and new chicks arriving was identified, and any suggestion that farmers should take account of weather conditions during shed clean out was criticised. The process of coordination could not be delayed as the eggs were in the incubator and would soon be arriving. In relation to reducing farm level externalities, farmers did recognise that the processing companies could become more involved. Concerns related to the limited control farmers had over bird health and feed quality despite their potential impact on odour levels. The reluctance of the processing companies to become involved was also noted in relation to dead bird disposal, which remains the individual responsibility of growers despite processors continuing to own the chickens throughout the production process. Industry wide approaches to deal with manure or dead birds had not been discussed in NSW, unlike in WA. The cost of production estimates for the model broiler farm were identified as not taking into account environmental issues, such as new technology, vegetation, screen fencing, air filtration or cool room storage for dead birds. For example, no recognition is given to the demand for larger internal buffer distances and larger rural properties. Reports suggested that model farm size remains at approximately 5-10 acres or approximately \$180,000, and that a 40ha block near Mulwaree may cost double that. A more active role was identified for the processing companies in assisting farmers to obtain development approval. One option was for the companies to financially support farmers challenging decisions at the Land and Environment Court. Case study box 6.18 gives greater attention to the relocation of poultry farms and possible implications for the industry.

Case Study Box 6.18 – Relocation of Existing Broiler Farms and Implications for Industry Structure

In recent years there have been positive signals that the chicken meat industry is looking to relocate outside of the Sydney Basin. Although one processing company indicated its preference for existing farmers to relocate based on the rationale of 'better the devil you know than the one you don't', the inability or unwillingness of farmers to relocate may limit this from happening. The unwillingness of government to assist relocation also raises important questions relating to the future structure of the industry. Two alternative scenarios include the diversification of existing farmers in new production areas and the possible growth of company owned farms. One company acknowledged that it was likely to develop privately owned farms because while an owner occupier could manage

investments worth \$500,000 to \$750,000, new farms now involved millions of dollars, especially if achieving the economies of scale required. Future trends will depend on the willingness of financial institutions to support continuing industry investment and whether incentives can be provided for farmers to relocate. One farmer acknowledged that they were offered an additional shed if they relocated. The allocation of sheds varies between different processing companies in NSW. Stegles offers contracts for farmers to purchase additional capacity of \$3-\$4 per square foot, while Inghams simply circulates a memo asking for expressions of interests. Another trend in the NSW industry was for existing farms to expand for viability reasons rather than for new farms to be developed. One company claimed that they were encouraging their growers to relocate and to expand as their preference was for new farm development rather than for existing farms to expand. The minimal distance between broiler farms in certain areas of the Sydney Basin and the threat of disease outbreaks is a key reason for encouraging relocation. Another company stated that if a farmer wanted to relocate and expand then that would be okay, but if they wanted to develop 20 sheds then it wouldn't. Broiler farms also noted that the companies preferred bigger farms. By locating 200,000 birds on one farm, then farm managers need to check one farm rather than having to travel between 4 or 6 operators.

Although it was noted that company servicemen do visit contract growers to monitor their performance, it was felt that the companies could apply greater pressure to farmers to improve their management performance. Under the terms and conditions of the contract, one processing company interviewee noted that growers are required to maintain:

the shedding, equipment and environs around the growing area, roads and other equipment in such a manner so as to prevent disease intrusion or development, pests, drainage water or other polluting materials from the area and keep all areas clean, tidy, sanitized, mown, slashed, sprayed and otherwise presentable and in accordance with the processor's requirements.

Contracts also require old litter to be disposed of as soon as possible after being removed from sheds, and give the processor the right to request that additional equipment be installed to improve farm productivity within a reasonable time period. A positive role was identified for the companies in dealing with farmers who felt that they were above the law and were creating a poor image for the industry.

Other commentators have noted that although the contract growers may represent a united front, the industry as a whole is not collectively dealing with land use conflict. In relation to the NSW chicken meat industry, Poole (1998:9) notes that:

The general unwillingness of the industry (growers and processors) to stand united in collectively standing up for itself in the planning arena, making representations to government at all levels, working together to ensure existing poultry farms and activities such as feed delivery and pick-up do not produce levels of impact that the public and others find objectionable and/or offensive has done little to further the industry's cause.

Cross industry communication was thought limited as the industry was intensely competitive. In this respect, the NSW industry was noticeably different from WA. Although the processing companies would support each other during price negotiation, in every other issue they were seen as competing. For one company the two states were not directly comparable as the wealth of WA is more dependent on agriculture and the growers in that state were thought to have a greater say in price negotiation because competition was not as intense. Local government officers recognised that farmers were under greater pressure and that their primary concern was to satisfy contract conditions. The absence of company support for growers fostered the perception that they were dispensable or easily exchanged.

More recently, farmers recognised that the companies were becoming more involved as night time noise levels have decreased, greater care is given to when farms are approached and attempts have been made to reduce odour levels. The latter was not without some concern, because by supplying feed additives it

meant improved digestion, less manure, improved chicken growth and higher returns for certain farmers. The companies themselves indicated that enzymes and additives could be utilised, but that they were too expensive to use on a continual basis. Odour neutralisers could alternatively be utilised through fogging systems, though the catch 22 was that this had the added potential of creating wet manure. The introduction of chimneys to aid dispersal was one option, though industry sources acknowledged that detailed research was limited. Although research is being undertaken, it was suggested that it would take 3 to 5 years for the benefits to be felt.

The attitude of processing companies towards environmental issues varied. Reference to the companies as being responsible for environmental impacts because of their influence over stocking density and feed type was simply a red herring. Another indicated that the company would only become involved as a last resort if the environmental performance of a farm was noticeably bad, if it was creating a bad name for the industry or was threatened with closure. Other companies were taking a more active role with Steggle's Ltd. identified as employing an environmental officer to liaise with local government and the EPA. According to a representative from the NSW Chicken Growers Association the increased involvement of the companies has been prompted by a shortage of growing capacity and the realisation that it was becoming increasingly difficult to obtain development approval for new farms. This noted, any restriction applied to the operation of a farm, including limiting night time pick-up, forces changes upon the processing companies as well. Case study box 6.19 identifies changes in the nature of bird collection following the introduction of curfews.

Case Study Box 6.19 – The Impact of Night Time Curfews on the Operation of Inghams Enterprises

The introduction of a curfew on feed delivery and the night time removal of chickens has the potential to affect the coordination of production and processing. Broiler farmers acknowledged that curfews could be applied to a number of farms, but their widespread application would be problematic. One processing company claimed that 20% of its contract growers were now under restriction. Although day-time pick-ups have been trialed, reports suggested that results included lower bird quality and increased mortalities.

Inghams Enterprises indicated that it was now employing 'just in time' haulage because of the impact of curfews. This has extended pick up from midnight to midday, as opposed to the collection of birds in the previous evening. One farmer reported that 10 semi-trailers had recently removed 40,000 birds from his property between the hours of 7am and 1pm. The possibility that all birds could be removed during the day was seen as unpractical as processing facilities operate from 6.30am to 2.30pm. Given that there are 5,000 birds per truck and the speed of the processing line is 9,000 birds per hour, there needs to be two trucks waiting at the top of every hour. Depending on distance to the processing facility, this may mean leaving a property at 4.30am and if it takes an hour to catch the required number of birds, then arriving at the property at 3.00am.

Future implications for the industry will depend on how widespread curfews become. Clearly there are limitations to the extent to which the industry can adapt. There are also limitations in relation to collecting birds on the previous night where welfare concerns limit the time that birds are allowed to be left waiting in trucks. Giving special treatment to farmers facing noise complaints would seem a necessity to avoid the widespread introduction of curfews. This may contradict quarantine issues and the economics of collection noted earlier in case study box 6.2.

Future Adaptation

Rather than being a somewhat static process, for one interviewee new research was happening all of the time in relation to environmental impacts and involved all aspects of a farming operation, including litter management, watering systems and shed design. Mixed attitudes were detected in relation to the impact of tunnel ventilation on externality levels. The difficulty for local government is that at the same time as they are being asked to accept that environmental impacts will be reduced, because manure will

be kept drier, bird densities can potentially increase with this new style of shedding. With air expelled through a point source the possibility of air filtering remains, though industry sources were somewhat uncertain of its potential and indicated that it might be encouraged more by the need for greater quarantine control. One representative suggested that it wouldn't be too hard to establish tunnel ventilation by erecting large extractor fans at one end, especially as most sheds were already semi-tunnel ventilated when internal fans were employed. The difficulty in adopting such technology related to the planning issues involved as air was dragged out in one direction and the fact that farmers are not compensated for keeping them operating continually. To be successful, farmers either needed to be paid more per chicken or provided with a greater number of chickens. Other interviewees were less optimistic about the ability of old sheds to be remodelled in the future, especially older sheds relying on natural ventilation.

6.6.2 NSW Egg Industry

Political Activism

The potential for industry-wide promotion among egg producers was thought to be limited because of its fragmented nature and its competitiveness. One initiative that was implemented was the creation of an industry-wide enterprise, 'the incredible egg company', to engage in generic promotion. Cooperation was apparently undermined because participants were not fully committed and free-riding resulted. Interviews with industry leaders revealed that the egg industry was still overcoming the impact of deregulation, and it took 10 years for a deregulated industry to reach a maturity where players could accept competition and the need to address certain issues as a collective. Case study box 6.20 provides additional information on the impact of deregulation on the NSW egg industry. Despite the absence of a cooperative approach, farmers thought the impact of industry wide lobbying would be limited because of the industry's small size, the activity of other lobby groups and the fact that land use conflict was not a major election issue.

Case Study Box 6.20 - Impact of Deregulation of the NSW Egg Industry

The deregulation of the NSW egg industry in 1989 has divided the industry along the lines of producer size. Although a number of smaller farmers have been forced out of the market, deregulation was seen as being beneficial by some producers. Besides allowing farmers to expand, deregulation provided farmers with greater independence, including the opportunity to invest in free range production methods. As investment in new sheds occurred and existing sheds were used to their full capacity, economic returns have fallen in the industry, such that a commercial farm of 10,000-20,000 laying hens, which may have been viable 10 years ago, was seen as marginal today.

Traditionally, farmers have blamed deregulation for low prices, though supermarkets, thought to be the main beneficiaries of deregulation, are increasingly seen as being equally responsible in driving down farm gate prices. Egg sellers were reported to approach the supermarkets each week saying 'have I got a deal for you'. Turned away, they come back the next week saying 'have I got an even better deal for you'. One farmer noted that eggs are currently delivered to supermarkets twice per week and that payment is received fortnightly. With the supermarkets pushing for monthly payments it was realised that as soon as one of the major egg producer accepted the offer then everyone will be forced to change. The supermarkets, as the major outlet for eggs, were seen as having significant leverage because eggs are perishable and production cannot be stopped.

The egg industry is fragmented between players of varying sizes. The largest companies, including Pace Farms, Bartters and Eggbert Eggs (formerly the state marketing company and now a cooperative) supply the major supermarkets, including Woolworths and Franklins. Pace Farms has expanded its involvement in the Sydney Basin, since deregulation, through a process of acquisition and leasing rather than investment in new sheds. Leasing arrangements involve farmers supplying their land, capital and labour in exchange for a guaranteed price per dozen for supervising the company's laying hens. This was thought to be mutually beneficial as the operator may not be large

enough to market the eggs individually and the company was able to achieve greater economies of scale without having to invest in additional sheds. Since deregulation, Pace Farms has grown from having 200,000 laying hens in the Sydney Basin to having approximately 1million hens. With another 500,000 laying hens near Tamworth, Pace Farms was reported to have 1.5 million of the 4 million birds in NSW. Eggbert Eggs, which is supplied by approximately 70 farms across the state, was reported to control another third of production in NSW.

Beneath the largest companies there are a number of medium sized egg companies, such as Pirovic & Sons and Dudley Farms, who may supply independent supermarkets or provide the major supermarkets with special deals. The industry also has a number of smaller operators who supply fruit and vegetable stores, corner stores and road-side traffic. The latter group can be broken down to those who are competitive but are unable to supply the volume required by the supermarkets and those who may be running 4,000-5,000 hens as a part-time occupation or retirement interest. It is likely that those who are farming for lifestyle reasons are employing old technology and less concerned with industry wide issues.

It is important to conclude that despite the industry's fragmentation, it remains highly centralised with reports that 80% of eggs are produced by 20% of farmers.

At meetings of the Australian Egg Industry Association, industry-wide problems have been identified at a national level, including mis-information relating to animal welfare and cholesterol. Another area where industry activism could be beneficial was in developing an industry code of practice, which could be distributed to local government and the EPA to educate relevant decision-makers about the industry. The need to advise council about changes in technology and the differences between the management of egg farms and broiler farms was also identified. The possibility that the industry could compile information relating to the requirements in different local government areas, including how manure and dead birds are to be disposed of, was criticised by others because of the difficulty in keeping such information up to date. Government decisions were also identified as being influenced by the merits of each individual farm.

For some industry leaders, the need for an industry wide approach was limited. Reasons included the fact that environmental conflict was not a major concern and that the industry had a history of rationalisation that pre-dated deregulation. The industry's natural evolution would solve a number of problems as the bigger operators decide to relocate to regional locations and as the smaller players are forced out of the industry. Other interviewees reiterated the fact that participants in the industry would become larger and that the number of farmers would continue to decrease. Farmers also questioned the need for an industry wide approach. Land use conflict was not an industry wide issue as it was only of concern for farmers near metropolitan areas. It was therefore up to each farmer to deal with local governments and neighbours on their own. To this end, larger egg companies were identified as possessing advantages because of their greater access to information and the likelihood that they have had sheds approved in other LGAs. Accordingly, it was thought that they would be more aware of the development approval process and local government requirements.

At the property level, farmers acknowledged that the planting of trees was important as they give the impression that the farmer is trying to do something and that government would be more sympathetic as a result. Communicating with neighbouring land users was recognised as being common sense and that personal contact cannot do any harm.

Off-farm Relations

Where possible, farmers who were not following best management practices needed to be isolated from the industry. How this could be achieved proved more difficult to answer, especially because of the industry's fragmented nature and the fact that there was no organisation to which every farmer belonged. Improving industry standards is a major concern given that poor management on one farm can give the industry, as a whole, a bad reputation. The difficulty for the industry is that it can only coax

or coerce as it has no real power. Unlike the chicken meat industry, an egg does not need further processing, and can therefore be sold directly to consumers. Off-farm interests therefore have less control. By way of example, the egg industry has been promoting single-age farming for a number of years for disease reasons. However, farmers are reluctant, as cleaning out the whole farm will impact on door sales and customer relations. Where small egg farmers have long-standing relationships with customers, they do not face pressure to adopt quality assurance standards. Case study box 6.21 gives greater attention to the introduction of quality assurance into NSW. Changes in consumer demand would also impact on sales, as people became more conscious of health and food safety.

Case Study Box 6.21 - Attitudes of Farmers towards Quality Assurance Schemes

As in WA, it was thought that the introduction of quality assurance schemes, such as HACCP, will impact on the industry structure during the next 5-10 years. Because each farm is essentially a 'food factory' steps will be implemented to ensure that everything is as clean as possible. Farms will need to be externally audited and financial benefits will be implemented where they fail. In the short run, farmers who can achieve the desired quality assurance standards will receive a marketing advantage, which will then be lost in the longer run as the majority of the industry becomes compliant. Concerns related to the auditing process may vary between industry participants and it is possible that certain parts of the industry may not be involved.

Although tailored to improving bird health and product quality, environmental benefits will flow from quality assurance as changes are made to the management of poultry manure, flies, dead birds, cobwebs, water, dust, rodents and ground between sheds. The major benefits were thought to relate to fly control as strict guidelines will outline the number, location and monitoring of bait stations.

Despite some farmers indicating that HACCP will be easy to achieve, others will struggle to satisfy the necessary standards and may be forced to close. Major financial outlays might involve preventing wild birds entering sheds and changing cage structures to ensure that eggs are clean and not rolling through manure. On some old farms it was noted that the feed was positioned directly opposite to where the birds lay, and because birds excrete away from their feed eggs are contaminated.

Future Adaptation

As in the broiler industry there was some optimism regarding technological change, with new environmentally controlled sheds thought to offer improved performance, not just in terms of providing a better environment for laying hens, but in the control of externalities. Rather than falling onto the floor, manure falls onto a conveyor belt which can frequently be deposited into an awaiting truck. Odour levels are further reduced as air is continually drawn through the sheds and an even temperature can be maintained without the need for fogging. Council officers made similar comments relating to recent technology. Existing sheds were thought difficult, if not impossible, to remodel based on new technology because of their age and dependence on natural ventilation.

6.7 Future issues

6.7.1 Disposal of Dead Birds and Manure

It is anticipated that the intensity of conflict will increase in the Sydney Basin as urban estate development expands and as rural land is divided into smaller rural residential properties. The ability of the industry to address environmental complaints will depend on the extent to which manure and dead birds can be disposed of within the Sydney Basin. If they cannot be adequately disposed of then farmers will not be able to operate according to normal farming practices and may be forced to close. In comparison to WA, there is a notable absence of industry-wide approaches to utilising the by-products of production. As a result, farmers are currently employing a variety of disposal methods. The disposal of litter appeared to be a growing problem for the chicken meat industry. One farmer claimed that

whereas previously farmers had received \$2/cubic metre of broiler litter, contractors have more recently stated that it won't be removed unless they are paid. Single batch litter from chicken meat farms was identified as being of a lower quality and economic value compared to the formerly available multiple batch litter. Possible implications include farmers having to clean out their own sheds and then find broad acre properties on which litter can be disposed. Other broiler farms indicated that they had no problem in disposing of litter. Mixed responses were also collected from egg farmers, with some indicating that manure was used by nearby market gardeners and turf farmers. Other egg farmers noted that disposal was becoming increasingly difficult, especially where manure was wet, because farmers may have to pay contractors to have it removed. In addition to market gardeners purchasing organic fertilisers, it was suggested that the disposal of manure will become more problematic as other activities, such as mushroom farms, are forced out of the Sydney Basin.

The disposal of dead birds promises to be another problem for the poultry industry. While the majority of farmers disposed of dead birds at a land fill site in Camden at considerable cost, others composted them. Problems arise when rubbish tips will not take dead birds, when the EPA will not allow farmers to bury or incinerate them, and when the small number of dead birds on scattered farms prohibits a centralised rendering plant. The latter also presents quarantine risks as collection involves truck movement between properties. Composting was identified as one potential option though it could still be very odorous and may not be able to adequately deal with an unexpected large number of dead birds. Case study box 6.22 provides an example of the difficulty farmers experience with disposal.

Case Study Box 6.22 - Difficulties Associated with the Disposal of Dead Birds

In recent years, government officers informed one broiler farmer in western Sydney that it was no longer acceptable to bury dead chickens on the farm. Under the *Clean Air Act, 1961*, local government indicated that it would also be unacceptable for the farmer to use an old incinerator. When the farmer proposed placing the dead birds into a garbage bin until they could be taken away, the contracting processing company indicated that there was a chance of cross infection and that it would not be appropriate to store dead birds on the farm. When the farmer responded by locating the rubbish bins on the roadside curb, neighbours apparently complained about the smell. The person describing this example concluded that if you can't dispose of dead birds then you can't operate a poultry farm.

6.7.2 State Government Policy Making

Stemming from earlier committees, including the Feedlot Advisory Committee, the NSW Inter-Departmental Committee on Intensive Agriculture was formed in the late 1990s with the objective of developing a policy response to land use conflict. Attention was directed towards existing activities in addition to newly proposed developments, and to a wider range of agricultural activities, including mushroom farming, rather than simply intensive livestock operations. The intention of the Committee is to address land use conflict by identifying key principles and to develop a policy response. To this end industry representatives have been invited to meetings to discuss relevant issues. Position papers have identified five key policy areas including:

- 1) that the potential for land use conflict be incorporated into strategic land use planning,
- 2) that suitable development conditions need to be implemented to control the building and siting of farms and residential developments,
- 3) that farming practices need to be improved through the identification of best management and the development of performance based approaches,
- 4) that people intending to live near agricultural activities need to be educated, and
- 5) that opportunities for mediation and negotiation should be implemented.

The wide ranging nature of these recommendations reflects the fact that there is no simple solution to conflict, and that a range of policy approaches need to be developed. The future impact of this group remains somewhat uncertain as the attitude of different government departments towards land use conflict appeared to vary widely. An officer from DUAP argued that poultry farmers have never had a

legal right to emit externalities beyond property boundaries and that in the past, farmers may have developed a tacit agreement between one another. As newcomers have entered formerly agricultural areas complaints about environmental externalities have followed. Where technology or management practices cannot be improved to reduce externalities then some form of compensation should be provided.

Recognising that scientific information relating to odour measurement, dispersal and offensiveness is limited, the EPA has responded by drafting an odour policy, which was released for comment in 1999. The inter-departmental committee is currently evaluating the policy proposal by consulting with various agricultural organisations, including the poultry industry. Two key principles were included in the draft policy. Firstly the introduction of flexible buffer distances that take into account shed technology, number of receptors, terrain and local vegetation cover. Secondly, the policy includes the possibility of negotiating a solution to conflict, with an emphasis on compensating affected properties. Rather than financial, compensation might include air conditioning to reduce odour or double-glazed windows to reduce noise.

According to the polluter pays principle, for compensation to be implemented, a threshold level would need to be established above which externalities were deemed offensive. Such a system was criticised by farmers for ignoring unusual circumstances such as the outbreak of disease or climatic extremes. Other concerns relate to the ability of farmers to offer compensation when they are surrounded by a large number of residences and that compensation does not provide farmers with any additional security if neighbours continue to complain in the future. One argument in support of a radical change in policy was the perception that unless a serious policy measure is implemented, then the poultry industry will not take externalities seriously and will not allocate money towards finding solutions. The attitude of NSW Agriculture, in contrast, was that there are a large number of externalities in society that go uncompensated, so why should agriculturalists be forced to pay?

In recognising different attitudes towards the regulation of land use conflict, it is important to conclude by stating that future implications for poultry farmers in NSW will depend on how active the poultry industry is in addressing environmental issues. If the industry is unable or unwilling to make changes to the nature of production then it is likely to have less control over its future. As regulation changes and as local government becomes more stringent in enforcing legislation, then existing farmers will come under greater pressure to change management practices and shed technology, with implications for the future of existing farms and for processing companies in the broiler industry. As both the egg industry and the broiler industry are regulated together under the framework of a united poultry industry, it is likely that egg farms will face stricter legislation despite land use conflict being more intense in relation to the broiler farming.

Chapter 7: Discussion

7.1 Introduction

Australia's desire to maintain a high standard of living underpins a strong development ethic. One implication of development is increasing conflict as environmental groups raise global concern for deforestation, global warming and land degradation. However, when the issues are more locally orientated, the perspectives of those who will potentially be affected reflect concerns of a much more personal nature. Accordingly, local siting of essential facilities such as waste disposal depots and other infrastructure can create vehement reaction from nearby residents. Evidence from this research project suggests that intensive livestock production can equally be classified as a Locally-Unwanted-Land-Use or 'LULU'. Potential implications include undermining the viability of agricultural activities.

7.2 Rural NIMBYism

Community interest in land use development has increased since the 1970s as interest in environmental issues has grown steadily. The passing of environmental legislation in that decade in western countries, including United States and Australia, has provided increased opportunities for public participation in the development assessment process (Popper, 1985). Invoking notions of democracy, the intention is to provide local residents with greater control over development within their local area. The implementation of avenues for participation has, in turn, institutionalised or formalised the rights of community members to protest against land uses associated with environmental costs or personal losses. Various phrases have been developed to explain individual or community resistance to particular developments, including NIMBYism or Not-In-My-Back-Yard (Dear, 1992). Land uses that have attracted resistance, including hazardous waste facilities and nuclear power plants, are often described as LULUs (Popper, 1985). In the United States, community concerns that local areas are experiencing the costs of such developments, while regional areas are collecting the benefits, has resulted in considerable difficulty in establishing an enterprise of the LULU category (Wolsink, 1994).

Often wealth is linked to political influence, and areas characterised by low income or minority ethnic groups are forced to accept such land uses (Popper, 1985). Despite this uneven geography of location, LULUs do provide important investment and employment opportunities in areas that are otherwise economically depressed. In other areas, protests have encouraged disinvestment with potential impacts for the ability of society to meet future infrastructure requirements at a regional level, especially as existing investments become physically outdated.

In Australia, as in the United States, there has been increasing difficulty in locating or expanding urban infrastructure, including airports, rubbish tips or quarries, in metropolitan areas. Consequently LULUs are increasingly being proposed for the urban fringe or more remote rural areas. Policies promoting urban consolidation could be added to these examples. As increasing wealth and sprawling urban centres have re-created patterns of living in Australia, including blurring the distinction between rural and urban, difficulty has been experienced in obtaining the approval to construct LULUs. This has particular relevance to the more densely settled Australian coastal environment, though even in more remote rural areas, NIMBY style attitudes have emerged. Examples relate to public health issues associated with telecommunications, overhead power lines and high temperature incinerators. The present research indicates that there is reason to believe that intensive livestock industries, including poultry farming, are increasingly experiencing resistance from local communities. Complaints relating to externalities from existing operations, submissions protesting about proposed developments and the formation of residential action groups provide evidence of this.

Care must be taken in defining NIMBYism as the reasons for local resistance may vary widely (McAvoy, 1998; Hunter and Leyden, 1995; Wolsink, 1994). For instance the unwillingness of people to accept LULUs regardless of management practices or economic contribution has resulted in the notion

of Not-In-Anyone's-Back-Yard or NIABY, as a variant on NIMBY, and Build-Absolutely-Nothing-Anywhere-Near-Anyone or BANANA. In these situations, open participation has resulted in a determination to prevent development at all cost rather than participation inferring the right to communicate to negotiate an acceptable compromise. Although the most common reason for NIMBYism is seen as being an irrational response from an ignorant public, such a definition is thought inappropriate by others. Freudenburg and Pastor (1992), for example, indicate that science may hide value judgements and uncertainty. Other reasons that have been reported for resistance include lack of trust in the developer, lack of established need, lack of complete or accurate information, lack of public input or spatial inequality (Ibitayo and Pijawka, 1999). Additionally, in rural settings, some local residents may be complaining about farming nuisances whilst others may be favouring protection of farmland and controls on residential growth (Popper, 1985).

Understanding this and recognising how it impacts on the nature and intensity of land use conflict is critical for a successful policy response. As acknowledged in Figure 5.1 and 6.1 farmers in both WA and NSW felt that the reasons for conflict vary between legitimate farm management problems, inappropriate rural amenity expectations, personality conflicts, planning concerns and land speculation to concerns about the nature of production. The argument used by local residents to discourage government from approving LULUs also varies. This conclusion is supported by Table 5.3 and Table 6.3 which provide a break down of submissions relating to particular poultry farm developments. The different arguments adopted by community members to influence council decisions related to externalities, the physical environment, disease spread, land value decline, cumulative impacts, land use planning, community consultation and the industrial nature of production. Approving such developments was also seen to contradict the future of the local area and the interests of ratepayers. It is argued that limited attention has been given to understanding the diverse reasons why people complain about urban fringe agriculture and what this means for policy.

For local government, deciding how to respond to an outwardly expanding urban area and an intensifying agricultural industry is further complicated by a range of additional factors. As identified in Figure 7.1, these include existing land use patterns, resource constraints, information constraints, the nature of poultry farming, policy constraints and community wide goals. Key difficulties relate to the fact that land use conflict involving poultry farming is a relatively recent phenomenon in many local government areas, such that the appropriate land use planning and knowledge of agricultural activities is in the early stages of development. Although government officers may be visually able to assess whether a farmer adequately disposes of dead birds and manure, their ability to assess other farm management issues including feed quality, fan layout or fogging systems is limited. Where a visual assessment of farm management occurs and complaints continue to be lodged, then local government faces difficulty in resolving conflict. Economic arguments regarding what the industry can practically achieve may cause additional concern for council officers. In addition to the difficulty experienced in verifying environmental complaints, development decisions may have been made in the past with little appreciation of the potential for conflict. Urban fringe local governments face further complexity in balancing their desire for flexible planning to achieve economic growth and the reality that poultry farms may be spread throughout their jurisdiction, raising the potential for conflict across a large number of property boundaries.

