Performance Audit Report

NSW Agriculture

Managing Animal Disease Emergencies

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Executive Summary

The Audit

Emergency animal diseases, like foot-and-mouth disease, can cause severe economic and social disruption. They affect processing industries, exports, tourism and general movements in the State. The foot-and-mouth disease in the UK during 2001 is a clear example of this occurring. As a consequence, Government preparedness is vital to controlling and limiting the effects of outbreaks.

The audit focused on NSW Agriculture's ability to manage the three main processes for dealing with emergency animal diseases:

- co-ordination of government, industry and community
- preparedness through surveillance, training and animal identification
- responses to an outbreak.

As a consequence of recent relatively minor outbreaks in NSW and major events overseas, strategies for large-scale emergency animal diseases are being urgently reviewed and developed at both a State and national level. The audit's recommendations are aimed at assisting this process.

Audit Opinion

Much thought has been given to addressing and combating emergency animal disease outbreaks in NSW and actions are in progress. The NSW Department of Agriculture (NSW Agriculture) is to be commended for its leadership. However, the task of preparedness is immense and major aspects remain to be resolved.

The Audit Office is of the opinion that while planning, surveillance and response issues remain unresolved, the State is at significant risk from large-scale emergencies such as might occur with foot-and-mouth disease.

Actions by NSW Agriculture since the Newcastle disease emergency at Mangrove Mountain in 1999 have positioned the State to manage better emergency animal diseases. Many of these actions have been pursued within the context of national agreements and programs.

There are, however, significant gaps in our ability to respond to and manage large-scale emergency animal disease outbreaks. There are issues, that while being addressed, require more urgent attention and action. These include being able to trace the movement of infected animals, the digital mapping of disease zones, and the destruction and safe disposal of large numbers of animals.

There is also a need for NSW Agriculture to build on the already well-developed plans and relationships it has with other emergency response agencies.

More significantly, however, there is a need for the Government to ensure that there is a well developed and maintained capability to deal with large-scale emergency animal diseases and all its consequences.

Findings

Recent Actions at NSW and National Levels

The outbreak of virulent Newcastle disease at Mangrove Mountain, the largest emergency animal disease outbreak to-date in Australia, exposed NSW Agriculture to co-ordination issues not previously experienced. The foot-and-mouth outbreak in the United Kingdom in February 2001 reinforced the need for preparedness.

The task of becoming fully prepared is immense, and the level of activity is commendable. However, the actions at State and national levels must still overcome many of the complexities of large-scale outbreaks.

The number and magnitude of issues being pursued indicates that current strategies for large-scale outbreaks of emergency animal diseases are inadequate. At present, a situation similar to the recent United Kingdom foot-and-mouth outbreak would be aggressively managed, however, it is not evident that it could be efficiently and effectively controlled and eradicated.

Absence of Risk Based Analysis

Strategies, plans and resource levels are not based on a comprehensive risk analysis. Without this, emergency animal disease management will remain without adequate direction and an adequate basis for resources. The lack of this framework puts the level of resources for emergency disease preparedness and response at risk because the emergencies are infrequent and not in the public mind.

Concerns over declining government resources for the surveillance and control of animal disease emergencies have been referenced in recent State and national reports. NSW Agriculture's budget for emergency animal diseases has remained steady at $7 million p.a. during the past four years.

Studies of the economic impact of foot-and-mouth disease indicate substantial cost savings from investment in early intervention and control strategies.

Surveillance Strategies

Reduced voluntary sampling and the shortage of experienced government, industry and private veterinarians in livestock practices limit the State's capacity surveillance for emergency animal diseases.

The introduction of fees by NSW Agriculture and the limited range of new surveillance strategies have resulted in a reduction of investigations and sampling by veterinarians in the field. Any reduction in the capacity of NSW Agriculture laboratories will limit the testing of large number of samples after an outbreak of an emergency animal disease to provide the necessary proof of freedom.

The increasing number of livestock veterinarians approaching retirement age indicates a looming shortage in rural areas which will further restrict surveillance.

Authority of the Chief Veterinary Officer

The Chief Veterinary Officer of NSW is a critical technical adviser as indicated by membership of the national Consultative Committee on Emergency Animal Diseases.

The CVO is also one of four Program Managers in the Division of Animal Industries. In this role the CVO must compete with other Programs within the Division of Animal Industries for animal health funding and resources. This creates some risk that the CVO is not in a position to influence sufficiently the speedy implementation of technical advice that might not be palatable because of financial, political or other reasons. This has the potential to slow down the initial response to an emergency.

NSW Agriculture has in recent emergencies created an Executive Team to assist the CVO with response management. Notwithstanding, care must be taken to ensure that emergency disease response is not treated as a "management problem". Immediate and effective action will be vital.

Questions Over Cost Sharing

Serious concerns were raised about the application of the cost sharing arrangements during the outbreak of virulent Newcastle Disease at Mangrove Mountain. The concerns by the other Government signatories to the cost sharing agreement nearly led to the arrangements being withdrawn some four months into the emergency.

Animal ID and Tracing

The capability to trace animal movements is vital to bringing the spread of diseases under control. The capacity to effectively trace animal movements will remain limited until a national program is fully implemented.

Use of Digital Mapping

NSW Agriculture is proposing to extend its use of digital mapping. It will be based on on-line access to Land and Property Information NSW's rural property register. This will be an invaluable resource. But there are logistics and resource issues to be resolved.

Disposal of Animal Carcasses

At present the State is without viable strategies for the disposal of large numbers of animals. A task force chaired by NSW Agriculture and comprising representatives of the State Emergency Committee is currently examining carcass disposal issues and solutions.

The incident at Mangrove Mountain demonstrated that disposal is a critical issue during emergency animal disease outbreaks.

Information Management

The emergency at Mangrove Mountain also demonstrated the need for adequate resources for data entry and reporting as well as epidemiological analysis and forecasting.

The operation of the system at Mangrove Mountain, while performing adequately in day-to-day management, experienced a number of difficulties. Importantly, it failed to provide an effective link between activities, the current situation and likely trends.

Gap in Swill Feeding Inspection

The swill feeding of pigs is the most likely means of foot-and-mouth and some other emergency diseases entering NSW.

The inspection of the use of waste food from restaurants in swill feeding is not included in the powers of either NSW Agriculture or local government inspectors.

Co-operation Across Borders

NSW Agriculture does not have memoranda of understanding in place with any neighbouring States to help manage common response issues. It is in the early stages of developing an MOU with the ACT for the management of emergency animal disease. Cross border issues are also under discussion at a national level.

Plan Out-of-Date

NSW Agriculture's Exotic Animal Diseases Control Manual is in need of updating. Revision to be consistent with revisions to other State and national plans and manuals.

Further Development of Operating Procedures

NSW Agriculture's response competencies are built around both Local Disease Control Centres and State Disease Control Headquarters roles. NSW Agriculture's focus has been on developing standard operating procedures for the LDCC. There is a lack of similar guidance for the SDCHQ from where the response is monitored and strategic direction is provided.

Recommendations

Many of the recommendations relate to the finalisation and implementation of developments already under-way.

Risk Based Planning

NSW Agriculture should apply a more comprehensive approach based on risk analysis principles to the management of emergency animal diseases. It is essential for the improved linkage and alignment of strategies, plans and resources.

Disease Surveillance

The surveillance strategy for emergency animal diseases should be revised to ensure that adequate investigation and sampling is occurring across the State.

NSW Agriculture should continue to actively support initiatives to recruit and develop more veterinarians for livestock work in rural NSW. Without adequate numbers of livestock veterinarians, surveillance is restricted.

Chief Veterinary Officer

NSW Agriculture should ensure that the Chief Veterinary Officer's national and statutory responsibilities are not jeopardised by the position's day-to-day Project Manager role. To limit the potential slowing down of an emergency response, the CVO should have authority to relate directly to executive management to resolve issues that may impede a speedy initial response to an emergency outbreak.

Immediate Response Funding

NSW Agriculture should explore the option of an initial response fund to support the immediate response action when an emergency animal disease is reasonably suspected. This would support professional clinical judgement made in the field and would limit any impact on the Department's budget. It would help overcome any delay caused by fears of national funding not being available under the cost sharing Deed.

Response Benchmarks

NSW Agriculture should consider developing benchmarks to better manage initial actions. Most importantly they should address the timing of identification and response actions. They should in particular also outline the level of co-operation required of government and industry in the incident identification stage. The benchmarks would have State and national application.

Tracing Animals

NSW Agriculture must continue to support the development of national livestock identification schemes. The ability to trace cattle and sheep is critical to a speedy response.

Animal Disposal

The development of solutions for the disposal of large numbers of animals is a key indicator of NSW Agriculture's capacity to deal effectively with large-scale emergency animal outbreaks.

Solutions should include the integration of NSW Agriculture's specialist emergency animal disease procedures and structures with those of the broader based State emergency services and the identification of possible disposal sites.

Information Systems

NSW Agriculture should ensure that emergency animal diseases management information systems are improved. They must support more accurate and complete collection, collation analysis and reporting. This includes the further development of digital mapping capabilities.

Regulation of Swill Feeding

The gap in the inspection of the use of food from restaurants in the swill feeding of pigs should be filled by regulation.

Cross Border Co-operation

Memoranda of Understanding should be negotiated between NSW and neighbouring States. They would complement national plans and provide for greater understanding and integration of activities in cases of cross-border outbreaks.

Revision of Response Plan

The Exotic Animal Diseases Control Manual should be revised. Content should reflect the changing circumstances reflected in this report and developments in the national emergency response plan. Presentation should be made more consistent and user friendly.

State Disease Control Headquarters Operating Procedures

Standard operating procedures should be further developed for the State emergency animal disease headquarters managed by NSW Agriculture. They should include the higher-level co-ordination of liaison activities with the media and communities, the use of private veterinarians and veterinarians from interstate or overseas, and the analysis of emergency costs relative to benefits.

Response from NSW Agriculture

I have received the Performance Audit Report prepared by your office on the Management of Animal Disease Emergencies by NSW Agriculture.

The report has accurately identified some issues and shortcomings in preparedness and response capabilities of NSW Agriculture to Emergency Disease incidents, and I believe the recommendations are appropriate. In many cases these issues and shortcomings were identified prior to the report and have been or are being addressed by my department.

In response to the recommendations I advise as follows:

- *Risk based planning and disease surveillance are key areas which are being enhanced and progressed.*
- *Immediate response mechanisms and response benchmarks are being further developed in accord with the recently launched Industry/Government Cost Sharing Agreement.*
- *NSW Agriculture continues to support national livestock identification as the key to effective tracing of animals. This will be linked to a new laboratory information system and a new property event system including digital mapping.*
- *Regulations are being constantly updated to meet any deficiencies or new requirements.*
- *Cross Border cooperation has been considered by the Primary Industries Standing Committee. Negotiations will continue.*
- *Revision of the response plan is well advanced with the inclusion of Standard Operating Procedures to cover all areas of Control Centre and Headquarter activities.*

The preparedness and response capability of NSW will be greatly enhanced by initiatives now being implemented.

