

Queensland Biosecurity Capability Review

Final Report
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This report was prepared by Renata Brooks, Ron Glanville and Tom Kompas.

Introduction from the Chair

Effective biosecurity has played a major role in supporting Queensland's agricultural industry sector and protecting the environment and human health. However, Queensland is experiencing challenges to its ability to respond to the increasing number, scale and scope of exotic pests and disease threats. Recent examples include Panama disease tropical race 4 in bananas, red imported fire ants, cucumber green mottle mosaic virus and red witchweed.

Risk is increasing

Biosecurity risks are increasing for a range of reasons, including the expansion in movement of humans, livestock populations, animal and plant products, increased geographic distribution of plant species production and changing patterns of human activity impacting on ecosystems. The suitability of Queensland's climate for many pests and diseases, its proximity to northern neighbours and extensive coastline means it will continue to be the front line state for dealing with biosecurity threats.

Resources are under pressure

At the same time, there is increasing competition for resources within government and increasing pressure on businesses and the community. This is highlighting an imperative to make wise investments with the resources available to tackle biosecurity challenges.

We will need to mine a complex world to find solutions

On the positive side, there are emerging opportunities to devise new solutions to tackle biosecurity threats more effectively and at lower cost. These solutions lie in two directions - there are better ways of tapping into the practical knowledge and creativity of all those who share responsibility for biosecurity and there are a multitude of new technologies which can be applied, and information sources which can be analysed, to improve the way we detect, manage and eradicate new biosecurity threats. Navigating an increasingly complex world to access these opportunities will be an increasing challenge.

Biosecurity Queensland needs to be rebuilt

Biosecurity Queensland, the agency charged with leading biosecurity, has a record of success and passionate, committed and expert staff. However, change in recent years has tended to be responsive rather strategic - driven by reduced resources and opportunities to consolidate functions - rather than designed to meet the needs of an evolving environment. We found that the organisation currently lacks capacity and will need increased capability to transform to meet the needs of the future.

Current needs

The most urgent and pressing need is to build Biosecurity Queensland's capacity to respond to incursions - the frequency of responses and the current approach to resourcing them is likely to see the organisation's capacity exceeded, with potentially serious results. Investment is needed in people, frameworks and systems as well as better defined arrangements for funding responses.

Future directions

Developments over recent years and the new Biosecurity Act are heading in the same direction. Good biosecurity needs to be "everyone's responsibility" - like workplace safety, this involves a change in culture and a change in the "way we do things". Shared responsibility cannot be driven solely by legislation. A partnership approach is required - with those partners sharing ownership of the Queensland Biosecurity System.

Biosecurity partners need to think nationally and internationally about accessing resources and sourcing solutions; and need to be smart about coordination, leveraging and focusing their collective resources on the highest priorities.

Business models and "who pays" regimes need to operate in a mutually reinforcing way to create incentives which support achievement of system outcomes.

Capability gaps in the system

The Panel's view is that the current biosecurity system in Queensland has critical gaps. There is no mechanism to gain agreement to priorities, across Government or with partners outside of Government. There is no mutually reinforcing system of incentives, little coordination and few opportunities to promote collective industry/landholder/community action.

Capability gaps in Biosecurity Queensland

The gaps in the system cannot be filled without first filling the gaps in Biosecurity Queensland. In short, investment is needed now to build the capacity of the organisation to deal with today's needs and build the capability to transform to meet tomorrow's needs. Investment is also needed to build the capability of the biosecurity system, recognising that not all capability needs to, or should, reside within Biosecurity Queensland.

Building the capability of the system

We propose the development of a strategy and action plan under governance arrangements that support a partnership approach. While the essence of this is that the partners will set the priorities and decide the actions that will be the focus of attention over the next five years, we are recommending an initial suite of initiatives that would sit under the action plan.

Work will be required to establish the governance framework for the new approach - we propose using the existing Biosecurity Queensland Ministerial Advisory Council (BQMAC) as an interim advisory body so that work can commence. Serious consideration needs to be given to the concept of an industry biosecurity fund or alternative mechanism to facilitate collective industry action.

These mechanisms will achieve coordination and focus and will ensure that those with an interest are engaged in the reprioritisation and implementation of sustainable funding models, which need to occur.

We expect that many of these activities will be self-funding through redirection of resources, efficiencies from new operating models, and capitalising on new sources of revenue. However, additional up-front investment will also be required.

Initiatives under the action plan will address gaps in capability and better manage risk with the ultimate result of reducing the likelihood of incursions.

The strategy and action plan will take forward the job of identifying the "low risk/low return" and "leveraging" opportunities in two ways.

Firstly, we propose a project to progress the reforms required to transition from the current regulatory and prescriptive approaches to more flexible and outcome driven approaches enabled by the new legislation. This might include, for example, more reliance on industry certification systems rather than prescriptive inspection regimes.

There are also opportunities to change the way some of the underpinning infrastructure of the Queensland Biosecurity System operates. A new, more commercial, approach to diagnostic laboratory management is proposed, as well as new systems for managing the property identification code register.

Secondly, action plan partners need to be engaged in a project to systematically review and reprioritise investment in biosecurity programs - this will assist recalibration of resources and funding sources.

Better biosecurity systems on farm will reduce the risk of future incursions and assist early detection and more cost effective response. A coordinated campaign is proposed, with clear targets, which leverages off current national investment.

There are opportunities to achieve far greater impact from regional investment through Local Government Authorities, regional Natural Resource Management organisations and other regional bodies. A pilot project is proposed to explore opportunities to leverage off the successful regional co-investment approach.

Adequate surveillance is critical to early detection, as is an environment that supports prompt diagnosis, investigation and reporting. The Panel proposes development of a coherent surveillance strategy that targets the most effective use of resources and leverages other information sources, as well as a serious examination of the current incentives and disincentives to reporting.

Building the capability of Biosecurity Queensland

Biosecurity Queensland's capability needs to be bolstered to deal with today's emergency and tomorrow's transformation.

Capacity issues need to be addressed by creating a dedicated response unit that can be activated when required and can build the competencies, tools, relationships and networks required to resource future responses. This initiative will also address capacity gaps outside the response area by taking some of the response load off operational staff and managers, allowing them to better attend to important activities to analyse risks and to prevent and detect incursions at an early stage. A particular task of the response unit will be the development of a biosecurity network.

Leadership attention needs to be given to innovation to guide new business approaches and source solutions to biosecurity challenges.

The information, systems and frameworks for guiding decisions on risk, resource allocation, planning, evaluating and managing projects need to be greatly improved. Leadership is required in this area as well as ongoing investment in the Biosecurity Information Management System (BIMS) project.

Internal budgeting and resource allocation systems need to support greater flexibility and a project approach - establishment of a commissioning function, and a framework for project based resource allocation is proposed. Amongst other things, this will facilitate development of collaborative projects with system partners.

Leadership is also required to make faster progress towards a sustainable model to deal with marine biosecurity risks, and to drive a tailored approach to the unique challenges of North Queensland.

Specialist expertise in key areas needs to be maintained and built through a combination of in house and outsourced models.

Organisational structure, culture and practices need to support transformation - those activities that are not addressing biosecurity outcomes or are effectively separate businesses need to be segregated so that they can be given appropriate focus and attention. The leadership structure and allocation of responsibilities needs to support attention to the priorities identified above, and needs to address the current inappropriate proportion of attention being given to reactive rather than strategic matters.

The skills base of the workforce will need to be rebalanced over time to strengthen capability in engagement and partnership development alongside appropriate capacity to enforce legislation where required as a last resort.

Implementation

The Panel's recommendations will take time to implement. An action plan to improve the capability of the Queensland Biosecurity System and a transformation plan for Biosecurity Queensland are both needed. As an immediate priority, the Panel recommends investment in the development of the biosecurity strategy and action plan and associated governance arrangements.

Concurrently, there should be investment in the establishment of the new biosecurity response unit and biosecurity network, as well as the recommended skills audit and organisational redesign. An additional investment of at least \$3m in the first year will be required, and will require supplementation in the event of incursions exceeding baseline response capacity. Completion of the initial steps will enable a more accurate assessment of the quantum of further investment required to implement the action plan and transformation plan to deliver the remaining recommendations.

A final comment

The Panel was presented with broad terms of reference for a comprehensive review of an important area, within a relatively short time frame. It is inevitable that some areas will have been given less attention in this report than they merit. However, the Panel's view is that implementation of our recommendations will achieve an appropriate balance across biosecurity.

The Panel would like to thank the many individuals and groups who committed time and energy to sharing their thoughts with us. The Panel would particularly like to thank and acknowledge the contribution of James Boyle who provided excellent research, analysis and logistic support as Secretariat to the Panel.

I would also like to thank my colleagues on the Panel, Dr Ron Glanville and Professor Tom Kompas for their expert insights and contributions to the report.

Renata Brooks

September 2015

Recommendations

The Panel provide a summarised list of recommendations for consideration.