The experiences of local government will vary spatially as not all LGA's will face the same pressure for residential development, perhaps lacking the required infrastructure or natural environment. The distribution of poultry farms varies depending on access to key inputs, transportation routes, processing facilities, markets and historical developments. For some, a limited number of poultry farms may be located on large properties in rural zones, such that conflict is not a key issue. Other LGAs are not as lucky as they regularly receive complaints relating to poultry farms. In this situation, council's limited resources need to be allocated to the resolution of conflict. As identified in Figure 7.2 implications of rising local environmentalism for the poultry industry include restrictions on future shed development and farm management practices. The main conclusion from Figure 7.2 is that the poultry industry faces a number of practical difficulties in being able to guarantee lower externality levels. During adverse weather conditions, such as unusually hot weather, farmers continue to face the risk that their chickens

may die. It is, therefore, natural that farmers will do everything to minimise mortality rates, and that environmental externalities are given secondary importance.

Although technological change may minimise externalities and continue to provide greater control over the shed environment, two points need to be made. Firstly, that the recent intensification of land use conflict has outpaced research and development, such that research into externalities, their generation, management/amelioration has lagged behind. Secondly, to what extent should urban fringe farmers be expected to invest in expensive technological solutions when urban development proceeds in an *ad hoc* manner? Without detailed knowledge of where and when residential development will proceed, requesting farmers to invest without giving them added protection in the future or time to recover the investment would seem unreasonable.

7.3 Nature of Regulation

The traditional approach in dealing with environmental issues has been for council officers to communicate with farmers attracting complaints and to encourage the voluntarily introduction of management changes. Where farmers are slow in responding, prosecution may have been threatened, though its implementation was limited. In more recent years, codes of practice have been developed listing appropriate management practices, somewhat arbitrary buffer distances have been recommended, and farmers have faced a range of new consent conditions on development approval. Most recently, a district court case in the NSW Shire of Wollondilly, upheld restrictions on the night time collection of birds. The fact that council issued the notice constraining farming practices signals a significant change in regulatory approach to urban fringe agriculture.

For the poultry industry, implications of the changing political environment include a regulatory spiral, with an incessant imperative for farmers to meet new environmental criteria. Although 'much decision making in Australia is quite crudely incremental, and highly disjointed' (Walker, 1999) the application of environmental regulation to agriculture is a more recent phenomenon. Where the speed at which changes to farm management are required exceeds the poultry industry's ability to adapt, then farm viability may be threatened. Figure 7.3 portrays environmental regulation facing the poultry industry as an evolving process rather than a stable entity (Moran *et al.*, 1996). Over time, the industry has faced regulation relating to the disposal of dead birds and manure, night time activities and site conditions.

It is important to recognise that the intensity of the regulatory cycle does not simply reflect government intervention as it may be accelerated by industry or agribusiness regulation, such as through the requirement that poultry farms are HACCP approved. Another example, is that whereas contractors have traditionally removed litter and sold it to market gardeners, supermarkets in Victoria at least, are 'now prohibiting the use of chicken litter by their contract vegetable growers because of a perceived risk it could carry salmonella or other bacteria' (Talyor, 1998).

Facing new or proposed regulation, determining the likely impact is difficult where it is in the interests of industry to exaggerate possible implications or to down play their ability to adapt. It is equally difficult to determine how industry will respond when regulation is in a period of flux or where other issues, such as deregulation and internationalisation, run parallel with growing environmentalism or NIMBYism. This noted, the ability of the poultry industry to adapt is highly variable, and is strongly influenced by local and regional conditions. For example, although WA has introduced a state wide collection service for dead broilers, problems exist in other states because of greater distances, a larger number of farms and a higher volume of dead birds. The risk of disease transferral between farms may discourage individual farmers from participating in such schemes.

The need to rapidly dispose of manure off-farm could equally present widespread problems for some farmers, unless industry research can identify alternative disposal strategies. In some areas urban expansion may result in the loss of potential markets for by-products, including mushroom farming.

Figure 7.1 Difficulties Facing Local Government

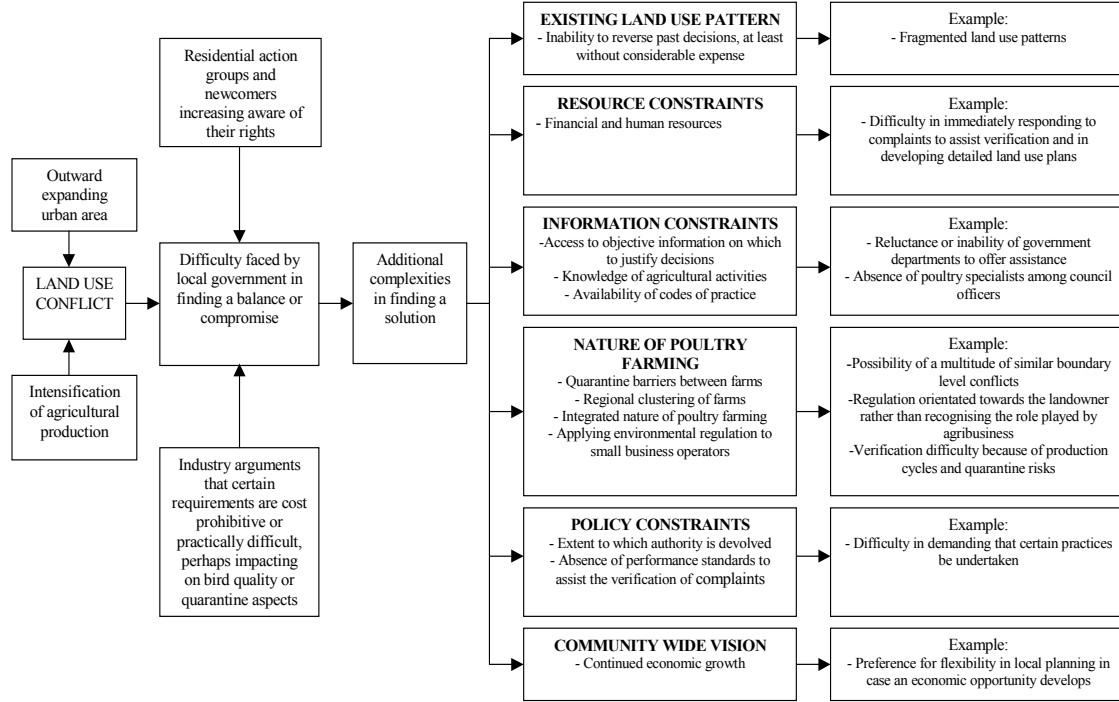


Figure 7.2 Difficulties Facing the Poultry Industry

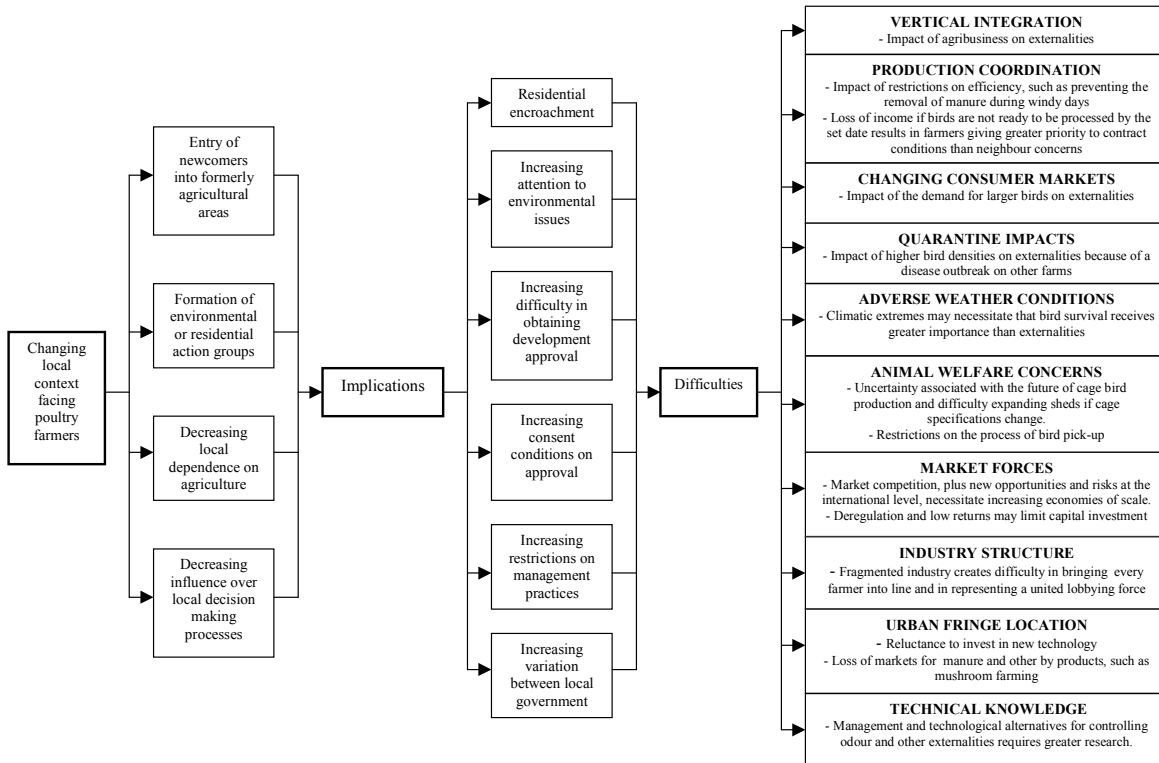
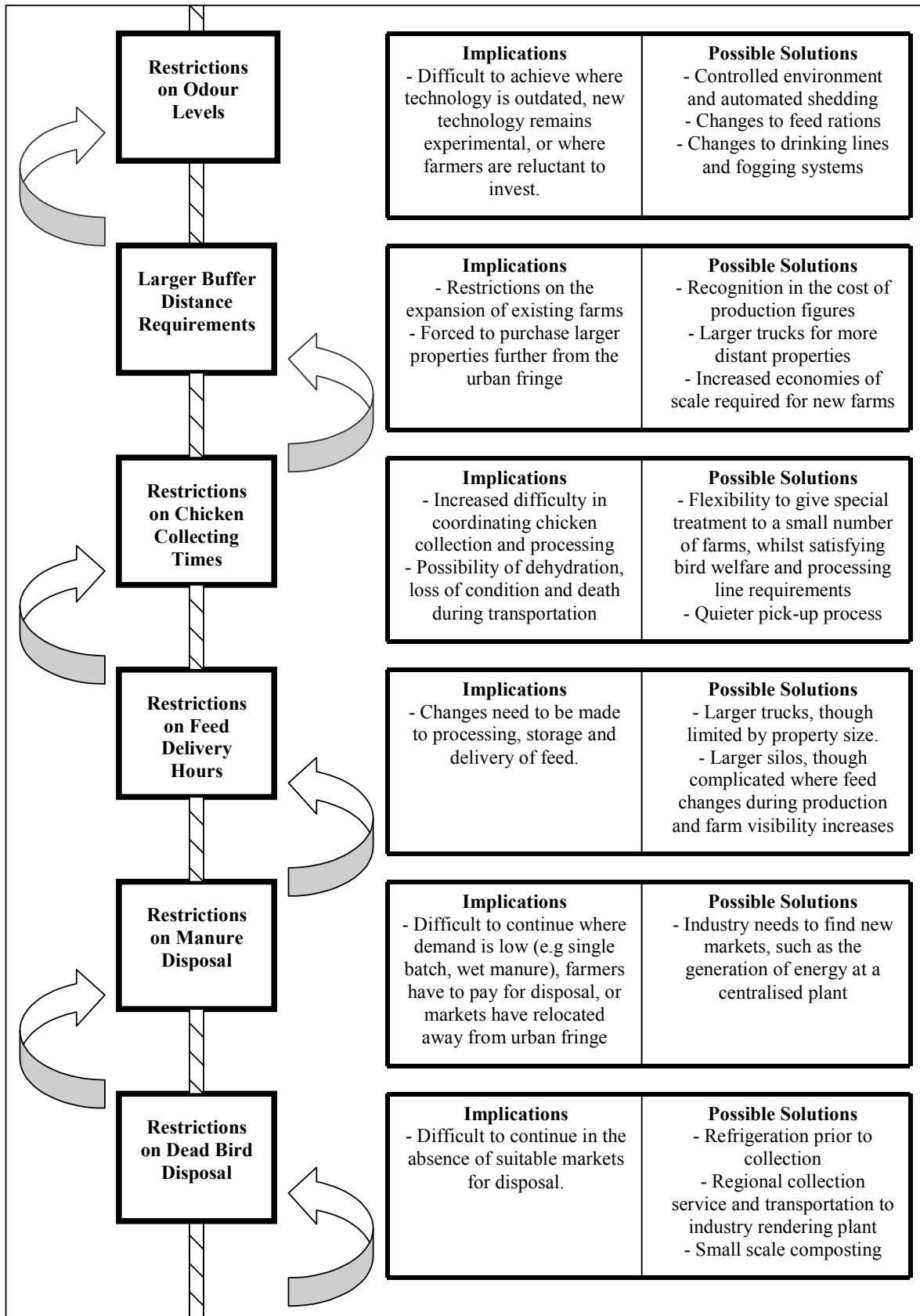


Figure 7.3 Environmental Policy Cycle Facing Poultry Farming



The introduction of buffer distances represents one contentious regulatory issue. Buffer distances have been implemented as a secondary measure to prevent land use conflict because of the practical difficulties associated with minimising externalities. One implication of increasing environmentalism has been the need to submit more detailed justification when shed development approval is sought. Often this involves farmers arguing that externalities will be minimal because of the management practices that will be employed, or modelling the dispersal externalities on farms of a similar nature. As land use conflict has continued to intensify, the validity of these arguments has been questioned in relation to the role of innovative technology in reducing externalities, the impact of local circumstances and for including inaccurate assumptions. Such uncertainty has resulted in local government giving greater emphasis to separation distances and site layout in the assessment of poultry farm development applications. Two important implications for the poultry industry have been identified during interviews. First, because buffer distance requirements remain arbitrary or simply recommendations, there is significant variation between local government areas, with some councils requiring new farms to comply with larger internal buffer distances. Secondly, the somewhat rigid implementation of buffer distances in relation to existing poultry farms wanting to develop additional sheds is also an issue.

Where poultry sheds have historically been built along property lines, a large area of a neighbouring property may potentially be sterilised from development based on present buffer recommendations. Accordingly, it is argued that new poultry farms should incorporate this area, resulting in a recommended distance of 100-150m between sheds and property boundaries. Likewise, these same arguments could be applied to the specified distance to urban or rural residential zones, though it is likely that viable production would be threatened. The 100-150m requirement is an attempt to find a balance between the economic conditions of farming, the difficulty local government experiences in restricting neighbours from developing their land, and the emission of externalities.

Conflict has resulted where local government has applied recommended internal buffer distances to existing farms with some rigidity, restricting the ability of farmers to expand their operation. Yet where a farm operates next to native vegetation or a rubbish tip, for example, then the need for rigid enforcement is questioned. Care must be taken in adopting greater flexibility, as the potential for future urban development needs to be assessed. Concerns are similar to the subdivision of rural land for a farmer's retirement, as future changes may result in conflict. A neighbour's support for a farmer's expansion may not receive the same backing from future residents. As outlined in Figure 7.4, justifying why developments should proceed involves directing additional research to the externalities associated with different management practices and technology, and to scientifically estimating buffer distances based on local characteristics.

In general, regulations which influence the process of coordination, such as changing the day designated for manure clean out because of poor weather, have potentially severe ramifications. Property curfews create new difficulties in the coordination of vehicle movements, in addition to economics and quarantine. At the present stage the unusual pattern may develop where farmers located further from the suburban fringe may face more stringent restrictions on management practices which are linked to more recent development approvals.

As attitudes towards externalities become more entrenched and local government chooses to administer environmental regulation to limit night time noise levels, then property curfews may become standard across the urban fringe. In this manner, linkages can be drawn between the regulation of the inner and the outer fringe. Geographical elements associated with the regulatory treadmill are presented in Figure 7.5. A second key aspect to the model is the realisation that where farmers are reluctant to relocate to the outer fringe, then conflict may continue to intensify on the inner fringe, creating a more difficult situation for both industry and government. This is thought exacerbated where processing companies are reluctant to enforce environmental conditions as contract farms lost to urban expansion on the inner urban fringe cannot be replaced in more remote areas. The reluctance of farmers to relocate may reflect the perception that it is not economically viable or that local government may be unwilling to accept the industry, at least without a range of consent conditions, including larger landholdings for operations. In

part this reflects the realisation by council on the outer fringe that inner or middle fringe LGAs may be experiencing land use conflict involving poultry farms. This assessment ignores the fact that farmers may be reluctant to invest as urban development moves closer and the technology being employed by new poultry farms. Evidence that the industry faces difficulty in investing on the outer urban fringe was identified in NSW and WA.

7.4 Alternative Forms of Regulation

As noted by Caldwell (1998) regulation is likely to remain central to the future of intensive livestock production. Regulation may relate to environmental legislation, the development approval process and land use planning. Each regulatory system is addressed in turn in the discussion that follows.

7.4.1 Environmental Regulation

Faced with increasing community complaints relating to odour levels, government may adopt four different regulatory approaches including the assessment of odour complaints or the introduction of odour thresholds, buffer distances or odour modelling (Schmidt and Jacobson, 1995). The four options are outlined in greater detail in Table 7.1 where a number of benefits and limitations with each approach are identified. Basing the regulatory response on environmental complaints faces the difficulty of legitimising complaints and assessing new farm developments, but is beneficial for farms in remote areas who face few complaints. Buffer distances, odour thresholds and odour modelling face scientific limitations associated with the difficulty of objectively defining when an externality becomes offensive.

Odour threshold levels are promoted by local government because of the difficulty they currently face in responding to land use conflict (see Figure 7.1). If it were possible to objectively assess whether a farmer was above or below the required performance standard then local government would have grounds for justifying why changes to management practices should be introduced. In addition to resource deficiencies and an uncertain division of responsibility with the environmental protection authorities, local government may face difficulty in legitimising complaints because of the timing of externalities, their limited knowledge as to how farming practices can be changed and compassion for the situation facing farmers. Although the option of regulating processing companies remains, environmental legislation in Australia is directed towards the owner of the land from which the externality is emitted.

Odour thresholds, despite scientific uncertainty as to how they might best be achieved, can be advantageous for industry where it is possible to say 'no' the complaint is not legitimate as the externality was below the required level. Legitimate complaints can therefore be recorded for each property rather than the total number of complaints. Establishing the threshold level remains political and subject to challenge. The difficulty is in allowing for extreme or infrequent events, such as the outbreak of disease that affects bird digestion or the need to increase stocking density over a short period to adjust for a quarantined farm. Applying odour thresholds to existing farms with outdated shed equipment would result in widespread industry rationalisation. The possible introduction of odour thresholds warrants greater industry research, not just in order to evaluate the regulatory consequences, but to anticipate and develop low cost solutions.

Another option that would also give the industry greater certainty, is to legislate that all poultry farms must conform to certain standards in relation to, for example, regular off farm disposal of dead birds or stockpiling of manure. In this situation there may be limited flexibility for individual farm circumstances or for geographical variation in disposal options, possibly resulting in farms being forced to close. However, where farms comply, they are better positioned when complaints arise. As with odour thresholds, determining what constitutes normal farming practice would remain political. Where general management practices are specified, rather than the necessary technologies, the local government may remain relatively powerless.

Figure 7.4 Development Approval Process

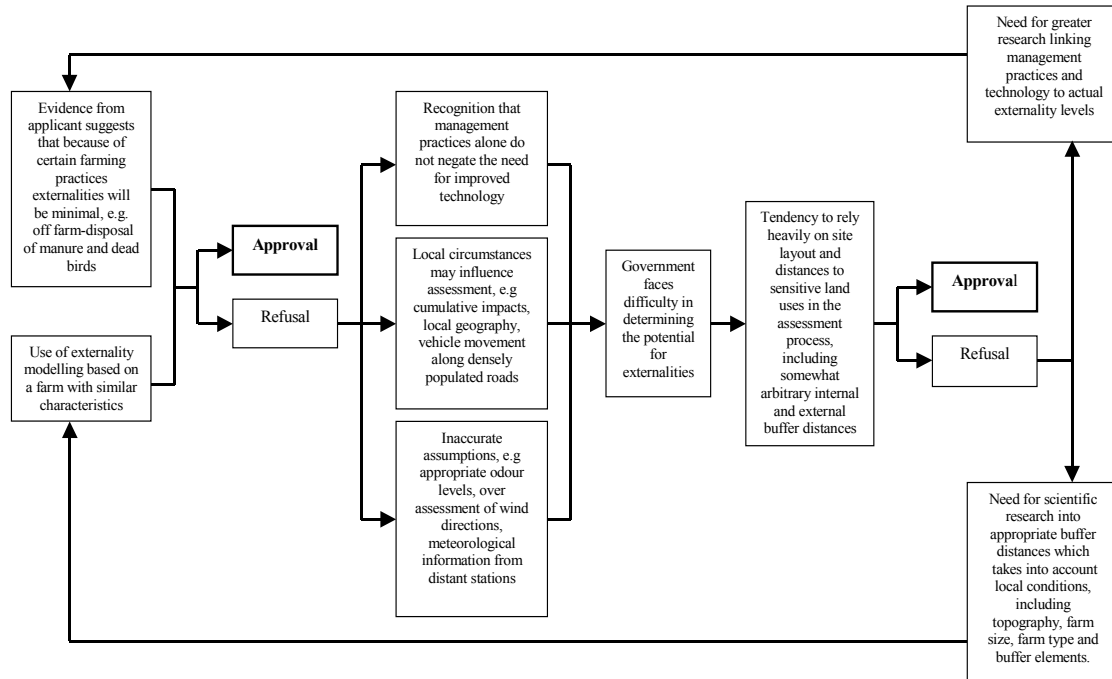


Figure 7.5 Regulation of Land Use Conflict on the Urban Fringe

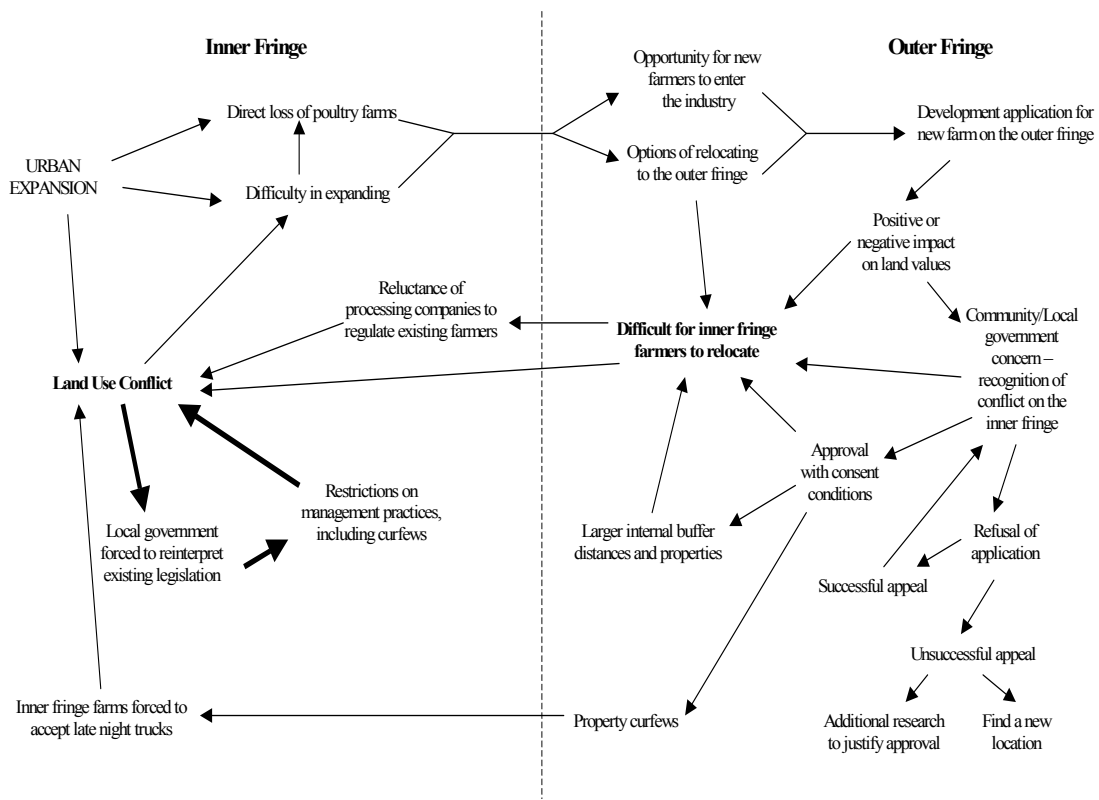


Table 7.1 Environmental Policy Alternatives

<p>Odour Complaints</p> <p>How can complaints be validated?</p> <p>How many complaints or how many people have to complain before an environmental issue is legitimate?</p> <p>Complaints may reflect other social and political issues.</p> <p>Externalities may be concentrated in time.</p> <p>What action must to be taken if complaints validated?</p> <p>New facilities receive no complaints until they are operational, at which point it may be too late to do anything.</p> <p>Remote facilities do not attract complaints and are not required to change management practices.</p>	<p>Odour Thresholds</p> <p>No simple methods to measure the intensity of an odour sample or to evaluate its offensiveness.</p> <p>Continually monitoring odorous emissions to maintain a constant limit is expensive and time consuming.</p> <p>Question of what allowance is made for unusual weather, unexpected events, and different styles of shedding?</p> <p>Should odour requirements vary with population density or distance to individual dwellings?</p> <p>What importance should be given to farms operating in different geographical areas, for example, should farms located in remote rural areas face the same odour thresholds?</p>
<p>Separation Distances</p> <p>Although complaints are likely to decrease with distance, determining over what distance odour becomes less offensive tends to be arbitrary.</p> <p>Suitable distance is likely to vary between farms depending on the size of the operation, odour control technology, farm management, wind direction, wind speed and local inversion layers.</p> <p>Question of how recommended distances should vary depending on whether the neighbouring land use is a school, hospital, residential dwelling or other type of sensitive land use?</p> <p>Question of who should own the separation distance?</p> <p>Application to both new farm and residential developments.</p> <p>Dealing with conflict where past decisions have not enforced buffer distances.</p>	<p>Emission Modelling</p> <p>Application of techniques for regulating industry, including the measurement of gas emission at each source, modelling of air to predict gas concentration at increasing distances from the outlet, development of concentration limits based on a dose-response relationship, and modelling of a minimum impact line around the facility.</p> <p>No standard method for determining odour emissions from a livestock facility.</p> <p>Variation in emissions between farms depending on technology, management and local geography.</p> <p>No standard limits for determining an offensive odour.</p> <p>Question of application to existing farms where encroachment has already occurred, however, for new farms it can provide an indication of what buffer distance should be purchased.</p>

Greater use of the FIDO (Frequency, Intensity, Duration and Offensiveness) principle is one recommended alternative (NZME, 1995). Rather than having fixed thresholds, odour or noise may periodically exceed the base levels for a specified percentage of time. A key concern is the time frame over which externalities are measured, and that it accounts for the activity cycles associated with normal poultry management.

An alternative approach to dealing with the regulation of environmental impacts of externalities, which provides industry with a period of time to adjust and overcomes the need to continually monitor emission levels and to then enforce standards, is for government and industry to establish broad environmental objectives. A reduction of odour and noise levels by 25% by the end of a three year period may be one example (de Roo and Miller, 1997). Problems involved in applying such an approach to poultry farming involve determining what the average level is at the moment, whether the focus is industry wide or individual farms, penalties for non-compliance, responsibilities and allowances for the vagaries of weather and other uncertainties. A suitable timeframe would accommodate necessary research. However, too long a period may foster complacency.

7.4.2 Development Approval Process

The second form of regulation noted above relates to the development approval process. In the United States, difficulty in identifying locations for LULUs has resulted in considerable research into successful approval mechanisms. Key debates relate to the nature of public participation in the development process. Frequently, extensive local involvement in decision making jeopardises

legitimate enterprises important to the region. Popper (1985) notes that participatory approaches, may simply ‘amount to invitations to block LULUs’.

Decision making may be prolonged, and even require court action. Similar circumstances are experienced by the Australian poultry industry because, while it is frequently noted that planning systems combine a mixture of certainty and flexibility, the current development approval process appears to be one of uncertainty for poultry farmers. In no area is the development of a poultry farm a simple formality. Even in an agricultural zone, poultry farms may face strong resistance. Table 7.2 reviews literature relating to how LULUs can be sited and comments on their relevance to the poultry industry. One conclusion is the need for the poultry industry to actively promote the fact that research is being conducted into environmental issues and to publicise research findings to local communities.