Thank you for the opportunity to respond to the report.

(signed)

RF SHELDRAKE
ACTING DIRECTOR GENERAL

Dated: 19 April 2002

1. Introduction

Introduction

The effective management of emergency animal diseases is threatened by the:

- increasing risks of occurrence, and
- complex administrative arrangements in place to handle the emergency response.

Livestock Industry

Emergency animal diseases affect the livestock industries that are significant and long-term contributors to the prosperity of the State. The livestock industries are the cattle, sheep, dairy, pig and poultry industries.

The gross value of New South Wales's livestock and livestock industries for 2000-01 was in excess of $3.9 billion (Australia $15.5 billion). Exports of livestock and livestock products from New South Wales were worth more than $2.4 billion.[1]

Emergency Animal Diseases

A very rapid response will normally be needed to control and eradicate an emergency animal disease and to minimise impacts on human health and market disruptions including international trade or production losses.

Recent outbreaks of emergency animal diseases in NSW have had marked socio-economic effects in localised areas. For example:

- virulent Newcastle disease outbreak at Mangrove Mountain (near Gosford) in 1999 resulted in the slaughter of almost 2 million poultry
- outbreaks of avian influenza at Tamworth in 1997 caused the quarantining of properties for up to six months.

An outbreak of foot-and-mouth disease would have a significantly greater effect than Newcastle disease or avian influenza, including nation-wide disruption of livestock markets and trade.

Emergency animal diseases that pose serious threats to humans are uncommon but recent incidents in Australia have included some human infections. In 1997 a new virus causing disease of pigs was isolated from one property near Camden in NSW. This virus infected humans, and although only relatively mild symptoms were recorded, the virus was closely related to similar viruses in Australia (Hendra virus) and overseas (Nipah virus) that were fatal to humans. Other potential threats to humans include bat lyssavirus, a disease related to rabies and carried by flying foxes, and bovine spongiform encephalopathy (also known as mad cow disease).

Classification of Emergency Diseases

The OIE is the World Organisation for Animal Health, and is responsible for establishing and maintaining standards for the surveillance and control of animal diseases. The OIE categorises important animal diseases as either *List A* or *List B*.

List A includes transmissible diseases which have the potential for very serious and rapid spread, irrespective of national borders, which are of serious socio-economic or public health consequence and which are of major importance in the international trade of animals and animal products. Once a *List A* disease is notified by a country there is an obligation to report the status of the disease weekly. Until testing has provided proof of freedom of the disease, exports of likely contaminated animal products and animals are banned or limited.

List B includes diseases that are considered to be of socio-economic and/or public health importance within countries and which are significant in the international trade of animals and animal products.

Australia is free from the 15 *List A* diseases defined by the OIE, and also from many of the more significant *List B* diseases. Outbreaks of any of these diseases in Australia would be treated as an animal health emergency.

List A includes foot-and-mouth disease, Newcastle disease and avian influenza, while *List B* includes rabies and bovine spongiform encephalopathy (BSE).

Descriptions of Emergency Animal Diseases

Foot-and-mouth disease is regarded by the OIE as one of the most severe epidemic animal diseases. It is highly contagious and can be spread by contact, contaminated materials and carried in the wind. Although not lethal in adult animals, it can cause serious production losses. Cattle, sheep, goats and pigs are the species most commonly affected. During 2000, foot-and-mouth disease was reported in 55 countries, with 51 confirmed as free of foot-and-mouth disease by OIE in May 2001.[2]

BSE was first diagnosed in the United Kingdom in 1986. The rapid spread of infection occurred because of the feeding of contaminated animal protein meat meal to cattle. It causes death in animals by progressive degenerative disease of the nervous system and has been linked to variant Creutzfeldt-Jakob disease in humans. Australia has been classified by the European Union as highly unlikely to have BSE.

Virulent Newcastle disease of the type that occurred at Mangrove Mountain in 1999 was a mutation of a common strain of the contagious viral disease. It can cause death in all birds and is particularly infectious in intensive poultry farming. Other virulent strains of virulent Newcastle disease, which occur in countries throughout the world, are exotic to Australia, and their detection in Australia would result in an animal health emergency response.

Avian influenza is a disease of poultry that spreads quickly and causes high mortalities. It is regarded as a greater risk of occurrence than virulent Newcastle disease because of its occurrence in migratory water-fowl, and the potential for spread to domestic poultry. Avian influenza outbreaks have occurred in Australia on a number of occasions in the last 20 years.

Quarantine Controls

There are three points of disease quarantine and control to check against emergency animal disease incursions:

- pre-border
- at the border
- post-border.

The first two are primarily the responsibility of the Commonwealth.

Post border preparedness and response capabilities are the responsibility of the States, Territories and industry. The main methods of control are awareness of risks, farm biosecurity (eg introduction of animals, feed sources, water quality and screening of sheds) and surveillance of likely sources of disease for early detection of outbreaks.

Governments commit to these control strategies in the public interest because of the potential magnitude of the consequences of emergency animal disease outbreaks.

Australia's relative freedom from exotic animal diseases has been maintained by a very risk averse quarantine policy, assisted by geographical isolation, which has provided an effective barrier. In recognition of the increasing risks, the Commonwealth Government in its 2001-02 budget committed an additional $593m over five years to its border control activities.

Incursion Risks

The likelihood of major emergency animal disease outbreaks is higher than ever before. The pathways of the increasing risks are:

- trade
- tourism and other travel
- agro-terrorism
- contact between wildlife and susceptible animals and people.

Other potential sources include migratory birds, movements of insects and the mutation of existing diseases.

There has been a significant increase in the outbreak of both animal and plant diseases across the world.

Over the last four years the Pan-Asian strain of foot-and-mouth disease has occurred in countries where foot-and-mouth disease has not been seen for many years. These countries include Europe, Taiwan, South Korea, Japan and South Africa. The greatest threat to Australia of the introduction of foot-and-mouth disease is from Asia where several types of the virus are found.

Management of Risks

Factors influencing the management of emergency animal disease incursions are:

- type of disease
- likelihood of occurrence
- type of surveillance required
- effectiveness of available controls
- potential scale of outbreak
- likely socio-economic impact
- length of response.

To manage these variables governments identify and evaluate the risks and commit strategies and resources to preventing, controlling and eradicating the diseases.

The following two mock newspaper clippings give an indication of the likely impact of a major outbreak of foot-and-mouth disease.

DAY 14

THE

Daily Telegram

Monday, October 28

$260 M LOST IN EXPORTS IN FIRST FORTNIGHT OF FOOT-AND-MOUTH DISEASE OUTBREAK

- Wool and wheat shipments sent back to Australia - all live shipments stopped
- Potential to close down $10 billion export trade
- Disease found in NSW Riverina with suspect properties along Newell to Dubbo
- 285,000 sheep, 7,800 cattle and 2,500 dairy cattle either destroyed or identified for destruction
- Milk price rises 20c/litre in NSW
- Domestic consumption of red meat falls 30% despite continued assurances that there is no risk to human health
- Pressure on Victorian Racing Club to abandon Melbourne Cup
- All saleyards closed throughout Australia
- Over 150 export meatworks closed with over 18,000 workers laid off
- Serious concern at impact on regional economies with unemployment rising dramatically in all rural farms and rural businesses
- All feedlots closing down with further 2,000 staff laid off
- Bottom falls out of stockfeed market
- Refusal to allow burning of carcases or on-farm burial - must be rendered or transported to licensed land fill sites - huge delays in slaughter and burial leading to further disease spread [3]

THE FARM

Saturday, December 14

60 DAYS ON

- 530 properties now affected with new infections down to 12 a day
- 2,500 dangerous contact properties
- To date:
  - Cost of compensation - $51 m
  - Cost of operation -$121 m
  - Income assistance - $36 m
  - Lost exports - $1.4 b
  - Lost income of laid off workers - $180 m
- Most exports still blocked although some hope for clean zones
- Melbourne Cup abandoned - loss of $1.5 b plus flow-on effects
- Tourist bookings down by 50%
- Chicken, kangaroo and fish consumption booming
- Rural suicide skyrockets as animal slaughter continues
- Export revenue loss for 12 months likely to be $8.9 b
- Flow-on effects to be at least $25 b in same year
- 3.5% drop in GDP
- Unemployment rises by 1% [3]

Costs of Controlling Emergency Animal Diseases

As illustrated above, an outbreak of foot-and-mouth disease would have a significant negative impact on livestock industries and the general economy. They include:

- reduced animal welfare
- losses in production of animal products
- disruption of domestic and international trade
- probably a reduction in domestic consumption of animal products
- the death or destruction of large numbers of stock
- losses in production of animal products
- costly eradication and restocking programs
- social and economic disruption in sections of rural NSW and Australia.

Eradicating emergency animal diseases, compensating for destroyed stock and the cost of recovery can amount to many millions of dollars over a number of years.

For example, the recent outbreak of foot-and-mouth disease in UK (February to September 2001) involved:

- expenditure in excess of £2.7 billion ($7.4 billion) for the slaughter and disposal of stock, disinfection of farms, welfare slaughter scheme and compensation to farmers
- the slaughter of more than four million head of livestock on 10,000 farms, with an additional two million slaughtered under the Livestock Welfare Disposal Scheme
- estimated losses of approximately £5.1 billion ($14 billion) to rural businesses.[4]

Other major costs associated with an outbreak can include delays in restocking, vaccination of at-risk animals, the loss of premium export markets and the administration of the control program.

The outbreak at Mangrove Mountain provides an illustration of the significant impact on the State of an emergency animal disease.

Mangrove Mountain Emergency Response

The response to the outbreak of virulent Newcastle disease at Mangrove Mountain was the largest in Australia. The area, while relatively small and isolated, was intensely farmed containing about 75 poultry operations and a commercial flock of approximately five million birds.

The outbreak came to the notice of NSW Agriculture in late March 1999.

On 1 April 1999, the day before the Easter holiday break, virulent Newcastle disease was confirmed and the national cost sharing arrangements between governments were initiated. Under the cost-sharing agreement in place at the time, the costs of eradication were shared between State and Commonwealth governments, with no contribution required from the affected industries. National and State emergency animal disease response plans were implemented to manage the eradication program.

All birds were destroyed on the initial infected property by 4 April, and the property decontaminated by 14 April. Between 12 April and 15 May eight more commercial farms within a 5 kilometre radius of the initial farm had developed clinical Newcastle disease.

During July all properties were cleaned and disinfected and the response operation ceased. Restocking of properties also commenced, with vaccination of restocked birds to suppress any residual infection.