1. *Build the framework for the future Queensland Biosecurity System*

- 1.1. Develop a revised biosecurity strategy and action plan and statement of shared responsibility signed off by key stakeholders within and outside government – this should clearly establish key performance indicators (KPIs), timeframes, resource commitments and responsibility for delivery.
- 1.2. Work with BQMAC to develop recommendations on options for governance arrangements, which embed shared decision-making and clearly articulate responsibilities and obligations.
- 1.3. Further explore potential approaches for an industry biosecurity fund or funds.
- 1.4. Implement a project based resource allocation framework for biosecurity activities.

2. *Refocus Biosecurity Queensland*

- 2.1. Transition non-biosecurity responsibilities to management in a separate organisational unit.
- 2.2. Develop an organisational design, which drives attention to the core functional areas identified and positions the organisation to transition to a system leader and enabler role.
- 2.3. Undertake a skills audit and develop a training and development plan with particular emphasis on:
 - a) Project management;
 - b) Use of business intelligence systems to inform business and risk management;
 - c) Financial management;
 - d) Engagement and partnership development.
- 2.4. Create leadership positions at appropriate levels in incident preparedness and response risk and decision-making; innovation and business improvement; marine and aquatic biosecurity and northern Queensland biosecurity strategy.

3. *Review and reprioritise investment in biosecurity programs*

- 3.1. Establish an investment function in Biosecurity Queensland with responsibility for:
 - a) Leading a systematic review of Biosecurity Queensland's investments;
 - b) Building risk and information analysis capability and improving investment decision making practice;
 - c) Developing and implementing an internal investment framework to drive explicit, risk based, consideration of resource allocation (commissioning function).
- 3.2. Undertake a systematic review of Biosecurity Queensland investments, using the principles outlined in this report, with a view to redirecting resources from lower risk/return to higher risk/return areas. This will need to be a multiyear project undertaken in the context of the new legislative environment - using steering processes (governance) with stakeholder representation.

- 3.3. Biosecurity Queensland, together with key stakeholders, should develop a strategy to transition government out of significant investment in managing established pests and diseases where there are clearly identifiable beneficiaries, toward prevention and surveillance activities.

4. Develop a Queensland biosecurity surveillance strategy

- 4.1. Develop a coherent surveillance strategy guided by risk management principles, pathway analysis, consequence measures and cost effectiveness.
- 4.2. Build leveraging strategies into the Queensland biosecurity strategy including better engagement of private professionals and service providers to agricultural industries, supply chain data, Commonwealth Government, other jurisdictional investment and indigenous ranger programs.
 - a) Engage the environment and natural resources portfolios to work with Environmental non-government organisations and community groups to develop options for community driven passive surveillance, building on 'citizen science' models.

5. Create incentives to report disease

- 5.1. Implement a multi-pronged approach to improving pest and disease reporting, primarily focused on education and awareness, creating incentives to report and removing disincentives, improving recording, analysis and intelligence systems and encouraging investment in reporting and feedback systems.

6. Dismantle red tape to improve flexibility for agricultural businesses

- 6.1. Undertake a systematic review of activities where a less regulatory and costly approach could be developed under the new legislative framework. Build in appropriate contribution (risk creator) mechanisms where the systematic review agrees there is a need for ongoing intervention.

7. Implement new approaches to build better support systems

- 7.1. Implement a full cost recovery policy for the tick fever centre and the veterinary surgeon's board with the resulting savings reinvested to support an enhanced passive surveillance system.
- 7.2. Review the current approach to the Property Identification Code register to implement a new system, which delivers enhanced benefits and a sustainable funding model.
- 7.3. Implement a new commercial, in-house business model for diagnostic services across Biosecurity Queensland and Agri-Science Queensland with a subsidy policy designed to meet surveillance outcomes.

8. Continue Investment in Flexible Specialist Systems

- 8.1. Lock in ongoing investment in the Biosecurity Information Management System (BIMS) and build in sufficient flexibility to the system and business processes to accommodate future opportunities such as greater participation by industry and the community in surveillance.

9. Establish a preparedness and response unit

9.1. Establish a response unit tasked with responsibility for building relationships within Government and a community biosecurity reserve, ongoing training (including exercises), as well as revisiting response protocols to establish a set of tailored templates, suited to responses of varying degrees of urgency, size and scope.

- a) Undertake a desk top exercise specifically designed to test whole of Government response capability.
- b) Clearly define the circumstances under which departmental resources should be redirected to response, bearing in mind broader business continuity needs, as well as opportunities for personal development.

10. Establish a biosecurity network

10.1. Build a biosecurity network – explore opportunities to utilise other response agencies e.g. SES volunteers with a “rapid deployment training package” and to work with other volunteer and community organisations, as well as agreements with private sector organisations.

- a) Specifically explore opportunities to leverage relationships developed in the enhanced surveillance approach (for example, indigenous rangers, private veterinary practitioners) to increase the capacity of the biosecurity network.

11. Establish an innovation function and develop and innovation strategy

11.1. Establish a biosecurity innovation function and develop an innovation strategy – with priority consideration of opportunities such as for data capture and analysis in collaboration with the community, business, other jurisdictions and agencies; the potential for breakthrough technologies and achieve internal operating efficiencies to lower costs of prevention, surveillance, response.

- a) As a component of the innovation strategy, and in collaboration with Agri-Science Queensland, identify priorities for research and development, including in the area of building more resilient farming systems.

12. Build expert and regional capability

12.1. Develop position specifications and recruit 5 technical specialists, to be located in the regional locations in north and central Queensland as part of a work force development plan, which builds capacity in this area.

12.2. Expand capability by building access to expert networks including through:

- a) A fellows program which retains access to retiree expertise and provides mentoring for less experienced staff;
- b) A virtual network for epidemiologists and other experts.

12.3. Develop a succession plan which incorporates a graduate program targeting biosecurity expertise gaps in the context of national capacity.

12.4. Create a leadership position and specific marine biosecurity function.

12.5. Include engagement and partnership development in the recommended training and workforce development plan, assign responsibility for driving a change in culture to all leaders and establish access to specialist skills.

- 12.6. Develop a biosecurity initiative for northern Australia incorporating a focus on delivering biosecurity risk mitigation strategies, which support agriculture sector growth, protect the environment and mitigate risks to human health.
- 12.7. Design and deliver a pilot project with a subset of volunteer Local Government Authorities and natural resource management groups to explore opportunities to better coordinate and leverage investment at a regional level, including taking on a broader biosecurity focus and improving surveillance outcomes.

13. Joint investment in a coordinated on farm biosecurity campaign

- 13.1. Design and deliver a coordinated project to set targets and drive measurable uptake of on farm biosecurity under the umbrella of shared governance arrangements and in collaboration with other organisations such as Animal and Plant Health Australia.

14. Fine tune funding for responses

- 14.1. The panel recommends that the annual allocation to the Exotic Pest and Disease fund is increased to \$1.5m and its governance revised to restrict its application to new incursions and provide for enhanced oversight. The fund should be reviewed after three years to review the appropriateness of the allocation in an environment of increased risk.
- 14.2. The Panel recommends that development of the investment and commissioning function for responses and the biosecurity response unit build in:
- a) Clearly differentiated and articulated response phases, with clear purposes;
 - b) Enhanced capacity for review and evaluation, particularly of responses and response strategies;
 - c) Improved performance management information for DAF and central agencies.

Executive Summary

Background

Biosecurity is the management of risks to the economy, the environment, and the community, of pests and diseases entering, emerging, establishing or spreading. It protects local businesses and the state and national economy from the negative impacts of pests and diseases, which can disrupt trade and productivity, affect animal and plant health, and threaten the viability of rural enterprise. It protects the community from emerging and exotic diseases, which can be transmitted by animals, and helps ensure stewardship of Queensland's environment.

Queensland is experiencing unparalleled challenges to its ability to respond to the increasing number, scale and scope of exotic and emerging pests and disease incidents, such as Panama disease tropical race 4 in bananas, red imported fire ants, cucumber green mottle mosaic virus, Hendra virus and red witchweed. Each biosecurity incident is a unique event and presents a different set of circumstances. It is essential that the biosecurity system has the capacity and the capabilities to respond to challenges over the horizon.

Queensland is a contributor to the national biosecurity system. This contribution recognises the fact that investment in effective biosecurity in Queensland benefits all Australians. A biosecurity incident in one part of Australia can have significant impacts on other states and territories, both in terms of risk of spread and damage, but also the potential impacts on export and trade.

New biosecurity legislation is due to commence in 2016 and will change the ground rules governing biosecurity in Queensland. The new laws are based on three foundational concepts: shared responsibility, risk-based decision making and the precautionary principle. Shared responsibility is the principle that all parties should bear a proportionate share of responsibility for the mitigation of biosecurity risks and share the cost of biosecurity responses. Risk-based decision-making considers the likelihood and consequence of biosecurity risks in an uncertain environment and ensures appropriate and proportionate action. Finally, the precautionary principle allows mitigation control action to be taken to manage biosecurity incursions in advance of scientific certainty, where unacceptable damage is likely.