Table 7.2 Poultry Farming as a LULU

Option for Siting LULU	Relevance to Poultry Farming
Do nothing and rely on market forces. For example, difficulty in siting power plants will eventually increase the cost of servicing and stimulate additional investment in alternative forms of power generation. Problems in disposing of industrial wastes will eventually result in the decision to create less waste (Popper, 1985).	<ul style="list-style-type: none"> - Increasing price of chickens is unlikely to result in new production methods, as it would in the substitution of red meat for chicken and the possibility of increased imports of low cost chicken. - Difficulty in obtaining an approval will eventually stimulate additional research, new production methods or investment in different areas. - Difficulty in investing would encourage the industry to continue operating outdated urban fringe sheds that attract environmental complaints.
Reduce the operational size of the LULU and increase the number of communities affected to create a closer connection between benefits and costs (O’Looney, 1995; Popper, 1985)	<ul style="list-style-type: none"> - History of agriculture has been towards a smaller number of larger farms. - Poultry farming is noted for its regional clustering which reduces the possibility of dispersing farms to minimise cumulative impacts.
Offsetting environmental costs with economic and infrastructure benefits, including investment in local services or financial compensation (Ibitayo and Pijawka, 1999; Popper, 1985).	<ul style="list-style-type: none"> - Rather than corporations with money available for improving community relations, the majority of poultry farms continue to be family farming enterprises operating to tight financial budgets. - One exception is where investment can occur at an industry wide level.
Establishing a clear need for the project (Ibitayo and Pijawka, 1999), for example, by promoting the fact that the LULU is a public investment that is critical for the continued functioning of an urban area.	<ul style="list-style-type: none"> - Recognition that the demand for chicken meat continues to expand requiring additional production facilities. - Poultry farms provide consumer goods rather than an urban service or infrastructure investment, so it may be more difficult to argue why society needs the additional investment, especially when a large number of poultry sheds are already seen to exist.
Rejection of the decision-announce-defend model of investment in favour of community participation (Ibitayo and Pijawka, 1999; Kuhn and Ballard, 1998). Often the assumption is that if local people have greater control of the siting process then a trusting relationship may develop. Differences of opinion may be identified, common interests may be recognised and a negotiated compromise may result (Lidskog, 1997). Requires a change in investor mindset from being an outsider to having a stake in the welfare and safety of the community (Ibitayo and Pijawka, 1999).	<ul style="list-style-type: none"> - Providing the community with increased control, including the right to opt out of the siting process, does not solve the siting problem. The assumption in providing for community participation is that the community is willing to negotiate and to find a compromise. Where scientific arguments, changes to management practices or additional community investment are rejected, then relocation may be impossible. The exception is where there is stronger state-wide planning or where land developers are able to force applications through the appeal process.
Stronger state wide planning to regulate the	<ul style="list-style-type: none"> - The notion of ‘fair share’ allocation may have limited

<p>siting of LULUs, including streamlining decision making processes to limit abuse and cooptation (Popper, 1985). For example, introducing fast track legislation for a particular land use required for economic development and employment.</p>	<p>significance to the poultry industry for reasons noted above.</p> <ul style="list-style-type: none"> - Rather than an infrequent or large-scale investment in industrial terms, poultry sheds may be posed regularly by a large number of farmers. For instance, an urban centre of one million people may need only one international airport compared to 100 poultry farms. - In contrast to a large number of LULUs which are public facilities, poultry sheds remain a private investment. Encouraging greater state level intervention may therefore be more difficult.
<p>Promotion of the fact that whilst investment is being made, research is being undertaken to make such investments redundant in the future. For example, waste reduction schemes will reduce the need for hazardous waste plants and alternatives are being developed for nuclear energy (Wolsink, 1994).</p>	<ul style="list-style-type: none"> - Detailed reports to community about industry investment in pollution reduction may stimulate positive attitudes. - Investment in additional pollution control techniques, including vegetation barriers, dust screens or acoustic walls, may encourage positive attitudes.

A second conclusion from Table 7.2 is that the nature of the siting problem depends on the extent to which different tiers of government are involved in the decision making process. In Table 7.3 alternative approaches to the development approval process are outlined ranging from complete local government responsibility to complete state government authority. Various intermediate approaches are identified between these end points, and it is important to stress that they are not mutually exclusive. A number of these alternatives and associated issues are explored below within the context of assessing how the industry can create greater certainty.

Firstly, as identified earlier, greater attention needs to be given to research justifying how externalities can be controlled. Secondly, as noted in the literature relating to siting LULUs, approval processes which are closed to the public and involve the applicant imposing developments onto communities through the ‘Decision-Announce-Defend’ model are increasingly seen as ineffective (Kuhn, 1998). The need to openly include the public from an early stage not only improves the quality of the final submission but may help to address community fears and concerns. Despite the preference of farmers to minimise their interaction with government departments, participating in issue identifying forums, such as planning focus meetings, is critical in producing a more detailed report. Satisfying their concerns represents a critical step in receiving local government’s approval, so they should be identified at an early stage. Openly dealing with local government in areas where there is a limited number of existing poultry farms is critical if misunderstandings are to be addressed. A simple lack of knowledge about the poultry industry has seen farmers being required to satisfy fire safety standards for sheds in both NSW and WA.

Thirdly, a poorly constructed environmental impact report or development application may result in costly time consuming delays, especially where additional information is requested. It is important that farmers hire consultants that are experienced in the assessment of impacts and in the production of reports, consult with government as early as possible to identify important issues, and ensure that all impacts are assessed in terms of their environmental risk, cumulative impacts and mitigation strategies (Weston and Prenton-Jones, 1997).

Fourthly, one option that farmers may employ to provide greater security to government that impacts will be below certain levels is the adoption of an environmental management system. To avoid duplication it may be necessary to create an overall farm management system that includes environmental impacts, food quality and disease control issues. While their adoption by agricultural industries remains to be explored, in principle, farmers must become more vigilant in how they conduct management practices. Spencer (1995:38) states that:

Intensive industries in near urban areas have faced considerable opposition on environmental grounds. Often applications for new operations are rejected. It is possible

that companies which hold ISO 14000 certification... will find that the processes for obtaining permits are much easier than for those companies without.

Fifthly, there are merits in adopting a performance based system of assessment. However, determining what conditions need to be satisfied is plagued with uncertainties. If developed at the state level, increased consistency in buffer distance requirements between local governments may be one positive outcome.

Even where such practices are adopted, along with more extensive industry research, shed proposals may still be refused where decision making is politically motivated as opposed to being based on an objective assessment of available evidence. Where it appears that local government is being overtly political in assessing shed applications, three alternative policy approaches might be adopted.

Firstly, where poultry farms are forced to appeal, and where the relevant court agrees with the decision of the relevant planning officers, then council could be required to pay the applicant's fees. However, the effectiveness of such a system may be questioned where courts remain pro-development, or where farmers are reluctant to force development applications through the courts, perhaps because of the hesitancy to invest in a new venture in a climate of conflict.

Secondly, for poultry farms that satisfy certain conditions acceptable to the broader community, including being located in appropriate zones and with suitable internal buffers and property dimensions, then the approval process may expedited. General debate on conditions would have been effected prior to the individual application being submitted.

Thirdly, whilst most necessary technical detail will be presented in a dispute over land use in court, few judges have sufficient comprehensive experience to rule on such issues. In addition, the court system itself is adversarial by its very nature and opportunities for negotiating a compromise or mutually beneficial solutions are exceedingly limited. There may well be a role for mediation or more open forums (Barker, 1994).

Where government's main objective is urban expansion, but concerns about the potential for conflict prevail, then an important land use planning issue is the possibility of relocating some activities less compatible with the proposed development. Given that the alternative may involve allocating more resources to deal with land use conflict or facing restrictions on farming practices, there are incentives for both government and industry to jointly respond. In addition to addressing the uncertainty presented by the continual review of industry regulation and animal welfare conditions, changes may need to be made to the development approval process to the extent that it discourages farmers from relocating. The absence of a strategic approach has also possibly created the contradictory situation noted in Figure 7.6 where the introduction of more stringent conditions on new farms in more remote rural areas has discouraged the relocation process.

Table 7.3 Government Policy Approaches to Regulating Land Use Conflict through the Development Approval Process

OPTION	COMMENT
Local government decision making	Decision making inconsistency between local governments as outcomes are based on an assessment of local attitudes and the prevailing context, though regional issues may be ignored.
Local government decision making – with assistance from a voluntary state government code of practice	A code of practice attempts to encourage greater consistency by educating local government about farming practices. At the same time it educates farmers that there are externalities that need to be addressed. It is assumed that state government is aware of agricultural practices, that agricultural industries actively participate in their formulation, that they address technology as well as day to day management, and that codes change over time as technology and industry standards change. Adoption of codes also remains voluntary.

Local government decision making – with voluntary referral to government agencies	Recognises that local government officers are not farming specialists and that there is the need to take into account wider environmental issues. However, it assumes that government agencies are technologically aware and willing to make definite conclusions about potential implications. For industries where local government rejects the advice of state government agencies, then decisions may be successfully appealed against.
Local government decision making – with farmers expected to satisfy certain consent conditions and performance standards.	Recognises that by imposing restrictions on certain management practices that the potential for externalities may be reduced. Options include curfews on hours of operation, setting certain thresholds, banning certain practices or limiting particular practices depending on the geographical context. It perhaps remains trial and error as to which restrictions will have the desired effect of lowering land use conflict.
Local government decision making – with avenues of appeal to hearing, tribunal or to the courts	Recognises that local government decision making may be politically driven or based on an over cautious assessment of environmental impacts, though a pro-development appeal process may give inadequate attention to local concerns.
Local government decision making – with opportunities for mediation and negotiation at an early stage in project design, involving community and/or government.	Attempts to reduce the length of the development approval process by informing local residents at an early stage about the proposed development, possible impacts and how they will be mitigated. Opportunities for consultation with state government agencies enables potential concerns to be identified at an early stage, for the proposal to be amended and for any concerns to be addressed in the development application. Concerns relate to the ability of developers to win the support of the public and hurdles may result where government officers are not the same people who later provide comments on the application.
Local government decision making – with state government formulated information requirements, including environmental impact statements, odour dispersal etc.	To assist local government in making better decisions about the merits of an application, it is necessary that proposals review environmental issues in detail. An underlying assumption is that the environmental impacts of different technology can be predicted. A second assumption is that local government can review the scientific information provided.
Local government decision making – with compulsory referral to government agencies (and/or license requirements)	To assist local government with technical reports, greater state government intervention may be introduced, or larger developments may require licenses from environmental agencies. Assumptions include that the impact of larger operations is greater and, again, that state government has the time and willingness to offer detailed comments.
Local government decision making – with applicants required to adopt an EMS	To assist local government in regulating poultry farms, farmers are required to undertake detailed records of farm management practices and when they occurred. Through subsequent auditing, farmers are encouraged to become more vigilant. Difficulty is that farmers are simply required to become more aware of farm management practices, as there is often no compulsion to undertake new investment.
Local government decision making – with council responsible for applicants appeal costs. Possibly occurring where the decision made by councillors has been overturned by the advice of planners, which has then been overturned through the appeal process.	By making council responsible for appeal costs, an objective assessment of development applications by councillors is given greater importance. However, council may be given little choice but to accept developments that are locally unwanted where the appeal process is pro-development. Under this scenario limited significance is given to the future vision of local residents for their community.
Local government decision making – with the opportunity for mediation or negotiation during the appeal process.	By introducing further opportunities for negotiation the intention is that a settlement can be reached, rather than a win-lose outcome. A negotiated settlement may allow all local residents to benefit. The assumption is that people are willing to negotiate or that a compromise can be reached.
Local government decision making – with local government required to produce detailed rural plans	Detailed rural plans that are consistently adhered to provide justification for local government in refusing applications, areas where the industry can develop which have received community support, and added development security for industry. Local government has a long history of amending plans and the public may not want certain industries located

	anywhere within their LGA. Rural land may already be so excessively fragmented that effective planning is not possible.
Local government decision making – with the development approval process varying depending on location, property size and internal buffer distances. In more remote areas or in agricultural zones opportunities for public participation or for third party appeals may be restricted.	Provides the industry with added security such that if they invest away from the urban fringe, then obtaining an approval becomes easier. Positive incentives may thus be created to encourage relocation. However, local government and councillors may continue to face pressure from local residents, with the effect that new production facilities continue to be refused, especially where re-election ambitions may be threatened.
Local government decision making – with legislative code of practice outlining site conditions	Provides industry with the confidence that if they meet certain site criteria, including property size or internal buffer distances, then their application cannot be refused for these reasons, at least without detailed scientific evidence, information which local government is unlikely to possess. There are concerns for local geographical factors including topography, buffer distance content, including densely planted trees, and operational scale, management and technology. At the same time as added security is provided, flexibility may be reduced.
Local government decision making – with legislative code of practice outlining site conditions and management practices	Extends the legislative requirements beyond site criteria to include general management practices. Before receiving an approval, industry must be able to guarantee that it can successfully comply with or satisfy all the requirements listed in the code of practice. Failure may produce grounds for closure. Again industry is given the added security of knowing that if the code of practice is satisfied the ability of local government to restrict the development is limited. There may be concerns where the code restricts industry dynamism and that it may prove insufficient to resolve conflict. The latter is likely where such a code is designed to ensure that all industry participants operate according to normal farming practice. Requiring all farmers to operate according to best farming practice may be economically or practically difficult, though it is likely to be easier for new farms. The effectiveness will depend on whether the code is a list of general management practices or a detailed description of technology to be employed. The difficulty with the latter is that it would require a legislative code to be regularly updated.
Local government decision making – with local planners given a greater role in decision making compared to councillors	By removing councillors from the final decision, the intention is to make the development approval process more objective with applications assessed according to their merits. The underlying assumption being that planners are less influenced by politics. However, decision making is removed from people who have been elected by the local jurisdiction to protect their diverse interests.
Local and state government approval required	Provides state government with greater control over the development and expansion of industry, and the ability to restrict applications where they are deemed inappropriate. On the other hand, the process of achieving approval becomes more complex, with the possibility that an application may be approved by one level of government and refused by another.
State government decision making - including the power to call in particular development applications	Greater consistency in decision making with increased significance given to regional wide issues, but local attitudes and context are given less consideration or overlooked altogether.

Although there are benefits in developing a metropolitan wide approach, given that the problem of land use conflict following urban expansion is replicated across a large number of local governments, the willingness of state government to intervene appears limited. In WA, following the Relocation Working Group's recommendation of a self-replenishing state fund to assist relocation, the Minister for Planning indicated a reluctance to assist solely to the poultry industry. Despite being unsuccessful no other state has had such an achievement in having the issue of relocation placed on the policy agenda.

Unless a strategic planning approach is adopted in relation to relocation, then there is the potential for the problem to intensify in the future where farms in close proximity to the urban fringe continue to expand. There is likely to be a reluctance to assist existing farmers who are inefficient, employing old technology, and where it appears that the industry is applying undue pressure on government.

Despite the reluctance of state government to financially assist relocation, policies can be implemented to stimulate market forces. Legislative support for buffer distances in WA provides a clear indication that land will be sterilised from urban development, unless developers are willing to buy out farmers and to assist their relocation. For local government, options include guided development schemes in which new allotments are levied, and manipulating development densities to give relocating farmers a higher price for their land, such as through transferable development rights (where the farmer will receive both a market price for the land plus the balance in saleable rights to develop other land). Where new development occurs adjacent to a poultry farm that is to remain, support for the somewhat arbitrary buffer distances can be spread via a levy across a large number of allotments, thus reducing the average payment. In Western Australia, State Planning Policy No 5 has given legislative support to buffer distances with the objective of stimulating market forces to assist poultry farms to relocate.

The success of such schemes is dependent on industry self-regulation, because unless farmers are given clear indications from processors that future development should occur in these areas, or that industry support will be lost where acceptable offers are refused, then land may be indefinitely sterilised. Irrespective of the financial viability of relocating, farmers may be reluctant to relocate where they may lose social ties or ethnic support communities, where access to markets may be threatened, or where they are farming as a hobby or a semi-retirement activity rather than a full time enterprise. There is some concern that the strong role played by the WA Broiler Growers Association in integrating the industry may not be replicated in either the broiler or egg industry in other states.

7.5 Alternative Industry Responses

Although farmers may be willing to change management practices and to engage in open mediation with neighbours, including adopting the practices recognised in Table 7.4, their ability to satisfy the tolerance levels of neighbours may be limited, at least without major capital investment. In addition to an uncertain repayment horizon, farmers may be reluctant to undertake major investment where future complaints will remain likely. Although farmers may be reluctant to invest in new style shedding, there remain economic incentives to continually update or replace technology, especially when heightened odour may threaten bird health, as ‘ammonia fumes have been show to cause respiratory damage to birds and lower production when in excess’ (Woolford, 1997:29). If insufficient capital investment and maintenance caused productivity to decrease, relative to other broiler farms, it is likely that processing companies would initiate action.

Table 7.4 Possible Outcomes from Mediation

Possible Outcomes from Mediation
Planting of vegetation along property boundary to reduce visual impacts
Locating dead bird containers further away from neighbours
Supplying neighbours with fly spray
Erecting dust screens to minimise dispersal
Advising neighbours when bird pick-up is likely to occur
Maintaining equipment to reduce vibrations or modulations
Requiring truck drivers to use different roads
Constructing a ring road to avoid trucks having to move in reverse
Avoiding using headlights on full beam
Bird pick-up crews are told that complaints have been registered and that they should be more careful.

The capacity of farmers to address property level conflict also depends on the involvement in environmental issues of regionally operating agribusiness companies. In contrast to the relationship between egg farmers and associated off-farm businesses, contracting processing companies have a greater connection with farm level externalities. Although traditionally reluctant to become involved in such issues, it would appear that over recent years the need to address conflict has received greater attention. Accordingly, processing companies may be drawn into discussions between farmers and government. This is in addition to being forced to adopt a more active involvement because of government restrictions on farm management practices, including the night time collection of broilers.

With the exception of WA where the industry has been one of the most pro-active in addressing environmental issues, the involvement of processing companies is often limited to small scale changes in management. Nevertheless, there may be some reluctance due to the realisation that only a certain number of growers can be offered special treatment in terms of hours of feed delivery and chicken collection. Farmers suggested that the processing companies could take a more active role in encouraging poor operators to improve their environmental performance. Where urban expansion closes farms and difficulty is experienced in receiving approval for new farms, companies may become more dependent on remaining farms and thus reluctant to stringently enforce environmental requirements that are not immediately related to productivity, such as farm appearance.

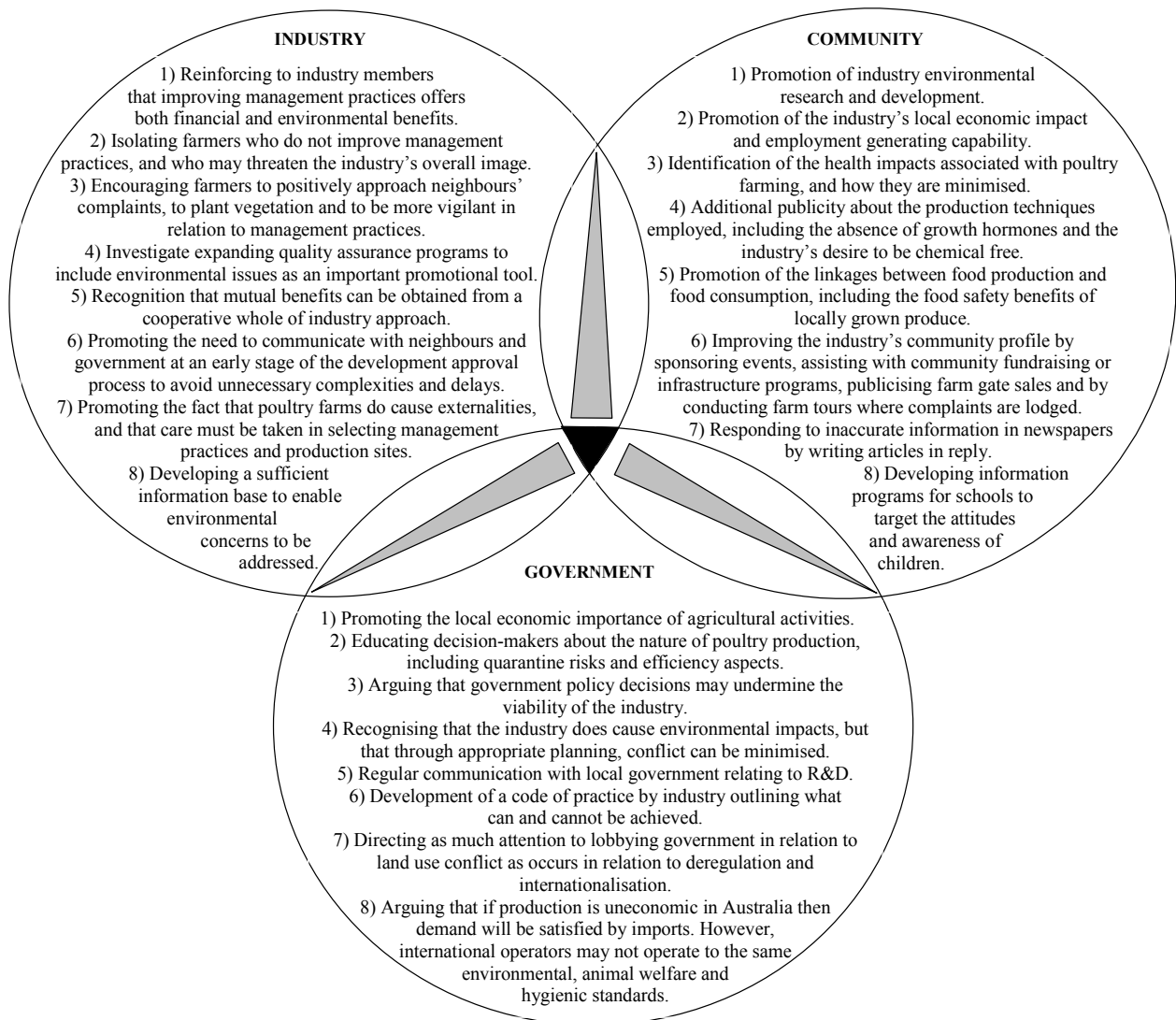
Evidence from the Shire of Wollondilly, revealed that negotiating a settlement to conflict can be difficult where processing companies are reluctant to become involved. Unless positive benefits can be foreseen, or perhaps the threat of more stringent regulation exists, then active industry participation in community working groups is likely to be limited. Indeed industry wide regulation (in both the egg and broiler industries) may have its benefits where competition undermines any attempt at industry communication or there is the perception that collaboration may be seen as anti-competitive. Some elements of the industry may not support industry wide regulation where their ability to adapt gives them a competitive advantage.

It is questionable whether such community working groups represent a new form of 'rural governance' which would limit the need for government intervention (As referred in the literature relating to Landcare in Australia (Martin and Woodhill, 1995)). Negotiation does have a role to play. However, greater attention needs to be given to the establishment of forums where each party has an equal status - a necessary precondition to stimulate communication. In addition, industry's unwillingness to participate in such groups may be due to the contrasting time frames of the various parties likely to be involved. In contrast to environmental degradation where environmentalists encourage farmers to look beyond annual production to long term impacts (Zinn and Blodgett, 1994), neighbours concerned about externalities focus on short term impacts and want immediate solutions. Zero tolerance levels or speculative interests simply add further complications.

Recognising the increasing role played by interest groups in shaping rural areas, three strategies for industry include encouraging farmers to adopt best management practice, addressing community concerns and lobbying government. In relying on the latter, industry runs the gauntlet between regulation that encourages investment, and the adoption of a regulatory approach instigated by government to encourage a more active industry response. As noted earlier it may be difficult to encourage farmers to adopt best management practices in an industry that is fragmented by competition. Yet achieving this is critical when the public's image of an industry is tainted by the practices adopted by a small number of farmers. Despite the problems that may be experienced, the industry needs to be actively involved in each of the three strategic areas as is identified in Figure 7.6.

Community involvement by the poultry industry as a collective has been limited. Reasons include the perception that the public is unwilling to cooperate, disease risks associated with public tours, and a tendency to insulate the industry because of animal welfare concerns. Similar criticism can be lodged towards agriculture in general, which has been slow to recognise its changing significance in the Australian economy. Rather than promoting agriculture, farmers have remained quiet, perhaps continuing to assume that government will look after their interests. Other farmers, perhaps because of

Figure 7.6 Areas for Strategic Industry Involvement



their ethnic background, remain suspicious of government, or prefer to keep a low profile (Davis, 1994). Active participation of farmers in lobbying government for state industry regulation and international quarantine restrictions is no excuse for political inactivity at a local level.

Because of Australia's high urban population concentration, both consumers and the general public are increasingly unaware of the realities of agricultural practices. Knowledge of local production may be hidden by the introduction of supermarket brands, and somewhat unrealistic images of farm management may be flashed onto television sets where animal welfare concerns on individual farms attract attention. In the United States, Bjerklie (1995) draws a similar conclusion in relation to the poultry industry, indicating that the 'public posture of the industry is one with its head down to avoid attention and scrutiny. This creates difficulties in cultivating a good public image and has invited activists, from consumer organizations to animal rights groups to set the public agenda'.

Although efforts have been made to improve community understanding of agriculture in Australia, such as the 'Penrith Food Project' (encourages food producers, manufacturers and retailers to work with community groups to increase the supply and demand for locally affordable, nutritious and safe foods), disease issues often limit the involvement of poultry farmers. Successful industry promotion on the urban fringe is also difficult where commuters have few contacts with the local community, such that industry sponsorship and the economic impact of agriculture remains unnoticed. A further difficulty is the limited resources able to be offered by family farmers in comparison to larger corporations to off-set environmental impacts. This is even more noticeable where the economic impact of industry processing plants fall within another urban fringe LGA. Broiler farmers have the added disadvantage that while egg farmers can perhaps provide eggs directly to their neighbours, broilers need to be processed off-farm.

Concern that once the industry starts to support community activities there will be an endless succession of requests, should be balanced against possible benefit from targeting large events. Care must be taken in contribution to the local economy, because as the literature relating to LULUs indicates, financial assistance may be interpreted as a bribe (Ibitayo and Pijawka, 1999; Wolsink, 1994). For Kuhn and Ballard (1998), community involvement will only be successful if 'trust and commitment are established between the proponent and the public'.

In addition to promoting its economic impact, the industry needs to adopt a more positive role in addressing health risks. A more active community involvement may be seen positively by local government and the silent majority and may lead to a reduction in the number of complaints. The difficulty remains one of encouraging the majority to participate. However, instances where neighbours suffer asthma and respiratory problems and claim that the poultry farm is the cause will remain a challenge.

Despite the promotion of community wide planning initiatives (Bryant, 1995) favourable decisions may be limited where local government assesses individual applications at the property level, rather than their importance to the regional economy. This is particularly evident where the local authority permits subdivision of land without fully appreciating its regional resource value as high quality agricultural land.

The difficulty remains that even if the industry were to adopt a more active community profile, the reality is that poultry farms do emit odour, noise and other externalities, and local government would still be obligated by legislation to respond to environmental complaints with objectivity.

Where existing farms operate according to best management practices, but are unable or reluctant to invest in technological solutions, then it may be difficult to resolve conflict without relocation. Three alternative relocation options are identified in Table 7.5. A distinction is drawn between developing on the outer urban fringe and in more remote rural areas, because contract broiler growers may be required to develop within a certain distance of processing company facilities, and egg farmers may prefer to remain near the metropolitan fringe to continue local market linkages. The benefits of relocating to a larger rural property include reduced future conflict and greater opportunities to dispose of dead birds and manure. New farms on the outer fringe may face difficulty in receiving government approval and potentially may face encroachment at some point in the future. There are instances where farmers have paid for power lines and road construction for access to land, only for the infrastructure to attract new residential developments. To overcome the financial costs involved in relocating and the impact on processing lines, one option may be to relocate a poultry farm over time.