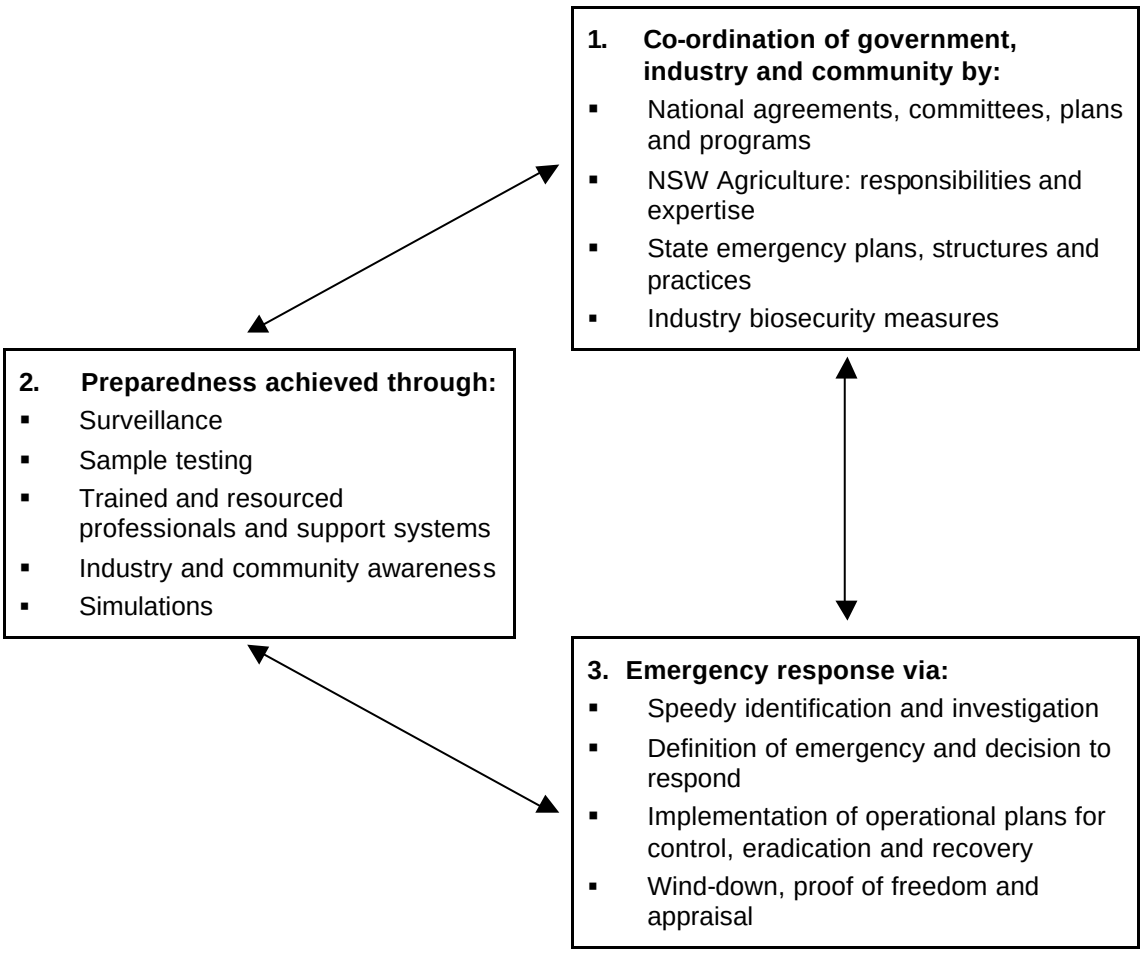
At the height of the response in late April more than one thousand people from forty organisations were involved in the emergency. Approximately 2760 agency staff and volunteers were rotated through the operation from 2 April to 23 July.

The emergency involved the destruction of and disposal of 1.9 million birds on 40 commercial poultry farms and 2,370 poultry and other birds on over 100 backyard properties. Pet birds in the restricted area were also destroyed. 103 freight containers of dead birds were transported from infected properties and buried in two sites. Birds on uninfected properties were burned in pits using over 120,000 railway sleepers as fuel.

The total cost of the outbreak under the national cost sharing arrangement was $26.4 million of which NSW contributed $5.1 million. Included in the amount is compensation paid to the owners on the basis of the value of destroyed stock. The estimated cost to the poultry industry of the outbreak is $200 million.

Main Management Tasks

The management of emergency animal diseases has three main functions:



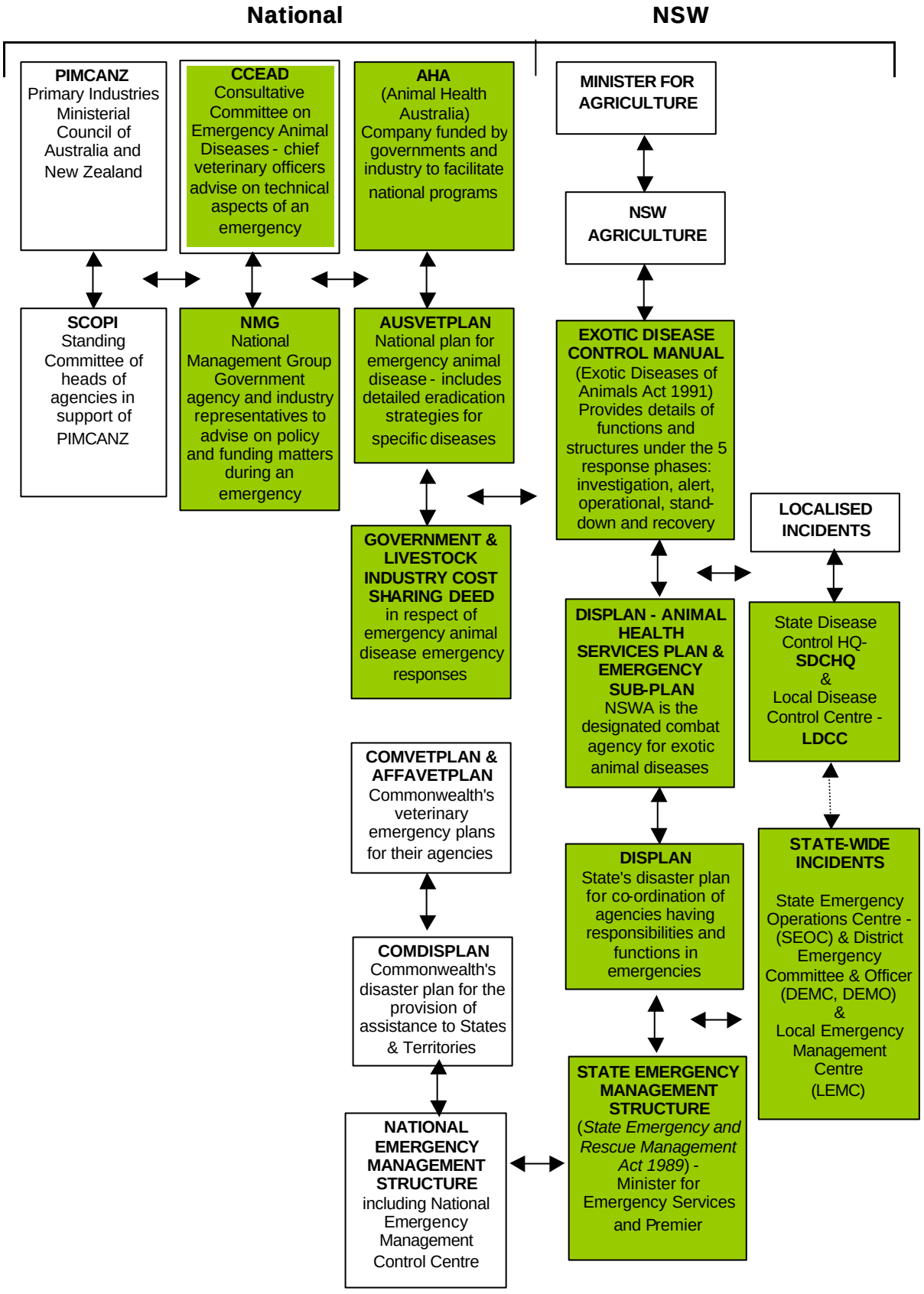
Regulatory Environment

Emergency animal diseases are managed in a complex regulatory environment spanning several layers of government.

At the centre of the national approach are Council of Australian Governments' agreements, committees and agencies. The States and Territories are required to maintain and deliver surveillance and operational capabilities. Industry's focus is on maintaining biosecurity standards at the enterprise level.

The following diagram of the regulatory environment has the more crucial operational components shaded.

Emergency Animal Disease Regulatory Framework



Government and Industry Cost Sharing Deed

National cost sharing arrangements are in place for the management of emergency disease responses.

At the time of the Mangrove Mountain outbreak, the cost sharing arrangement listed twelve exotic diseases (including Newcastle disease) for which costs were to be shared among the States and Territories and Commonwealth governments, proportional to their respective shares of the affected animal industry. Action is currently being taken to replace the cost-sharing agreement with the new national Deed between governments and animal industries. The new Deed sets out the practices and procedures expected of the signatories in the case of an emergency response. The Federal Minister for Agriculture, Fisheries and Forestry released the newly ratified Deed on 20 March 2002.

The new Deed specifies 64 emergency animal diseases, divided into four categories on the basis of the relative balance of public and private benefits derived from successful eradication. The changes from the previous agreement provide for an equitable contribution to eradication costs and increased input from affected industries.

Details of the operation of the new Deed are included in *Appendix A*.

Audit Approach

See *Appendix B* for details of the audit's plan and costs.

2. Co-ordination

Co-ordination

The scale of the Mangrove Mountain outbreak of virulent Newcastle disease exposed NSW Agriculture to co-ordination issues not previously experienced. The foot-and-mouth disease outbreak in UK February 2001 reinforced the enormity of potential threats and risks.

Difficulties experienced at Mangrove Mountain suggest that NSW Agriculture needs to manage better emergency animal disease outbreaks to minimise costs and to assure other governments and industries that will share costs.

The development of policies and strategies to counter outbreaks in the State is in progress. But, the magnitude of the task indicates that current strategies for large-scale outbreaks of emergency animal diseases are inadequate.

NSW Agriculture needs to build on the well-developed relationships and plans with other emergency response agencies that are critical to preparedness.

Strategic Reviews

Following the outbreak at Mangrove Mountain a number of reviews were instigated.

The *Newcastle Disease Debrief* of December 1999 recommended:

- support for the establishment of a national management group to complement the technical advice of Consultative Committee on Emergency Animal Diseases
- redevelopment of the national emergency disease data system (ANEMIS)
- the need for better understanding between NSW Agriculture and emergency agencies
- revision of the NSW Agriculture Exotic Diseases Control Manual and standard operating procedures
- improvement of support mechanisms for emergency staff.

A report prepared for Animal Health Australia in early 2000[5] also included a number of recommendations for the development of a comprehensive risk management approach. Other recommendations supported the establishment of a national management committee, improved information systems and the training of a pool of accredited personnel.

In response to a national survey of States and Territories in September 2001, NSW Agriculture indicated that existing NSW legislation (*Exotic Diseases of Animals Act 1991* and *Emergency and Rescue Management Act 1989*) provided adequate powers to deal with critical success factors of a foot-and-mouth disease outbreak. The powers include enter and search, sampling, quarantine restrictions and destruction of animals.

Strategic Directions

The audit is occurring at a time when policy for large-scale emergency animal diseases is being reviewed and developed. The aim is to bring animal disease emergency readiness to a standard where a situation similar to the UK foot-and-mouth disease outbreak could be effectively controlled and eradicated.