These concepts represent a fundamental shift in focus for Biosecurity Queensland and have implications not only for changes to subordinate policies and procedures, but also for the necessary skills, knowledge and behaviours of partners in the biosecurity system.

Acknowledging the challenges facing Queensland's biosecurity system, on 27 March 2015, the Minister for Agriculture and Fisheries announced a review into Queensland's biosecurity capability.

The Panel was asked to:

1. Assess Queensland biosecurity responsibilities:
 - a. what are the appropriate roles and responsibilities of Biosecurity Queensland;
 - b. quantify the role of Biosecurity Queensland;

- c. outline the decision making and investment criteria that trigger cost sharing and/or a move to different levels of intervention – eradication, containment, management, etc.
2. Assess Queensland's baseline biosecurity capability to meet its current objectives and future challenges including:
 - a. leadership, strategy, policy and service delivery;
 - b. ICT systems and infrastructure.
3. Benchmark the capability Queensland requires to achieve world's best practice given its state-wide service delivery requirements;
4. Identify examples of best practice in interstate and external agencies, which could be used to benchmark Biosecurity Queensland's capabilities.

In addition, the Panel was required to deliver the report by September 2015. The report is to state the roles and responsibilities of Biosecurity Queensland and detail a five year plan with specific recommendations for actions, including costings and options, and key performance indicators to address gaps in biosecurity capability and address:

1. the gaps, priorities and timelines for investment;
2. opportunities for strategic shifts of existing capability/resources away from low risk or low return on investment activities;
3. where incremental investment could leverage capacity and capability from entities that share Queensland's biosecurity priorities to achieve world best practice;
4. where targeted investment in Biosecurity Queensland's own capability and capacity is required to restore responses to disease and pest outbreaks to world's best practice; and
5. the specific issue of Biosecurity Queensland's base funding and funding for responses.

Consultation

The Panel's considerations were strongly informed by consultation with a range of experts and stakeholder groups on Queensland's biosecurity capability overall, as well as on particular issues. In tandem, the Panel provided the opportunity for any member of the public to provide comments in response to focus questions available online.

The Panel was particularly appreciative of input from the Biosecurity Queensland Ministerial Advisory Council (BQMAC), a committee representing a range of views and expertise on biosecurity in Queensland. Consultation also included meetings with Commonwealth and state biosecurity agencies, other Queensland government agencies, departmental staff and senior management, the research community, and peak industry and community groups.

The range of responses gave the Panel significant insight into external and internal views of the capability of the Queensland Biosecurity System. Importantly, many of the issues and opportunities raised were shared between stakeholders.

Overall, Queensland biosecurity is viewed positively for its achievements and the quality and commitment of departmental staff. However, concerns were raised about an aging and diminishing workforce, resourcing, competing demands on staff time and lack of succession planning.

Respondents also identified significant opportunities to invigorate the Queensland Biosecurity System. New technology, coordination between levels of government, industry responsibility and autonomy and cooperation were all identified as ways to improve the

system. Comments in stakeholder submissions encouraged government to involve more parties in the future biosecurity system to deliver better outcomes for the community.

Trends and drivers of biosecurity

CSIRO's publication, *Australia's Biosecurity Future* released in November 2014, noted the significant change in, and growing complexity of, biosecurity challenges and pointed to a future where existing processes and practice may not be sufficient. Biosecurity risks are changing due to the expansion in movement of humans, livestock populations, animal products; increased volume and range of plants/plant products traded; increased geographic distribution of plant species production; and increased changes in ecosystems including land-use changes. The suitability of Queensland's diverse climatic and geographic conditions for pest and disease establishment means it will be the front-line state for combating new biosecurity incursions.

These changing conditions and an increasing risk profile pose a range of challenges for policymakers, and primary industries. These include how to ensure that appropriate incentives are in place to maintain resourcing and priority for prevention activities. Opportunities to develop more effective and efficient approaches to dealing with biosecurity threats will increasingly be found in areas outside the traditional biosecurity arena, for example information sciences and robotics. In fact, the information revolution has the potential to transform the approach to biosecurity on farm, in the environment, in the community and in government organisations.

Other broad trends will influence the capacity of Queensland's biosecurity system to adapt.

In around 20 years, Queensland will have experienced significant population growth, with projections suggesting around seven million state residents by 2036. A recent report by the Regional Australia Institute noted the growing population of Australia's regional communities, particularly in Queensland and Western Australia, although differential growth in coastal and inland communities is still stark.¹ While domestic growth will create additional demands for produce (and opportunities for producers); it places pressure on maintaining the biosecurity system in a changing economic and social environment. These pressures will no doubt be acutely felt in rural and regional Queensland, given service delivery demands on local governments and the insecurity of funding for regional natural resource management groups. This trend may be a particular concern, given local government is a key service delivery partner in the biosecurity system.

This report endeavours to articulate the roles and responsibilities of Biosecurity Queensland and consider capability in the context of these future trends.

Prioritisation, risk and shared decision making

In terms of biosecurity capability, there are three key tools that are essential to an effective biosecurity system - a framework to prioritise investment, a rigorous approach to risk and consequence analysis and shared responsibility for decision-making and action.

¹Graeme Hugo, Helen Feist, George Tan and Kevin Harris (2015) *Population Dynamics in Regional Australia*, a report to the Regional Australia Institute, Canberra.

Prioritisation of investment

Effective prioritisation of investment relies first on adequate financial information and a budgeting process, which supports meaningful allocation and reporting.

Queensland has limited biosecurity resources to address its ever-increasing risk of exotic pest and disease incursions, so it is critical that these resources are used efficiently. The problem is complicated by the presence of a large number of potential invasive species, many of which are already established, as well as a wide range of biosecurity-related activities. An efficient allocation of a biosecurity budget maximises net benefits, in terms of both avoided damages and relevant control costs.

The budget for biosecurity, in other words, has to be allocated across a range of activities: regulatory needs, emergency responses, surveillance and disease control measures, containment and eradication campaigns and support services (for example, traceability and information systems). Resources also have to be allocated across different threats or invasive species, with measures designed to protect plants, animals, the environment and human health. There are a host of competing alternatives in this setting.

The preferred approach is to try to find the best or optimal portfolio of investments across the various activities and threats. The question, put simply, is where should the next dollar be spent, either in terms of new monies, or in the shift of an existing budget within an organisation, across different activities, threats and operational needs. This cannot always be done quantitatively, or as precisely as what would be ideal, but it should always form part of the way of thinking about how resources for biosecurity are allocated.

The Panel has identified the following attributes of appropriate capability in investment prioritisation and decision-making:

- (1) The budget for biosecurity expenditure needs to be readily available and clear, and closely aligned with strategic priorities, once known. The performance and evaluation of budget expenditures should also be carefully monitored.
- (2) Expenditures, including salary expenditures, should be routinely subject to evaluation and review, to inform resource allocation and ensure cost-effectiveness.
- (3) Proper portfolio investment needs enhanced capacity in data capture along with accessing, translating and implementing existing and new knowledge relevant to biosecurity that can help inform decisions on the proper allocation of resources. In particular, information and analysis needs to be gathered on how biosecurity resources should be allocated across threats and biosecurity measures.
- (4) Where possible, resources should be directed to biosecurity threats and activities with the highest rates of return. This will generally imply a larger emphasis on prevention and surveillance and this, in turn, will require enhanced capability in this part of the organisation.
- (5) Even if quantitative measures are not available, or are only available for limited threats and biosecurity activities, best practice should be to direct funds to where returns are highest. This will entail a careful examination of low return activities to determine if they are truly needed or can be phased out over time.

(6) Significant time needs to be spent on devising strategies to make the required transitions to highest rate of return activities.

A portfolio allocation approach will help to establish priorities for investment, but does not establish who should pay. A variety of approaches to answering this question has been developed nationally. Examples include the decision tree developed by Biosecurity New South Wales (NSW) and the recent IDA Economics report, *New funding arrangements for eradication programs*, commissioned by the National Biosecurity Committee.²

Risk

The nature of biosecurity is such that a proper understanding of risk is critical to making decisions at the individual business, organisation and system level. Proper understanding of risk includes consideration of who bears the risk of a particular threat, how likely it is to occur and what the consequence would be. It also requires consideration of the options available to mitigate that risk and an analysis of the impacts (and vulnerabilities) of mitigation options.

It is a well-established principle that a 'nil risk' approach is neither possible nor desirable.

Biosecurity agencies need to account for various risk mitigating and control actions across different invasive threats and in terms of the effectiveness of various biosecurity measures. These agencies also have to account for the possibility of 'black swans', or the occurrence of low probability and high consequence events. Doing so requires the organisation to undertake careful risk assessments and act based on these analyses.