In the broiler industry, processing companies can play an important role in assisting relocation, through the allocation of new sheds. The allocation of additional sheds to farmers interested in relocating may make the transition process more viable for both farmers and for processing companies as they seek to coordinate production over a larger spatial area. Similarly, giving farmers a time period over which full relocation may occur may be useful. For processing companies, additional benefits include being able

Table 7.5 Relocation Options for Poultry Farmers

	Benefits	Problems
<p>OPTION 1</p> <p>Sell the existing farm and redevelop in a more remote rural area</p>	<ul style="list-style-type: none"> - Potential to develop in a site favourable to economic investment. - Cheaper to purchase a larger property, thus reducing potential for future conflict. - Potential for egg farmers to supply regional market and to reduce the perceived importance of the state capitals. - Economic benefits in being located closer to grain production. - Ability to expand as market forces dictate. - Disposal of dead birds and manure is likely to be easier. 	<ul style="list-style-type: none"> - May not be economically feasible to relocate from a small inner fringe farm - Social disbenefits - Egg farmers lose face to face contact with outlets, and may be required to join a cooperative - Egg farmers lose the revenue obtained from road side stalls - Broiler farmers are dependent on the future planning of processing companies - Implications for processing lines unless birds can be removed from existing sheds and the next batch automatically placed in the new broiler farm.
<p>OPTION 2</p> <p>Sell the existing farm and relocate to the outer fringe</p>	<ul style="list-style-type: none"> - Possibility that egg farmers can maintain linkages with existing customers and retain a roadside stall for eggs or bagged manure. - Potential to invest in a larger operation and technology providing improved environmental control. - Able to remain within the boundaries established by processing companies to industry infrastructure. 	<ul style="list-style-type: none"> - May not be economically feasible to relocate from a small inner fringe farm - Potential that land use conflict may redevelop at a later date - Local government may be influenced by the amenity expectations of urban newcomers living on larger rural properties. - Implications for processing lines unless birds can be removed from existing sheds and the next batch automatically placed in the new farm.
<p>OPTION 3</p> <p>Purchase a second site and gradually transfer production</p>	<ul style="list-style-type: none"> - Rather than completely halting production and family income, farmers can gradually transfer production over time as new sheds are built over a longer period. - New sheds can be constructed as family returns permit. 	<ul style="list-style-type: none"> - Not viable as a farmer may not be able to purchase the new site without the revenue obtained from the sale of the existing property. - Processing companies may require the relocation process to occur over a certain time frame, such as two years, thus reducing the inefficiency of having to travel large distances to small production units.

Source: Adapted from Larkin (1993:7-13).

to meet the challenge of future imports, even develop successful export potential, and addressing the quarantine risks associated with the close clustering of poultry farms on the urban fringe. Because farm development is no longer guaranteed, and obtaining an approval is beneficial for both farmers and processing companies, an argument can be made that the companies should partially fund the cost of challenging adverse decisions.

Carefully managing the industry's expansion is critical. It was suggested that in WA one company encouraged growers to apply for additional shedding to determine who could expand under the changed development approval process. However, with the Shire of Serpentine-Jarrahdale then inundated with applications, it was reported that community concern about the industry intensified.

A four stage process through which an integrated processing complex may relocate is outlined in Figure 7.8. During the first stage an integrated development emerges on the urban fringe, perhaps in the 1960s in Australia, with farmers required to locate within certain distance of contracting company infrastructure including processing companies, hatcheries and feed mill. During stage two, existing farmers, who may have purchased small properties or erected one shed at the back of the farm without anticipating the need for economies of scale in future years, face encroachment from both urban development and rural residential development. In stage three, the integrating processing company recognises that regulatory requirements prevent existing farms from expanding and new farms from being developed, making the process of coordinating production increasingly difficult. A strategic decision is made to relocate future production to a new area where the industry's requirements (water, employment, feed etc) can be achieved. New cost-efficient farms are encouraged to locate to this area and farmers, reassured of the company's future intentions through the development of new feed mills,

breeder farms and hatcheries. During the fourth and final stage, the outdated urban fringe processing plant is relocated.

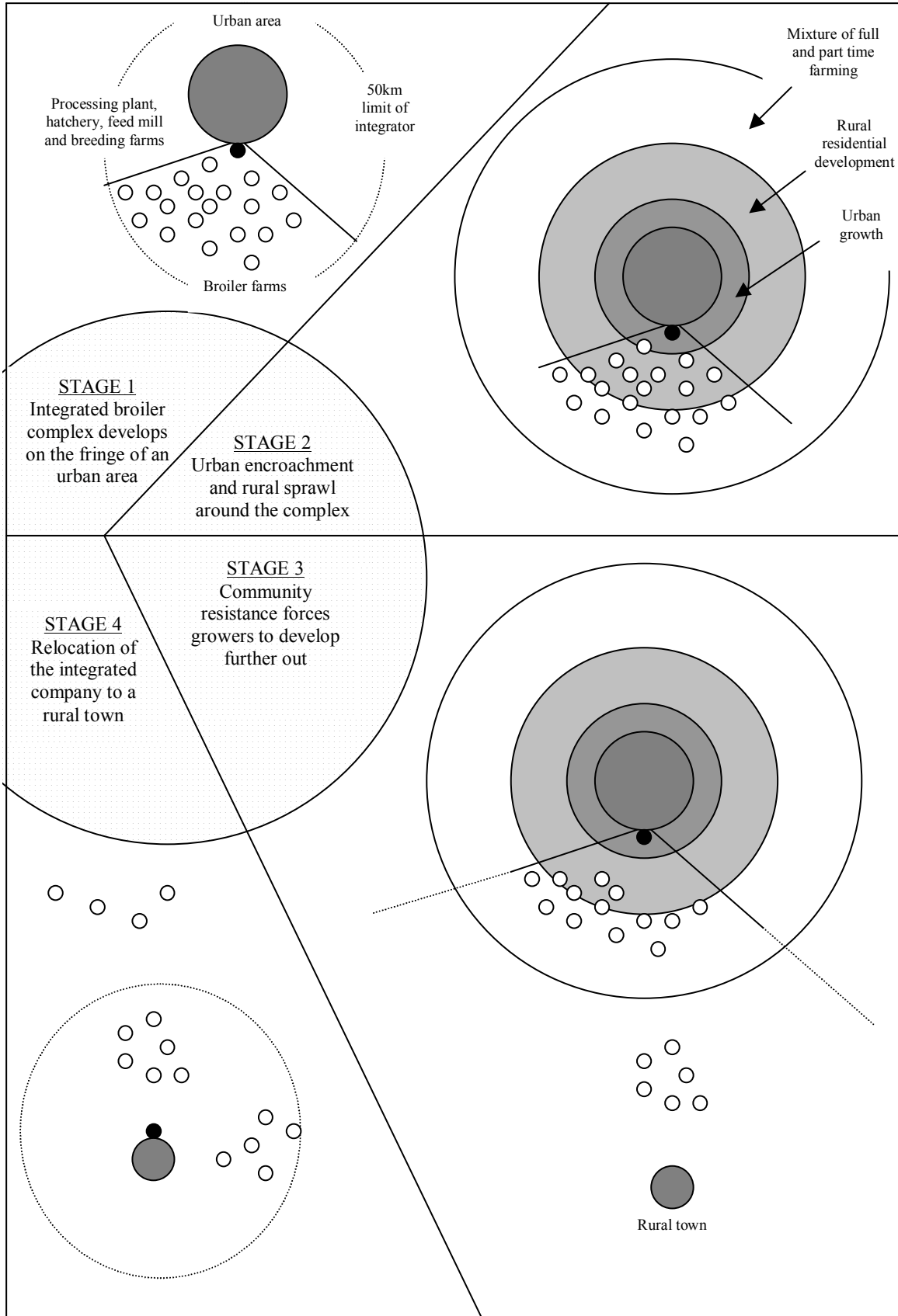
Although a number of important issues associated with relocation have been identified, some of which are summarised in Table 7.6, it is important to conclude by reflecting on the future structure of poultry production. If the ability or willingness of poultry growers on inner and middle fringe to relocate is limited, broad acre farmers diversifying into poultry farming or increased investment in company owned growing facilities may shape future production patterns.

Table 7.6 Benefits, Problems and Implications Associated with Relocating an Integrated Production Complex

Benefits	Problems	Implications
<ul style="list-style-type: none"> -Able to purchase larger rural properties and develop larger operations. - Larger properties help to reduce risk of disease transferral. - Opportunity to forward-plan may allow future production sites to be identified and the possibility of full integration with grain on larger rural properties. - Integrated company is located in one LGA therefore potentially easier for local residents to recognise economic benefits. 	<ul style="list-style-type: none"> - Potential contradiction between the economies of scale required, the cost of new sheds and whether investment is viable for family farmers. - Concentrating production in larger farms increases the impact of disease outbreaks on production levels. - Difficulty in finding suitable location where sufficient employment, water and other key inputs are available. - Possibility that land use conflict may develop, especially where land use planning is lacking. 	<ul style="list-style-type: none"> - Reluctance of existing farms to relocate, may result in the owners of larger rural properties diversifying into poultry farming or greater use of company owned farms. - Smaller number of larger farms to coordinate. - Ability of supermarkets to influence production creates the potential for inefficiencies where conflict exists between larger farms and all-in all-out production methods. - Consultation with local government as to future urban and rural residential development plans is critical. There is little point relocating to a rural area and then developing new sheds in close proximity to the existing settlement.

Future production trends in the egg industry are also difficult to predict, though like the broiler industry they will most likely involve a smaller number of larger producers. This will depend on animal welfare regulation, because the threat of new requirements is presently discouraging relocation, despite the beneficial impact of new environmentally controlled shedding on the well-being of laying birds. In WA, one group of farmers have adapted to increasing restrictions on poultry farms on the urban fringe and industry regulation, by combining quotas and developing a large egg farm in a rural area. In doing so they have also positioned themselves to be able to respond if and when the industry is deregulated in the future. Otherwise, industry restructuring is limited, with the number of syndicate farms likely to be limited by the capacity of individuals to join forces. In NSW, investment is spread between a number of companies and family farms of various sizes. The circumstances of each industry player is different, and as in the broiler industry, will adapt to economic and environmental pressures in accord with those circumstances. Larger companies, for example, may be more experienced in dealing with local government and aware of what is required to obtain development approval.

Figure 7.8 Relocation of an Integrated Poultry Complex from the Urban Fringe



Chapter 8: Conclusion

8.1 General Findings

The situation facing agricultural industries within Australia has changed dramatically in recent years with increasing attention directed towards the environmental impacts of production. In addition to the widespread concern for land degradation in Australia, evidence from this report indicates that land use conflict associated with the transfer of externalities across property boundaries has become a critical issue for certain agricultural industries. For the Australian poultry industry, implications include increasing community resistance to the intensification of agricultural enterprises and the implementation of restrictions on farm management practices. Many of the complexities involved in overcoming land use conflict have been addressed, such that more informed policy-making can be developed by both government and the poultry industry throughout Australia. Satisfying the interests of farmers and their residential neighbours appears exceedingly challenging because of the spectrum of reasons why people complain, their varying sensitivities, the economic structure of agricultural production and the relative absence of research investigating the generation, offensiveness and control of externalities. The spatial context of the urban fringe, including the impact of land speculation and the uncertainty of future residential development, adds a further layer of difficulty. Despite these complexities a number of implications for farmers, industry associations, processing companies, local government and state government are addressed in turn, followed by proposed recommendations. The chapter concludes by drawing a more detailed distinction between the situation facing the industry in Western Australia compared to New South Wales.

8.2 Implications for Farmers Applying for New Sheds

The complexity of the development approval process has increased in recent years with farmers required to submit more comprehensive applications, including consultancy reports relating to issues such as odour or noise generation. At the same time, government has become more demanding in relation to the conditions that must be satisfied, with recent approvals granted subject to operational curfews and compliance with recommended separation distances. In other situations, applications for new sheds have been refused as industry arguments linking technical change to externalities have been found wanting in terms of their scientific basis. Certain LGAs are particularly negative towards poultry industry investment, requiring the industry to obtain approval by appealing to the state against unfavourable decisions. Implications for the poultry industry include the need to conduct additional research showing that impacts will be minimal, or at least reduced, given the new technology being employed. Due to the subjectiveness involved in assessing environmental impacts, such research would give local government greater certainty, provide justification why decisions should be overturned on appeal, and highlight to state government the political nature of decision making in some LGAs. Additional research is critical given that achieving economies of scale is essential to the industry's ability to remain competitive and to adapt to deregulation and internationalisation.

8.2.1 Recommendations

* It is recommended that the industry actively participate in forums where state government departments are consulted at an early stage of a proposal, such as at planning focus meetings in NSW. Although state government may not be the responsible decision-maker, having negotiated its approval on most key issues may discourage local government from forcing the farmer to appeal against rejection of the development proposal.

* It is recommended that proponents ensure that, when obliged to prepare an environmental impact statement or a statement of environmental effects, the task is carefully and comprehensively undertaken. Despite negative attitudes towards having to complete an environmental impact statement,

the document represents a small cost in relation to the overall project. In an era of increasing environmental concern, there is the potential to save time, and thus loss of income, and the situation where local government is continually requesting additional information is avoided.

* It is recommended that additional research be undertaken linking farm management or technology to potential impacts. There remains a difficulty where an environmental impact statement is undertaken, as the potential to objectively link the technology being employed and the level of externalities created is limited. Problems arise where such research needs to be geographically sensitive. The validity of research undertaken in one state may be disputed in another because environmental conditions vary. It is likely that the industry has argued against a national code of practice for similar reasons.

8.3 Implications for Existing Farmers

Where land use conflict continues to intensify, the poultry industry is threatened by the introduction of new restrictions on farming practice. Generally, such restrictions are imposed as consent conditions on new shed developments, or introduced by farmers following consultation with environmental officers (or neighbours). It would appear that in few cases has local government adopted a more stringent regulatory approach. However, the regulation of odour is a particularly complex issue to resolve and is needful of further research in terms of generation, control, dispersal, monitoring and acceptable standards.

However, recently, there are signs that local government is willing to adopt a more active approach, with poultry farms attracting notices of prosecution that require specified odour management practices or constraints on night time noise levels. To avoid restrictions on management practices increasing over time, it is essential that farmers respond positively to complaints, perhaps adopting some of the strategies outlined in Appendix III. As identified in Figure 8.1, if local government or the neighbours of poultry farmers are aware that a farmer is actively adopting new technology or willing to listen to their concerns and cooperate, then conflict is less likely to spiral out of control. If effective practices are adopted, neighbours may decide against complaining to local government. Alternatively, environmental officers, in response to a complaint, may leave a farm secure in knowing that something is being done to address the problem. Having some positive feedback for the neighbours would certainly make the role of government officers, which is essentially as a mediator, easier.

Difficulties arise where the abilities of farmers to adapt management practices are constrained by their financial situation, future uncertainty, the influence of off-farm interests, and the attitude of neighbours. Where the planning system has permitted a large number of neighbours to develop in close proximity to a poultry farm, then it is less likely that simple, low cost changes to management practices will prevent conflict. The ability of farmers to maintain open communication with a large number of neighbours is more difficult.

8.3.1 Recommendations

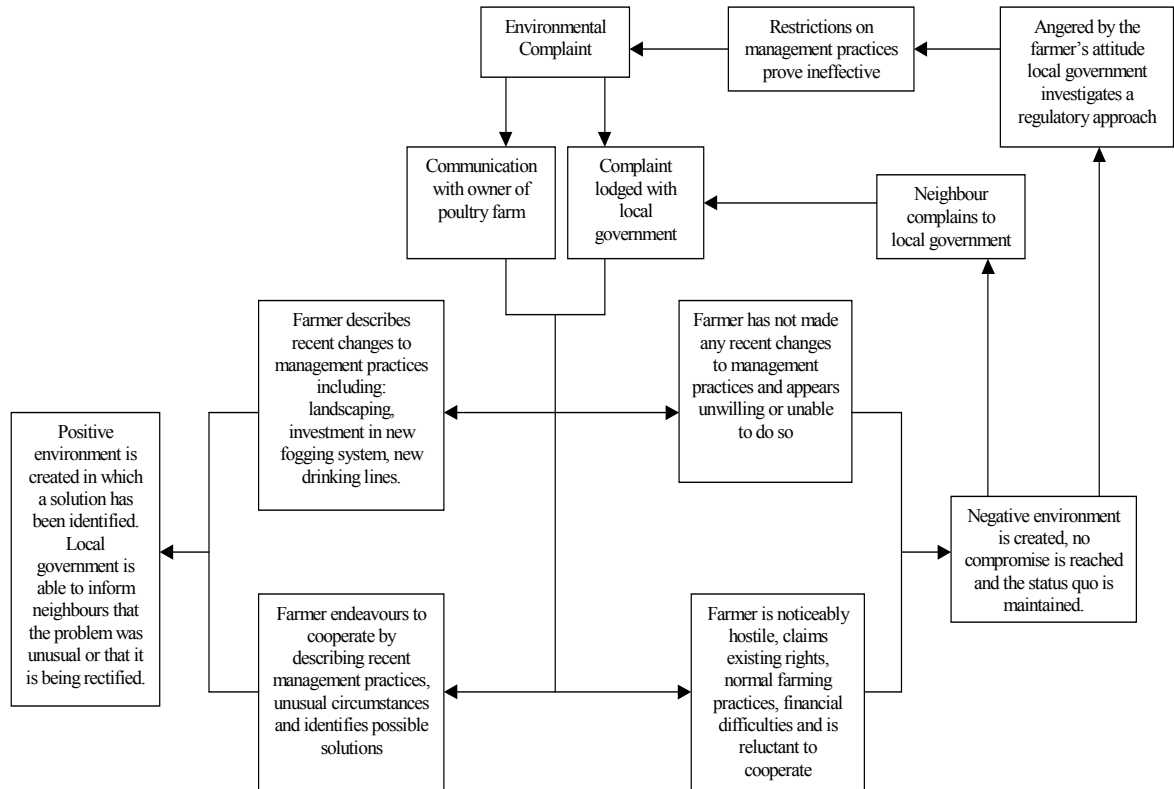
* It is recommended that farmers are seen to be doing something to resolve environmental problems where they have been identified. Simple actions on the part of farmers may prevent neighbours from complaining, may encourage favourable local government attitudes and prevent state government from introducing more stringent forms of environmental regulation. Actions might include establishing vegetative barriers, erecting light or dust screens, ensuring dead birds and manure are appropriately and quickly disposed of, and simply being more vigilant regarding fly breeding and initiating appropriate management practices. The reality is that farmers may become more complacent about management practices over time should they become inured to externalities and insensitive to their impact.

* It is recommended that, when approached by neighbours, farmers need to address their concerns with reasonable concern and empathy. Through openly dealing with neighbours, perhaps by

conducting a farm tour to describe the nature of the operation and what is being done to minimise externalities, conflict is less likely to develop and local government may not become involved.

* Farmers are advised to be proactive in opening lines of communication with local residents, especially in relation to notifying them of significant events, such as the removal of birds and litter.

Figure 8.1 Breaking the Regulatory Cycle



8.4 Implications for Industry Associations

Despite suggestions that the industry is unassailable and politically influential, the reality is that economic dependence on agriculture has decreased both at the national, state and local level. This is particularly evident on the urban fringe where local government is presented with alternative avenues for economic growth. Running parallel to the removal of policies supporting the economic interests of farmers has been rising attention to the quality assurance, animal welfare and environmental issues. Any inconsistency between these competing interests has the potential to cause great difficulty for the poultry industry. Examples include: the ability of farmers to satisfy contract requirements with agribusiness whilst addressing the environmental concerns of neighbours; the industry's desire to be chemical free whilst government may request the application of neutralising agents to control odour; and addressing bird welfare whilst neighbours are reluctant to allow new developments. Finding solutions to balance these competing interests would appear difficult in the short term as they require industry investment in research and active community involvement to overcome some of the misconceptions relating to poultry production. For example, whilst it is unlikely that farmers will be forced to close by local government, difficulty in disposing of dead birds and manure and dealing with externalities may eventually force farmers to close or to relocate from the urban fringe.

8.4.1 Recommendations

* It is recommended that, despite the difficulty of regulating participants in a fragmented industry, the industry associations encourage improved farming practices - necessary because a negative image of the industry may be created by the actions of one farmer. Introduction of environmental management systems, despite associated difficulties, provides one method to guarantee increased farmer vigilance. The development and adoption of codes of practice would also be advantageous, especially once a better understanding of the links between management systems and externalities is better understood (see below). Codes of practice would need to be developed on a state by state basis as it is unlikely that national codes would be appropriate to each production area. An added difficulty is that government regulation varies across time as well as space, such that information relating to different requirements may soon be outdated. Should codes of practice not be practical, farmers need to be encouraged to adopt best management practice as determined by industry.

* It is recommended that investigation continue into the impact of alternative odour control technologies through scientific experimentation, including the impact of shed technology, chimneys, genetic breeds, litter type, feed type, various odour suppressants and filtration. The difficulty is that research can only compare the impact of different production methods, and cannot conclusively demonstrate that externalities will not be offensive. Other important areas of research relate to noise levels during bird pick-up, alternative methods for disposing of dead birds and manure (either low cost solutions for individual farmers or industry-wide strategies) quarantine buffers and the productive use of buffer zones. It should be undertaken openly, as in-house research increases community suspicion and the perception that the industry is obfuscating negative information.

* It is recommended that closer linkages be established with other urban fringe industries, recognising that there are similar interests and common problems. Establishing a joint lobbying front to demand more attention to the protection of agricultural land, including exclusive agricultural zones would be strategically advantageous.

* It is recommended that the industry actively inform local government and the community about the positive achievements of the industry and offset misinformation campaigns (health risks, production systems, chemicals, animal welfare, hormones).

* It is recommended that the industry establishes closer linkages with local communities. Options for consideration include:

- Promoting the economic importance of the industry to the local community.
- Promoting local produce in community papers, including door sales, with the objective of associating local farms not just with externalities but with agricultural produce.
- Instigating industry competitions in relation to farm appearance and/or management and promoting the winner in local papers. (Perhaps seeking advice from Tidy Towns organisers.)
- Consider local sponsorships, perhaps through targeting one large community activity.
- Prepare school project information kits about aspects of the industry.
- Foster more extensive involvement in community environmental groups, such as Landcare.

* It is recommended that the industry be proactive in informing both itself and farmers of the changing realities of farming and the impacts that could follow from urban encroachment. The industry has to encourage farmers to become politically active and to support them in making industry interests known in relation to proposed residential developments. Options include participating in community meetings during the development approval process to reduce public misconceptions of the industry.

8.5 Implications for Processing Companies

The sprawling nature of urban development in Australia has created a different context within which the stronger vertical integration of the poultry industry has occurred compared to the international situation. A number of implications for processing companies in Australia can be recognised. Firstly, the increasing importance of environmental issues in Australia may influence the ability of the industry to compete internationally. Secondly, rising levels of land use conflict in both inner fringe areas and more remote rural areas necessitate greater involvement from chicken meat processing companies in farm level issues. Unless environmental issues are addressed, then the threat of stricter regulation remains. This will create further reluctance on the part of farmers to relocate and additional problems for the process of coordinating production to satisfy the increasing demands of retail outlets and consumers. The dilemma is that with cooperation unlikely because of industry competition, and the fact that some parts of the industry are adapting, the ability of individual processing companies to financially address environmental issues may involve yet greater economies of scale. Operational size is likely to increase community resistance unless production sites are carefully selected. This resistance will create additional difficulties for relocating farmers.

8.5.1 Recommendations

* It is recommended that processing companies become more involved in farm environmental issues, especially given their involvement in farm management decisions, the impact of farm closure on processing line efficiencies, and the difficulties involved in developing new farms. Opportunities exist to:

- account for environmental costs in the model farm, such as cool room storage for dead birds;
- enforce contract conditions relating to farm appearance, and encourage farmers to plant trees;
- investigate innovative approaches to the disposal of dead birds and manure; and
- educate night time pick-up crews about the need to minimise noise, including avoiding revving engines, using reverse beepers, lights on full beam and loud conversations etc.

* It is recommended that processing companies identify farmers facing intense conflict and give them special treatment, where possible, in relation to:

- greater consciousness about hours of operation (feed deliveries, bird collection);
- use of acceptable odour suppressants following adequate research; and
- paying careful attention to the transport routes being used.

* It is recommended that processors fully take into account the costs of appeals in relation to shed developments and consider possible assistance mechanisms.

* It is recommended that the industry be fully attentive to the difficulty in expanding existing farms and developing new operations on the urban fringe. Strategic planning is essential for both the processors and the farmers, especially when faced with the prospect of relocation. Planning must fully accommodate land, infrastructure and resource constraints, issues likely to be of concern to the local community, areas of rural residential development and future growth, and the anticipated rates of industry investment. Open communication with the target LGAs and local communities is essential, including the need to stress employment opportunities and economic growth potential.

* It is recommended that research be undertaken or supported by the industry and processors into the economics and logistics of relocation, including contracts for additional sheds and staged relocation.

8.6 Implications for Local Government

Local government is often awkwardly placed between the short term interests of neighbours who demand an immediate end to the transfer of externalities across property boundaries, and the interests of poultry farmers who maintain that they are currently performing best practice (or that they are

economically constrained from doing so). Finding an immediate solution to conflict is exacerbated where there is no objective method for evaluating the legitimacy of complaints. In this situation, the reluctance of government to initiate a regulatory approach may simply extend conflict over a longer period of time. One option is to look to the medium term, say three to five years, and to jointly establish a program for investment for a farmer or an environmental management program aimed at limiting externalities (in addition to making management changes in the short term). Provided there is no evidence of gross mismanagement, then immunity from environmental legislation could be granted during the relevant time frame. Improvements could include the introduction of new high-pressured fogging systems, new drinking lines with reduced water leakage, compost systems or cool room storage for dead birds, and vegetation barriers to reduce visibility.

Having limited understanding of the financial management of a farm and the alternative technologies that might be available, local government officers would play a greater role in approving management programs. It is important that officers adopt a cooperative problem solving approach and that mechanisms for enforcing such programs are investigated. The process of prosecution should only be utilised, to ensure compliance, as a last resort. Provided that there is state government support for such a scheme, a process of researching, evaluating and implementing technical change could be initiated where the continuation of normal management practices proves inadequate in limiting externalities.

An environmental management program will not be successful in all situations. Where encroachment has occurred without restriction, or where development is likely to occur in the short term, the willingness of farmers to make substantial investments will be limited. In this situation, local government faces two options: firstly, either wait for market forces or the farmer's preferences to result in the sale of the farm at some indefinite point in the future or, secondly, initiate a planning scheme that can assist relocation. The ability of local government to assist relocation may be hampered without appropriate state government legislation. However, there is the potential for all parties to benefit (though the perception that some parties are unreasonably benefiting, including the owners of small out-dated facilities, may discourage such initiatives). Three options to assist relocation include legislative support for buffer distances, more remunerative (or transferable) development rights, and the mandatory provision of land use details to homebuyers. One argument in favour of notification on property titles is that home buyers are fully informed, subsequently impacting on the market price realised by the developers. This may facilitate negotiations with the poultry farm owner, leading to possible closure or relocation. Misleading information to homebuyers, including reports that a farm is to cease operating, the belief that complaints may force a farm to close, and a failure to fully comprehend the nature of externalities emitted from poultry farms, may undermine such an approach and would need to be countered.

8.6.1 Recommendations

* It is recommended that consent conditions be included on poultry farm construction approvals, including the need for vegetative barriers, landscaping and signage indicating the presence of a farm and associated externalities. To be effective, consent conditions requirements must be explicitly stated and fully enforced.

* It is recommended that, in order to prevent discrepancies in standards, there is a need for local governments to communicate with each other, identifying the approaches being employed in ameliorating poultry farm problems. Joint action by local governments could also cause the state government to become more actively involved in the research, negotiation of standards, and the regulation and monitoring of externalities.

* It is recommended that local government, in association with state planning authorities, identify different methods for reducing urban sprawl impacting upon agricultural zones.

* It is recommended that property developers carry the full cost of supplying infrastructure for rural residential development. This may foster stronger adoption of community title and cluster settlement,

leading to a more rational use of agricultural land.

* It is recommended that before any form of strategic planning can commence, it is imperative that local government is aware of the location of poultry farms (and other potentially offensive land uses) within their jurisdiction.

* It is recommended that, where residential development is proposed near poultry farms, local government should consider the potential for land use conflict, informing potential buyers by placing notifications on property titles, carefully positioning open space requirements, and assessing the design and siting of new dwellings and surrounding landscaping.

* It is recommended that, where encroachment cannot be prevented and conflict is likely, strategies for assisting relocation need to be explored, including increasing the density of development, transferable development rights, and levying new allotments (with the levy adjusted if necessary to cover consultancy costs).