A Council of Australian Governments (COAG) sponsored meeting in May 2001 agreed to build on a sound emergency animal disease framework with necessary enhancements. They included:

- developing a whole-of-government approach to major disease emergencies, including a foot-and-mouth disease/BSE strategy
- developing a risk management framework to deal with animal health threats
- enhance specialist capabilities such as epidemiology and pathologists
- conduct a full-scale foot-and-mouth disease-like simulation in 2002.

It is expected that many of the enhancements will be finalised during 2002.

The level of action since the Mangrove Mountain incident indicates that little increased capacity was put in place as a direct result of lessons learned. Actions by NSW Agriculture since Mangrove Mountain in early to mid 1999 had waned and were recharged by events in the UK and the COAG initiatives. Much of NSW Agriculture's actions, notably since early 2001, have been guided by the COAG response to the threats of foot-and-mouth disease.

The recent increase in activity by NSW Agriculture indicates a degree of under-estimation of the consequences of large-scale outbreaks. This activity is part of a national strategy to improve preparedness for animal health emergencies. As a result, NSW Agriculture has a set of ideas but has not yet finalised strategy for the management of emergency animal disease.

Lack of a Comprehensive Risk Management Strategy

A conclusion of the report prepared for Animal Health Australia in February 2000[6] was that there were no comprehensive and integrated risk management practices supporting the management of emergency animal disease outbreaks.

This lack of a comprehensive risk management strategy is a very significant omission. Its absence limits strategic directions at all levels as the full scope of preparedness and contingency planning is not fully comprehended.

The national programs supported by AHA will go some way to filling the gap.

National Program Developments

Animal Health Australia created three core programs in 2000:

- Emergency Animal Disease Preparedness (EADP)
- Animal Disease Surveillance with a focus on information collection and reporting
- Animal Health Services with a focus on standards for veterinary and laboratory services, and animal identification.

The EADP Program is linked to the development of national animal health performance standards. Nine standards are to be developed for disease control, emergency preparedness and response and disease surveillance. The standards will help the delivery of activities across the country in a more consistent way by providing benchmarks for comparison and improvement.

Other activities by AHA include the:

- review of AUSVETPLAN
- re-development of the emergency animal disease response information system
- assessment methods for the large-scale disposal of animals in the case of a foot-and-mouth disease outbreak.

The EADP Program is in its infancy and will take some years to develop and be implemented by government and industry members.

The absence of performance measures limits the continuous improvement of emergency animal disease practices.

Vaccination and Zoning Policies

Two further issues requiring policy development at national and State levels are vaccination and zoning. Clear policies on these issues are integral to the effective management of emergency animal disease outbreaks.

Vaccination may help bring emergency diseases under control and limit their spread, but infection may persist in the vaccinated animals. In these cases animals must be slaughtered to eradicate the infection and restore consumer confidence and overseas markets. The use of vaccine for the long-term control of emergency animal diseases is not favoured by animal industries because of likely trade sanctions over a long period.

The lack of a policy on the use of vaccination could slow down a response and add considerably to the costs of containment and eradication.

Vaccination issues requiring clarification are:

- recognition of diseases against which vaccination may be appropriate
- identification of likely vaccines and storage of sufficient doses
- use of vaccination prior to slaughter
- use of vaccination as a longer-term control or eradication tool, notably when slaughter is failing on cost-benefit criteria.

Zoning policy is particularly important at a national level especially when trade sanctions threaten. For example, diseases in Tasmania, Western Australia or Northern Australia could be contained and allow continued exports from south-eastern mainland Australia or vice versa.

It is important for NSW Agriculture to support and actively promote the development of appropriate policies and agreements at a national level.

Improved Response Management

It took longer than expected to define response strategies and budgets during the outbreak of virulent Newcastle Disease at Mangrove Mountain in 1999. The sooner response plans and budgets are agreed, the smoother the co-ordination of the emergency effort. The situation that arose at Mangrove Mountain caused the other Governments to have serious concerns about the application of the cost sharing arrangements during the outbreak.

NSW Agriculture should consider developing guidelines and benchmarks to manage better initial actions and help frame later actions. They should address the timing of identification and response actions. The benchmarks would have State and national application.

The guidelines should include templates and checklists to facilitate the rapid development of critical documents, such as budgets and response plans in the early stages. Initial budgets and plans must be expected to change as more information becomes available.

New Zealand's Ministry for Agriculture and Forestry have 'Biosecurity Standards' that provide response benchmarks. These include a decision by the CVO within 15 hours to initiate investigation and a Field Operations Response Team to be assembled at the Exotic Disease Response Centre within 24 hours.

Under the new cost-sharing Deed, a State or Territory Government are to pay all costs associated with the incident definition phase of a response. This has the potential to prevent a rapid response as Governments may be reluctant to fully commit staff and resources until cost sharing is invoked. At Mangrove Mountain, NSW Agriculture had put people on stand-by, but was not prepared to commence operations or bring in additional staff in case it was a false alarm or CCEAD decided not to invoke cost sharing. Immediate response in the case of foot-and-mouth disease could require the slaughter of thousands cattle in feedlots within 24 to 48 hours. The costs could exceed $100 million. The decision would be based on judgement by veterinarians in the field without the assurance of laboratory diagnosis. The decisions by NSW Agriculture and the Government would very likely be made without the commitment of funding under the Cost Sharing Deed. Inaction could see the rapid spread of the disease with much greater ramifications.

The livestock industries also have a role to play in any rapid response. For example, the cattle and chicken industries have created contingency funds to cover initial responses by members and to support any losses that may arise from an incorrect diagnosis.

These factors should be considered in the development of response benchmarks and an initial response fund.

Cost Sharing Difficulties During the Mangrove Mountain Emergency

The concerns by the other Government signatories to the cost sharing agreement nearly led to the arrangements being withdrawn some four months into the Mangrove Mountain emergency. They centred on:

- time taken to commence slaughter
- levels of biosecurity measures on NSW poultry farms
- unilateral decisions and actions by NSW Agriculture
- poor quality of reporting during the outbreak.

Time Taken to Commence Slaughter

Late in the afternoon of 29 March 1999 a veterinarian at Mangrove Mountain contacted the Chief Veterinary Officer (CVO) in Orange. He advised of suspected virulent Newcastle Disease. It was suspected on one farm at Mangrove Mountain comprising three sheds of 27,000 birds. Chickens were steadily dying in one shed. During the evening of 29 March the Commonwealth CVO was advised by the NSW Agriculture's CVO.

Samples were forwarded to Elizabeth Macarthur Agricultural Institute (EMAI, Menangle) and then to Australian Animal Health Laboratory (AAHL, Geelong) on 30 March for analysis. Difficulties arose identifying the strain of Newcastle disease as it had mutated from common forms of the disease. But late on the evening of 30 March, AAHL confirmed that it was a virulent strain.

A senior officer from NSW Agriculture and likely director of a Local Disease Control Centre was sent to the area on 31 March to continue preparations for an emergency response. The Consultative Committee on Emergency Animal Diseases (CCEAD) met by telephone hook-up on 1 April. CCEAD gave in-principle recognition of the outbreak as an emergency under the cost sharing agreement. Government agencies and Ministers ratified the decision later that evening.

On 2 April (Easter Saturday) the State Disaster Plan was fully operational. The State Disease Control Headquarters was established at Orange and the Local Disease Control Centre set-up at Kariong, close to Mangrove Mountain.

The mass slaughter of birds commenced on 3 April 1999 when 8,200 were killed. By 14 April the property was decontaminated. However, the disposal of the birds by open fires could have added to the spread of the disease. The open fires distributed air borne chicken feathers to the immediate area. The method was not used again.

The time taken between initial advice and mass slaughter was five days. It is possible that the delay contributed to the spread of the disease. The delay was due to the need to refer samples from EMAI to AAHL to confirm the diagnosis[7] and the requirement by NSW Agriculture for CCEAD to agree that the disease was eradicable and to invoke the cost-sharing agreement. Whilst the delay may be regarded as acceptable in the case of the Mangrove Mountain outbreak, other emergency animal disease responses would require more urgent resolution.

There may be merit in considering modified funding processes which would encourage earlier rather than later action being taken. Should a response prove to be unfounded, but based on sensible professional judgement, it is not helpful for cost penalties in effect to be incurred. Any avoidable delay in initiating appropriate action should be eliminated. Initial response funding pools may be an option to be explored nationally to address the difficulty. [8]

Clean-up Costs and Biosecurity Measures

A further issue for CCEAD was the cost of cleaning and disinfecting properties.

The incident at Mangrove Mountain followed two earlier outbreaks of Newcastle Disease (in Peat's Ridge, July 1998 and in Blacktown, October 1998) that raised questions about the level of biosecurity measures on NSW farms.

In mid-May owners of commercial farms that had been depopulated in the Mangrove Mountain area were served with an order requiring the removal of litter and the effective disinfection of the farm. The owners had three options, all at their cost:

- do it themselves
- arrange for NSW Agriculture to remove litter and make their own arrangements for disinfection
- arrange for NSW Agriculture to remove litter and disinfect the farm.

The decision by NSW Agriculture was unilateral and based on observations of indifferent levels of biosecurity and the beneficiary pays principle. It was however inconsistent with NSW Agriculture's actions just one year before during the avian influenza outbreak at Tamworth where clean-up costs were covered. It was also inconsistent with AUSVETPLAN Clause 21-Operating Costs which included "… costs directly incurred in the eradication program will be eligible for reimbursement."[9]

Reporting on the Outbreak

On 23 April 1999 the Commonwealth, State and Territory governments agreed to a cost sharing contribution of $8.5 million for the depopulation of the restricted area on the basis that industry would contribute $6.5 million in eradication activities. The government contribution was based on estimates provided by NSW Agriculture. They proved to be a gross under-estimate as during the next week the estimate was doubled. The final total cost was $26.4 million.

There was also dissatisfaction with the detail of other information being provided by NSW Agriculture on the spread of the disease. This led to the Commonwealth Department of Agriculture Fisheries and Forestry (AFFA) sending both financial and epidemiological experts to Mangrove Mountain to provide assistance and independent assessment.

Culmination of Concerns

By August 1999 other Government members to the cost sharing agreement threatened to withdraw their support.

In response to the threatened funding blockage the NSW Minister for Agriculture gazetted a notice stating that Newcastle disease would no longer be eligible for compensation under the *Exotic Diseases of Animals Act 1991*. The action, taken on 3 September, was to limit future liability of the NSW Government in the event that funding was not to continue under the cost sharing arrangements. The action was taken by NSW without full consultation with other parties involved in cost sharing.[10]

Prior to the cost sharing impasse being settled by the parties, NSW made ex gratia payments to producers on agreement that they make no further claims and that CCEAD authorised interim payments to NSW.

3. Preparedness

Preparedness

Key preparedness activities are surveillance, training and simulation exercises. They maintain capabilities and resources for both short lived, periodic emergency responses and longer-term surveillance and preventative programs.