The Panel proposes the following minimum attributes for a 'risk sensitive' organisation

- (1) A careful consideration and appreciation of the need for risk assessments, both when they can be made quantitatively, and when they must be based on more qualitative judgments. Effective risk management is best approached as an effort to reduce the potential for bad outcomes by combining 'what if' conjectures about what could happen, with a recognition that aiming simply to comply with prevailing risk management standards and guidelines can, in some circumstances, amplify rather than reduce the potential for unexpected outcomes. In short, this involves treating risk as something more than just a compliance exercise.
- (2) An organisational culture that is conscious of risk and risk mitigating actions throughout, and that tests the system at both critical and unpredictable points.
- (3) Sensitivity to operational needs and an ability to have resources appropriately directed to unexpected biosecurity events. This may require a financial arrangement that can be accessed as needed, rather than shifting funds from already useful activities in favour of emergency responses to an event.
- (4) Preoccupation with 'weak signals', 'near misses' and 'false negatives and positives'. All of these events give valuable information on potential faults in the system and added areas of concern. Existing risk measures thus have to be continually updated when such new information is available.

² IDA Economics (2014) *New funding arrangements for eradication programs*, a report to the National Biosecurity Committee, Canberra.

- (5) Careful tracking and response to the failure (or success) of the system to handle a biosecurity event.
- (6) An emphasis on surveillance activities for early detection of both things that are potentially known incursions, and for things unknown.
- (7) A strong focus on intelligence gathering and analysis to identify current and future trends that will influence the 'risk environment'.

Application of sound investment principles and rigorous consideration of risk are necessary, but not sufficient, to achieve good decision making outcomes. Decisions must also be informed by the complexity and values of society.

Shared responsibility and decision making

Shared responsibility is a critical concept at the heart of biosecurity risk management. Essentially it advocates that government, industry and individual producers and landholders – those that create risks and benefit from risk management – work together to mitigate the impact of biosecurity risks. However, for shared responsibility to function effectively, decision-making must be shared as well.

Good decision-making should bring together sound decision-making principles and an understanding of the environment in which the decision will be implemented - in other words, how the decision translates into action. There is a risk that a decision will look good on paper, but will be unworkable in practice or have profound or unintended consequences that render it unviable.

Joint decision-making approaches are a feature of good governance and bring a broader perspective to the application of decision-making principles and to an understanding of implementation, leading to better decisions.

Key features of effective shared decision-making models in biosecurity are the existence of a mechanism for contribution of funds from more than one source (typically industry and government) and a governance and decision making framework, which ensures "those who pay have a say".

Joint contributions recognise the different skills, levers and funding available to participants in a shared decision making process. For example, New South Wales, South Australia, Victoria and Western Australia have schemes for raising levies for biosecurity purposes, which provides primary producers the opportunity to meaningfully engage and leverage government investment. In Queensland, industry (with some exceptions) lacks a formal mechanism to raise and manage collective funds for biosecurity purposes, making it more difficult to measure and account for industry contributions to biosecurity outcomes.

Biosecurity Queensland has achieved some success with a model where government and other entities contribute to funding biosecurity programs in a pilot "co-investment model". The Co-investment Model is a joint initiative of the Local Government Association of Queensland (LGAQ) and the Department of Agriculture and Fisheries. The model is seeking the development of a new investment approach for the resources in the Land Protection Fund, which is used for managing weeds and pest animals. The model focuses on state and

local government joint decision making that will also allow potential investment by other parties.

A future Queensland Biosecurity System

At the heart of the future challenges for biosecurity are three key factors:

1. Potential threats from pests and diseases to agricultural industries, the environment and human health are increasing.
2. There is increasing pressure on resources, particularly on government investment in all jurisdictions and an increasingly competitive business environment.
3. The knowledge base required to solve future problems is increasingly diverse and complex and requires a strong network of relationships to access it.

The characteristics of an ideal future Queensland Biosecurity System that addresses these challenges are set out below:

Shared leadership and ownership

- Broad agreement and understanding of what biosecurity is and why it is important
- Widespread community recognition, champions across all sectors and bipartisan political support
- Shared and widely understood objectives and decision making processes
- Appropriate forums for shared decision making
- Community confidence and trust in the capacity of all parties to contribute to system outcomes

Effective governance and accountability arrangements

- Measurable, readily understood and regularly reported outcomes in terms of:
 - protection of environmental values
 - human health and amenity
 - economic impact at enterprise, industry and state levels
- Optimal investment or the best portfolio of investments across activities and threats
- Cost effective biosecurity measures
- Rigour in risk analysis and management, a shared understanding of risk beyond basic compliance measures
- Transparent, effective, efficient and proportionate governance and decision making processes
- Clear and understood delineation of responsibility and accountability
- Integrity of underpinning science
- Focus on outcomes rather than inputs, process and activities

Innovation and adaptability

- A culture of innovation supported by optimal management of risk
- Relationships with partners within and outside the Queensland Biosecurity System that foster identification of problems and development of innovative solutions
- Harnesses new technologies to achieve continual improvement in performance and cost effectiveness

- Fit-for-purpose approaches that balance collaboration and coordination with simplicity and clear accountability
- Flexibility to respond to a dynamic environment and deliver a 'fast and light' approach
- Access to people with the right expertise, competence and experience for the purpose

System insight and understanding - focused activities

- Influences national priorities and leverages national resources to achieve the best for Queensland and Australia
- A business and human/natural system orientation as well as a risk/threat orientation
- Intelligence gathering and analysis
- Understanding of the differing business, physical and human environments that are threatened by pests and diseases translating to balanced outcomes – biosecurity vs impact on business
- Agreed approach to prioritisation (whether or not to respond), and adequate resources for high priority activities
- Risk mitigation strategies in place at all levels (e.g. on farm biosecurity plans, regional natural resource management plans)
- Leverages government policy opportunities and specialist resources which may reside outside the Department of Agriculture and Fisheries/Biosecurity Queensland (e.g. disaster response capability, conditions on planning approvals)
- Leverages signals in the marketing chain
- Social media and community networks supporting an active biosecurity aware culture and complementing formal response structures

Delivery effectiveness

- Human, physical and system capacity to undertake activities aimed at achieving prevention, preparedness, surveillance, incident and emergency response and endemic threat management effectively and efficiently across terrestrial and aquatic natural, farmed and built environments
- Plans and policies to manage key biosecurity risks
- Culture and processes that ensure timely risk assessments and decision-making
- Systems and processes to prevent new incursions or expansion of priority threats
- Surveillance to identify the presence of threats and when they can most effectively be treated, to meet the demands of market access and maintain profitability
- Tailored diagnostic tools and skills for routine monitoring and emergency response
- A 'response ready' core capability supported by appropriate operational policies, systems, processes and training, supplemented by access to surge capacity, deployable with rapid pre-deployment training ('just in time' training packages)
- Pre-arranged access to physical and human resources required in an emergency response
- Systems and processes to minimise the impact of an outbreak on business and the community, as well as to assist recovery from a response
- Information systems that support analysis of biosecurity risk and impacts as well as effective business management
- Risk based legislation and appropriate enforcement capacity
- Effective and efficient biosecurity measures and traceability systems

- Best practice communications approaches utilising technology and channels most appropriate to the circumstances

The Panel's view is that there are four complementary tools to deliver an effective future Queensland Biosecurity System.

Biosecurity Strategy and Action Plan

A biosecurity strategy and action plan co-authored by core partners is essential to creating a cooperative environment for shared responsibility and a true partnership for achieving biosecurity outcomes. By participating in the development of the action plan, partners are able to exercise more influence over the policy process and to shape a plan, which gives industry and the community the best chance to manage future biosecurity challenges. A strategy and action plan will also drive commitment and accountability.

Formal governance framework

An action plan is a start, but a formal arrangement is required within the Queensland Biosecurity System to facilitate a partnership approach. Formalising a governance framework provides an opportunity to embed shared responsibility into the future system design.

Industry funds

The Queensland Biosecurity System would benefit from mechanisms to raise and hold industry funds to facilitate co-investment in action plan initiatives. These will enable industry to more effectively influence the priorities of the biosecurity system, create a more equal partnership and might include better leveraging of national institutions and levy collection mechanisms.

Allocation framework

Funding arrangements within the department also need to be configured to support a shared responsibility and shared decision-making model. Implementation of a resource allocation decision tool and commissioning function will be required to support an effective shared investment decision-making framework. In practice, this will involve transition to a model for the proper allocation of resources to projects rather than operating units and the flexible redeployment of people to high priority projects.

Recommendations

1. Build the framework for the future Queensland Biosecurity System

- 1.1. Develop a revised biosecurity strategy and action plan and statement of shared responsibility signed off by key stakeholders within and outside government – this should clearly establish key performance indicators (KPIs), timeframes, resource commitments and responsibility for delivery.
- 1.2. Work with BQMAC to develop recommendations on options for governance arrangements, which embed shared decision-making and clearly articulate responsibilities and obligations.
- 1.3. Further explore potential approaches for an industry biosecurity fund or funds.
- 1.4. Implement a project based resource allocation framework for biosecurity activities.