8.7 Implications for State Government

At the state level, government is facing increasing pressure from various interests to develop solutions to land use conflict. Industry representatives are demanding greater decision making consistency, local government is requesting legislation that can be easily implemented, and neighbours of poultry farms are requiring government to implement existing regulation. In satisfying these competing interest groups, one important question relates to the balance between improving management practices and the role of buffer distances. The latter are frequently seen as a secondary method to guard against environmental complaints during a period of higher than normal externalities. Difficulties facing local government are that buffer distances are arbitrary recommendations, it is difficult to restrict development following rezoning, and that saying 'no' to neighbours restricts their development rights, purely because a poultry farming neighbour cannot control externalities. Where buffer distances are not supported by legislation (and where public benefits, such as the protection of agricultural land, cannot be identified), common law gives priority to the development rights of landowners and to the ability of neighbours to seek compensation.

Although similar concerns may be raised in relation to flexible buffer distances, it appears that the regulatory system is moving in this direction with greater attention being given to local conditions. If distances can be scientifically supported, then reasons for their implementation may be able to be justified in courts of law (and less land may be sterilised). The irony is that rigid buffer distances have been designed to deal with the uncertainties or variability involved in agricultural production, whilst flexible buffer distances risk assuming that there is some uniformity in conditions over time. Whilst farmers need to be continually vigilant of externalities and diligent in relation to conducting farming practice to ensure some level of consistency in externalities over time, this does not take into account the impact of unforeseen circumstances such as disease or a number of consecutive days of hot weather. By demanding larger buffer distances and forcing greater economies of scale on the industry, government may be increasing the scale of variability in externalities (though this ignores technological change and the need to be conscious of climatic conditions in selecting production sites). Other possible concerns include the benefits and costs involved in corporate farming compared to family farming, the intensification of production when society is becoming increasingly concerned about animal welfare (though centralisation potentially improves surveillance), and risks associated with the biophysical environment because of production scale.

8.7.1 Recommendations

* It is recommended that, in relation to environmental legislation, consideration be given to requiring farmers to adopt environmental management programs or environmental management systems. An alternative is to introduce mediation. However, such strategies are unlikely to be successful where

conflict is particularly entrenched or where resolution involves expensive capital investment.

* It is recommended that greater accountability of all key issues needs to be taken in land use planning and the development approval process, and that these processes pay full regard to rural context. Key concerns relate to the accuracy of odour modelling, whether local government is able to assess environmental reports, and the possibility of future change, including farm expansion, urban expansion and ownership change.

* In addition to dealing with externalities, government needs to investigate ways of assisting farmers to relocate. Possible options include changes to the appeal process (including local government responsibility for applicant costs), reducing inconsistencies between local governments, legislating buffer distances to encourage market forces, adapting the development approval process for farmers satisfying certain pre-determined conditions in rural zones, and reformulating planning legislation to give local government additional options.

8.8 Comparison between Western Australia and New South Wales

A distinction between the regulatory approach adopted in WA and NSW has been identified. In WA, active lobbying by the poultry industry has resulted in the introduction of State Planning Policy No. 5. By providing legislative support for buffer distances (unless justified by the scientific modelling of externalities), the intention of the WAPC is for developers to assist poultry farmers to relocate, with the costs spread over a large number of residential allotments. In comparison, within NSW a strategic approach to the resolution of conflict has not been adopted, though an inter-departmental committee is currently investigating alternative resolution strategies. The introduction of measures to assist relocation is thought unlikely, with policy discussion tending to focus on how the performance of existing farmers can be approved and whether compensation for the neighbours is one avenue, as suggested by the polluter pays principle. As conflict continues to increase in the Sydney Basin, especially within areas of rural residential development, it is likely that pressure for new policy approaches will be exacerbated. A number of reasons can be offered as to why different regulatory responses have been adopted. Several factors are identified below, with a distinction drawn between various levels of analysis.

* At a state level, the support for investment in WA has been widely noted, with the State Government supporting agricultural, mineral and urban development lobby groups. By encouraging developers to purchase poultry farms, a form of compromise has been instituted between these lobby groups. In NSW, stronger government support for the environment is recognised. For example, poultry farmers have to submit EISs in certain situations in NSW (though a significant difference between WA and NSW is the fact that broiler sheds are built on concrete floors in WA). Support for the polluter pays principle in NSW is evident in the *Pollution Control Amendment (Load-Based Licensing) Act, 1997*. The system involves introducing pollution load fees for farmers based on the quantity and type of effluent discharge (as well as an administrative fee).

* At the metropolitan level, considerable difference is evident in relation to the nature of urban expansion, with the Metropolitan Region Scheme clearly identifying areas to be released for development along four corridors. For this reason, it has been relatively easy to identify farms, in the path of urban growth, which will need to be relocated. In relation to the Sydney Basin, urban development is more *ad hoc* with local governments on the urban fringe competing for additional investment and rateable income. The absence of a metropolitan authority to shape Sydney's growth or a state government department with a clear focus on urban fringe issues may be an additional reason. Higher land values within the Sydney Basin should also make relocation more viable, though this wasn't identified during research interviews.

* At an industry level, the WABGA has been particularly successful in promoting the difficulties facing the poultry industry on the metropolitan fringe of Perth. Reasons for its success include a charismatic leader who has been able to mediate successfully between farmers and processing companies, and the

ability of WABGA to unite a relatively small industry consisting of 2 processors (which both operate integrated operations located on the urban fringe) and approximately 50 farmers. In NSW, both the egg industry and the broiler industry are highly fragmented (although the NSW Chicken Growers Association has widespread membership at the farm level) between a large number of different sized players. The fact that farmers, egg companies and processors face different circumstances, including geographical location, and are in different stages of adaptation, adds further complexity in NSW.

* At a farm level, variation exists because the average chicken meat farm is much larger in WA than its equivalent in NSW. For this reason, the ability of growers to relocate by themselves is more limited in WA, such that a stronger argument for relocation could be presented. In an industry driven by efficiency and a determination to increase the average farm size, the business-like attitude of broiler farmers in WA contrasts that of NSW farmers where a wider spectrum of attitudes was evident (though differences between the attitudes of broiler farmers and egg farmers was also identified in WA). Where farmers are operating outdated technology, and perhaps waiting for retirement rather than thinking of relocating, it is less likely that government will assist relocation. (In addition to the absence of successors, this may reflect the fact that relocation in NSW, in contrast to WA, does not simply involve moving to the urban fringe, but increasingly to rural locations. An additional benefit of strong central leadership is that farmers can be encouraged to relocate when reasonable assistance is provided. In a fragmented industry, where farmers are free to speculate on the value of their land, the willingness of government to stimulate market forces to assist relocation is likely to be less.

Two conclusions need to be drawn from the two case studies. The first involves comparing the relationship between the egg industry and the broiler industry in WA and in NSW. In WA, it can be argued that because policies are directed at a united poultry industry, the activism of the broiler industry in lobbying government has produced benefits for the WA egg industry. It is unlikely that the egg industry would have had the same success through lobbying the State Government as it does not have the same progressive imperatives. For example, due to the fact that the industry continues to be regulated, the industry's efficiency is restricted, at least at the farm level, because it impedes the development of economies of scale. In NSW, although existing broiler farms are experiencing greater conflict than egg farms, a stricter regulatory approach is likely to be adopted for both industries for the reasons noted above. The second conclusion relates to the poultry industry finding a balance between three strategies: improving farm management practices, lobbying government and improving the industry's image in the community. Simply relying on state government to solve an industry's problems is questioned. The fact that governments change over time means that lobbying must be continual. Ultimately, decision-makers attempt to find a balance between competing interests and, as attitudes change over time, such as towards the environment, a new balance may be required. For this reason, the poultry industry must give equal weighting to each of the above strategies.

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Appendix I - An Outline of Poultry Farm Production Methods

BROILER PRODUCTION METHODS

Birds are delivered to farms as day old birds and removed at approximately 42-54 days prior to processing.

Birds are raised in sheds on a layer of sawdust or wood shavings, which has been deposited on a compacted shed floor.

Sheds are automated with birds having continuous access to water and feed.

Sheds are ventilated either naturally by wind flows or mechanically by fans.

During hot weather, fine water sprays or foggers may also be employed.

Shed roofs are constructed with reflective materials to reduce internal temperature.

Feed trucks arrive at the property every few days because of limited farm storage capacity. Given that an average feed conversion is 2kg of feed to 1kg of weight, a 2kg bird therefore requires 4 kg of feed. During a production cycle a 100,000 bird farm will need approximately 400,000 kg or 400 tonne of feed, which equates to 13-14 loads on a 30 tonne truck over a 42 day grow out period. Of added complexity is the fact that the nature of the feed may change through out the grow-out cycle. Silos are filled by 'blowing' air, which forces the feed from the supply truck and into the silo.

Birds are caught by hand and placed in crates, which are removed by fork lifts and taken to awaiting trucks, a process which occurs at night to reduce stress, dehydration, loss of condition and death.

Sheds are cleaned out with the litter, now mixed with manure, removed by front-end loader. Generally all litter leaves the farm, with market gardening a common end use. Sheds are washed and sprayed to reduce the risk of disease transferral.

A mortality rate of 4-6% per batch is normal, requiring regular monitoring and disposal.

A typical farm may have 3-4 sheds with 50,000 to 65,000 birds in total, with 5-6 batches each year, annual production may be around 250,000 to 350,000 birds.

EGG PRODUCTION METHODS

Farms operate on a 12-18 month cycle depending on whether birds are purchased as day old chicks or at point of lay (18-20 weeks).

Farmers vary in the scale of production, either employing cage, barn lay, or free range systems.

Cage systems provide birds with continuous access to feed and water, droppings fall through the cage floor on to the floor below or onto conveyor belts.

Eggs roll automatically into wire gutters or onto conveyor belts from where they can be gathered and placed in cool storage.

Rather than an 'all in all out' process, maintaining a continuous supply of eggs (and therefore retail contracts) requires that there are always birds of laying age on the property.

Layers remain in production for 12-14 months, over which time they produce approximately 21-22 dozen eggs.

Spent hens are generally removed during the day and sold to abattoirs and processed into dressed hens or by-products.

Appendix II - Revised Bird Cage Densities as at 1 January 1996

Laying fowls weighing up to 4.5 kg liveweight

Type of Cage	Until 31.12.1995 Maximum liveweight per unit of floor area	After 1.1.1996 Minimum cage floor area per bird
3 or more fowls (each <2.4kg) per cage	52 kg/m ²	450cm ² *
3 or more fowls (each >2.4 kg) per cage	52kg/m ²	600cm ² *
2 fowls per cage	40kg/m ²	675cm ²
Single fowl cages	26kg/m ²	1000cm ²

*These figures are recommended for inclusion into statute law of States and Territories as the minimum space allowance for layer hens in cages.

(Note: One 2.3 kg bird per 450 cm² is equivalent to 51.11kg/m²
One 2.5 kg bird per 600cm² is equivalent to 41.67kg/m²)

Laying fowls weighing more than 4.5kg liveweight

Type of Cage	Maximum liveweight per unit of floor area until 21.12.1994	Maximum liveweight per unit of floor area from 1.1.1995
3 or more fowls per cage	52 kg/m ²	46kg/m ²
2 fowls per cage	40kg/m ²	40 kg/m ²
Single fowl cages	26 kg/m ²	26 kg/m ²

Source: SCARM (Standing Committee on Agriculture and Resource Management) (1995:21)

Appendix III - Environmental Management Practices Relating to Poultry Farming

Complaint	Management Practices
<p>Odour – e.g</p> <ul style="list-style-type: none"> - Wet manure - Bird odour - Dead birds - Manure stock piles - Field application of manure 	<ul style="list-style-type: none"> - Preventing water entering the sheds from rain, sprinklers and surface water - Maintaining drinkers to prevent spillage - Installing a high pressure fogging system to minimise the amount of moisture reaching manure or litter - Adequate ventilation within sheds to encourage dilution and bird comfort - Directing fans away from residents - Removing wet patches of litter or manure - Feed quality and feed additives, including salt content, changes in composition during production cycle - Impact of medicines on digestion - Impact of water quality on digestion - Quality and depth of bedding – dry, high absorbent - Single versus multiple batch litter - Avoiding over stocking, especially during summer - Sheds should only be cleaned when wind is blowing away from nearby residences - Regular and appropriate disposal of dead birds and manure - Removing manure, dead birds or feed spilt outside sheds - Covering manure piles with weather proof structure or materials - Avoiding stock piling carcasses in open pits or bins - Landscaping and vegetative buffers - Vegetation should not enclose sheds preventing ventilation - Prescribed separation distances between dwellings, roads and the land application of manure - Avoid spreading on wet or windy days and work manure into the soil as soon as possible - Prescribed separation distances between dwellings and poultry sheds.
<p>Noise - e.g</p> <ul style="list-style-type: none"> - Hens - Vehicles - Equipment 	<ul style="list-style-type: none"> - Regular vehicle inspection and maintenance – avoiding loose parts, broken components, rattling covers, worn bearings - No tonal components to machinery - Avoiding using reverse beepers on trucks and fork lifts - Fitting silencers to farm vehicles - Noise suppression for truck exhausts and air brakes - Driving at moderate speeds - Carefully positioning and insulating generators, fans etc. - Avoid using extension telephones, alarms, music systems and public address systems - Mounting mechanical equipment to avoid operational vibration - Vegetative screening - Restrictions on hours of operation – normal working hours - Careful location of internal roads, including developing ring roads - Encouraging truck drivers to avoid residential areas on local roads
<p>Dust – e.g</p> <ul style="list-style-type: none"> - truck movements - feed deliveries - manure stock piles - shed management - site conditions 	<ul style="list-style-type: none"> - Avoid litter from becoming too dry - Careful selection of litter material - Covering all litter, manure and feed trucks leaving and entering the property - Developing and maintaining lawn and vegetative barriers - Sealing or compacting roads to minimise dust - Driving at moderate speeds on unsealed roads - Adjusted ventilation to ensure sufficient air flow to provide adequate bird cooling without creating a dust problem
<p>Light – e.g</p> <ul style="list-style-type: none"> - laying sheds - vehicles - machinery 	<ul style="list-style-type: none"> - Careful positioning of roads and car parks - Using truck lights on low beam - Developing physical barriers - Careful placing of external lights

<p>Pests – e.g</p> <ul style="list-style-type: none"> - flies - rats - mice - birds 	<ul style="list-style-type: none"> - Eliminating breeding sites and harbours - Regular removal of wet manure, dead birds, broken eggs and spilt grain - Mowing grass and weeds around sheds - Removal of rubbish, vegetation or any materials likely to attract vermin - Excluding access to poultry houses, food and water - Introducing control programs, including baiting for mice and flies - Encouraging natural predators by maintaining a manure pad in layer operations
<p>Visual – e.g</p> <ul style="list-style-type: none"> - untidy site - obtrusive structures 	<ul style="list-style-type: none"> - Landscaping and vegetative buffers to screen sheds from roads and neighbouring properties - Non-reflective materials on the walls of poultry sheds
<p>Water and Land Pollution</p> <p>Impact of nutrient surpluses on waterways</p> <ul style="list-style-type: none"> - eutrophication, algae, loss of aquatic life, water quality. <p>Impact of trace chemical elements and micro organisms on soil quality and food chains</p>	<ul style="list-style-type: none"> - Application of manure during periods when run-off potential is low and plant growth is strong - Side dressing during growing season rather than broadcasting prior to planting as timing more closely matches plant uptake - Rapid incorporation into soil - Assessment of nutrient loading in potential application areas, including both nitrogen and phosphorus - Buffer distances between application areas and water ways with grasses

Appendix IV - Land Use Planning in the Shire of Wollondilly, NSW

Wollondilly Shire Council located in the south West corner of the Sydney metropolitan area faces a number of difficult planning issues associated with balancing agricultural, commercial, industrial, heritage and residential activities. Agriculture, in particular, is of strategic importance with the Australian Bureau of Statistics estimating its total value to be worth \$100m. This is considered an underestimation, and that \$150million is a more realistic figure (Sinclair, 1996:6). In addition to being the fourth largest vegetable growing area in the Sydney Basin, Wollondilly is thought to represent the LGA producing the largest quantity of poultry in NSW. In 1993 there were approximately 277 poultry sheds in the Shire. With new sheds estimated to cost approximately \$150,000, if the industry was to start again it would cost approximately \$41.5million. The Shire is also experiencing significant population growth with an annual increase of 4.3% between 1986 and 1991. In planning for continued growth Wollondilly is required to consult with metropolitan planning documents, such as *Cities for the 21st Century* (NSWDUAP, 1995), and regional plans, including *Sydney-Canberra Corridor Strategy* (NSWDUAP, 1995c). The latter policy document recognises that the south west corridor of Sydney is an important inland growth area – the population is expected to increase by 64% by 2016 to 229,000. Strategic planning is one requirement, including extensive community consultation and liaison with government departments and private sector interests. Key elements include restricting growth to existing settlements, establishing a hierarchy of urban centres, directing rural residential development to appropriate areas, fostering local economic development, ensuring ecologically sustainable development and identifying important cultural and natural resources.

Recognising a number of planning difficulties, including reserves of quality farmland and the fact that Wollondilly's population of 33,000 is spread between a multitude of towns and villages, a strategic review commenced in 1993. The study is significant as it represents one of the first reviews of rural land that focused on identifying areas of agricultural importance. Previous studies have investigated rural areas with the main aim of identifying land for development purposes. In the Shire of Wollondilly the study involved collecting and analysing different information, including:

- 1) The Shire's geographic boundaries;
- 2) Land capability assessment based on NSW Agriculture's five category classification;
- 3) Identifying physical constraints including soil type, fertility, relief, natural vegetation cover, proximity to water courses, land degradation and proximity to future and existing urban areas;
- 4) Identify existing land uses including intensive and extensive farming activities and review lot sizes
- 5) Numerically ranking different land uses according to their contribution to total land use in the Shire
- 6) Identify areas of land use conflict where incompatible land uses are located in close proximity. In Wollondilly, generally this involves rural residential development and intensive agriculture. It is important to also assess lot sizes and location of housing.
- 7) Estimating the importance of agricultural production across the Shire. Ranking is one method for assessing the importance of a particular area to the Shire's economy. Land use conflict, land classification and investment in agricultural infrastructure was considered.

The size and distribution of existing allotments was identified as a key planning difficulty. The fact that lots were generally long and rectangular meant that achieving a satisfactory separation distance between incompatible land uses was problematic. Where lot sizes were insufficient for agriculture then alternative uses needed to be investigated. In areas of agricultural importance, with a high proportion of rural residential dwellings, an agricultural designation required policies to address land use conflict to be implemented. Of further complexity in planning for agriculture was that residential development consents may have been issued in the past.

Based on the rural land study, Wollondilly Shire produced a Local Environmental Plan (LEP) which divided rural land into three different zones as noted below (Sinclair, 1996; 1997). The zones were

allocated based on physical boundaries, rather than roads and cadastral boundaries as occurs in many other LEPs (Sinclair, 1995).

Agricultural Production Zone

Central objective of preserving agricultural land.

Secondary objective of preventing land use conflict by allowing houses to be developed on legitimate and sustainable agricultural enterprises.

Where agricultural enterprises are proposed on land adjacent to existing residences then steps must be taken to minimise conflict.

The zone offers no concessional allotments.

There is no minimum subdivision size within the agricultural zone, instead the proponent must satisfy council that the subdivision is required for sustainable agriculture.

The zone, which includes areas of market gardening, orcharding, viticulture, poultry and turf farming, is divided into five relatively small geographical regions within the Shire.

Agricultural Landscape Zone

Attempts to preserve the area's agricultural landscape, rural character and aesthetic beauty whilst providing for agricultural production and rural living opportunities.

Minimum subdivision size is 40 hectares to reduce fragmentation.

Provision for small scale subdivision under the community titles option.

Covers the majority of Wollondilly Shire.

Environmental Protection Rural Living Zone

The primary objective is to provide rural living opportunities whilst preserving the rural character. Prior to determining the subdivision layout, potential constraints, such as slope, soil quality, potential runoff and effluent disposal, need to be assessed.

Five separate areas have been proposed to be included under this classification. Each has a predominantly residential use with lot sizes varying up to 10 hectares and above.

Rural residential development may take two different forms:

Rural Urban Fringe Development refers to development that is in close proximity to urban areas and generally has access to services (garbage collection, reticulated water and possibly sewerage reticulation). Lot sizes are generally in the range of 4000 square metres to 1 hectare.

Rural Living Development is not generally near existing urban settlements and does not have normal urban services. The density is one dwelling per 4 hectares with a minimum of 2 hectares.

For intensive agricultural industries, the development of new farms in the Agricultural Landscape zone is likely to be severely restricted (Sinclair, 1996), so as to maintain the council's strategy of directing intensive livestock farms to the Agricultural Zone. Intensive agricultural industries will require development consent from the council. For intensive livestock farms that are presently operating in the Agricultural Zone, in theory, their future is more secure as the purpose of the zone is to restrict residential development. For those located outside the Agricultural Zone it is less certain, although they will continue to possess existing use rights. The Shire itself recognises the need to be pragmatic and that some livestock operations which are currently operating in the wrong zone may eventually need to close.

Appendix V - Evidence of Increasing Policy Concern for Agricultural Land in the Sydney Basin

In recent years increasing policy attention has been given to agricultural land within the Sydney Basin. One reason is that the strategic importance of agricultural production in relation to total state output is recognised. In 1991 the Sydney Basin accounted for 45% of the state's lettuces, 85% of fresh mushrooms, 82% of spinach, 97% of spring onions, 71% of tomatoes, 57% of the area designated for nurseries and flowers, 55% of land for cultivated turf and 61% of the state's poultry production (Sinclair, 1995:3). The total agricultural value of agriculture in the Sydney Basin is calculated at \$1billion dollars with flow on effects for the regional economy of \$2-3 billion (NSW Agriculture, 1997:12).

At least four different policies targeting the Western Sydney region mention the importance of protecting agricultural land: Hawkesbury-Nepean Regional Environmental Plan No 20 (DUAP, 1997), Sustainable Agriculture in the Sydney Basin (NSW Agriculture, 1998), Shaping Western Sydney (DUAP, 1998).

Hawkesbury-Nepean Regional Environmental Plan No 20 (NSW DUAP, 1997a,b)

Implemented to ensure that developments are considered in terms of the broader regional context, the plan's strategic vision recognises that:

The health, integrity and diversity of the Hawkesbury-Nepean catchment must be maintained, and, wherever possible, improved. The catchment and its river system must be able to meet the needs of its residents and users so that it can continue to be an area that is enjoyed and used by the people of Sydney now and in the future. (NSW DUAP, 1997a:1)

In relation to agriculture, aquaculture and fishing the *SREP 20* acknowledges that:

Agriculture must be planned and managed to minimise adverse environmental impacts and be protected from adverse impacts of other forms of development.

Strategies

- (a) Give priority to agricultural production in rural zones.
- (b) Ensure zone objectives and minimum lot sizes support the continued agricultural use of Class 1, 2 and 3 Agricultural Land (as defined in the Department of Agriculture's Agricultural Land Classification Atlas) and of any other rural land that is currently sustaining agricultural production.
- (c) Incorporate effective separation between intensive agriculture and adjoining uses to mitigate noise, odour and visual impacts.
- (d) Protect agricultural sustainability from the adverse impacts of other forms of proposed development.
- (e) Consider the ability of the site to sustain over the long term the development concerned.
- (f) Consider the likely effect of the development concerned on fish breeding grounds, nursery areas, commercial and recreational fishing areas and oyster farming' (NSW DUAP 1997a:20)

In relation to intensive animal industries, including poultry farms, feedlots, fish farming and piggeries, *SREP 20* indicates that development within a floodway is prohibited. For development within other areas of the Hawkesbury-Nepean Catchment consent is required.

To complement *SREP 20*, an Action Plan has been developed for the Hawkesbury-Nepean Area. The purpose of the Action Plan is to list the complementary strategies and actions that are necessary to implement the environmental planning policies set out in the *SREP 20*. The strategies listed in the

Action Plan must be considered under clause 5(a) of *SREP 20* when assessing a development proposal or preparing an environmental planning instrument.

Part A of the Action Plan lists actions that related directly to the implementation of the *SREP 20* and will be monitored by the DUAP. In relation to the policy statement that rural zoning should support the areas long term agricultural use, Part A requires the following action:

8.3.1 Require LEPs that apply to rural areas to: identify agricultural areas (based on actual production and land capability), ensure that lots remain a viable size, and ensure that appropriate separation is maintained between agriculture and residential uses.

8.3.2 Indicate on s.149 certificates relating to areas zoned to protect agriculture, that future residents can expect to be disturbed by legitimate agricultural practices. (NSW DUAP 1997b:10)

Part B of the Action Plan contains strategies that require non-statutory action for their implementation. While changes to Part A would require amendments to *SREP 20*, Part B can be monitored and updated annually by the Hawkesbury-Nepean Catchment Management Trust. Actions include: developing a strategy for sustainable agriculture in the Sydney Basin, preparing planning guidelines for agricultural developments requiring consent, and developing methods to overcome land use conflict. To guide future decisions it important to develop plans which identify areas of existing agriculture, areas of future urban potential and land suitable for rural residential development (NSW DUAP 1997b).

Where rural residential development occurs, *SREP 20* indicates that such development should not reduce agricultural sustainability, contribute to urban sprawl or create adverse environmental effects. Strategies to achieve this include giving priority to agriculture in rural zones, requiring a total water cycle catchment management study when development produces effluent equivalent to more than 20 people, introducing and maintaining appropriate separation distances, refusing rural residential development in areas recognised for future urban purposes and considering any adverse environment impacts (NSW DUAP 1997a).

Sustainable Agriculture in the Sydney Basin (NSW Agriculture, 1998)

In 1998, NSW Agriculture released a strategic plan entitled *Sustainable Agriculture in the Sydney Region*. The policy which involved extensive industry, government and public consultation defined sustainable agriculture as ‘agriculture that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends’ (NSW Agriculture 1998:4). In relation to the Sydney Basin the plan identifies three main objectives:

Retention of sustainable agriculture in the Sydney Basin;
Recognition of agriculture as part of the lifestyle in the Greater Metropolitan Region;
Recognition of agriculture’s significant environmental, economic and social benefits and opportunities (NSW Agriculture 1998:4)

Imperatives for achieving sustainable agriculture in the Sydney Basin can be divided into five general areas.

Firstly, there is the need to involve a wide range of parties, including government agencies, local government, and industry, environmental and community groups.

Secondly, there is the need to strategically plan for competing land uses. In addition to identifying agricultural zones based on various bio-physical, social, economic and existing use constraints, it is important to identify rural land for other uses, including land designated for future urban growth.

Thirdly, there is the need to reduce conflict by restricting the fragmentation of rural land, implementing separation distances, using vegetative barriers and advocating the need for legal and real estate professions to disclose relevant information. It is also important to communicate the benefits of sustainable agriculture with respect to social, economic, environmental, and personal health aspects. An

important aspect of communication is to strengthen understanding of the linkages between farm production and household consumption.

Fourthly, sustainable agriculture depends on enhancing the economic situation of farmers. It is therefore important to introduce incentives to maintain existing enterprises and to attract new value adding industries.

Finally, sustainable agriculture involves managing the external impacts of agriculture by ensuring farmers operate according to best management practices and that they comply with ecologically sustainable development and total catchment management principles. Accordingly, it is necessary to identify the impact of agriculture on the environment, ensure industry is aware of potential impacts, disseminate information on best management practices and to integrate environmental principals into decision making. Where best management practices have been implemented it is important that regulatory agencies are aware (NSW Agriculture 1998).

Shaping Western Sydney (NSWDUAP, 1998)

In Shaping Western Sydney, agriculture is recognised as a significant contributor to the economy, enjoying a locational advantage because of proximity to the Sydney market and an international airport. Agricultural production is, however, increasingly capital intensive creating the potential for noise and odour impacts. Protection of agricultural land involves (DUAP, 1998:10):

- Implementing NSW Agriculture's Strategic Plan for Sustainable Agriculture
- Encouraging Local Government to prepare rural land studies which identify land for long-term agricultural production
- Investigate the implementation of agricultural industry zones in Western Sydney
- Reviewing LEPs to include appropriate controls to minimise conflict between agriculture, rural residential and urban development
- Limiting variation in subdivision policies to 10% in rural and environmental protection zones
- Encouraging the use of best management practice

Healthy Rivers Commission Inquiry into the Hawkesbury Nepean River System (1998)

An inquiry conducted by the Healthy Rivers Commission in the Hawkesbury Nepean River System also recognised the importance of land use planning, implementing best management practices and creating a business climate conducive to investment by improving security. Underlying the strategy was the 'recognition that agricultural activity can only remain viable, continue at optimal scales and involve implementation of 'best practice' in a feasible way if sufficient land is insulated from urban/residential development' (NSWHRC, 1998:197).