Resource levels for preparedness activities are vulnerable because they play a supporting role to an emergency response. Successful prevention of outbreaks means that those with responsibility for maintaining preparedness have difficulty justifying expenditure and maintaining activity in the face of diminishing budgets and competition from programs with more obvious and easily measured outcomes.

NSW Agriculture Staff

NSW Agriculture faces significant challenges to co-ordinate its emergency animal disease staff. It has a small core of staff with major emergency animal disease responsibilities and a greater number of staff whose emergency animal disease responsibilities are a small part of their duties. The staff are dispersed around the State.

NSW Agriculture has undertaken significant activity to improve the staffing of emergency animal disease responsibilities since mid-2000. This has included the appointment of a Manager Emergency Response, an emergency animal disease Training Officer and the allocation and training of approximately eighty staff to Local Disease Control Centre positions. In addition, there are approximately 10 staff with a significant and constant portion of their duties related to emergency animal diseases. These include program management in Orange and staff in Wagga and Menangle.[11]

An on-going training risk is the danger of the infrequent event being given lower priority, especially during times of few incursions.

Chief Veterinary Officer

A further issue is the status of the Chief Veterinary Officer. The CVO is a critical technical adviser and decision-maker at the time of animal health emergencies. This is indicated by membership of the CCEAD. However, the CVO in NSW is also a Program Leader and reports through a number of senior executive officers. The CVO as Program Leader must compete with three other Programs within the Division of Animal Industries for animal

health funding and resources. The management position of the CVO creates some risk that the CVO will not be in a position to sufficiently influence the implementation of technical advice that might not be palatable because of financial, political or other reasons. This has the potential to slow down the initial response to an emergency.

NSW Agriculture must ensure that the role of Chief Veterinary Officer is clearly distinguished from the day-to-day Program Manager role, and that the CVO's national responsibilities are not jeopardised by the Department's internal management structure. The CVO should have authority to relate directly to high-level management to resolve major issues and resources, independent of the normal management structure.

NSW Agriculture maintains that the CVO is a person who has important disease technical skills but may not necessarily have a good emergency management or resource skills or authority. NSW Agriculture have in recent emergencies established an Executive Team to support the CVO in the establishment of response policy and allocating resources. This has allowed the CVO to focus on technical aspects.

Even recognising the benefits of these arrangements, the Audit Office considers that care must be taken to ensure that emergency disease response is not treated as a "management problem" at a time when immediate and effective action is vital.

Rural Lands Protection Boards

Rural Lands Protection Boards provide essential resources for the control of emergency animal diseases. They deliver regulatory and surveillance services on behalf of NSW Agriculture through their access to livestock producers.

The prime responsibility of Rural Lands Protection Boards is animal health, mainly that of grazing animals such as sheep and cattle. Other core activities are the management of travelling stock routes and the control of pest animals. They are established and operate under the *Rural Lands Protection Act 1998*. The Boards are funded by levies based on the carrying capacity of properties.[12]

The partnership approach between the Boards and NSW Agriculture is recognised in the Memorandum of Understanding signed in September 2001. The MOU supports the appointment of staff under various animal health acts and the co-ordination of them by NSW Agriculture.[13]

There are 48 Rural Lands Protection Boards whose directors are elected by over 124,000 ratepayers. There are about 360 staff in total including 42 District Veterinarians, 121 Rangers and 21 Footrot Advisory Officers.[14]

Under-funding of Emergency Animal Disease Activities

A number of recent reports have referenced concerns over declining Government resources. One such report was in September 2001 from the review group who examined animal and plant legislation. The group comprised members from NSW Agriculture, Rural Lands Protection Boards, NSW Cabinet Office, NSW Treasury, NSW Farmers' Association and NSW Apiarists Association. The report stated that:

> Over time, most public expenditure has been wound back to being related to research and extension and emergency responses, with an underlying investment in maintaining expertise in monitoring and diagnosis.
>
> It was apparent to the Review Group, however, that there is likely to be continued under-investment in relation to some areas of plant and animal pest and disease management and control, such as in the control of potentially devastating exotic incursions (eg foot-and-mouth disease). Consequently, there is a strong case for government maintaining an appropriate level of expertise and infrastructure in this field.[15]

Steady Budgets and Reliance on Industry

NSW Agriculture is now more reliant than ever on industry to deliver animal health services, especially through Rural Lands Protection Boards.

Emergency animal activities in NSW Agriculture are nearly all undertaken within two programs: Quality Assurance and Agricultural Protection. They are managed within the Division of Animal Industries.

Total emergency animal disease expenditure for each of the last four financial years has been a steady $7 million. The funding of responses to specific outbreaks is not included in the figure. [16]

The unchanged funding base is lowering the visibility of NSW Agriculture regulatory presence through reduced face-to-face contact with producers.

In comparison, the Rural Lands Protection Boards spent approximately $15 million annually on animal health and pest control activities. Their total annual budget is approximately $27 million.

As indicated in the table below, total expenditure for NSW Agriculture for 2000-01 is similar to that for 1997-98.[17]

1997-98	1998-99	1999-00	2000-01
$216.6 m	$233.5 m	$233.7 m	$221.9 m

Source: NSW Agriculture Annual Report 2000-01, p12

The above table incorporates savings of approximately $10 million made by NSW Agriculture over the three years 1977-98 to 1999-2000. A future test for NSW Agriculture will be to achieve productivity gains over the 18 months January 2002 to July 2003 to fund 6% salary increases that are not budget funded. NSW Agriculture is required to achieve further workplace reforms of approximately $8 million.

Early Intervention

Substantial benefits are gained from investment in the prevention and early intervention and control of disease outbreaks. Rapid detection and response are critical for successful eradication and to minimise the total size and cost of an outbreak. Adequate funding and resources are essential to support preparedness and ensure that early detection and response are achieved. This is supported by a number of studies of the economic impact of foot-and-mouth disease.[18]

The studies analysed the relationship between the duration of the disease and its geographic spread and the cost effectiveness of the competing regulatory measures slaughter and vaccination. Slaughter is more expensive than vaccination but offers the prospect of rapidly containing the spread of the disease and potentially reducing the time to eradication.

Shortage of Livestock Veterinarians

The shortage of experienced government, industry and private livestock veterinarians is a significant threat to NSW's surveillance capacity to combat epidemic animal diseases.

NSW Agriculture does not itself maintain a State veterinary service. It has a small corps of field veterinarians and maintains a core of veterinary expertise to:

- supervise and train veterinarians in the Rural Lands Protection Boards and private practice
- provide laboratory and research services.

A significant number of livestock veterinarians and laboratory specialists were recruited in the 1970s and 1980s to deliver brucellosis and tuberculosis eradication programs. Of those who remain, most are now over 50 years of age and will leave in large numbers over the next five to ten years. The rate of retirement could be helped by the conclusion in June 2003 of the 16% salaries award as it adds to superannuation benefits.

The decline in the number of NSW Agriculture veterinarians has been marked over the last 10 years.

1980	**1990**	**2000**
135	125	65[19]

In addition, the number of NSW Agriculture inspectors deployed in animal health in NSW has showed steady decline. This is largely due to the completion of tuberculosis and brucellosis programs and the cutback of the cattle tick program.

1980	**1990**	**2000**
305	255	190[19]

To help maintain current service levels to veterinarians and producers, NSW Agriculture is currently recruiting six government veterinarians to replace those who are nearing retirement age.

The District Veterinarians in the Rural Lands Protection Boards and veterinarians in private practice provide the crucial frontline surveillance across rural NSW.

The shortage of Government veterinarians is compounded by a shortage and ageing of private veterinarians practicing in the livestock sector in rural NSW. Similar pressures are being experienced by Rural Lands Protection Boards who must deliver district veterinarian services.

The NSW Farmers Association addressed the issue in its *Submission on the Rundown in Number of Veterinary Practitioners in Rural Australia* of September 2001.

It reported that there has been a decline in the number of graduating veterinarians who practice in rural areas and that a high proportion of rural practitioners are nearing retirement age. The submission also draws similarities with the situation for rural doctors who face a lack of opportunity, long hours, inadequate pay and reduced quality of family life.

In particular the submission highlighted that:

- during the last 5 years fewer than a quarter of the graduates from the University of Sydney are located in rural areas (68 out of 302)
- 45% of veterinarians practice in communities with a population greater than 100,000
- only 21% of veterinarians practice in communities with a population of less than 5,000
- in rural areas, veterinarians are more likely to work in closely populated areas rather than less densely settled inland areas
- during 2001, Rural Lands Protection Boards placed a number of advertisements for district veterinarians for which they received no applications
- an imminent shortage of veterinary pathologists as more than half are over 50 years old and few are in training programs.

More Veterinarians for NSW

NSW Agriculture must continue to actively support initiatives to recruit and develop more veterinarians who are appropriately trained to service the livestock work in rural NSW. A full study of the demographics of livestock veterinarians in rural NSW is required to develop strategies to redress the apparent shortfall. Without adequate numbers of livestock veterinarians, surveillance is fundamentally restricted.

Adequate remuneration of private and overseas veterinarians during an emergency animal disease outbreak is a further issue requiring resolution.

Using figures from the Veterinary Surgeons Board of NSW, NSW Agriculture claim a 63% increase in the number of veterinarians outside the Sydney, Newcastle and Wollongong areas between 1981 and 2001. They propose that many of these veterinarians, a large number of whom work in companion animal practices, could be given training and become part of a response to large-scale outbreaks such as foot-and-mouth disease.

NSW Agriculture also maintains that the number of qualified veterinarians in the agency has remained constant since the early 1980s, and that with training, they would be part of a response effort.

The use of specially trained veterinarians would improve the NSW response effort in an emergency. However, the Audit Office is equally concerned with the development of a surveillance strategy to improve the speedy identification of emergency animal diseases. This strategy is likely to be more cost effective by increasing the likelihood of speedier identification and control of emergency animal diseases. Veterinarians not practising in the area of livestock do not assist in this aspect. Numbers of practising livestock veterinarians have declined in both the Department and private practice. This trend continues, and the Audit Office considers it to be a major concern for emergency preparedness.

Resource Model Required

The above instances of pressure on emergency animal disease resources indicate the need for a sound basis for funding. The approach currently taken to emergency animal disease resource levels fluctuates in reaction to incidents here or overseas.

In the previous chapter it was noted that the development of risk analysis and an overall emergency animal disease strategy by NSW Agriculture is unfinished. Without such a model it is difficult reliably to estimate the level of resources required for preparedness activities and response capability.

As noted above, a more comprehensive approach is required. It would indicate the level of investment required relative to the risks being taken.

Laboratory Testing

Animal health laboratories require sufficient skills and capacity to provide on-going surveillance, disease identification, diagnosis of samples at the peak of the emergency and proof of eradication.

In emergencies, both the Australian Animal Health Laboratory (AAHL) at Geelong and the NSW Agriculture veterinary laboratories at Menangle, Wollongbar and Orange will conduct initial and on-going testing. AAHL is the lead laboratory and, for example, has recently commenced training State laboratory staff in foot-and-mouth disease diagnostic methods.