Role and responsibilities of Biosecurity Queensland

Scope:	1 (a) Appropriate roles and responsibilities of Biosecurity Queensland 1 (b) Quantify the role of Biosecurity Queensland
Deliverable:	The report is to state the roles and responsibilities of Biosecurity Queensland

Current role

The Panel considered the current role of Biosecurity Queensland as the agency with principal responsibility for the Queensland Biosecurity System. The Panel's observations are that:

- Biosecurity Queensland is primarily focused on regulatory administration, operations and program delivery.
- The current policy role is primarily focused on technical and operational policy development and review, with a heavy emphasis on national policy imperatives. Special projects are established to review legislation as required.
- The current planning approach is predominantly operational, with others outside Biosecurity Queensland being approached to provide resources or technical assistance.
- Biosecurity Queensland's relationship with partners in the biosecurity system is predominantly built on communication and engagement on their specific program responsibilities, or consultation to seek input on policy or legislative matters.
- The current role and responsibility of Biosecurity Queensland within the Department of Agriculture and Fisheries is not fully aligned to the delivery of biosecurity outcomes, as a consequence of having responsibility for non-biosecurity functions and not having responsibility for some biosecurity functions undertaken elsewhere in the department. The non-biosecurity functions are not high priority in terms of the 'core' needs of a Queensland Biosecurity System.
- The current role and responsibilities appear to be the result of incremental change built on previous operational responsibilities of historical functional units.
- The Biosecurity Leadership Team's stated intention to move Biosecurity Queensland towards becoming a leader and enabler is the right direction but has not been implemented yet.
- There needs to be clear agreement and understanding regarding Biosecurity Queensland's leadership/enabler roles and operational responsibilities and accepted protocols for meeting customer service expectations without losing focus on priority activities.

Future role and responsibility of Biosecurity Queensland

To meet the needs of the future, the role and responsibility of Biosecurity Queensland should be defined in the context of the characteristics of a best practice future Queensland Biosecurity System and the directions set by the *Biosecurity Act 2014*.

The role of Biosecurity Queensland should be to:

- lead the Queensland Government's contribution to the Queensland Biosecurity System
- partner with other organisations within and outside government to plan, prioritise and deliver biosecurity outcomes
- build common understanding of the objectives of the Queensland Biosecurity System

- build trust and confidence in the integrity of the System and its capacity to deliver
- work with partners to develop governance and accountability arrangements, which are transparent, deliver decision-making processes underpinned by evidence and provide confidence that resources are being used wisely
- plan for future challenges and opportunities, identify roadblocks and harness innovation to solve problems
- build common understanding of the business, human and environmental value which the Queensland Biosecurity System seeks to protect, and the impact of threats and mitigation strategies
- deliver quality services through internal and external arrangements, with the choice of a delivery model based on considerations of value and risk
- establish a community and customer service culture.

In summary, in the future model, Biosecurity Queensland will become a leader and enabler for the Queensland Biosecurity System, with a range of levers to realise biosecurity outcomes.

The organisational structure and allocation of responsibilities within Biosecurity Queensland needs to evolve to keep pace with fundamental shifts, such as the commencement of the new legislation, which resets the approach to managing biosecurity, and the vastly increased technical and policy breadth, which the organisation needs to span.

Clearly, Biosecurity Queensland will need to continue to administer the legislative framework for biosecurity, but this should not be the sole 'reason for being' of the organisation.

In the context of the future System, Biosecurity Queensland should be responsible for the following functions:

Shared responsibility and strategy

- developing strategy and delivery plans to support the Queensland Biosecurity System
- developing and delivering an innovation strategy
- partnerships and formal governance arrangements to support the System
- strategic engagement with the national biosecurity system and influencing national priorities
- workforce skills needs analysis and workforce planning

Investment

- risk analysis and evaluation
- prioritisation and resource allocation
- commissioning internal and external services, programs and advice, including setting standards for contract management and performance evaluation

Prevention and surveillance

- identifying and evaluating biosecurity threats to agricultural systems, the environment and human amenity
- designing prevention and surveillance programs
- data gathering and analysis

- scenario modelling
- establishing diagnostic needs

Preparedness and response

- developing response plans
- establishing competency and training standards and needs for response personnel
- leading response to incursions

Program delivery

- establishing project planning, management and evaluation standards and protocols
- delivering priority biosecurity programs where appropriate for government, particularly prevention, surveillance and preparedness
- managing and overseeing programs delivered wholly or partly by third parties
- delivering reform and business improvement programs
- essential regulatory compliance programs
- investigation and enforcement (prosecutions)
- evaluating and prioritising existing biosecurity threats to agricultural systems, the environment and human amenity
- brokering partnerships for design, funding and delivery for high priority pests and diseases, including research and development (R&D)

Market access

- establishing market access protocols
- supporting industry development initiatives

Specialised Systems and Tools

- establishing system standards, for example for information, tracing and property registration
- administering and reviewing the *Biosecurity Act 2014*, subordinate legislation and policies
- developing assurance and certification schemes as alternatives to legislation
- developing legislative compliance programs
- developing and applying graduated regulatory sanctions

Business management

- managing a diagnostic laboratory service

The research and development functions currently undertaken by Biosecurity Queensland should be reviewed to determine whether synergies arising from housing the function within Biosecurity Queensland will enhance the delivery of biosecurity outcomes enough to warrant the additional cost and effort involved in managing an additional function well.

Finally, a number of activities currently conducted by Biosecurity Queensland appear not to be consistent with its efforts to improve biosecurity outcomes as part of the biosecurity system. The Panel considers non-core activities to include:

- administering legislation without a clear biosecurity purpose (e.g. *Animal Management (Cats and Dogs) Act 2008*)
- managing the tick fever vaccine centre
- brands registration
- industrial hemp licensing.

In the short term, if the agency considers it desirable to continue to manage the above responsibilities within Biosecurity Queensland, they should be managed in an organisational unit separate from core biosecurity functions to maintain clarity of focus on core biosecurity outcomes.

In the longer term, each function should be reviewed to determine its primary objective, whether it should be continued and which organisation is best placed to undertake it. For example, it was suggested to the Panel that local government may be better placed to undertake dog and cat management functions. Appropriate resourcing arrangements would need to be considered, to minimise the impacts on other priorities of both organisations.

An effective investment function within Biosecurity Queensland will be critical to the success of the Queensland Biosecurity System. The Panel characterisation of an investment function comprises analysis and decision making as well as commissioning high performance delivery. In this respect, it is similar to the commissioning function in organisations such as Queensland Health.

Recommendations

2. Refocus Biosecurity Queensland

2.1. Transition non-biosecurity responsibilities to management in a separate organisational unit.

Capabilities of Biosecurity Queensland

Scope: Assess Queensland's baseline Biosecurity capability to meet its current objectives and future challenges including:
 2 (a) Leadership, strategy, policy and service delivery
 2 (b) ICT systems and infrastructure
 3 Benchmark the capability Queensland requires to achieve world's best practice given its state-wide service delivery requirements

Deliverable: The report is to identify the gaps, priorities and timelines for investment

Context

Biosecurity Queensland operates within a complex system - as a division within the Department of Agriculture and Fisheries, an agency within the Queensland Government, a jurisdiction within a national system, and with extensive partnerships with organisations and groups outside government.

In keeping with other parts of the Department of Agriculture and Fisheries, ongoing pressure on consolidated revenue resources has resulted in a decline in the budget allocated to Biosecurity Queensland over the years since its establishment. In fact, the Panel was made aware that core staff numbers have been declining gradually since the early 1990s. More recently, targets set in 2012 saw a more significant reduction and the Panel was presented with information indicating a loss of 26 per cent of staff. This decrease was unevenly spread, with retention of around 90 per cent of frontline positions.

Because of the variability in special projects funded on a time limited basis, seasonal variability of temporary employment and other fund sources available to employ staff it is difficult to draw quantitative conclusions about the decline in capacity over time. Similarly, the Panel was not able to quantify the impact on biosecurity capacity and capability of staff losses in other areas of the department. However, there has undoubtedly been a significant decline and the Panel received many comments about the departure of individuals with specialist expertise and loss of staff in regional areas.

Because Biosecurity Queensland is embedded in the Department of Agriculture and Fisheries and the national system, the Panel needed to consider capability needs within the broader context of skills, supporting systems and physical facilities available within the department (and its partner universities), broader government and the national system. The Panel noted the work, which has been done in recent years at a national level to catalogue specialist skills and services required for biosecurity, on the basis that no single jurisdiction can or should maintain the breadth of expertise needed to cater for all biosecurity threats.

The Panel was not in a position to undertake a detailed review of individual staff capabilities or competencies. Consequently, the conclusions in this report should be viewed as indicative and subject to confirmation against a finer grained skills audit.

The Panel also noted the review undertaken by Sapere in 2012, which assessed the skills needed to meet the biosecurity challenges of the future. In its review, Sapere noted that Biosecurity Queensland needed to develop skills in engagement (to build support and shared governance), partnership (to work with others to achieve biosecurity outcomes) and managing complexity and uncertainty (to adapt to future challenges).