Appendix VI - Agricultural Practices (Disputes) Act, 1995 (WA)

The main thrust behind the Act was the potential for conflict between farmers, such as winegrowers, poultry farmers, mushroom producers, and residential dwellers. With rural residential and alternative lifestyle developments, both in peri-metropolitan Perth and in the South West of Western Australia, continuing to increase, the potential for heightened levels of conflict and litigation was identified. At the same time there was the realisation that there was no formal avenue or forum for addressing such issues other than through the legal system. Government departments were reluctant to employ mediation procedures, preferring instead to refer to existing guidelines and regulation. One argument is that provided a farm complies with environmental regulation then it has the right to farm. This can be criticised for a number of reasons, including the fact that nuisances are situated in time and that the absence of enforceable thresholds for odour, fugitive light and spray drift may make externality assessment difficult. Where a farm complies with environmental legislation, conflict may continue because people have different sensitivities. Residents may take their case to the court system. Even where the court rules in favour of the farmer, court costs may eventually force the owner to sell the farm.

Three key objectives include protecting agriculture as an important economic contributor to the economy, increasing the community's understanding of agriculture and ensuring 'that agriculture continues to contribute to the preservation of the landscape and environmental resources of the State' (Agricultural Practices (Disputes) Act, 1995:6).

The Agricultural Disputes (Resolution) Act applies to a specified range of nuisances including odour, noise, dust, smoke, fumes, fugitive light and spray drift which derive from an agricultural operation. The application of the Act is further restricted as the land from which the cause of complaint emanates or the land occupied by the complainant must be zoned rural land. As a note of reference, rural zone land refers to land zoned rural under a town planning scheme rather than the Metropolitan Region Scheme.

To register a complaint relating to one of these issues under the Act the aggrieved party must lodge \$100 with the Registrar of the Agricultural Practices Board. The fee covers administration costs including the cost of the venue and a contribution towards travel costs. In addition to cost recovery, the fee plays a more important role as a filtering device. Upon discovering that lodging a complaint involves a fee it is believed that many people will decide that the issue is not really that important or that there is no basis. While some will no doubt argue that the fee will turn away neighbours with legitimate complaints, it is too early to provide support for this argument.

Following the lodgement of the complaint, the Agricultural Disputes Board acts as a secondary filter, by determining whether a complaint is so trivial that the average person would not be offended. As alluded to before, this raises the difficulty of determining what is a normal rural externality or what is unreasonable. If a complaint is ruled to be trivial, then importantly the complainer does not lose the right to proceed through the court system. Upon taking such a stance the Board must certify the reasons and advise the Minister. This information is then admissible in future legal cases.

Upon deciding that a complaint is applicable under the legislation, the Board appoints a mediator. The objective of mediation is simply to bring disputing parties to the discussion table, to promote communication, to allow each party to see both sides of the argument and to hopefully reach a compromise. As set out by the Act, the mediation process essentially involves the disputing parties as well as one mediator. The exception is where both parties agree to legal representation or where the mediator asks an additional person to enter the discussion to contribute further information. The mediator may also request relevant documents to be produced. The mediation process has therefore been designed to be as flexible as possible in order for it to cope with the diverse problems that may be presented. With modern agriculture becoming increasingly vertically integrated, many on-farm decisions are influenced by external actors, to the extent that processing companies or retailing outlets may influence the level of conflict. To the extent that this occurs, mediation between a farmer and a

neighbour will prove ineffective. In this situation, it is the role of the mediator to recognise that mediation is going nowhere because the relevant people are not there, and to recommence when the third party is present.

Another factor that may complicate mediation is where the dispute is not between single neighbours, but may involve a group of community members or farmers. In this situation, the Board has been advised that mediation should include representatives or spokespeople from each of the groups. If both parties agree then the larger group can be present, but in the background and without the right to speak. By doing this the aim is to avoid a silent party from entering the discussions when mediation is nearing completion, and taking the dispute back to square one. Importantly, once mediation commences, then legal action must be deferred until an agreement has been reached or until the mediator concludes that the disputing parties cannot find a solution. In this sense legal action relates to nuisance, trespass, or to any other cause of action arising from an agricultural practice or operation.

When an agreement is reached then the mediator may make an order that gives effect to the determination. While the ability to make an order would appear to contradict the mediatory process, the Act allows for a determination to be made only if the mediator is: 'of the opinion that a settlement has been reached which is acceptable to all parties to the dispute' (Agricultural Practices (Disputes) Act, 1995). Mediation outcome therefore comes from the disputing people themselves, whether it be the construction of a tree barrier, avoiding spraying when winds are above a certain level or in a certain direction or advising the community when spraying will occur.

If a compromise is not found, then the complainant can either lodge a litigation suit straight away, or alternatively seek the ruling of the Agricultural Disputes Board. A ruling can be made in one of two ways, either an Agricultural Disputes Tribunal may hear the case, or the Chairman may instead decide to convene a meeting of the full Board. The Board consists of six people selected by the Minister of Agriculture, in addition to the Chairperson. Of the six, two will represent farm lobby organisations, two will have relevant environmental experience and two will represent local government, preferably at the local government level. Significantly, the Act differed from the original proposal as the Bill requested two people to represent the interest of planning agencies instead of the general public. While the Bill preferred that the planners would be employed at the local government level, it was felt that would not necessarily represent the views of the community affected. The tribunal may consist of the chairman alone, the registrar alone, a member appointed to do so by the Chairman, or the quorum of the Board – in this case the Chairman, plus one representative from each of the three categories listed above. A tribunal constituted in any of the above ways has all of the powers of the Board, unless restricted in the terms of appointment. There doesn't appear to be a strict differentiation between the involvement of the Tribunal and the Board. One advantage of the Tribunal system is in terms of the flexibility to be able to deal with conflict throughout Western Australia. Nothing can stop the matter being dealt with by the Board, if the Board or the Minister requests. Another potential concern is that while the Act is promoted as offering a quick method of conflict resolution, no time limit is placed on the Board's operation.

It is the responsibility of the Board or the Tribunal to rule on what constitutes normal farming practices and whether or not the relevant farmer complies. In this situation normal farming practice is defined as either: accepted customs and standards, compliance with Department of Environmental Protection approved Codes of Practice or as determined by any written law. As is the case with mediation, the Board or Tribunal may request any person to attend or any document to be presented. A legal practitioner may be also present if all parties to the dispute agree. To be acknowledged as being a normal farming practice, the practice must have been carried out at some point in the last three years. Included within this definition is an allowance for technological or management change. In doing so, that aim is to promote innovation, rather than encouraging farmers to maintain the *status quo* for fear of non-compliance. How technological change will be taken into account will become evident as more cases are ruled on, including those where innovations which increase productivity have an adverse impact on negative externalities. Perhaps the most controversial portion of the Act is the provision to accept agricultural practices as normal, even if a farm does not comply with existing environmental legislation for a maximum of 2 years. In saying this it is also important to recognise that the Act differs

substantially from right to farm legislation in the United States where normal farming practice is not generally given a limit, even where it does not comply with environmental law.

The process of determining what constitutes normal farming practices raises a number of key questions. For instance where farmers within a specific industry are adopting new technology, which reduces odour levels, at what point does a ruling on normal farming practice change. Added to this is the question of whether it is justified to rule that a farmer no longer complies and will therefore have to undertake a substantial investment in order to continue. In other words the question becomes what rights will be given to farmers using now outdated technology. The answer to these questions will be determined as more cases are presented to the Agricultural Disputes Board. At this point in time, the board can only be guided by industry experts, with each farmer having the right to put forward their case, including the economic viability of introducing updated technology. In some cases, determining what is normal farming practice will be inherently difficult, for example, conflict between large viticultural sheds and fugitive light. Precedence can only be set over time as a larger number of cases are mediated and brought before the board.

Further, in relation to the uptake of new technology, is the issue of whether normal farm management practices on the East Coast of Australia could influence Board rulings in Western Australia. One obvious example is if the poultry industry in NSW, for example, introduced practices that allowed birds to be removed during the day, could this be classified as normal farming practice in WA, especially given that night time activities cause significant conflict? It would appear that the Board has limited itself to determining normal farming practices based on a state wide assessment. While there is the threat that those representing the industry could influence the Board, especially given the difficulty involved in challenging an argument based on the economic viability of operation, this is shaped by the Minister's membership selection. At present it is acknowledged that members of the board are both sensible and practical industry people.

In determining what constitutes normal farming practice, the Board may require a party to not carry out a certain activity, to continue subject to certain modifications or conditions, or to undertake a specified activity. Where a ruling is made and the required activity is not carried out, then it is noted that the complainant is already a long way towards winning a litigation suit. Because mediation and board reports are admissible in court as law, strong incentives are provided for disputing parties to resolve complaints and to follow orders. Where reports carry an order specifying normal farming practice, it is often easy to tell if a farmer is in the right or wrong.

Since its inception, interest in the board has been slowly increasing. It is believed that this trend will continue, especially where there is significant lifestyle development, such as the Margaret River region to the South of Perth where the night harvesting of grapes attracts complaints. Enrolment has, however, been slower than anticipated. In part this reflects a general lack of awareness. The profile of the board is being increased through ministerial announcements, the rural press and through representatives talking to councils and presenting at environmental and planning conferences. In the main, the feedback has been positive with local government environmental officers indicating that it is just what they need. At the present stage it would appear that while a large number of people express interest in mediation and the Board, the majority are unwilling to return the application forms when they discover that a \$100 fee is payable. Therefore, while it was originally argued that mediation would be readily adopted because people have a general fear of litigation, to date this is not substantiated. While one farmer has expressed interest in lodging a complaint in relation to a neighbouring poultry farm, he was unwilling to pay the associated fee. The attitude of the industry was that this complaint had more to do with the development of land than a legitimate concern. Another case that may be lodged in relation to a poultry farm involves the noise emitted from ventilation fans.

The success of the Act depends on the extent to which cases are referred to the Board. Where a party involved in a court or tribunal proceeding alleges that the case is relevant to the Agricultural Disputes Board, then it should first be referred to the Board. Similarly, the farmer whose practices are in dispute may refer the issue to the Board where the person making the allegation fails to do so. As noted earlier,

if a dispute is not referred to the Board then a litigation suit can be filed in a court of law. While the Board has written to every solicitor informing them of the Act and its application, it is difficult to estimate how effective this avenue is in directing cases to the Board. Perhaps the best promotion for the Board is word of mouth as the number of cases that have been successfully resolved increases.

For these reasons the number of cases lodged with the Board has not been great. Of the complaints that have been lodged, the disputes have generally related to issues such as spray drift and odour. With the exception of one case that was heard by a tribunal, the complaints have been successfully mediated. One complaint, for example, related to the odour generated by a particular chemical used by a market garden. Through mediation the farmer agreed not to spray on days when the wind was higher than a specified strength, to advise the surrounding community when spraying will occur, and to take any other precautionary steps.

Written into the Act is the requirement that the effectiveness of the Act be reviewed every five years. Already it appears that there are significant grounds to expand the role of the disputes addressed by the Board. This follows the realisation that the issues attracting complaint are broader than those defined by the legislation. Examples include issues associated with water, including dams, water logging and drainage issues. The application of the Act to conflict between shires and farmers is already being investigated at a ministerial level. Relevant issues would include the rezoning of rural land and the role of local government in unnecessarily extending the development approval process. The need to extend the application of the Act became apparent from the first case registered. The dispute involved dust generated by trucks in an area of fruit trees. It was argued that trucks driving to and from recently opened council owned gravel pit where covering fruit trees with dust and reducing the effectiveness of sprays. While the application of the Act to this situation is outside its stated principles, it was nevertheless applied following an agreement from the relevant parties. For this reason it is recognised that there is a need to change the Act from 'nuisances emanating from' to 'nuisances emanating from or impacting on' agricultural operations.

In terms of the urban fringe, it would appear that the Act would have most relevance to the outer fringe where conflict between farmers, as well as between farmers and rural residents would occur. On the one hand where conflict develops closer to the fringe, it becomes more of a land use planning issues, especially where the land is designated as urban deferred. This noted, it has been suggested that the Act will equally apply to inner fringe conflict, such as disputes emerging to the South of the Shire of Wanneroo. As the Act becomes better known, then it is argued that complaints from near-urban areas are likely to increase. The application of the Act to the urban fringe will, however, be more complicated as the mediation is less likely to be effective. This reflects the impermanence syndrome of the unwillingness of farmers to invest where their future on the fringe is uncertain. For the Board, the issue of ruling on normal farming practice is therefore more complicated. Though if a farmer is disinvesting to the point where externalities have increased, then it is likely that they will be in breach of the Environmental Protection Act 1986).

Two concluding questions are whether the Act can have any relevance to the poultry industry and what can a poultry farmer offer to resolve conflict? Perhaps the most important role that the Act will play is in promoting communication and increased understanding between the opposing parties. It is often argued that if people have a greater understanding of farming practices, and the constraints under which a farm operates, then they are more likely to be tolerant. While this is noted, the success of mediation will depend on the willingness of people to communicate. In general, where conflict has intensified over a period of time, then the last thing that will occur is communication. In this situation, the Act may simply be by-passed as farmers complain to local government or the EPA, and in the extreme, lodge a nuisance suit. Unless one side takes the case to mediation, then mediation will not occur. Once the mediation process is initiated, if one side is obstructing progress then this will be included in the mediators' report. It is uncertain how the Board will take this into account in ruling on normal farming practice. One criticism directed towards ruling on normal farming practice is that while a farmer may comply, a small change to farm management may resolve conflict. If this is the case, then one would hope that it would be explored during the mediation process.

Appendix VII – Administrative Appeals Tribunal Rulings on Poultry Shed Applications (Victoria)

May 1986 - O'Collins & Others v Shire of Hastings – Planning Appeals Board P85/1498

Successful appeal against the decision to grant approval to two broiler sheds each holding 38,000 birds in a rural area:

‘The Board then considered the visual effect of the sheds, the increased traffic from the development, the noise, odour, waste disposal, dust, drainage and vermin problems that were argued and found that these were not substantiated. (VPAB, 1986)

1991 – Eckersley vs Shire of Pakenham – Administrative Appeals Tribunal – 1991/36304

Successful appeal against a refusal to grant approval for broiler sheds:

‘The dry litter system has largely obviated this problem (odour) and, over the past 10 years, it has become to be recognised that, providing sheds are properly managed malodorous emissions are rare... A perusal of Tribunal records indicates that, in the past four years, there has not been one occasion where the Tribunal has been called upon to make an order in relation to odour problems emanating from broiler sheds. That in itself is indicative of the fact that the problems of odour have, to an intents and purposes, been cured.’ (VAAT, 1991)

1992 - Batarilo v Shire of Pakenham – Administrative Appeals Tribunal 1992/43590

‘The Respondent Objects have chosen to reside in a rural environment. However, in making that choice people must be aware of the need to tolerate an occasional low level odour and noise generated by rural industries which also seek, in their case of necessity, to establish in such areas. It is considered unlikely that the odour smelt by three neighbouring property owners, is likely to be overpowering for a substantial period of time, particularly given that all neighbouring houses are at least half a kilometre from the site. Similar unpleasant odours such as those associated with silage and dairies, are often part of farming activities. It is considered that any odour, which may be present for only a few days each bird cycle, if at all, is acceptable on land zoned for farming purposes.’ (VAAT, 1992)

July 1997 – Stojkovic v Shire of Cardinia, AAT No 1997/25948

Unsuccessful appeal against council’s decision to refuse approval for a new farm consisting of four 40,000 bird sheds, on a 29.3 ha block in an area designated Agriculture 1 within the council’s planning scheme.

‘The Tribunal is of the view that there is a significant probability that moisture levels will build up in the litter in even the best management poultry sheds at times as a result of: reduced ventilation in cold weather, moisture condensation when foggers are being used in hot weather and leakage from drinkers or from water supply to foggers and drinkers. The Tribunal considers that it is self-evident that the larger the number of birds held at any one premise, the greater the potential odour emission’ (VAAT 1997:10)

‘broiler farms have the potential to produce, and do at times produce offensive odours which are not comparable with those from broad acre farming. It is the Tribunal’s view that such odours are not compatible with rural amenity and that rural residents have as much right to have their amenity preserved as do urban dwellers’ (VAAT 1997:11)

‘the Westernport Broiler Farm Policy Guidelines have been ineffectual in protecting the amenity of residential properties within a 400 metre distance of a broiler operation. It seems to this division of the Tribunal that both the Western Port policy and the EPA document are significantly out of date and further, are not based on any substantial scientific measurement and analysis’ (VAAT 1997:11).

‘The Tribunal notes that the trend in the industry is to start with three or four sheds and to take advantage of economies of scale by expanding up to twelve sheds or more. It is the Tribunal’s view

that in this climate of activity, shed location will have to be more carefully assessed or additional control measures put in place (VAAT 1997:11)

April 1998 – New Zalia v Morn Penin SC, AAT 1997/62159

Unsuccessful appeal against council's decision to refuse approval of four poultry sheds on a 20.13 ha block in a Rural Conservation Zone. Refused because it failed to satisfy separation distances recommended by the EPA and because odour and traffic levels would have an adverse impact on surrounding properties.

'It was submitted on behalf of the applicant that the odour emission rate for tunnel ventilation sheds is probably less than that for sheds using existing side curtain technology, for reasons including the absence of foggers, the continuous nature of the ventilation, etc. It was generally agreed in the hearing that the tunnel ventilation shed design is probably superior to the side curtain proposals, but these perceptions appear to be largely based on reasonable expectations, rather than any useful empirical data or evidence. The material available in relation to the single tunnel ventilation shed in Western Australia is hardly sufficient for the purposes of forming a reliable opinion about this proposal on this site' (VAAT 1998:8).

'The evidence before the Tribunal demonstrates that enforcement of permit conditions or odour levels in relation to poultry sheds is a difficult issue. Offensive odours are more common at times of low dispersion, and these commonly occur in the evening or early morning when enforcement officers are not working. Offensive odours can occur when there is no apparent mismanagement. Enforcement is inherently difficult when the problem arises from a well managed poultry farm representing a very substantial capital investment made on the basis of a permit issued either by the Responsible Authority or at the direction of the Tribunal. If the only solution is that the use must cease the social and economic consequences would be severe. Therefore, decisions in relation to the siting of poultry sheds must be very carefully considered before they are constructed or operate.' (VAAT, 1998:9).

'It is the Tribunal's conclusion that the proposed poultry farm is unacceptable because it would adversely affect the neighbourhood character of this locality, and because the Tribunal cannot be satisfied on the basis (sic) the evidence before it that it would not adversely affect dwellings within 500 metres of the site through the emission of unacceptable odour' (VAAT, 1998:10)

Appendix VIII Rulings on Poultry Sheds by the Environment Resources and Development Court of South Australia

March 1995 - A Southern and G & M Croft v Corporation of the City of Happy Valley and M Fairley – Environment Resources and Development Court, No 454 of 1994

Successful appeal against council's decision to grant approval for a third broiler shed to be added to the two that already existed on a 3 ha property in a rural landscape zone. The plan would increase the number of birds from 36,000 to 52,000.

'Expert evidence revealed that there should be an acceptable buffer distance of some 350 metres between the broiler farm and any occupied residency not involved in the operation... The Court decided that the new shed with the additional 15,000 birds would result in an increase in unacceptable odours which would at least be noticeable to those living within the 350 metres buffer area... In conclusion the Court commented that it was not its place to suggest the circumstances in which a consent might be justified. However, if the existing farm could be operated in such a way that there would be a significant reduction in odour levels, and the additional birds could be accommodated without raising odour level, then consent might be granted. The solutions to the odour problem which were put to the Court were only conceptual and were unproven' (South Australian Planning and Environment Decisions 1995:38)

'it seems to me that if it can be shown, empirically, that the existing farm can be operated in such a way that the present odour level is significantly reduced, and that the additional number of birds could be introduced without raising that odour level, then it might well be that consent could be granted. For example, the installation of circulation fans in the existing sheds might well markedly reduce the present odour levels. I have not decided that the installation of such fans would not be successful; there is simply insufficient evidence. They have not been tried and tested in this locality at least. They have been trialed by Inghams elsewhere, whereby Mr McGuire was satisfied that the litter could be kept drier. But that does not necessarily mean that the odour level in the subject locality would be reduced significantly. I considered the "chimney" concept. The trouble is that it is only a concept; and that such an installation has not been tried anywhere in South Australia at least' (SAERDC, 1995)

March 1995 – Pooley v DC of Mallala and Smith – Environmental Resources and Development Court 944/94

Successful appeal against council's refusal to approve three broiler sheds on a 36.4ha property in a general farming zone. The sheds would contain accommodate approximately 87,000 birds. The nearest dwelling was over 500 m from the sheds.

'The proposed development complied with the Development Plan Strategy for the District as a whole. It fitted into the locality with regard to its operation and visual relationships to other uses and the landscape and with regard to specific issues such as flooding and water supply'. (SAERDC, 1995b)

Appendix IX - Buffer Distances Recommended by Various State Departments and Local Government Areas

Queensland	Settlements of more than 10 houses	Urban residential zone	Rural Residential Zone	Dwellings on the same property	Neighbouring houses/rural dwelling	Well trafficked public roads	Side or rear boundary	Minimum distance between internal roads and side/rare boundary	Watercourses, wells and bores	Sensitive Receptor *	Minimum area	Minimum Separation between farms
Guidelines for Poultry Farming in QPAB (1981)	300m			100m	150m	100m	20m		100m		10ha	500m
Guidelines for Poultry Farming in Queensland – QDPI (1988)	300m			100m	150m	100m	20m		100m 10m from dry gullies and channels		10 ha	500m
Environment Industry Guidelines – Draft – Intensive Poultry Farms – QDEH (1994)		500m	Between 150 and 300m. 150 if mainly 10ha hobby farms and 300 m if mainly 0.5ha lots.	50m	150m	100m		50m	100m 20m from dry gullies and channels			
Planning Guidelines Separating Agricultural and Residential Land uses – QDNR/DLGP (1997)										500m		
Draft Operators Compliance Guide for Poultry Farms – Brisbane City Council (1997)	300m				150m	100m	20m		100m 20 m from dry gullies and channels			500m
Draft Planning Policies for Poultry Farms – Caboolture Shire Council (1998)	300m				150m	100m	100m to all boundaries		100m 20m from dry gullies and channels		10ha	500m

* Sensitive Receptor is defined as a dwelling, mobile home, or caravan park, residential marina or other residential place in a residential development; a motel, hotel or hostel; a childcare centre, kindergarten, school, university or other educational institution; or a medical centre or hospital. A residential development includes an urban subdivision, rural low density rural residential subdivision or a rural allotment (DNR AND DLGP 1997).

Victoria	Max number of houses within 400m radius	Urban Residential zone	Rural Residential Zone	Nearest house	State highways or freeways	Public roads	Front boundary	Side or rear boundary	Watercourses	Sensitive Receptor*	Area	Minimum Separation between farms
Guidelines for the conduct of intensive animal industries – DofA – (1978)			360m			30m		12m			Maximum permissible site coverage – 10% Minimum site size – 2 ha.	
Poultry Farming Planning Guide – MPE and DARA (1985)		360m from site boundary	360m		150m	30m		12m			Maximum site coverage of poultry sheds of 10%	5km
Broiler Farming A Policy for the Westernport Region – Westernport Regional Planning and Co-ordination Committee (1988)	10	500m	300m	100m			100m	40m	100m		Minimum site area of 10% Minimum site of 8ha	500m
Recommended Buffer Distances for Industrial Residual Air Emissions – EPA (1990)										500m (chicken meat) 400m (eggs)		

*Sensitive Receiver is defined as including ‘residential areas and zones (whether occupied or not), hospitals, schools, caravan parks and other similar uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation (EPA (1990))

South Australia	Proclaimed township boundary	Urban residential zone	Rural Residential Zone	Dwellings on the same property	Dwelling on another property	National Highway	Public Road	Side or rear boundary	Watercourses	Sensitive Receptor*	Area	Minimum Separation between farms
Guidelines for the Establishment and Operation of Poultry Farms in South Australia – (1998)		1000m		100m	500m	1000m	250m	300m				1000m
Murray Bridge Development Plan (1997)	3000m		3000m	100m	500m							
Mount Barker Development Plan (1997)	2000m				400m							
Mallala Development Plan (1997)	2000m			100m	500m							

Western Australia	Max number of houses within 400m radius	Urban residential zone	Rural Residential Zone	Dwellings on the same property	Nearest single outside of boundaries	Well trafficked public roads	Front boundary	Side or rear boundary	Watercourses, wells and bores	Sensitive Receptor	Area	Minimum Separation between farms
Environmental Code of Practice Poultry Industry – WADEP (1991)		500m	300m		100m		50m	30m				1000m
Policy No DC 3.5 – WAPC (1995)		500m (or future urban)	300m (or future rural residential zone)				100m	100m				
Shire of Serpentine-Jarrahdale Policy-Poultry Farms (1997)		500 (or future urban)	300m (or future rural residential zone with lots 4ha or less)		100m		50m	30m				1000m

NSW	Settlements of 10 or more dwellings	Urban residential zone	Rural residential zone	Dwellings on the same property	Dwellings on another property	Public roads	Property boundaries	Side or rear boundary	Watercourses	Major water storage area	Area	Minimum Separation between farms
Poultry farming guidelines – NSWPAB (1973)						50 feet	10feet				Minimum of 2 ha (5 acres)	
Guidelines for Standards of Poultry Farming in NSW, DofA (1982)	300m			100m	150m	100m		30m	100m			250m
NSW Poultry Farming Guidelines – NSW Agriculture (1994)	300m	500m		50m	150m	100m	30 to 50 m		50m*		Roof area should represent no more than 8-10% of total farm area	500m
Wollondilly Shire Council – Poultry Development Control Plan (1995)		500m		50m		100m	150m		50m*			500m
Cessnock City Council – Poultry Farms – Neighbouring Land Uses Development Control Plan No 11 (1994)	300m	500m		50m	150m	100m	50m		50m			500m
Parry Shire Council – Poultry Development – Development Control Plan No 6 (1996)	300m	500m		50m	150m	250m	30-50m		200m			500m
Mulwaree Shire Council – Guidelines for Poultry Farm Development (1998)		1-2km	1-2km	50m	300m	200m	150m	150m	100m	800m	40ha	1km

*Developments in close proximity (100m) may be subject to further detailed assessment

Appendix X

Interview Schedule Relating to Urban Fringe Land Use Conflict and the Regulation of Poultry Farming in New South Wales and Western Australia

Farmers

This study is being funded by the Egg Industry Research and Development Corporation (EIRDC) to investigate environmental issues and land use conflict associated with chicken meat and egg production. Key objectives include:

- 1) To investigate how the poultry industry views the current regulatory system, its effectiveness, possible long term implications and the ability of the industry to adapt.
- 2) To investigate how different government institutions view the current regulatory system, including its ability to address environmental issues and land use conflict associated with poultry farming.
- 3) To identify a number of options which will enable both the industry and its regulators to meet their objectives.

The following interview schedule deals specifically with poultry farming and the management of land use conflict on the urban fringes of Perth and Sydney. Land use conflict refers to disputes that may develop between poultry farmers and the owners of residential property where the two come into close geographic proximity.

1 – Nature of land use conflict on the rural-urban fringe

Preamble – The purpose of this section is to investigate the nature and evolution of land use conflict between poultry farming and different forms of residential living on the urban fringe.

(i) Do you experience conflict with your neighbours?	Why not?
(ii) What form does this conflict take?	Distinction between - neighbours lodging complaints with regulators, threatening farmers, filing nuisance suits or lobbying government to refuse development applications and - farmers provoking neighbours.
(iii) Is this level of conflict justified, why or why not?	
(iv) What are the main reasons why conflict has developed?	Degree to which problems are associated with - neighbours (idealistic expectations) - government planning decisions - farmers: scale of production, nature of farming practices
(v) Has the form and intensity of this conflict changed in recent years?	- In what ways? - Why? - By how much?
(vi) What impact has land use conflict had on your willingness to invest in the farm	
(vii) To what extent does the nature of conflict vary between the layer and the broiler industry, and why?	
(viii) To what extent does the conflict experienced by the poultry industry vary from other forms of urban fringe agriculture?	
(ix) What proportion of poultry farmers in Metropolitan Perth are in this conflict situation?	
(x) What are the main factors that prevent conflict from being addressed satisfactorily, and why?	Extent to which it reflects the nature of the regulatory system [omission vs commission]

	<ul style="list-style-type: none"> - state government departments - local government - poultry industry - neighbours - Are any of these factors more amenable to solutions than others?
(xi) Does government play a role in exacerbating land use conflict, and how?	- Distinction between state and local government
(xii) Should government play a role in addressing land use conflict, if so what?	- Preventing versus resolving
(xiii) What are the likely long term implications of land use conflict for the poultry industry?	- future viability
(xiv) Why have you reached this opinion?	