Decline in Surveillance Sampling

Effective surveillance is essential for the early detection of disease incidents. Generally, this relies on passive surveillance by veterinarians in the field who initiate investigations of unusual incidents, supported by laboratory testing of diagnostic samples to assist in reaching a diagnosis.

There has been a decrease in the number of diagnostic submissions being sent to NSW Agriculture laboratories since 1998-99. The decline suggests there is a reduction in the chances of the early detection of emergency animal diseases.

Submission numbers are one indicator of surveillance activity, but not the only indicator. Veterinarians visit farms and examine livestock on a regular basis and for a variety of reasons, and do not necessarily collect samples from sick animals. At any of these visits they could suspect an exotic disease is present in the stock, and report it for further investigation. Unfortunately, data on such visits is not readily available, except for actual suspect exotic disease investigations (see below).

Introduction of Fees

NSW Agriculture's Circular 99/101 introduced laboratory fees for all testing from 1 November 1999. Previously the cost of diagnostic testing undertaken at NSW Agriculture's laboratories was not recovered from the users.

District Veterinarians or private veterinarians who submit samples to NSW Agriculture's laboratories for diagnostic testing are now billed for the cost of any diagnostic testing. Only specific tests for notifiable diseases, or cases which are eligible for subsidisation under NSW Agriculture surveillance programs, are tested at no charge to the submitter. Tests vary in number and complexity and costs can vary from tens to hundreds of dollars.

The table indicates that since the introduction of the charging policy the number of animal and plant samples received by NSW Agriculture laboratories has fallen by 55% over the three years.[20]

1998-99	1999-00	2000-01
780,528	506,537	347,754

Source: *NSW Agriculture Annual Report 2000-01*, p14

The number of samples submitted for diagnostic testing for the period February 2000 to January 2001 decreased by 58% compared with the year before charging commenced. The number of submissions for diagnostic testing decreased by 36% and the number of tests decreased by 64%.[21]

Targeted Sampling

A program to compensate for the drop in the level of surveillance was developed but spending to date suggests that it has not been effectively implemented. The surveillance strategy is not providing adequate surveillance across the State and should be revised.

Funding of $530,000 was provided for 2001-02 to support passive and active surveillance projects. However, submissions received by late 2001 from district veterinarians and private veterinarians for targeted surveillance projects totalled only $60,000.

The results are not consistent with the claim made in NSW Agriculture's Annual Report for 2000-01:

> NSW Agriculture's laboratory network will continue to play a pivotal role in testing samples as part of a significantly enhanced animal health surveillance program. Special attention is to given to emerging and exotic disease exclusions …[22]

The surveillance program could be made more effective by encouraging sampling on a regular basis from all relevant areas. Currently sampling is not representative of all animal industries or all segments of industries. For example, lot-fed cattle, dairy cattle, poultry and pigs are significantly under-represented in testing undertaken by the program. The program could also sample feral pigs, especially in areas that are at high-risk potential exposure to foot-and-mouth disease and other exotic infections.

NSW Agriculture must develop further its programs to improve the level of surveillance in NSW.

Pressure on Laboratory Resources

The reduction in laboratory testing also risks the run-down of skills levels and the capacity of laboratories to cope with the workload of emergencies.

Consolidated revenue funding of the laboratories has fluctuated. During 1999-2000 it fell $1.3 million from 45% to 23% of total operating costs. An injection of $1 million was provided in 2000-01 for the capital program.

Since 1997-98 the number of pathologists employed at NSW Agriculture laboratories has been reduced from seventeen to eleven. This has coincided with the closure of two NSW Agriculture laboratories at Armidale and Wagga. As indicated earlier, NSW Agriculture has recently taken action to recruit a virologist for EMAI and a veterinary pathologist for the Orange Agricultural Institute.

Critical Mass

In their current roles NSW Agriculture laboratories must:

- maintain a surveillance and response capability
- maintain research and development programs, including the testing of emerging technology.

In doing this, they are undertaking a broader range of activities than commercial laboratories. This attracts higher overall costs because of the connection to national and State obligations. There are also international obligations supporting exports which require accreditation to international standards.

To maintain the diagnostic skills and capacity laboratories require a level of throughput to be able to deliver their obligations.

Currently NSW Agriculture laboratories deal with 22,900 submissions of samples per year on which 197,000 tests are carried out. This is a cost of $1.7 million per annum to government and a cost to industry of approx $4 million.

Laboratory capacity is crucial in the latter stages of a major emergency. At this time large numbers of samples must be tested to provide proof of freedom from the disease. Private laboratories might also play a role in this large volume testing.

NSW Agriculture is proposing a national study to determine the necessary levels of passive and targeted surveillance.

The Audit Office considers that this should be given priority.

Animal Identification and Tracing

Tracing animal movements is vital to bring the spread of diseases under control. The recent acceptance of a National Livestock Identification Scheme (NLIS) will see the introduction of a mandatory cattle ID scheme by 2003 followed by the introduction of a sheep ID scheme. The capacity to effectively trace animal movements will remain limited until the national program is fully implemented.[23]

Regulation of Swill Feeding

A gap exists in the inspection process for swill feeding.

The feeding of swill to pigs is the most likely means of foot-and-mouth disease and other viral infections, such as classical swine fever, entering NSW. Swill is food or other waste containing animal material. It includes animal carcases and waste from animal enterprises such as abattoirs and knackeries, and food waste from domestic households, institutions and restaurants.

Possible means of the diseases being transmitted are from feral pigs being captured and kept in backyards, feral pigs eating contaminated food in rubbish tips or washed up on the coast from passing vessels and the illegal feeding of contaminated scraps to pigs. The feeding of swill to pigs is prohibited under the *Stock Diseases Act 1923*.

NSW Agriculture ran advertisements in seven ethnic metropolitan newspapers during early 2001 warning of the dangers of swill feeding in relation to foot-and-mouth disease.

The inspection of the use of food from restaurants in swill feeding is not included in the powers of either NSW Agriculture or local government inspectors. The gap should be filled by regulation.

Regulation of Ruminant Feeding

In addition, the feeding of mammalian protein (meat-and-bone meal) to ruminants was recently banned as part of measures to protect against the introduction of BSE.

In November 2001, NSW Agriculture inspectors checked the feeding practices at 276 cattle and sheep feedlots and dairies. It resulted in one offence. It involved a contractor taking secondary pet food products from a knackery to feed his sheep rather than to the local tip. It was contrary to the contract which banned the feeding of the off-cuts to ruminants.

An earlier inspection of 122 manufacturers and retailers of feed products had found that only a few did not have appropriate warning on their products.

Management Information Systems and Mapping

NSW Agriculture is undertaking a number of projects to improve how emergency animal disease information is used.

NSW Agriculture is currently scoping projects to integrate or warehouse animal regulatory databases. The aim is to streamline overall management and provide better access to internal and external users.

The implementation of a new laboratory information system and disease recording system in Rural Lands Protection Boards will improve support for surveillance.

NSW Agriculture is also proposing to extend its use of digital mapping. It will be based on on-line access to Land and Property Information NSW's rural property register. The register brings together land features and other detail including property ownership. Access and integration of digital mapping will enhance the analysis and management of emergency responses. A well-developed digital mapping system has been an effective tool in managing the response to the UK foot-and-mouth disease outbreak. It is able to produce maps on a farm-by-farm basis including the identification of buildings and who owns particular fields.

NSW Agriculture intends to customise the digital mapping through:

- adding occupier information
- integration with NSW Agriculture program and emergency systems
- supporting the use of hand-held global positioning devices.

It should be noted that, once developed, maintaining such systems is essential to their effectiveness both to routine animal health operations and to emergency responses. This demands adequate resources.

4. Response Management

Response Management

NSW Agriculture's experience has been with small and contained responses. The current focus is to address immediate concerns over preparedness and response capacity for large-scale animal disease outbreaks. Commitment to a longer-term strategy and infrastructure to support sustainable outcomes is now emerging at State and national levels.

Under emergency arrangements, States and Territories are required to exhaust their resources and expertise and that from other states before calling on the Australian Defence Forces.

To deal with large outbreaks, NSW Agriculture must be able to integrate its activities with those of the other emergency services, both within NSW and interstate. This in turn relies on capacity to call in sufficient people to respond to outbreaks, potentially for many months.

Disposing of Large Numbers of Carcasses

The issue of the disposal of large numbers of slaughtered animals is a good example of the complexity of response delivery.

In the first four months of the current foot-and-mouth disease outbreak in the UK, over five million animals were disposed of by burial, rendering processes and burning. At Mangrove Mountain nearly 2 million poultry were buried in 103 cargo containers in lined pits. Maintenance of the pits costs approximately $1 million per year.

If, for example, foot-and-mouth disease occurred in a feedlot of 50,000 cattle near a town, or in an area with a water table near the surface, methods of efficient disposal would also be real issues. It has been estimated that it would take seven days to kill the cattle using bolt guns. The transport of the carcasses would require large trucks capable of being sealed to stop the spread of disease. Where might large numbers of suitable trucks come from and what disruption might it cause?

A task force chaired by NSW Agriculture and comprising representatives of the State Emergency Committee is currently examining carcass disposal issues and solutions. The task is to be completed by September 2002. The outcome will have national implications.

Until such time the State is without viable strategies for the disposal of large numbers of animals. A satisfactory solution will require the agreement of a number of stakeholders including industry, the Environment Protection Authority and local government. It should include the identification of possible disposal sites.

State Emergency Management

The *State Emergency and Rescue Management Act 1989* and the State Disaster Plan (DISPLAN) provide the basis for the co-ordination of all agencies that have an emergency role.

A state of emergency is declared to provide the high level of co-operation required and State emergency management arrangements take precedent and designated specialists take control.

A foot-and-mouth disease outbreak would likely cause a state of emergency to be declared. During the Mangrove Mountain outbreak, the Premier enacted *Part 3A* of the *State Emergency and Rescue Management Act 1989* which endorsed assistance from the NSW Rural Fire Service and the Volunteer Rescue Association.

If the emergency was across the State it would be managed through the eighteen emergency management districts and their emergency centres. It would require the integration of NSW Agriculture's specialist emergency animal disease procedures and structures with those of the broader based State emergency services. This is because the stand-alone State Disease Control Headquarters and Local Disease Control Centre structures are designed for smaller, localised outbreaks.

Response Operating Procedures

Standard Operating Procedures (SOPs) are essential to the implementation of response strategies.

NSW Agriculture is currently finalising a comprehensive set of SOPs and supporting policies for LDCCs. There are over 200 SOPs for LDCC activities. The SOPs include links to emergency animal disease plans and manuals.

SOPs cover:

- media and public liaison
- health and safety
- compensating volunteer agencies
- use of contractors after initial period

- controlling movements at infected premises
- involving local people in the response effort
- administrative functions such as procurement
- counselling for response staff and affected families.

However, NSW Agriculture's response competencies are built around both LDCC and SDCHQ roles. Although many LDCC SOPs are applicable to the SDCHQ, there are significant gaps in guidance for the SDCHQ from where monitoring is undertaken and strategic direction provided.