Identifying capability gaps

Gaps were identified through the use of formal tools to assess specialist biosecurity capability and general organisational capability, augmented by comments received through internal and external consultation processes. The focus of the processes used was to identify capability gaps in the context of future needs, although capacity to deal with current needs was also considered. The output of these processes is embedded in the overview of capability gaps below.

There was significant consistency in issues identified through different processes, providing confidence in the conclusions contained within the report.

Areas of concern identified through engagement with a range of internal and external stakeholders were:

Response

- overall lack of capacity and declining capability
- 'surge capacity' for response (generic emergency roles) and technical capability
- managing temporary work forces and rapid training for responses
- excessive impact of responses on the ability to maintain other priority biosecurity activities

Prioritisation and risk

- risk pathways for new environmental threats - birds, marine pests, ants
- insufficiently pro-active approach to environmental biosecurity
- intelligence, epidemiology, analysis and strategy development
- biosecurity risk and risk management strategies, including the determination of risk, consequence measures and scenario modelling
- marine and aquatic biosecurity
- investment decision making practice – too much reliance on historical approaches and not enough rigour and evidence
- difficulty reconciling long term, strategic objectives with immediate issues driven priorities, particularly where this is viewed as conflict between bureaucratic and political objectives
- neither internal budget allocation processes, nor national cost sharing arrangements support good decision-making

Surveillance and reporting

- lack of capacity in diagnostic plant pathology, entomology, taxonomy, biosecurity in forests
- lack of attention to prevention and surveillance, particularly early detection

Innovation

- influencing ongoing R&D investment to leverage investment through the Invasive Animals and Plant Biosecurity Cooperative Research Centres
- not effectively leveraging know how in other parts of the department or industry to better utilise supply chains to drive behavioural change
- lack of explicit and strategic focus on innovation and opportunities

Program delivery

- limited use of management information
- uneven project management capability – particularly in an ambiguous and unpredictable environment – a need for more adaptive management approaches, staged implementation, and formal project wind up
- planning, prioritisation and delivery – a tendency to take on more than they can deliver, not allowing for inevitable (albeit unpredictable) events, limited resource planning outside a response context

Systems

- not enough customer focus
- slow to respond to customer requests
- quality management systems are variable at best

Overview of capability gaps and proposed strategies to address them

Specialist biosecurity capability

- Strategic policy development, risk based decision-making and stakeholder engagement. Better risk analysis will help ensure that biosecurity investment is directed into the areas of highest impact. Better strategic policy development processes, combined with better stakeholder engagement, are required to steer a course to make the desired changes, particularly in areas requiring divestment. These improvements should be made through some strategic staff appointments, as well as adjustments to internal processes.
- Better stakeholder engagement will be part of the broader evolution of a culture of shared responsibility within the Queensland Biosecurity System. However, in the short term there needs to be a greater emphasis on consistent stakeholder engagement processes across the organisation. A first step would be development of a communications and engagement plan, with a senior staff member assigned the responsibility to ensure it happens. Part of the plan needs to be a focus on internal communications so that engagement is embedded as a way of operating across the organisation and that all staff have access to consistent messaging.
- To better inform risk based decision making, there needs to be better processes for gathering, and particularly analysing, intelligence information. There is significant data within existing systems, but a lot of data that could be gathered relatively easily is not collected in any useable form. Further, there is no organised process for analysing data. Epidemiological skills within the Queensland Biosecurity System have also degraded, with virtually no high-level epidemiological analysis skills within Biosecurity Queensland. Establishment of a small but dedicated group to perform this function is required. A broader “virtual epidemiology / intelligence network” could support this. The latter would require coordination of appropriately skilled people across a range of organisations, particularly the university sector.
- To ensure better program implementation and system learning within Biosecurity Queensland, a more integrated system of strategic planning, operational planning, financial management, reporting and evaluation is required. This should be led by senior management, but may require some specialist support.
- There is a general recognition that there needs to be greater relative investment in prevention and surveillance (particularly early detection). While this will be guided by risk based decision making processes and pathway analysis, areas that require added attention currently include:
 - greater emphasis on the importance of on-farm biosecurity practices, including ensuring that DAF staff “practice what they preach” when visiting farms
 - better community and industry awareness of biosecurity, with an emphasis on the absolute imperative for early reporting
 - increased focus on Queensland’s northern border
 - implementation of a marine biosecurity initiative

- improvements to the network of people who can conduct field investigations, for example private vets and horticultural consultants
 - better coordination and data management for plant pest and disease diagnostics.
- There needs to be greater flexibility, but at the same time more consistency, in the approach to conducting responses. Greater flexibility should apply to the approach to small, medium and large responses, as well as the actual control strategies that are applied. Greater consistency should apply across responses of a similar size or nature. The suggested approach to achieving this consistency is the establishment of a biosecurity response unit that has the responsibility to ensure training and systems are in place, as well as to manage the response unit where possible or at least oversee the management of responses.
- A function of the biosecurity response unit should be to ensure that adequately trained and sufficient human resources are available for responses. A multi-pronged approach is required that includes an adequately resourced internal training program, ensuring people gain experience in real responses, engagement of external organisations that can supply personnel and “just in time” training processes.
- Market access protocols based on quality assurance principles could be more widely applied across biosecurity. However, resources to develop such systems are limited and some strategic investment in this area may be required.

General organisational capability

In the Panel’s judgement, primarily based on the Australian Public Service Organisational Capability framework, key areas for improvement in organisational capability are:

- setting leadership direction in the context of the Queensland Biosecurity System
- succession planning (formal)
- performance management
- individual work plan alignment to strategic priorities
- strategic planning, review, monitoring and evaluation
- clarity of benefits articulation
- prioritisation and trade offs
- working effectively within a political system
- evidence and analysis to inform strategy
- evaluation and measurement of outcomes
- understanding of cost-effectiveness
- rigour in risk analysis
- building common ownership
- developing innovation strategy, including culture, people capacity, enabling systems and evaluative feedback loops
- building innovation partnerships
- decision making in risk and uncertainty
- financial risk management and cost driver analysis
- establishing roles and responsibilities of delivery agents and partners
- management of effectiveness of delivery agents
- performance information and analytical capability.

The Panel suggests that the following approaches, if implemented, will collectively address key organisational capability areas:

- Leadership development as part of a formal workforce development plan
- Build on the findings of this report and the existing Biosecurity Queensland and Department of Agriculture and Fisheries workforce development plan to undertake a skills audit and develop a formal succession plan
- Invest in the development of a revamped biosecurity strategy and action plan with KPIs including cascading priorities down to the level of individual work plans
- Invest in initiatives to improve risk analysis, investment decision making, resource allocation and business and financial risk management
- Invest in an initiative to develop and implement an innovation strategy
- Establish an internal investment, resource allocation and evaluation framework and commissioning function
- Develop skills in management of third party delivery and other areas of relative weakness as part of the workforce development plan
- Undertake a project to develop appropriate management reports, which better inform performance management as well as investment decision making.

The processes used by the Panel to assess capability identified many opportunities for improvement. Few organisations are able to demonstrate high capability across all areas of performance so it is not surprising that weaknesses were identified in an organisation that has experienced significant change in resourcing levels at the same time as the need to respond to unexpected events in recent years.

In summary, the Panel considered that the following weaknesses in capability are the most significant and the highest priority for improvement:

General organisational capability

- investment prioritisation and evaluation
- shared decision making and resource allocation
- engagement and partnership building
- resource planning, project management and third party delivery
- innovation

Specialist biosecurity capability

- prevention
- early detection (surveillance and reporting)
- response consistency and flexibility
- surge capacity for response - operational and specialist expertise
- supporting information and other specialist systems

Developing solutions to organisational capability gaps is rarely a linear process. Further, the Panel's terms of reference also asked for consideration of sustainable funding models and opportunities to enhance the system through leveraging. The Panel's recommendations are designed to meet multiple objectives drawn from the terms of reference including addressing the capability gaps identified above.

Filling capability gaps

Deliverable: 2 Address opportunities for strategic shifts of existing capability/resources away from low risk or low return on investment activities

Identifying low risk/low return activities

The Panel proposes two key strategies to realise opportunities to move existing capability/resources away from low risk or low return activities.

The first is the development of the new biosecurity strategy and action plan, under the leadership of core partners across government, industry and others who share biosecurity objectives. This approach should result in agreement on high priority activities and automatically divert resources away from those, which are lower priority.

The second is the systematic review of investments using an appropriate information base and methodology. A portfolio approach to investment prioritisation is outlined in Chapter 4 of the report. Systematic application of the recommended prioritisation approaches in an appropriate decision making environment should result in recalibration of investment over time to a more optimal level.

A key impediment to such a review is that the organisation currently lacks the information systems, the decision-making framework and discipline to underpin the systematic approach that is required.

It is important to recognise that the question of whether a threat is low risk and whether intervention generates low returns is separate from the question of who should pay. In the shared responsibility model of the future, all interested parties should have access to information and evidence to inform decisions about their respective investment.