2 – Development Application and Approval Process

Preamble – This section investigates attitudes towards the development application and approval process. It is concerned with how the regulatory system endeavours to prevent land use conflict, how it encourages land use conflict and how development plans might be assessed differently.

(i) When was the last time that you submitted a development application either for a new farm or to expand the farm's capacity?	- What were the main reasons for the application
(ii) If you have not submitted one recently is there a reason?	- Unable to expand because of industry regulations, farm size, land use conflict, waiting for retirement, land prices
(iii) What steps are involved in the development application and approval process?	- To what extent are they justified
(iv) What difficult did you encounter in getting the proposal approved, and why?	<ul style="list-style-type: none"> - Distinction between out right refusals and complex drawn out decision making processes - If not, was there a reason, was it something you did consciously to improve the possibility of approval - Was there a reason why your development application was not approved?
(v) Has obtaining an approval become more or less difficult in recent years and why?	- Changes in the regulatory system, e.g., simplifications
(vi) To what extent are refusals or time delays unavoidable, why or why not?	- How significant is the problem of refusals and delays?
(vii) To what extent did the difficulty in getting approval result from land use conflict or from other sources?	<ul style="list-style-type: none"> - Strategic planning at the metropolitan or local government level - Location in relation to ground water and waterways - Rigid enforcement of buffer distances - Inadequacies in scientific information - Local government inefficiencies - Regulatory capture - Problems inherent within the regulatory system.
(viii) What government departments became involved and were their objectives?	
(ix) Are there any parts of the development application and approval process that cause major problems, and why?	<ul style="list-style-type: none"> - Design problems - Implementation problems - Too many different agencies - Conflicting agency objectives - Agency communication problems - Too many regulations - Strong lobby groups influence - Inconsistent decision making - Costs involved in development?
(x) How does the present system attempt to	- Public consultation

prevent land use conflict associated with poultry farm developments, and to what extent is this achieved?	<ul style="list-style-type: none"> - Third party appeals - EIAs - Shed siting, set backs, and farm management requirements - Assessment of environmental impacts
(xi) What consent conditions does government implement, are they reasonable and how effective are they in reducing potential land use conflict?	<ul style="list-style-type: none"> - Monitoring and enforcement
(xii) How can the system be improved to increase the likelihood that applications will be improved whilst minimising land use conflict	<ul style="list-style-type: none"> - Regulatory procedures - Implementation of the system - Regulatory capture - Mediation processes with objectors over conditions vs council decisions - Trade offs <ul style="list-style-type: none"> [Higher approval rate vs increase costs] [Reduced time vs increased costs] [Decreased costs vs increased refusals]
(xiii) What can the industry do to increase the likelihood that farm development or expansion plans will be approved?	

3 – Residential Development and Urban Encroachment

Preamble – The purpose of this section is to investigate how the present regulatory system attempts to prevent conflict by managing residential developments within close proximity to poultry farms. Note that residential development may include rural residential development, urban suburbs or hobby farming.

(i) What land uses are within a 500 metre radius of your farm and to what extent has the number of residential dwellings changed from when you started farming?	
(ii) How effective is the present regulatory system in controlling residential developments in close proximity to poultry farms?	<ul style="list-style-type: none"> - Effectiveness in assessing the potential for future conflict between residential development and neighbouring poultry farms. - Distinction between state government and local government control of the subdivision approval process
(iii) On what grounds do you base that opinion?	
(iv) How effective are designated buffer distances as a rural planning tool, and why?	<ul style="list-style-type: none"> - Appropriateness of recommended distances - Distinction between restricting residential encroachment and constraining farm development - Consistency versus flexibility - Subjectivity versus scientific evidence - To what extent does preventing encroachment depend on poultry farmers owning their own buffer zone?
(v) In what situations might a buffer zone be encroached upon	
(vi) What regulations might be adopted to reduce the likelihood that property developments proposed in close proximity to poultry farms results in land use conflict?	<ul style="list-style-type: none"> - Mechanisms to educate potential buyers - Consent approval conditions - Developer contributions - buffers

4 - Management of land use conflict and environmental complaints

Preamble - This section focuses specifically on complaints directed towards poultry farms from residential neighbours and how effectively the regulatory system addresses this aspect of land use conflict.

(i) How frequently does your farm attract complaints and what do residential property	
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owners complain about?	
(ii) How realistic are these complaints?	
(iii) What encourages people to complain?	
(iv) Have you made any changes to farms' operation to reduce land use conflict?	
(v) To which government agency are complaints addressed?	- At what stage does the EPA usually become involved in land use conflict?
(vi) Who do you prefer to deal with, and why?	- Distinction between cooperative and strict approaches, and why have different agencies adopted different approaches?
(vii) How would you describe the attitude of government towards complaints	- To what extent is there a reluctance to deal with complaints - Local vs state government
(viii) What principles or regulations does government use to assess complaints?	- Distinction between local government and state government - Distinction between regulation and its implementation, and why? - Is a distinction made between egg farms and broiler farms, and to what extent does this represent a problem?
(ix) How appropriate are these principles or regulations?	- Distinction between the broiler industry and egg industry
(x) What requirements can they imposed and how do they enforce these?	- Distinction between local and state government - Distinction between what powers they possess and their utilisation, and why?
(xi) To what extent are you restricted in your ability to meet government requirements or to reduce complaints, why?	- Practical difficulties in reducing farm externalities - How have these restrictions changed over time
(xii) How can these restrictions be overcome?	
(xiii) To what extent does a farmers relationship with a processing company or a marketing organisations influence their ability to reduce conflict?	- How have they attempted to reduce land use conflict?
(xiv) What information sources are available relating to farm management practices and techniques to reduce complaints?	- To what extent are these sources useful, why or why not?
(xv) How successful are the conditions imposed by government in reducing land use conflict, why or why not?	
(xvi) How can the present system of environmental regulation be improved to reduce land use conflict?	- Certainty versus flexibility?
(xvii) How can the manner in which government approaches complaints be improved to overcome land use conflict?	- Cooperative versus rigid approaches?
(xviii) What impact has the development of codes of practice for poultry farming had on the way environmental complaints are dealt with, and why?	- How can codes of practice be improved? - Why might they not be consulted?

5 - Strategies to Address Land Use Conflict

Preamble - This section investigates existing and future strategies to address future land use conflict between poultry farming and residential land uses on the urban fringe.

(i) What attempts have been made to reduce the potential for future land use conflict by government?	- Distinction between state and local government?
(ii) What has your local government implemented to address land use conflict?	- Strategic planning, community meetings etc?
(iii) What was the nature of the industry's	

involvement	
(iv) To what extent will these strategies prevent future conflict, why or why not?	
(v) What additional government intervention does the poultry industry require to reduce land use conflict?	
(vi) What conflict resolution procedures are available?	<ul style="list-style-type: none"> - What form do they take - How effective are they in reducing land use conflict - How can they be improved?
(vii) To what extent can conflict be resolved by more community or locally orientated approaches?	<ul style="list-style-type: none"> - What form might this take? - Educating and informing
(viii) How successful is the industry in promoting the interest of individual farmers?	
(ix) What has the industry done independently to address land use conflict, and has it reduced the intensity of land use conflict experienced by farmers, why or why not?	<ul style="list-style-type: none"> - Distinction between the response of the egg industry and the broiler industry, and why. - To what extent will other projects that the industry is pursuing impact on the intensity of land use conflict. - Cooperation vs fragmentation
(x) How would you describe the ability of the industry to adapt to land use conflict?	<ul style="list-style-type: none"> - The way that it is presently regulated?
(xi) What additional changes might you implement to reduce land use conflict	
(xii) Are there any parts of the industry that are better able to adapt to the present regulatory system?	<ul style="list-style-type: none"> - Distinction between egg industry and broiler industry. - Distinction between corporate owners and family farmers - Distinction between large and small farmers
(xiii) To what extent will the industry be better able to better adapt to land use conflict in the future, and why?	

6 – Background – Farm Details

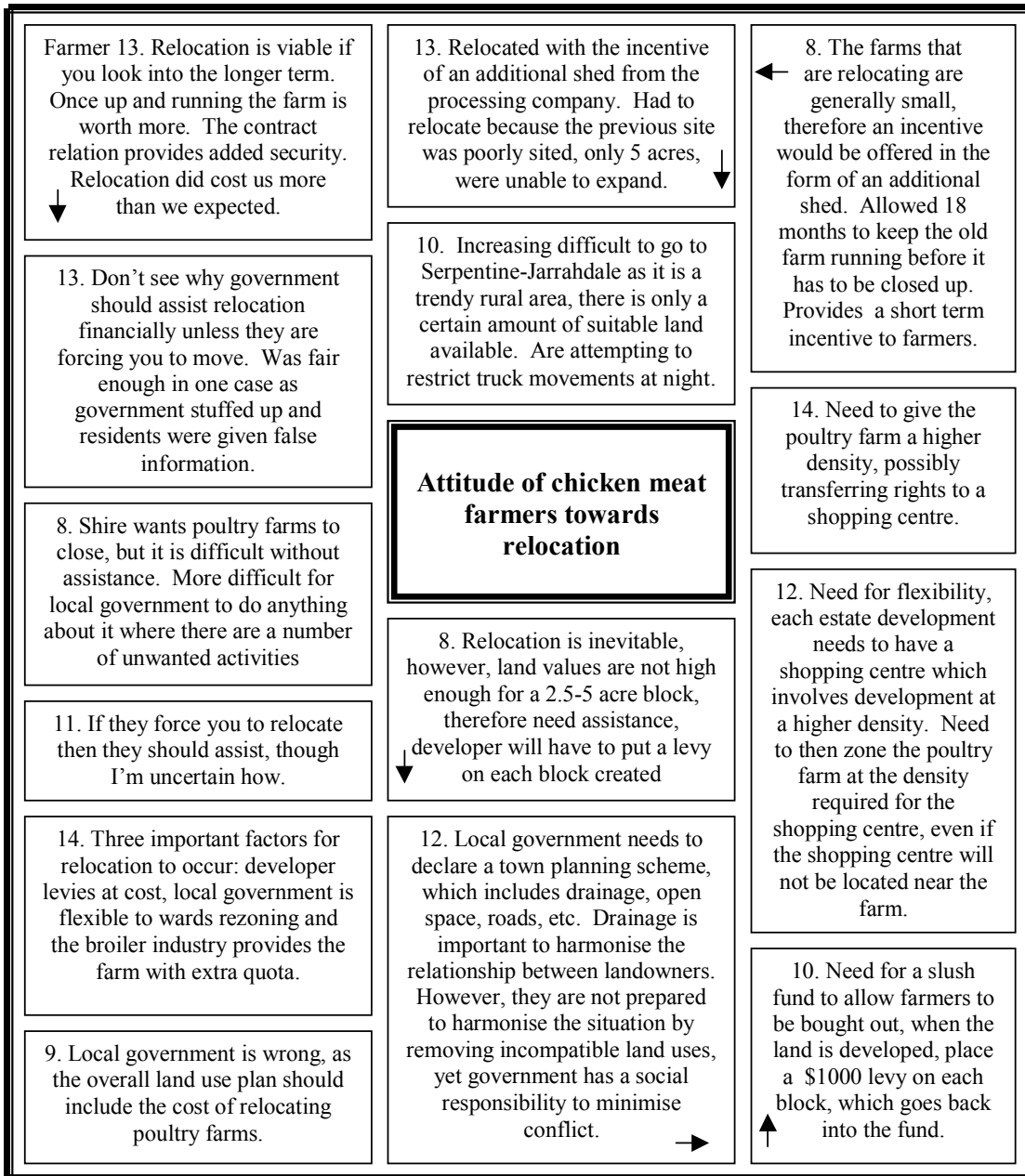
Preamble - The purpose of the section is to obtain a number of details related to the interviewees farm

(i) How long have you operated a poultry farm in this location	<ul style="list-style-type: none"> - Did you develop the farm - Were you previously operating a poultry farm in a different location - What made you choose this location
(ii) Describe the farm's layout	<ul style="list-style-type: none"> - farm size - distance to boundaries - number of sheds
(iii) What is the farm's capacity	<ul style="list-style-type: none"> - Total number of birds
(iv) What are the likely long term implications of land use conflict for your farm?	
(v) What other factors are likely to influence the farm's future	
(vi) Is relocation a viable option, why or why not?	<ul style="list-style-type: none"> - To what extent should assistance be provided? - Where would you relocate to and what would influence your decision?

7 - Conclusion

Are there any important issues relating to poultry farming, the present regulatory system and mechanisms to overcome land use conflict that I have not addressed?

Appendix XI - WA Poultry Farmer Attitudes towards Relocation



15. Could possibly relocate from his 5acre block, but there would be nothing left over. Would include land, technology and a house. Have always said that land values are not enough, but given the value of the land there should be enough to build a new farm. Five acres here is similar to 500 acres in the country. Need approximately 300 acres to satisfy buffer distances. Sheds and technology vary from \$25-\$55 a bird. One farm which was built 8-9 years ago choose not to go environmentally controlled. My thinking is that if you are going to do it you might as well go the whole hog. Buying additional license to allow expansion may mean that it is not viable.

20. Ultimately we will relocate. The value of the land will at some point in time make it efficient to relocate and we will do so. People have moved in response to the urban fringe in the past. This farm hasn't relocated but others in this are have once before.

19. Couldn't build another farm like this, need high density, insulation, automatic shed collection to avoid bending, automatic manure rotation to avoid manure falling through cages and on to the birds below. Cost for a new controlled environment shed is around \$25 per bird, need around 15,000 to get the economies of scale in one shed. Require three sheds of 15,000 or 45,000 birds in total. Would require 60,000 bird quota. All in all out, reared in cages for 15 weeks before being put into the laying cages for 14 months, 74-78 week lay is traditionally the most economical. Week or two to clean out and for maintenance after the removal of birds. Only way you can do this is to have a lot of money or to join a syndicate farm to combine quota.

Becoming increasingly difficult to relocate to Serpentine-Jarrahdale.

Attitude of egg farmers towards relocation

19. Different people are in different situations, couldn't afford to relocate myself 10 years ago, increased land values today have made it more viable. Developers have been knocking at the door.

17. Not possible for a farmer to relocate. If I sold here it is a small lot, only 3ha, wouldn't be enough to cover relocation as I would also need to buy new technology.

21. Not many farmers have relocated, perhaps a couple. Market forces will eventually resolve the problem.

18. Relocation is viable but it depends on the cost of land. Wouldn't be viable if the stability provided by licensing went. If Western Australia has any common sense then it want deregulate.

21. Small farms and larger new farm size makes it difficult. If you had to build a new 30,000 bird farm it would cost around \$2million for a controlled environment. Sold a 9.5acre block in Gosnells for \$600,000 a while ago. A lot of farmers only have 5-20 acres of land.

19. If you are waiting for government to assist relocation then you are a mug. No one has been relocated in the egg industry. Only people relocating are the six in the syndicate farm.

16. No one is going to relocate if deregulation is 2-3 years down the track. On the same token people are unlikely to relocate if deregulation occurs. The egg price would be lower, though the supermarkets would sell at the same price.

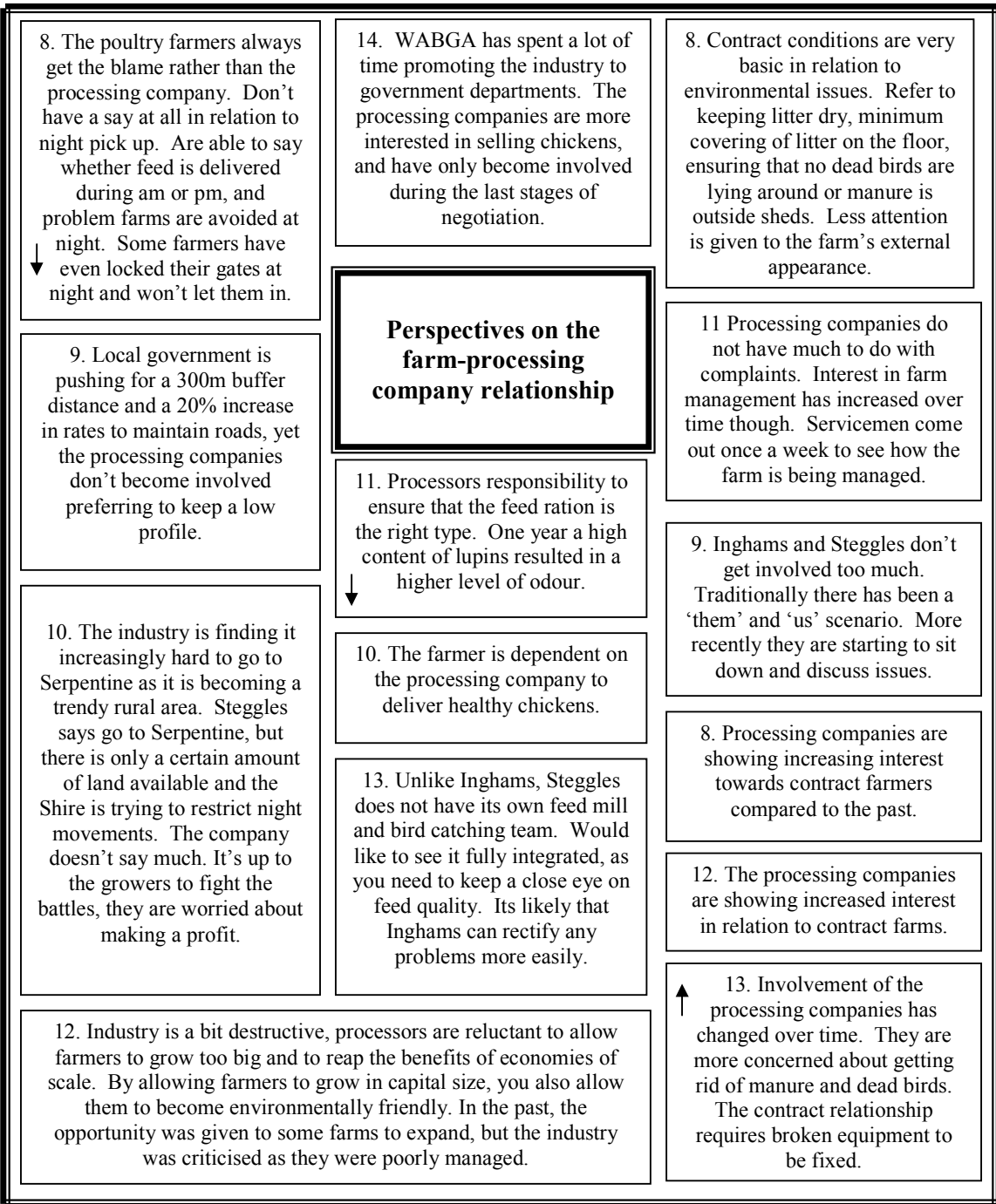
15. Easy to relocate if you have 200 acres of undeveloped land, for farmers on 5 acres it is more difficult, developers tend to leave these areas alone.

15. There is talk of electrifying the railway track near this farm, and using it for public transport. Would involve higher density development within 500-800m of the line. The higher zoning from 17.5 to around 30 would provide one way that a farm could relocate.

16. Government should put its hand in its pocket and help. Though they are not talking about it. They are hoping things will work out and are biding their time. Not putting pressure on farms to relocate.

Appendix XII – Poultry Farmer Attitudes Towards their Industry in WA

<p>12. Western Australian Chicken Meat Industry is the most successful rural enterprise in Australia.</p>	<p>10. The industry has to take issues on as an industry, rather than as individuals. The Company has not become involved at all. WAGBA has fought hard and got a few through.</p>	<p>8. The Broiler industry is second to none in lobbying and political influence, also in terms of submissions and factual information generated. The egg industry is nowhere near as well organised, though there are a number of individuals with political interests.</p>
<p>11. The industry is very united in helping farmers with problems. WABGA president, Len Brajkovich, is a fair man. He will criticise farmers if they are not up to scratch.</p>	<p>12. Industry needs to be even more proactive in pushing for relocation.</p>	<p>12. The egg industry is not as united, they do not have as many meetings, nor are they as political, or visually pleasing.</p>
<p>8. Len Brajkovich is seldom ever wrong, he has the interests of the entire industry at heart. Does a great job and the industry is well organised as a result. Very politically minded and able to deal with government. Would hope the industry could carry on without him but lobbying is a continual thing.</p>	<p>Attitudes towards political activism in the chicken meat industry</p>	<p>14. The egg industry is more fragmented and individualised. Less influence and drive. Not unnatural, because of the Len Brajkovich factor. The broiler industry is probably the best organised in Western Australia. It is therefore likely that the egg industry has benefited as a result.</p>
<p>10. Two or three farmers have faced difficulty in expanding and the WABGA has lobbied hard for them. Len Brajkovich is the powerhouse of the industry.</p>	<p>14. In terms of the industry code of practice, all the government departments involved have been chosen by Len. They don't know much about poultry farming, so Len is educating them as the code is being put together. Industry is saying to government this is what we can deliver. Supporting cooperation but pushing the process along. Attempting to be pro-active rather than reactive in creating a cross government code of practice rather than reactive.</p>	<p>9. The industry needs some constructive criticism, some of the farms are a disaster.</p>
<p>9. Uncertain where the industry would be without Len Brajkovich, though there is still the need to make the industry more visual. There is a lack of community orientation within the industry. Option of getting schools out to farms, however, there is always the question of time and quarantine, which has made the industry very insular.</p>	<p>11. Laurie Byatt started in the industry in the 1970s, houses came closer and trouble started, his whole situation has done a lot for the industry.</p>	<p>8. Growers association encourages vegetation and trees. Many do nothing about it but out of sight out of mind is the best strategy.</p>
<p>14. Len is definitely part of the reason the WA chicken meat industry has been so successful. Demands a lot from both producers and processors. Often argues that the processing companies cannot afford to pay any more. Enjoys taking the government on at their own game, dealing with them and with politics.</p>	<p>10. The Laurie Byatt Situation has been a godsend to the industry.</p>	<p>9. The poultry industry information exchange with government is a good initiative.</p>
	<p>11. The industry didn't become involved in our development application but they would have become involved if we needed them.</p>	<p>14. The small number of farmers in Western Australia helps to unite the industry. The attitude of helping the small bloke is integral. Haven't got the fly by nighters but still have the competition between the processing companies.</p>



<p>8. Problem will never go away, but hopefully it can hold its own. Education and communication with local government, community and farmers is essential.</p> <p>↓</p>	<p>11. Long term implications are not good, involves relocation. The company will eventually have to relocate the processing facility and feed mill.</p>	<p>11. Gosnells and Armadale do not want farms any more, the attitude of Serpentine Jarrahdale is changing, Murray is not interested. Water supplies and weather condition are unsuitable on the other side of the escarpment. Problem of keeping chickens cool in summer, carting feed and chickens long distances. The company will inevitably have to face up to it in time.</p>
<p>8. Farmers need to do more to make themselves visually unseen. Shires increasingly make it a condition of development approval. Believe the problem is 50% solved if the farm is out of sight.</p>	<p>10. Don't know much about what the company's plans are.</p>	<p>11. One option is building one shed on a new block and then slowly building new sheds while the old farm continues. May take a number of years to transfer the entire capacity. Need to work in with Steggles.</p>
<p>11. Personally prefer to keep a low profile, not the best to look at. As a result of vegetation, people don't realise the number of farms that are around.</p>	<p>Attitudes towards the broiler industry's ability to adapt</p>	<p>14. Question of where the industry is to go if it runs into problems in rural zones. It can't go inland because of water problems.</p>
<p>9. Industry is very tight knit. Needs to do more than simply hide farmers. Needs to clean up its farms as well.</p>	<p>13. Have heard in the past that other farmers have faced conflict, but that is not our experience. Shed technology reduces noise and odours to the point they are not offensive. Fogging is now finer and drinking lines have improved to help reduce wet litter.</p> <p>↓</p>	<p>11. The only way that the industry can adapt is to buy bigger blocks of land and place sheds right in the middle of a 50-100 acre property.</p>
<p>13. If you keep an eye on the bird and manage the farm correctly then there shouldn't be any problems.</p>	<p>8. New technology, foggers, etc. come at a cost, inevitably paid by the consumer.</p>	<p>11. As long as there are residents and farms in close proximity then conflict will be there. Noise can be resolved to some extent by managing truck timing, you can only do your best for odour. Planting trees as a barrier as well.</p>
<p>8. Odour is caused by many factors. During cold weather you can't open the sheds, so the odour builds up. Where there is an inversion layer and no wind then the odour sits in the air and goes where it wants. Wet litter, caused by leaking drinkers lines and foggers, requires constant management and supervision, it is a 24 hour job.</p>	<p>12. Tunnel ventilation enables a constant air movement over the birds.</p>	<p>9. Problem on older farms in delivering feed because their internal layout or farm size is unable to cope with large trucks. Up until now delivery at night hasn't been a problem. talk about stopping night time deliveries will impact on the company.</p> <p>↑</p>
<p>9. Question of how you can bring farms up to scratch, problem is that some are using the farm as a part-time affair.</p>	<p>11. There is likely to be better technology in the future. Though tunnel ventilation will attract complaints because the fans make a droning noise, the problem is reduced on larger blocks.</p>	
<p>9. Need to implement the condition that the allocation of new sheds is based on the condition that old sheds are replaced. The present system does not encourage this. In saying this, some old sheds are run beautifully.</p>	<p>10. Increasingly difficult as chicken is currently being dumped from the eastern states at \$1.70/kg, while it takes \$2.20 to produce. Which makes it harder as the margins are finer.</p>	

15. They are all members of the Poultry Farmers Association. The Association would take up an issue if a farmer need them to.

19. The industry association has been very successful, 95% of the farmers are financial members. A number of people are quite good in the executive. Little that could be done to improve really.

16. Peter Newing, Lindsay Bell and Robert Deprato work hard for the producers and the egg board. Anything that needs to be voted on is discussed at industry meetings. Robert Deprato is the go-between with government departments, dealing with their demands, finding out what they want and overcoming situations.

15. They are slowly developing an expertise in fighting political issues.

20. The Poultry Farmers Association has been quite active in this state. They work together with the Egg Board quite well. When the industry does face a crisis most of the farmers are quite united in lobbying.

17. The Association is supportive, assists in providing legal advice, general advice, making submissions to government departments regarding animal welfare and codes of practice.

19. Len Brajkovich is a very dominant man in Western Australia, it is perhaps fair enough to say that the egg industry has benefited from the fact that Len and the chicken meat industry have been so pro-active.

Attitudes towards political activism within the egg industry

15. Have made submissions to the review of the statutory marketing authority.

15. The industry has been successful in everything except for relocation. It is active in making submissions. It is quite united, but as in any industry there are a few hot heads.

19. Nothing really that the industry can do at an industry level to assist relocation. The industry is a dying race on the inner urban fringe. You could shout from the roof tops and nothing will happen, even if you do approach it as an industry.

18. The egg industry would have an involvement in lobbying though I am not a member of the association. Couldn't see any purpose in belonging to WPA. Used to be involved. Some of the blokes are individuals, they say one thing at the meetings and do the direct opposite. There is a need for greater unity as the industry is only small, therefore everyone feels the kicks if someone does something differently.

21. The Poultry Farmers Association has a rule that if they see any development similar to that which occurred in Gosnells, then it is not going to sit back, instead it will put government on notice that they will take full responsibility for their decision making.

21. Try to work together to overcome any threats to the industry. The PFA is quite strong, a united group, there have been a couple of farmers that stepped out of line and we brought them back.

21. The Poultry Farmers Association encourages farmers to stay within the limits, to avoid noise, to try to do there best in keeping odour levels down. If farmers let things go then they are not going to reach HACCP standards.

17. The Poultry Farmers Association is involved in education programs at schools. In three different schools a model scale farm has been built with the aim of being pro-active and creating a positive image.