SOPs for the SDCHQ level should include the higher level co-ordination of liaison activities with the media and communities, the use of private veterinarians and veterinarians from interstate or overseas veterinarians, vaccination and the analysis of costs relative to benefits.

Update of Response Plans and Manuals

Most emergency animal disease response plans and manuals have recently been reviewed or are under review. Their content needing to reflect the changing circumstances reflected in this report. Their presentation should be made more consistent and user friendly.

The guides recently reviewed are:

- State Agricultural and Animal Service Plan supporting the State Disaster Plan
- Animal Health Emergency Sub-Plan of the State Disaster Plan.

The NSW Agriculture Exotic Animal Diseases Control Manual has not been revised since 1996.

The AUSVETPLAN which co-ordinates the national dimensions of a response is currently under review.

Response Management Information System

At present information systems for the management of emergencies responses at national level are inadequate. ANEMIS (Animal Health Emergency Information System) is currently under review by Animal Health Australia.

The emergency management systems, like ANEMIS, are designed to:

- collect and enter details of daily activity eg visits, valuation, destruction, disinfection, legal orders issued, status of properties
- retrieve data and provide reports eg on a daily basis and weekly basis, for strategic planning purposes i.e. expected spread of disease.

During the Mangrove Mountain emergency, NSW Agriculture believed ANEMIS to be outdated and not compatible with its information systems. NSW Agriculture used a system it had developed during a previous outbreak. [24]

The Mangrove Mountain outbreak also demonstrated the need for adequate resources for data entry and reporting as well as epidemiological analysis and forecasting.

The operation of the system at Mangrove Mountain, while performing an adequate job for day-to-day management, experienced a number of difficulties. Importantly, it failed to provide an effective link between activities, the current situation and likely trends. This was principally caused by slow and incomplete input of data. It contributed to:

- situation reports lacking epidemiological information about the spread of the disease
- significant variation in financial estimates
- limited information on whether disposed animals had been valued, number and location of dead animals to be disposed.

Prior to development of a new national emergency management information system NSW Agriculture should ensure that its current system and practices are improved. They must support more accurate and complete collection, analysis and reporting.

Across Border Issues

NSW Agriculture does not have Memoranda of Understanding (MOU) in place with any neighbouring States to help manage common response issues. It is the early stages of developing an MOU with the ACT for the management of emergency animal disease.

The last cross-border simulation was conducted over several days during August/September 1994. NSW Agriculture and Queensland Department of Primary Industries controlled it with the involvement of a number of other agencies from across the nation. Exercise "Grey Wind" was based on the outbreak of an emergency animal disease in cattle on the NSW/Queensland border. It highlighted the need for continued coordinated national planning and response.

Although AUSVETPLAN provides some support for a consistent approach to cross border emergency responses, greater understanding and integration of animal health activities is required. MOUs would supplement AUSVETPLAN and bring State emergency animal disease arrangements closer together. Most importantly they would promote more timely and effective management of initial responses to cross border outbreaks.

Endnotes

1. Australian Bureau of Statistics, Value of Principal Agricultural Commodities Produced (Preliminary), December 2001, p8

   …, *Economic Indicators NSW*, December 2001, p19

2. http://www.oie.int/eng/info/en_info.htm (accessed 29 January 2002)

3. Adapted from *NSW Agriculture Foot-and-mouth Disease Forum*, 7 September 2001

4. http://www.pighealth.com/diseases/FMD/news.htm
   http://www.defra.gov.uk/animalh/diseases/fmd/cases/statistics/generalstats.asp
   (accessed 29 January 2002)

5. Australian Animal Health Council Ltd (Animal Health Australia) *Australia's Emergency Animal Disease Preparedness*, February 2000

6. *ibid*, p32

7. The laboratories have since conducted further research into virulent Newcastle disease and should be better equipped in the future.

8. Australian Animal Health Council Ltd (Animal Health Australia) *Australia's Emergency Animal Disease Preparedness*, February 2000, pp19, 20

   Recommendations 7 and 8 of the Animal Health Australia Report support the concept of a guaranteed initial response fund to "… allow unencumbered immediate attack on the disease when any delay may exacerbate greatly the rate of the disease spread and financial consequences." Response funds would be created for each disease or group of diseases relevant to an industry. They would be incorporated into the Cost Sharing Deed and guaranteed by governments and industry.

9. The majority of farmers allowed NSW Agriculture to undertake the clean up of their properties. However, none have paid the claims from NSW Agriculture which total $504,000. The farmers are now outstanding debtors of NSW Agriculture which is pursuing legal action for recovery.

10. Australian Animal Health Council Ltd (Animal Health Australia) *Australia's Emergency Animal Disease Preparedness*, February 2000, p13

11. NSW Agriculture animal health staff are located in:
    - Head Office, Orange - largely program management, including the Chief Veterinary Officer
    - Laboratories and research institutes, notably EMAI
    - Region Offices and field services.

    NSW Agriculture's animal health regional field services comprise:
    - seven senior field veterinary officers who liaise with Rural Lands Protection Board district veterinarians and support State and Commonwealth Government programs
    - five senior inspectors and forty-five inspection staff who largely undertake non-animal related activities and who undertake some animal health specific tasks.

    NSW Agriculture has total staff of approximately 2,200.

12. A State Council is accountable for the operation of Rural Lands Protection Boards and under certain circumstances the Minister can intervene and sack directors.
    Levies are not charged on properties under ten hectares and intensive industries such as poultry are not levied. The Boards do not have responsibility for weed control, outside stock routes, which is exercised by local councils or shires.

13. An Animal Health Committee oversees animal health policy and plans developed by each Rural Lands Protection Board. Under the MOU NSW Agriculture provides direct support to the State Council and Rural Lands Protection Boards through mainly training and IT programs.

14. The District Veterinarians and Rangers work with the seven NSW Agriculture Senior Veterinary Field Officers to provide such surveillance duties as education, quarantine enforcement and diagnostic sampling. Other activities include the recording of stock movements and assistance with emergency responses. District veterinarians are responsible are for herd and flock diagnosis and regulatory sampling. Private veterinarians attend to both individual sick animals and herd and stock problems.

15. NSW Government Review Group September 2001 Final Report: *Review of the Apiaries Act 1985, Cattle Compensation Act 1951, Exotic Diseases of Animals Act 1991, Plant Diseases Act 1924, Stock Diseases Act 1923, Swine Compensation Act 1928*, p v.
    A further report commenting on the inadequacy of preparedness and response funding by government is Australian Animal Health Council Ltd (Animal Health Australia), *Australia's Emergency Animal Disease Preparedness*, February 2000, p19.

16. There have been four emergency animal disease responses since 1 July 1997 in NSW under the national cost sharing arrangements. They have all involved the poultry industry. Total costs for NSW were $6.521 million. Under the arrangements the Commonwealth met 50% and the States and Territories the balance according to the proportion of animals in the industries.

	Total Expenditure $m	**NSW Expenditure $m**	**NSW Expenditure %**
Tamworth (1998) Avian influenza	4.417	0.851	19.26
Blacktown (1998) Newcastle disease	2.863	0.551	19.26
Mangrove Mountain (1999) Newcastle disease	26.351	5.075	19.26
Tamworth (1999-00) Newcastle disease	0.457	0.044	9.63

Source: NSW Agriculture

17. Total expenditure for NSW Agriculture includes NSW Government payments and revenue from other sources such as grants and fees.

18. Johnston (1983) found that zoning at the early stage represents the single most important vehicle for effective disease control. Greater benefits or sales are achieved earlier relative to the cost of government intervention ranging from 6,579:1 for a shorter, contained outbreak to 7.6:1 for a larger, longer outbreak. Similarly, Garner et al (1997) concluded that containing foot-and-mouth disease in tight zones was critical for maintaining exports.

Lembit & Fisher (1992) and Barry et al (1993) indicated that foot-and-mouth disease would have severe short and medium-term effects and highlight the potential gains from early regulatory strategies for intervention.
Jalvingh et al (Netherlands, 1997) revealed that in 50% of cases a reduction of 13% in time taken to first diagnose foot-and-mouth disease resulted in a 44% decline in the number of infected herds with substantial savings in direct costs to producers.

JH Johnson, *Exotic Animal Disease Emergencies in the Australian Grazing Sector – An Economic Analysis*, Australian Bureau of Animal Health Australia, Canberra, 1982
MG Garner, RT Allen and C Short, *Foot-and-mouth Disease Vaccination: A Discussion Paper on its Use to Control Outbreaks in Australia* , Bureau of Resources Sciences, Canberra, 1997
MJ Lembit and BS Fisher, "The Economic Implications of an Outbreak of Foot-and-mouth Disease for Australian Broadacre Agriculture" in *Proceedings of the National Symposium on Foot-and-mouth Disease*, AGPS, Canberra, 8-10 September 1992
I Barry, I Shaw, S Beare and C Short, *The Costs and Consequences of an FMD Outbreak: Implications of Zoning Policies for Australian Broadacre Agriculture*, ABARE Paper presented at the Australian Veterinary Association Conference, Gold Coast, 16-21 May 1993
AW Jalvingh, M Nielen, MPM Meuwissen, AA Dijkhuizen and RS Morris, "Economic Evaluation of Foot-and-mouth Disease Control Strategies Using Spatial and Stochastic Simulation", *Epidemiology Sante Animal*, 1997

19. Australian Animal Health Council Ltd (Animal Health Australia) Report: *Proposal to Build the National Capacity to Address foot-and-mouth disease & BSE Risks*, July 2001, page 18

20. Some of the reduction could be linked to reduction in bovine Johne's disease testing.

21. Figures sourced from NSW Agriculture.

22. *NSW Agriculture Annual Report 2000-01*, p15

23. The use of electronic devices, either on or in animals, and reading devices are recognised as the most effective form of control. The UK uses largely paper-based animal passports where movements are recorded on a central database. During the initial stages of the current foot-and-mouth disease outbreak approximately 40% of animal could not be traced. Cattle identification using ear and tail tags is well developed in NSW because of European Union requirements of proof of movement between accredited properties and abattoirs. The identification of sheep is less advanced because of the number and relative cost of sheep. There are 36 million sheep in NSW compared to 5.3 million cattle.
The introduction of the national program will require considerable industry and government investment.