In the absence of an evidence-based analysis, the Panel identified some areas, for further examination in terms of efficiency or return on investment. These were:

- the Panama disease tropical race 4 response - the Panel queries whether there are lower cost options to the current intensive surveillance program that would have the same or similar risk profile.
- surveillance - the Panel was provided with 2014-15 Biosecurity Queensland budget figures which indicate an amount of \$8,139,667 allocated to surveillance from consolidated revenue, with offsetting revenue from other sources of \$636,679. These figures do not account for much of the resources for plant biosecurity surveillance, particularly diagnostics, which reside outside of Biosecurity Queensland. This forms a significant proportion of the organisation's budget and is at odds with feedback and the Panel's observations that the organisation lacks a coherent surveillance strategy and is underinvesting in prevention and surveillance relative to response. Further, there appears to be little analysis and value-added from the data and information generated by the surveillance system. There is an opportunity to undertake a review of the surveillance area, applying investment principles, to inform optimal investment across the surveillance portfolio.

Recommendations

3. Review and reprioritise investment in biosecurity programs

- 3.1. Establish an investment function in Biosecurity Queensland with responsibility for:
 - a) Leading a systematic review of Biosecurity Queensland's investments;
 - b) Building risk and information analysis capability and improving investment decision making practice;
 - c) Developing and implementing an internal investment framework to drive explicit, risk based, consideration of resource allocation (commissioning function).
- 3.2. Undertake a systematic review of Biosecurity Queensland investments, using the principles outlined in this report, with a view to redirecting resources from lower risk/return to higher risk/return areas. This will need to be a multiyear project undertaken in the context of the new legislative environment - using steering processes (governance) with stakeholder representation.
- 3.3. Biosecurity Queensland, together with key stakeholders, should develop a strategy to transition government out of significant investment in managing established pests and diseases where there are clearly identifiable beneficiaries, toward prevention and surveillance activities.

4. Develop a Queensland biosecurity surveillance strategy

- 4.1. Develop a coherent surveillance strategy guided by risk management principles, pathway analysis, consequence measures and cost effectiveness.

5. Create incentives to report disease

- 5.1. Implement a multi-pronged approach to improving pest and disease reporting, primarily focused on education and awareness, creating incentives to report and removing disincentives, improving recording, analysis and intelligence systems and encouraging investment in reporting and feedback systems.

Alternative business models for some activities

The Panel examined the business approach taken by Biosecurity Queensland for some activities, relative to those used in other jurisdictions. The Panel's view is that there are opportunities to reduce costs, increase effectiveness and supplement funds available for biosecurity outcomes in a number of areas.

- There are opportunities to use the new legislation to develop approaches, which do away with the need to regulate, or significantly reduce the regulatory burden on business (for example, moving from plant certifications and inspections to market access protocols based on quality assurance principles). However, changes of this magnitude require an up-front investment to develop the necessary protocols and negotiate market agreements.
- In some cases, alternative business models may provide either an opportunity to reduce costs of operation, or supplement revenue from non-government sources by moving to a fundamentally different model, or both approaches could be considered (for example, by moving to a commercial model for diagnostic laboratory services, property identification code registration).

- There are opportunities to implement full cost recovery for services which are purely for private benefit, or where cost recovery will bring improvements in efficiency, for example the operation of the tick fever centre, and the Property Identification Code (PIC) registration system. As a further example, any savings realised by implementing full cost recovery for the Veterinary Surgeons Board could be redirected to fund enhancements to the surveillance program by establishing arrangements with private veterinarians and other service providers. Such arrangements can incorporate explicit subsidies if a public benefit is considered to exist, for example to encourage submission of samples to laboratories as part of a surveillance program.

Recommendations

6. Dismantle red tape to improve flexibility for agricultural businesses

6.1. Undertake a systematic review of activities where a less regulatory and costly approach could be developed under the new legislative framework. Build in appropriate contribution (risk creator) mechanisms where the systematic review agrees there is a need for ongoing intervention.

7. Implement new approaches to build better support systems

7.1. Implement a full cost recovery policy for the tick fever centre and the Veterinary Surgeons Board with the resulting savings reinvested to support an enhanced passive surveillance system.

7.2. Review the current approach to the Property Identification Code register to implement a new system, which delivers enhanced benefits and a sustainable funding model.

7.3. Implement a new commercial, in-house business model for diagnostic services across Biosecurity Queensland and Agri-Science Queensland with a subsidy policy designed to meet surveillance outcomes.

Internal reorganisation, organisational development and process improvement

The Panel gave consideration to both the capability and capacity of Biosecurity Queensland. The Panel formed the view that Biosecurity Queensland does not have the capacity to implement the changes required to meet the needs of the future and address current needs. The Panel believes targeted investment is required to build both capacity and capability to allow the organisation to focus on implementing the reprioritisation and new business model approaches identified in the report.

There are a number of areas where the Panel believes apparent capability gaps are a result of strained capacity, and that the organisation does have the inherent capability (or would be better placed to acquire or develop it) once capacity has been increased through the initiatives identified in the next section. These have largely been identified in preceding sections and are summarised below:

- the need for a coherent surveillance strategy guided by risk based decision making processes and pathway analysis
- the opportunity to take advantage of the new legislation to develop less regulatory and costly approaches and market access protocols based on quality assurance principles
- the opportunity to improve traceability for plant products

- the need for improved strategic and operational planning, performance management and alignment of individual work plans
- the need to address skills gaps, training needs and succession planning through an enhanced workforce development plan
- the need to provide appropriate leadership to transition to the future Queensland Biosecurity System and deliver an organisational structure that aligns to the demands of the new biosecurity legislation.

Significant investment is also needed in information systems and the Panel's view is that the current Biosecurity Information Management System (BIMS) program is appropriate and adequately resourced to be a platform for the future. It will be important that the system will be able to be adapted to address future opportunities, such as greater participation by industry and community in surveillance.

Recommendations

2. Refocus Biosecurity Queensland

- 2.2. Develop an organisational design, which drives attention to the core functional areas identified and positions the organisation to transition to a system leader and enabler role.
- 2.3. Undertake a skills audit and develop a training and development plan with particular emphasis on:
 - a) Project management;
 - b) Use of business intelligence systems to inform business and risk management;
 - c) Financial management;
 - d) Engagement and partnership development.

8. Continue Investment in Flexible Specialist Systems

- 8.1. Lock in ongoing investment in the Biosecurity Information Management System (BIMS) and build in sufficient flexibility to the system and business processes to accommodate future opportunities such as greater participation by industry and the community in surveillance.

Filling capability gaps - additional targeted investment in Biosecurity Queensland

Deliverable: 4 Identify where targeted investment in Biosecurity Queensland's own capability and capacity is required to restore responses to disease and pest outbreaks to world's best practice.

There remain some areas where additional investment in Biosecurity Queensland's capability and capacity is required to meet the immediate need to be 'response ready' and for the strategic needs of the future. The detailed skills audit recommended should be used to test the availability of individual skills and capabilities and whether staff development or recruitment is required to address capability gaps at an individual level. Nonetheless, it is the Panel's view that the capacity is lacking and that the areas identified below require additional resourcing, irrespective of whether key roles can be filled from within the organisation.

Given the escalating frequency of responses, the Panel also recommends establishment of a standalone response function led by a dedicated leader of responses, to be tasked with building partnerships and community capability and with skills sets in these areas. As noted in the report, there needs to be greater flexibility, but at the same time more consistency, in

the approach to planning, evaluating and conducting responses. Greater flexibility should apply to the approach to small, medium and large responses, as well as the actual control strategies that are applied. Greater consistency should apply across responses of a similar size or nature. The suggested approach to achieving this consistency is establishment of a biosecurity response unit (under the leadership of the specialist leader of responses) that has the responsibility to ensure training and systems are in place, as well as to manage responses.

A function of the biosecurity response unit should be to ensure that adequately trained and sufficient human resources are available for responses. A multi-pronged approach is required that includes an adequately resourced internal training program, ensuring people gain experience in real responses, engagement of external organisations that can supply personnel and “just in time” training processes.

In keeping with Biosecurity Queensland’s transition to a leader and enabler of the Queensland Biosecurity System, the Panel’s view is that the additional investment should focus on people with the leadership skills to develop capability in the areas of risk and consequence analysis and investment prioritisation; and innovation at a technical level and in business processes.

Given the nature of the challenges facing the system, it is clear that innovation will be required to develop and deliver solutions, which deal with the increasing number and complexity of biosecurity threats, with fewer resources, by capitalising on a networked world. A particular opportunity will be improving the business and delivery through emerging digital technologies.

The Panel has also identified capacity and future capability gaps in technical expertise, which needs to be filled through a variety of approaches, acknowledging the increased breadth of specialist knowledge, which will need to be accessed. Proposed approaches include:

- appointing ‘technical specialists’, that is individuals with high level technical expertise, extensive knowledge of industry and/or the environment in a particular region or commodity, and also significant strengths in building relationships. The Panel’s view is that this gap should be filled by an active program of staff development and recruitment, with a focus on locating these specialists in regional areas
- establishing virtual networks in collaboration with other jurisdictions to access expertise, such as epidemiological and economic skills
- establishing a graduate recruitment program informed by national assessments of needs and gaps and building on linkages with tertiary institutions developed through relevant cooperative research centres and other research alliances.