15. Golden Egg Farms and land use conflict is not related at all. Have a good relationship with Golden Egg Farms. They are not there to be involved
↓ in land use conflict issues.

17. The Egg Board does not have a lot of influence over conflict. Some influence over management and the price of eggs. Code of practice in relation to dirty eggs, fly spots and cool room management.

19. Golden Egg Farms is not really involved in farm level conflict. Becoming more involved in farm level management practices and cleanliness. Golden Egg Farms has implemented ISO 9002 for a couple of years. All egg farms are in the process of implementing HACCP plans. Likely that in three years there will be financial incentives for those meeting desired standards.

18. The egg board has only been coming around in recent years, greater attention is being given to quality control and farm management. Woolworths and Coles are becoming more demanding indicating that we have to do this and this on the farm. Are more involved than they have been before.

15. It is important that the industry gets it act together in relation to food safety. Supermarkets continually want more information. Need to give them the assurance that everything is okay. We are a bit behind the Eastern states, as NSW and Victoria have already implemented HACCP.

19. Have employed an officer to monitor conditions. There will be some allowance for older farms. For example, may realise that this farm will be closed in two years and therefore that money is not going to be spent.

19. HACCP will provide an incentive for some to leave the industry if they cannot be bothered meeting the conditions.

18. One farmer sold his license last week because of the new quality control requirements.

Relations with off-farm actors in the egg industry

21. HACCP involves Egg Board enforcement. Need to achieve accreditation as the egg industry is part of the food industry. Important so we can compete internationally. A lot of eggs in Western Australia are exported. HACCP will improve the quality of eggs as farmers will have to prove that
↓ they are provided under clean disease free conditions.

18. Quality control has also been encouraged by the animal liberation. Problem that birds die regularly, therefore need to clean the cages daily. No problem as long as it is not over policed.

17. Involves writing down everything that you do, washing hands, checking feed etc. and then signing. Is driven by Coles and Woolworths. Farmers aren't used to removing dust and cobwebs regularly.

17. Will require certain standards to be met. A lot of guys in the egg industry are from different ethnic backgrounds, so it will be difficult explaining the program. Uncertain of how it will be applied to the egg industry, as commonly used examples are from value adding and processing industries.

21. The egg board will employ outside auditors. A report will go to the Egg Board and if you're not up to scratch then you can lose the premium.

21. Odour levels are not going to influence your HACCP rating but it is part of general cleanliness.

16. HACCP will be all pluses for the industry, will encourage everyone to become cleaner. The objectives are obtainable. Will be a lot less fly and odour problems, perhaps compromises for older farms. Will allow the Egg Board to crack the whip, indicating that they want more acceptable practices.

15. All farmers were required to undertake a training course by the end of next week in relation to Golden Egg Farms HACCP program. Involved auditing farms and will be implemented early next year. Can draw up an HACCP plan easily enough, but it is more difficult to comply with it. Sheds will have to be bird proof, no cobwebs or dust. Farm will have to be road proof. Some are near on impossible, will increase costs
↑ and work time.

<p>16. Half of the producers have difficulty in getting rid of manure. Dynamic lifter tends to take the manure from the broiler industry rather than the egg industry, because the latter is wetter and more difficult to deal with.</p> <p>↓</p>	<p>18. Days of the small producers are over, would question whether a 5000 unit farm can exist simply by selling eggs to the egg board. If the opportunity developed I would join a syndicate farm.</p>	<p>16. If the industry is going to change then it is most likely going to be similar to what is occurring in Gingin with 5-6 farmers joining together as the land component is not as high.</p>
<p>15. If the feed rations are not right then you may get wet manure. Difficult for farmers to dispose of, so you need to keep it dry, otherwise it is expensive to remove. May change who actually pays, wet litter involves more handling, so the farmer may have to pay rather than being paid.</p>	<p>19. Some up in arms about the new syndicate farm, feeling that it will take over the industry and the marketing of eggs in WA. Absolutely absurd. Will be others who will develop a shared farm, though the difficulty is getting like minded people who can get along with each other. The industry members differ in age, philosophies and ethnic backgrounds.</p>	<p>19. Relocation depends on how big the plot is, 3.25 acres may not be viable, but 12 acres becomes more viable.</p>
<p>16. Dead birds are disposed of at the council land fill. If that stopped, could turn to a meat meal company down the road.</p>	<p>Farmer attitudes towards the ability of the egg industry to adapt</p>	<p>17. Farmers are pretty much in the same position. Some farmers with bigger blocks of land are better able to relocate. If you had around 50 acres you wouldn't have a problem. One farmer on 70 acres received \$3.5 million.</p>
<p>21. Dead birds are incinerated on the property, not in favour of pick up trucks as they increase the risk of contamination spreading between farms.</p>	<p>19. Practices that might suffer because of the urban fringe location include maintenance, cleanliness, cobweb removal, dust around sheds, silos being repaired rather than replaced, drinker lines remaining unchanged.</p> <p>↓</p>	<p>17. The future is going to be pretty hard over the next few years, a lot will get out of the industry, especially small farms, a lot won't be able to relocate.</p>
<p>21. Reducing environmental impacts depends on the common sense of farmers, externalities can be controlled, appropriate technology is available. Old farms may need to spend a bit of money.</p>	<p>15. Haven't spend money on upgrading the farm, should have upgraded the internal road, but decided against it because of future uncertainty.</p>	<p>19. Reluctant to invest in the current farm, new sheds have to be controlled environment sheds. Need thirty years to recover the investment.</p>
<p>15. Complaints are justified at times, flies do become a problem. Need to better manage the property to avoid complacency. Following the removal of manure you are at risk for a month, as flat piles are susceptible to fly strike.</p>	<p>19. Very difficult to reduce noise and odour on existing farms, controlled environment sheds are the only way to go.</p>	<p>17. Wouldn't be cost effective to up date technology on old farms. Difficult to put new technology into old sheds. Disincentives to invest as you need a long time to recover the investment.</p>
		<p>15. With the technology we will employ the farm could be placed in suburbia, nice looking sheds, closed sheds, tiered cages, automated belts removing dry manure.</p> <p>↑</p>

Appendix XIII - NSW Farmer Attitudes towards Relocation

<p>20. For many relocation is not an issue, there are a number of older farmers near Kellyville on 5 acre blocks that will sell out to developers over time. They are 60 years plus and will retire. Younger farms if they want to remain in the industry will relocate.</p>	<p>21. Eventually everything will have moved out. In 50 years time the industry may not be here as the processors will have moved out. Inghams is building a feed mill near Goulburn and asking for growers. In hindsight, it is beneficial to be out as there are costs involved in bringing grain to local feed mills.</p>	<p>21. Farm is worth around \$1.5 million. Are happy to stay, but if were offered \$2million then would be prepared to leave. Not sure where or how that would come though.</p>
<p>19. Few natural successors in the industry, many children do not want to continue on. So what usually happens is that people sell out.</p>	<p>20. In 10 years Goulburn will have some problems.</p>	<p>15. Negotiating with developers is the only way that you could relocate.</p>
<p>21. Would give greater attention to relocation if my son wanted to get into the industry.</p>	<p>Attitude of broiler farmers to relocation</p>	
<p>16. Relocation is a hard question, everyone is different.</p>	<p>16. Relocation is very difficult, is not easy as it involves the family as well. Not really an option that I have thought about because of the capital costs involved. Also have to find an appropriate piece of land with trees, suitable relief.</p>	<p>16. If government doesn't want me here then they should pay me to leave</p>
<p>22. Relocation depends on the age of the farm. If the sheds are 20-30 years old then it may be viable, but not if the farm is an up to date farm. Wouldn't be viable to sell and build a new one.</p>	<p>15. Personally would say yes there is a role for government, but practically would have to say no, not really government's role to assist relocation</p>	<p>19. Looked at 110 acres down south, went down there and had a look at it. Started talking to the neighbour who indicated that the poultry industry was smelly and polluting, without realising that was our intention.</p>
<p>18. Can see little industry expansion occurring in Wollondilly. Existing farms will continue operating there for many years unless they are gobbled up by urban expansion. It is impossible to relocate because of the costs involved. Problem complicated because many developed on 5 acres in the past.</p>	<p>15. In moving to other locations, transport becomes more expensive, therefore a lot of the processors will not look at it. Not easy for farmers as well, a lot of people would give up instead of moving.</p>	<p>20. There are impacts on families relocating to Goulburn because it is more distant, 2.5 hours to Sydney and very cold. Here we are only 1 hour from Sydney, there are benefits in living on the urban fringe.</p>
<p>15. Unable to relocate as this farm is worth too much, although there is cheaper land towards Goulburn, it is not really viable to relocate</p>	<p>15. Reluctance of the processing companies to move. 7 or 8 years ago Steggles moved from Marsden Park to the North of Sydney, lost a lot of customers as a result.</p>	<p>17. The long term implications include relocation to Goulburn. Yet the climate is ideal here at an elevation of 1300 feet, Have an even temperature, cool during the summer nights and plenty of air movement. Goulburn is hot, frosty, very dry, very cold, which increases the cost of farming.</p>
<p>22. Cost around \$2million for a new farm which is out of the reach of a family farmer.</p>	<p>18. Wingecarribee is an appropriate location, its just that they don't want them.</p>	<p>19. Had the offer of an additional shed if we relocated.</p>
<p>21. Are stepping over Wollondilly and Wingecarribee and heading to Goulburn. Company was reluctant a couple of years ago. Two hours on a truck and the roads are good.</p>		

25. Good opportunities to market eggs yourself in the Sydney Basin. Able to sell to private people, little shops, fruit markets. Have our own shop where we sell directly to the public. If you started operating in Tamworth, the market is not big enough so you would need to move produce to Sydney to distribute it, therefore need a centralised distributing point.

24. If I relocated would lose my shops, would need to go through the coop instead as it is difficult to supply customers from a distance. A couple tried to from Young, sending to a Sydney distribution point, but the market fell out and they are now with the cooperative. Problem that they equalise returns when different farmers have different costs of production. Distances create problems, as customers often prefer one to one contact rather than dealing with truck drivers.

26. It is not easy to relocate. Can't shut down this farm and then start building a new one. Need to develop in one location as you slowly close the other operation as you need to maintain existing marketing relationships.

24. There are instances where farmers have been bought out. 4-5 farms have gone from Prestons in the last five years. All closed, retired or got new jobs rather than relocating. They didn't think the industry was viable enough to relocate.

25. When development comes out most sell out. The majority retire, as most farmers are old, mainly over 50 and their kids do not want to take it over. You need to work 7 days a week, its hard work.

24. Banning caged bird production is back on the agenda, therefore dodgy to spend \$2million on a new farm.

27. Unlikely to see new development in the industry. Over the next 10-20 years will see 50 farms or less, with a greater number of farms leased.

Egg farmer attitudes to relocation

25. Financially it is difficult to relocate. Last year was a bad year. Wouldn't pay to move. Not a lot of relocation is occurring. A number of farms are developing near Tamworth, Young and Bathurst. Land and feed are cheaper there. Having fewer problems with council.

28. Relocation is a big problem. To build a 35,000 bird shed you are not going to get much change out of a million dollars, that includes land, infrastructure, roads and cool room. Relocation out of the Sydney Basin is not viable for the small people.

28. There are benefits in a regional location. Cheaper here to run a farm financially. Land costs are cheaper. Cheaper to transport eggs than to transport feed, 2 kg of feed to 1k of eggs.

27. You can't relocate because no body wants you. No where in NSW is appropriate, to build a 250,000 bird laying farm you need a minimum of 500-1000 acres to be comfortable, and even then you may still get objections. Are facing problems in expanding in Tamworth. There won't be much more there.

27. There are risks in developing new cage bird production systems. Animal welfarists are lobbying for free range and barn lay systems. Government needs plans for what it would like in the industry. Don't want to spend \$1million plus dollars with the risk of having to dismantle it. Need for a positive strategy so that there is some clarity in relation to when things are going.

26. If government wants to develop then it may have a role in assisting farmers to leave.

28. Don't see government assisting relocation. Relocation will occur through market forces. There are instances where developers have come in and brought farmers out. One family was paid \$7million for their land in Prestons and got out of the industry.

28. Access to water is one constraint, best type is town water. Can't use dam water and need to be careful using bore water. Need access to a feed mill with knowledge of poultry feed

27. Is the only farm in the Lithgow area, there is no feed there so will have to get it from Young or Sydney at a cost.

28. One farm is being built in Lithgow, is the first real movement outside of the Sydney Basin.

28. Not sure if you will get a lot more near Young, not sure how the council would handle a new complex being set up. They are not saying absolutely no, same as in Lithgow, Wellington, Cowra, Griffith.

Appendix XIV - Poultry Farmer Attitudes Towards their Industry in NSW

<p>17. Poultry farms in general keep their head down and hope to stay out of trouble.</p>	<p>21. Should be more politically active, perhaps attending local government meetings, have to become involved more. But as a delegate for Table Talk for over 10 years, and then for Steggles, haven't been for Red Lea. Felt that I had done my bit for the industry, so don't really want to become involved.</p>	<p>21. When the chicken meat imports were threatened, encouraged all growers to send a letter to the government. Thinking was that government translates 1 letter to 1000 potential votes.</p>
<p>22. Farmers are head down and bum up hoping that it will sort itself out.</p>	<p>22. Industry is only controlled by a few people. Sheep and beef involves 1000's of people. Chicken meat is largely controlled by two. Company is trying to overcome problems, but has not been successful, nothing much has been achieved. In Wollondilly, the industry gave up and are now simply jumping over Wingecarribee, to a more sympathetic local government. This is despite the fact that the industry in Wollondilly is the largest employer, and still they don't want it.</p>	<p>21. Had one meeting with the Federal Agricultural Minister. He thought that the farmers must have been making a killing, as there was cheap feed around then. Rain had destroyed the quality of feed, turning it into stock feed. Didn't realise that the company supplied the feed. Had to explain how the industry operates a couple of times before he understood it.</p>
<p>15. Have actively planted trees on this property in recent years. Neighbours can still see the farm, as they will take years to grow.</p>	<p>Broiler farmer attitudes towards industry activism</p>	<p>20. Compared to other agricultural industries you don't see poultry that much on Landline or in the Land paper, always sheep and beef, those industries that aren't making a dollar. Was written recently that the poultry industry is the most profitable agricultural industry, more profitable than dairying. Don't need help from anyone.</p>
<p>19. Trees are good barriers, if you can't see the farm then it eliminates a lot of problems. Generally keeping the farm clean has a psychological impact.</p>	<p>15. Are undertaking some sort of scientific measurement, identifying the influence of land and topography on odour dispersal.</p>	<p>19. Have to become more involved in educating the public. Steroids and hormones have been illegal for 35 years yet we are constantly asked about them. The high growth rate reflects feed quality and capital invested in shed technology.</p>
<p>20. Out of sight out of mind is an important principle. Have planted enough trees around my sheds such that you won't be able to see the sheds from the houses in a few years. Inghams and council actively encourage planting trees.</p>	<p>19. Industry is very much aware of the problem of odour, the difficulties it presents and is looking at products to add to litter.</p>	<p>20. Just want to keep my head down and produce. Just want to do the job of producing chickens. We are not really worried about what the neighbours are up to.</p>
<p>16. One situation where someone built alongside a turkey farm and the farmer ended up purchasing the houses because of the intensity of conflict. The complainer was concerned about falling land values.</p>	<p>16. The industry has to do something, farmers can't carry on working in fear. Something will happen in the future. The industry will respond so that it can continue producing in peace.</p>	
<p>17. Vegetative barriers are very practical, the industry has been promoting them in this area. Have had people out giving lectures on planting trees.</p>	<p>19. Industry has very much a head down image.</p>	
<p>15. Plenty of people active in lobbying - just that few people are listening. They indicate that they know that a problem exists, and that they are looking at it, but nothing ever happens.</p>		

<p>19. For the grower keeping the birds alive is top priority. If they haven't done everything possible they may be found negligent.</p>	<p>18. They're acting together to address some of the problems. Feed is much better and they are reducing odour levels.</p>	<p>21. They are trying to reduce the problem, are not coming to the farm late at night or early in the morning.</p>
<p>15. Companies could do a lot more, especially in odour control, they could put products in the feed. However, it is in their financial interests to reduce costs.</p>	<p>21. The company is putting stuff in the feed for some growers because of conflict. Remain reluctant because of the cost involved. The additive assists digestion and means that there is less in the manure at the end and the chickens grow better. Has given those farmers an advantage over others, as birds are performing better.</p>	<p>20, 22. The Company has made a few changes. Used to use chains on trucks to strap cages on. Made a lot of noise, but have changed to a new form of material. Company is telling workers to keep their noise down, and not to tear around the farm.</p>
<p>19. One neighbour approached me and indicated that odour had been bad of late. I told her to ring the company and to complain about the bad ration.</p>	<p>Farmer attitudes towards the farm-processing company relationship</p>	
<p>19. Environmental issues are said to be the responsibility of the farmer, yet the farmer has no control over birds and feed. A farmer can only do so much.</p>	<p>15. None of the environmental factors are taken into account in the cost of production figures for the model farm. May need to be if they want things to improve, allowance for new technology, vegetation, screening fences, shade cloth, filtrated sheds.</p>	<p>18. Serviceman comes around once a week, they monitor the performance of farmers and do crack the whip at times.</p>
<p>18. The companies could apply pressure on problem farmers. Farmer organisations can only encourage compliance with the guidelines or stipulate certain things that must be adhered to, such as not stockpiling spent litter or dead birds.</p>	<p>16. Industry processors could be more responsible, though the noise of trucks and pick up crews has improved. Processors could stand behind their growers. The company did provide support when we build the last shed. When council insisted on colourbond roofing the company indicated that this was not practical as silver reflected heat.</p>	
<p>20. There are some farms in this Shire where the processing companies should say you have three weeks to clean up your farm or your contract is terminated. They don't push to have 100% clean farms, need for servicemen to put in the hard word, cutting down 6foot high grass etc. Everyone knows what is required, up to the company to pick up the cowboys.</p>	<p>22. The model farm size wouldn't take into account the need for 150m to the boundary.</p>	<p>19, 20. The processors should financially support farmers to challenge decisions in the Land and Environment Court.</p>
<p>17. Companies have been very slow to get involved. Dead birds are one good example, as while the processor owns the live bird it is the grower's responsibility to get rid of a dead bird. NSW has not set up a system of freezing birds on property and transferring them to a centralised plant as in Western Australia. They have been more proactive over there including the cost of the freezing facility into the growing fees. Has never been talked about here.</p>	<p>16. The farmer is caught between the company and residential owners. The company should step in and answer questions to protect the grower, though not that there is much they could do. Birds need to be picked up at night to maintain quality.</p>	<p>15. Concern because collusion legislation at the federal level prevents communication. Processing companies are therefore unable to address the problem jointly.</p>
	<p>17. The processors, to my knowledge, have not sat down with the farmers and said this is what we are trying to do to overcome the problem, we are selecting feeds, adding enzymes to overcome the problems, this is what we expect. Nothing like that has happened.</p>	

15. People need to adapt rather than the industry, because unless you are growing 2 or 3 chickens then there is going to be an odour problem. ↓

21. If too many farms get curfews then something will give. Can't be at eight different farms at the same time.

17. Things are continually changing. Is a very sophisticated composting system in South Australia. The composter contains the dead birds from one batch of birds, and is taken away by the company at the end of the batch and replaced by another. Dealing with compost rather than dead birds.

21. Council came over, and were happy. Found no problems and were very understanding. The company's farm manager talked to them. At the time had just changed over to nipples, cost around \$48,000 to help the problem. Therefore council was sympathetic. Less maintenance involved. Chickens grow just as good, less work in the sheds. Increased cost but no money for it.

22. Changes in technology may reduce impacts. Tunnel ventilation is supposed to increase feed conversion and increase stocking densities, but are not sure of its impact on odour control. Possibly kept lower as it is supposed to keep the operation drier.

18. The biggest growth is in Griffith, where Bartters is located. Council is supportive of them as they provide a lot of part time seasonal work and full time work for locals. Also attracted other businesses and established an upwards cycle. Dependency on the industry has provided stability for the local area.

Broiler farmer attitudes to the ability of the industry to adapt

19. Trialed day time pick up, but there were a lot of second grading and deaths. Did try to tackle the problem. Perhaps in new sheds where the lights can be turned off can day time pick ups be employed. ↓

17. More recent changes to pick ups have made the process quicker and quieter. Pick up crews have sharpened up. Lot of little things like not shouting at each other, fork lift driving, driving of trucks.

21. By buying a larger allotment, farmers set themselves up if encroachment was to occur again, if you had 100 acres then you could leave and sell the land.

21. Industry has to have larger acreages, no two ways about it. If building a larger farm would not be doing it on 8ha. Need to be in the middle of a big paddock, and own your own buffer to minimise the effect.

19. Smell and odour are difficult to control. Expelled during summer when the foggers are going non-stop. On a new farm you can eliminate odour because of the greater distance requirements. If was building a new farm today wouldn't do it like it was done in the past, have learnt from experiences.

17. Things have changed a lot in relation to management and they will continue to change. People still perceive poultry farming as employing older styles, where rats and dead birds are lying around, but that doesn't occur.

15. Old farms could go to tunnel ventilation. Could then go to day time removal of birds. But farmers are afraid to invest if they don't have any confidence. ↑

29. Talking to your neighbours is common courtesy and common sense. Perhaps easier for smaller operators compared to those farms with a manager operating from an office in a different location. Personal contact doesn't do any harm. Know all the neighbours here, very much a rural community, we all jump in and help each other.

23. What else can the industry do. It is encouraging better farm management, which is good for the local area, the farmer and the bird. Everyone is following codes of practice.

25. There is a role for the industry in education. Difficult as people are different. People living on 5 acre blocks are not so fussy, lot understand that this is a rural area compared to an urban suburb. Therefore expect tractors, fertilisers.

25. Perhaps there is a role for the industry or NSW Agriculture in providing more information regarding council regulation, what they want, type of shedding required, birds allowed, how farm away from neighbours, which zones allowed in. May not be wanted near to creeks which is a reasonable concern. Would be good to know that information to assist those relocating.

26. May be a role for the industry in creating a list of how you can get rid of dead birds, manure in different local government areas.

28. Not realistic for the industry to supply information relating to the requirements in different local government areas. Problem in keeping up to date, at the end of the day would only be an indication as each case would be treated on its merits.

28. Lobbying is difficult as you may lobby as much as you can and not get a result. Up to each farmer to deal with local government and neighbours. It is only a major concern in the metropolitan area. There many have conflict with their neighbours, but not in more regional locations.

28. Each farmer is on their own.

Egg farmers attitudes to industry activism

28. Industry is trying to encourage vegetation as part of the production system. Believe that it is important as it shows that the farm is trying to do something. Believe that by doing so, government will be more sympathetic.

28. Perhaps there is a role for the industry in saying this is how the majority of systems are operating in the Sydney Basin, all are conventional. Though if a farmer is not going to do anything, the industry has no clout.

27. Industry involvement undermined as there are always others willing to spend more money or resources lobbying.

27. State government is not involved, are reluctant because it is not a big election issue. No benefits for them as the industry is only small. Only 1000 families, which is small compared to other groups.

27. Difficult for the industry to become involved as every case is different. Industry is also fragmented. Better to resolve conflict on an individual basis. Industry does have to improve hygiene conditions and encourage the adoption of improved management practices. Live in the 1990s, therefore need to respond to demands. Need to isolate those farms that do not toe the line or who do not follow best management practices. Isolate them and not associate with them. They can carry on producing but the market is becoming more and more demanding, with quality assurance schemes. Don't agree with it but are compelled to undertake it.

24. A greater role for the industry has been tried. Egg farms in NSW belonged to the Livestock and Grain Producing Association, now NSW Farmers Federation. Paid the subscription and got nothing for it. Were supposed to stop deregulation occurring, but they didn't. Told that there would be strength in numbers.

23. The egg industry is different from the meat industry, around 250 producers, small groups, pretty fragmented. A lot of people are doing their own thing. Competition is driving it at the end of the day. The industry has identified environmental issues as one problem, and is funding research.

24. Not really a role for the industry. Someone else has to intervene as council doesn't want any new farms or farms to expand. The council has said it to me.

<p>24. Following deregulation and the compensation pay out, those that couldn't expand got out of the industry. Some got bigger by expanding their shedding or by fully utilising existing capacity. Resulted in two and a half years of surplus. Some who had spent the money hoping that things would get better lost out.</p> <p>↓</p>	<p>24. Road side sales are a good way of reducing some of the egg pressure, \$2 at the farm gate, compared to \$1 through the cooperative.</p>	<p>28. Road side sales is a lucrative market as you receive cash money, you can't stop it.</p>
<p>28. Deregulation has been negative for all of the industries that have gone through it, hasn't saved the consumer any money. Probably right in saying that it is the power of the supermarkets as well as deregulation, deregulation is just something that is good to blame. Government has no control over the supermarkets.</p>	<p>28. Difficult to bring smaller players under the quality assurance system as they are not under the influence of the supermarkets. Major supermarkets control 60-70% of the market and are pushing for quality assurance. Consumer market is being pushed for different types of eggs, bird welfare, the issue of environmental management, odour - noise is not mentioned.</p>	<p>24. The supermarkets don't buy from the individuals, their main three suppliers are Pace, the Co-op, and Bartters. Individuals are supplying independent supermarkets and fruit shops who are competing with the big fellas.</p>
<p>24. Consumers haven't benefited, only ones who have benefited are the supermarkets. They used to get around 10 cents per dozen when the price was fixed, now getting in excess of \$1. Paying around \$1.40 and selling for \$2.80 a dozen.</p>	<p>Egg farmer attitudes towards off-farm relations</p>	<p>26. HACCP and quality assurance are not a concern, have no problems as consumers want my eggs. They haven't had any problems so there are no concerns. Market the eggs myself as the supermarket demand a quantity that I cannot supply. No point trying, supply small shops instead. Deregulation has been good, are my own boss and there are less players in the market.</p>
<p>24. Deliver eggs twice per week and get paid once a fortnight. The supermarkets are pushing to pay once per month, saying that other produce suppliers are being paid every month. Resisting at the moment but will only take one of the three major companies to go that way before everyone will have to.</p>	<p>↓ 23. Undertaking a quality assurance program which is recognised by Woolworths. Currently half way through it and will then be open for external audits. Supermarkets haven't as yet said that you must have a HACCP plan, but the changes are in the wind.</p>	<p>28. Quality assurance will give people a kick. Will influence externalities. Checking odour, dust in sheds as you have to improve bird welfare. The external audit will bring people into line. Though some will only do internal audits as opposed to exposing themselves to external review.</p> <p>↑</p>
<p>23. Everyone is cutting each others throat at the moment. 80-90% of food is retailed through three large companies. Very hard to deal with them as eggs are a perishable product. The supermarkets are out of control in Australia, they are very powerful.</p> <p>→</p>		
<p>25. HACCP has had little impact as most are up to standard as it is.</p>	<p>24. HACCP and Quality Assurance will have a minimal impact on environmental issues. Changes are in cleanliness and the way farmers handle eggs. Surprised to find out that I already do a lot of what is needed. More internal changes rather than having the ability to reduce conflict, not required to remove manure under HACCP.</p> <p>→</p>	

25. Most farmers get out of the industry or they make sure that there are no dead birds or manure lying around.

28. Basically there is not a lot that existing farmers can do. Feed has a limited impact on odour. If you are a sizeable producer of anything then you are going to use high quality inputs. Perhaps some of the smaller companies may use less quality and may create problems. Some ingredients produce more odour. Lupins, for example, results in wet droppings, especially in conventional sheds.

27. In new environmentally controlled sheds, everything is more easily controlled, therefore conflict shouldn't be a problem.

27. Each industry has its own limitations which it should be left to deal with. Can't change industry behaviour, collection, feeding, just because someone next door doesn't like it. You can change management practices to an extent.

Egg farmer attitudes to the ability of the industry to adapt

28. In the newer style shedding odour is controlled. Odour is a result of moisture and manure. In the newer style, manure is kept dry. Manure only stays there for a week. Air is transferred through the sheds - constantly dragged through to maintain an even temperature.

28. Bartter is doing the right think, is spreading out his farms. Probably about 5 km between farms, therefore no odour problems. Also employing the whole town, or everyone at least knows someone who works for them.

27. Reluctance to invest in new technology because of the problems created by environmental groups and animal groups. Not going to invest without knowing that you can get a return on your investment. Will still have problems with council, and neighbourhood resistance.

27. Difficult for existing farms to renovate old technology, despite technology rapidly advancing.