24. NSW Agricultural also used a number of other information systems for the control of budgets, staff records, procurement, etc

Acronyms

AAHC	Australian Animal Health Council Ltd, operating as AHA
AAHL	Australian Animal Health Laboratory, Geelong
AFFA	Agriculture Fisheries and Forestry Australia (Department of)
AHA	Animal Health Australia
ANEMIS	Animal Health Emergency Information System
AQIS	Australian Quarantine and Inspection Service
AUSVETPLAN	Australian Veterinary Emergency Plan
AVA	Australian Veterinary Association
BSE	Bovine Spongiform Encephalopathy
CCEAD	Consultative Committee on Emergency Animal Diseases
COAG	Council of Australian Governments
COMDISPLAN	Commonwealth Government Disaster Response Plan
COMVETPLAN	Commonwealth Government Veterinary Emergency Plan
CVO	Chief Veterinary Officer
DEMC	District Emergency Management Committee
DEMO	District Emergency Management Officer
DISPLAN	State Disaster Plan, NSW
DV	District Veterinarians (of the Rural Lands Protection Boards)
EAD	Emergency Animal Disease
EADP	Emergency Animal Disease Preparedness
EADRP	Emergency Animal Disease Response Plan
EMA	Emergency Management Australia
EMAI	Elizabeth Macarthur Agricultural Institute, Menangle
FMD	Foot-and-mouth Disease
LDCC	Local Disease Control Centre
GVP	Gross Value of Production
NMG	National (Animal Disease) Management Group
OIE	Office International des Epizooties (World Organisation for Animal Health)
PIMCANZ	Primary Industries Ministerial Council of Australia and New Zealand
RLPB	Rural Lands Protection Board
SCOPI	Standing Committee on Primary Industry (Heads of Agencies)
SDCHQ	State Disease Control Headquarters
SEOC	State Emergency Operations Centre

Appendix A

The Operation of the Cost Sharing Deed from 2002

Under the new Deed, an incident is the occurrence of a confirmed or reasonably held suspicion of an emergency animal disease.

A response to an emergency animal disease incident has 3 phases:

1. incident definition phase
2. emergency response phase
3. proof of freedom phase.

Incident Definition Phase

NSW Agriculture must advise the Consultative Committee on Emergency Animal Diseases (CCEAD) within 24 hours of becoming aware of an incident. The Chief Veterinary Officers on CCEAD must decide whether or not the disease is an emergency animal disease that can be feasibly eradicated or contained.

NSW Agriculture must also provide to CCEAD and the National Management Group (NMG) an emergency animal disease response plan (EADR) as soon as possible.

The NMG comprising agricultural agency CEOs was included in the Deed as CCEAD lacked financial authority.

The EARDP must detail response strategies, budgets, response structures and continuous reporting. In doing so it must conform to AUSVETPLAN.

The EARDP must be endorsed by CCEAD animal disease and then NMG before the cost sharing arrangements will apply. The affected State or Territory and industry will meet the cost of the phase until the EADRP is agreed at the national level.

Response and Freedom Phases

The Emergency Response Phase is from the endorsement of the EARDP to the determination by NMG that the emergency animal disease has either been contained, eradicated, or cannot be contained or eradicated.

The Proof of Freedom Phase is the research and surveillance activities required to prove that the EARDP has been successful.

Cost Sharing Ratios

The extent of cost sharing between government and industry is based on the category of disease.

Category of disease	Government funding	Industry Funding
1 *very high public benefits*	100%	0%
2 *high public benefits*	80%	20%
3 *moderate public benefits*	50%	50%
4 *low public benefits*	20%	80%

Public contributions are related to the extent of public benefits - some diseases primarily affect human health or major national socio-economic disruption, and have a relatively minor impact on animal industries (categories 1 and 2). While other diseases primarily reduce production and have few public benefit characteristics - the bulk of these eradication costs would be paid for by industry (categories 3 and 4).

The Commonwealth Government's share is 50% of the total government share with the states and territories contributing the balance. It is based on various formulae, including human population ratios, numbers of animals, gross value of production of animal industries.

Industry funding is based on either estimated gross value of production (GVP) of industries or animal numbers. The Commonwealth Government can assist industry to pay contributions through legislation for industry levies or commercial facilities. The Deed caps industry funding to 1% of the respective GVP. Under the Deed industries required to have biosecurity plans in place at both industry and farm levels to minimise the occurrence and spread of emergency disease outbreaks.

The approach includes compensation for immediate stock losses. It does not compensate for lost income or loss of markets.

Cost sharing includes the marginal cost of agencies' salaries and wages (overtime and allowances), and the full cost of other operational and capital requirements. Government agencies must fund salaries and related overheads. The Deed covers the costs of backfilling agency positions.

The Deed also provides for periodic and final audits. They are to be conducted by independent auditors and include financial and efficiency audits.

Virulent Newcastle disease is included in the Cost Sharing Deed as an emergency animal disease. In the recently revised Deed, Newcastle disease is included in category 3 – moderate public benefits and attracts 50:50 funding from government and industry. Under the previous agreement there was 100% government funding with sharing between jurisdictions on a similar basis to the revised Deed. Compensation is also possible under the *State's Exotic Diseases of Animals Act 1991* in respect of diseases declared by order of the Minister of Agriculture.

Appendix B

The Audit Plan

Audit Objectives

The audit examined the efficiency and effectiveness of the management of animal disease emergencies by NSW Agriculture.

Audit Scope

The audit's scope included past animal disease emergencies such as the outbreaks of virulent Newcastle disease and exotic disease threats such as foot-and-mouth disease and bovine spongiform encephalopathy (BSE).

The audit focus was the regulatory activities of the Department as they relate to:

- planning and response strategies to deal with animal diseases
- the co-ordination of Departmental activities in response to animal disease outbreaks
- the level of support provided by monitoring, surveillance and diagnostic activities.

Audit Criteria

The following criteria were applied to the examination of Department's activities; whether:

- the regulatory framework underpins clear and appropriate roles and responsibilities

  Issues included - Does legislation support a comprehensive and coherent framework? Is the framework likely to support an efficient and effective approach to the management of animal disease emergencies?

- planning is based on sound risk assessment and supports the delivery of the Department's services consistent with program priorities

  Issues included - Do plans and guidelines reflect current scientific and management thinking? Does appropriate modelling support emergency management structures and resource requirements? What has been learnt from past emergencies?

- response to outbreaks is (likely to be) rapid and effective

  Issues included - Have all obstacles been identified and dealt with to support speedy responses? Is adequate support provided by other agencies, laboratories etc? Dealing with the scale of an FMD outbreak.

- surveillance to provide for early detection and tracking of the movement and status of diseases

  Issues included - The extent of early warning from source and prompt evaluation of the distribution? What is the effectiveness of tracing systems and on-going collection of data? What impact do education/awareness campaigns have? What role do inspectors play?

Audit Approach

The audit approach had four major components:

1. *Head Office, Orange* - discussions on program implementation and review of key documentation, for example, disease management guidelines & program reviews
2. *Case studies* - virulent Newcastle disease and foot-and-mouth
3. *Stakeholders* - liaison included Rural Lands Protection Boards, State emergency response agencies, NSW Farmers Association, Australian Health Australia, Agriculture Fisheries & Forestry Australia and Australian Poultry Industries Association
4. *Use of a consultant* – the use of a consultancy firm to provide specialist advice on the technicalities of animal disease emergencies, the approach to the audit, specific issues during the audit, and assistance with review of the audit report.

Audit Team

The audit team comprised Chris Bowdler and Stephen Horne.

AusVet Animal Health Services Pty Ltd (Orange) provided the consultancy services.

Acknowledgements

We gratefully acknowledge the co-operation and assistance provided by NSW Agriculture, particularly, staff of the Division of Animal Industries.

The co-operation of the Commonwealth Department of Agriculture, Fisheries and Forestry, Animal Health Australia, Australian Chicken Meat Federation Inc., NSW Farmers' Association and NSW State Emergency Management Committee is also gratefully acknowledged.

Audit Costs

The cost of the audit is $224,710. This included report printing of $7,000.

Performance Audits by the Audit Office of New South Wales

Performance Auditing

What are performance audits?

Performance audits are reviews designed to determine how efficiently and effectively an agency is carrying out its functions.

Performance audits may review a government program, all or part of a government agency or consider particular issues which affect the whole public sector.

Where appropriate, performance audits make recommendations for improvements relating to those functions.

Why do we conduct performance audits?

Performance audits provide independent assurance to Parliament and the public that government funds are being spent efficiently and effectively, and in accordance with the law.

They seek to improve the efficiency and effectiveness of government agencies and ensure that the community receives value for money from government services.

Performance audits also assist the accountability process by holding agencies accountable for their performance.

What is the legislative basis for Performance Audits?

The legislative basis for performance audits is contained within the *Public Finance and Audit Act 1983*, *Division 2A*, (the Act) which differentiates such work from the Office's financial statements audit function.

Performance audits are not entitled to question the merits of policy objectives of the Government.

Who conducts performance audits?

Performance audits are conducted by specialist performance auditors who are drawn from a wide range of professional disciplines.

How do we choose our topics?

Topics for a performance audits are chosen from a variety of sources including:

- our own research on emerging issues
- suggestions from Parliamentarians, agency Chief Executive Officers (CEO) and members of the public
- complaints about waste of public money
- referrals from Parliament.

Each potential audit topic is considered and evaluated in terms of possible benefits including cost savings, impact and improvements in public administration.

If you wish to find out what performance audits are currently in progress just visit our website at www.audit@nsw.gov.au.

The Audit Office has no jurisdiction over local government and cannot review issues relating to council activities.

How do we conduct performance audits?

Performance audits are conducted in compliance with relevant Australian standards for performance auditing and our procedures are certified under international quality standard ISO 9001.

Our policy is to conduct these audits on a "no surprise" basis.

Operational managers, and where necessary executive officers, are informed of the progress with the audit on a continuous basis.

What are the phases in performance auditing?

Performance audits have three key phases: planning, fieldwork and report writing.

During the planning phase, the audit team will develop audit criteria and define the audit field work.

At the completion of field work an exit interview is held with agency management to discuss all significant matters arising out of the audit. The basis for the exit interview is generally a draft performance audit report.

The exit interview serves to ensure that facts presented in the report are accurate and that recommendations are appropriate. Following the exit interview, a formal draft report is provided to the CEO for comment. The relevant Minister is also provided with a copy of the draft report. The final report, which is tabled in Parliament, includes any comment made by the CEO on the conclusion and the recommendations of the audit.

Depending on the scope of an audit, performance audits can take from several months to a year to complete.

Copies of our performance audit reports can be obtained from our website or by contacting our publications unit.

How do we measure an agency's performance?

During the planning stage of an audit the team develops the audit criteria. These are standards of performance against which an agency is assessed. Criteria may be based on government targets or benchmarks, comparative data, published guidelines, agencies corporate objectives or examples of best practice.

Performance audits look at:

- processes
- results
- costs
- due process and accountability.

Do we check to see if recommendations have been implemented?

Every few years we conduct a follow-up audit of past performance audit reports. These follow-up audits look at the extent to which recommendations have been implemented and whether problems have been addressed.

The Public Accounts Committee (PAC) may also conduct reviews or hold inquiries into matters raised in performance audit reports.

Agencies are also required to report actions taken against each recommendation in their annual report.

To assist agencies to monitor and report on the implementation of recommendations, the Audit Office has prepared a Guide for that purpose. The Guide is on the Internet and located at http://www.audit.nsw.gov.au/guides-bp/bpglist.htm

Who audits the auditors?

Our performance audits are subject to internal and external quality reviews against relevant Australian and international standards.

The PAC is also responsible for overseeing the activities of the Audit Office and conducts reviews of our operations every three years.

Who pays for performance audits?

No fee is charged for performance audits. Our performance audit services are funded by the NSW Parliament and from internal sources.

For further information relating to performance auditing contact:

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