A particular area of capacity and capability concern is marine biosecurity – there are currently very few resources being applied to a high risk area with potential for significant impacts on industries and iconic environmental assets such as the Great Barrier Reef.

The Panel is recommending investment in core leadership and partnership building capability to undertake the following tasks:

- education and awareness of the impacts of marine pests to the environment, infrastructure and implications for trade including tourism
- build relationships with port and shipping industries
- improve collaborations with other agencies such as harbours and marine, Maritime Safety Queensland
- identification of high risk pathways with industry and implementation of mechanisms aimed at preventing introduction along with surveillance for early detection of potentially highly invasive species
- commissioning research or 'on site' trials with regards to appropriate surveillance/monitoring methods likely to successfully detect marine pests at an early stage as a means of prevention. The Panel was advised that research to develop eDNA probes for multiple species is underway in South Australia, however requirements for spatial and temporal application of these tests to provide effective coverage is yet to be determined. The Panel was also made aware of remote monitoring (robotic) technology being developed at CSIRO.

The Panel is also concerned about capability in engagement and development of partnerships, however believes that these capabilities need to be built in to role descriptions at all levels rather than being housed under a dedicated leader. Capability in these areas will need to be built through a combination of targeted training and development of existing staff and attention to these capabilities as part of the recruitment process. In addition, specialist resources may need to be contracted for particular tasks, as they were during the development of the *Biosecurity Act 2014*.

Development of a communications and engagement plan with accountability for delivery assigned to all senior managers is proposed as a way of embedding a more customer, community and partner-focused culture in the organisation.

North Queensland has unique characteristics, which demand special attention. The Panel's view is that a biosecurity leader based in North Queensland is required to develop and drive a suite of initiatives to address the unique needs of the region. There should be a particular focus on delivering biosecurity risk mitigation and control strategies, which enable agriculture and aquaculture sector growth.

Recommendations

2. Refocus Biosecurity Queensland

2.4. Create leadership positions at appropriate levels in incident preparedness and response risk and decision-making; innovation and business improvement; marine and aquatic biosecurity and northern Queensland biosecurity strategy.

9. Establish a preparedness and response unit

9.1. Establish a response unit tasked with responsibility for building relationships within Government and a community biosecurity reserve, ongoing training (including exercises), as well as revisiting response protocols to establish a set of tailored templates, suited to responses of varying degrees of urgency, size and scope.

- a) Undertake a desk top exercise specifically designed to test whole of Government response capability.

- b) Clearly define the circumstances under which departmental resources should be redirected to response, bearing in mind broader business continuity needs, as well as opportunities for personal development.

10. Establish a biosecurity network

10.1. Build a biosecurity network – explore opportunities to utilise other response agencies e.g. SES volunteers with a “rapid deployment training package” and to work with other volunteer and community organisations, as well as agreements with private sector organisations.

- a) Specifically explore opportunities to leverage relationships developed in the enhanced surveillance approach (for example, indigenous rangers, private veterinary practitioners) to increase the capacity of the biosecurity network.

11. Establish an innovation function and develop an innovation strategy

11.1. Establish a biosecurity innovation function and develop an innovation strategy – with priority consideration of opportunities such as for data capture and analysis in collaboration with the community, business, other jurisdictions and agencies; the potential for breakthrough technologies and achieve internal operating efficiencies to lower costs of prevention, surveillance, response.

- a) As a component of the innovation strategy, and in collaboration with Agri-Science Queensland, identify priorities for research and development, including in the area of building more resilient farming systems.

12. Build expert and regional capability

12.1. Develop position specifications and recruit 5 technical specialists, to be located in the regional locations in north and central Queensland as part of a work force development plan, which builds capacity in this area.

12.2. Expand capability by building access to expert networks including through:

- a) A fellows program which retains access to retiree expertise and provides mentoring for less experienced staff;
- b) A virtual network for epidemiologists and other experts.

12.3. Develop a succession plan which incorporates a graduate program targeting biosecurity expertise gaps in the context of national capacity.

12.4. Create a leadership position and specific marine biosecurity function.

12.5. Include engagement and partnership development in the recommended training and workforce development plan, assign responsibility for driving a change in culture to all leaders and establish access to specialist skills.

12.6. Develop a biosecurity initiative for northern Australia incorporating a focus on delivering biosecurity risk mitigation strategies, which support agriculture sector growth, protect the environment and mitigate risks to human health.

Improving the effectiveness of the biosecurity system through leveraging

Deliverable: 3 Identify where incremental investment could leverage capacity and capability from entities, which share Queensland's biosecurity priorities to achieve world's best practice.

A future Queensland Biosecurity System requires a partnership between Biosecurity Queensland and others to deliver project and system outcomes. The advantage of a partnership approach is that both partners are able to leverage their contributions to

achieving shared goals. The availability of incremental investment offers the opportunity to encourage partnerships – in the long run, this will build the capability of the system as a whole.

Organisations which share Queensland's biosecurity priorities include other Queensland state and local government agencies, other jurisdictional government agencies, peak bodies representing primary industries, environment and conservation and communities, primary producers and landholders, supply chain participants, service providers, the research community and members of the broad Queensland community.

Key themes from the consultation process were:

- There is capacity across the Department of Agriculture and Fisheries, the rest of government, tertiary institutions, community, other entities (for example, regional natural resource management bodies and local government authorities) and the national system, which is not being fully utilised for prevention/strategic priorities and response activities.
- There are numerous examples of industry specific and generic programs to improve on farm biosecurity practices and community engagement in early detection. However, there does not seem to be a coordinated approach with explicit key performance indicators or incentives.
- There is an opportunity to better pull government levers to meet biosecurity objectives, for example, through the planning system, logistics/infrastructure, recovery arrangements, and operating agreements/licences.
- There is an emerging realisation that individual jurisdictions cannot all 'do it all' – questions include should some things be delivered nationally on behalf of individual jurisdictions? Should there be more sharing of capacity along the lines of the national Research, Development and Extension framework established under the national Agriculture Ministers' Forum? For example, should other jurisdictions simply contract Biosecurity Queensland to deal with any ant incursions?
- Opportunities to improve biosecurity capacity and capability through networking of specialists across organisations will require active management.

The Panel concluded that there are many opportunities to leverage whole of government, industry, other organisations and/or community action to achieve biosecurity outcomes through the Queensland Biosecurity System. The development of a new biosecurity strategy and action plan, and the new governance and funding arrangements recommended in this report will establish the shared biosecurity priorities and identify the partnering opportunities to assist realisation of these opportunities.

The Panel identified a small number of specific opportunities, which it recommends pursuing as a priority under the new action plan. These opportunities will require some targeted investment from both the Queensland Government and partner entities, but will generate leveraging opportunities for both.

Surveillance

A review of surveillance investment and development of a coherent surveillance strategy has already been recommended. There is an opportunity to leverage information currently being

collected by service providers (for example, agronomists, horticultural advisors, veterinarians), as well as on farm and at other points in the supply chain. There is also an opportunity to target additional information through these routes. This approach would complement the development of a biosecurity reserve (as recommended elsewhere in the report) by establishing relationships, which could be drawn upon in the event of an incursion requiring a response.

The Panel also noted the development of a national surveillance strategy under the auspices of the National Biosecurity Committee and the importance of alignment with other jurisdictional investments to leverage maximum value for Queensland and Australia. In particular, given the particular risk of threats from the north, it is critical that there is ongoing Commonwealth Government investment in the Northern Australia Quarantine Strategy and marine biosecurity and that this is planned and delivered cooperatively.

A particular opportunity is to leverage the existing indigenous ranger network in Far North Queensland and the proposed additional investment referenced in the Commonwealth Government's White Paper on Developing Northern Australia.

The Panel is also of the view that there could be more effective leveraging of 'citizen science' in relation to biosecurity threats to the environment.

The Panel recommends that the new surveillance strategy includes targeted investment in leveraging information from other sources in this way. Tools could include formal memoranda with organisations (as used in New Zealand) or a grants program for initiatives designed to meet established criteria and which include co-investment.

Biosecurity Network

It is the Panel's view that many organisations have arrangements in place to train staff and volunteers in skills that are highly relevant to biosecurity response and that these skills and training could be leveraged more effectively.

On farm biosecurity

Appropriate investment in prevention is critical. In the agricultural biosecurity sphere, good on farm biosecurity systems are an important component of managing biosecurity risk. The same applies to aquaculture and plantation forestry. Effective on farm biosecurity increases profits by enabling effective management of pest and disease impacts on productivity and reducing costs of mitigation strategies. It also helps prevent new incursions happening in the first place and in the event of an incursion, it reduces risk of spread and the need for onerous regulatory controls. The Panel was provided with information about many excellent initiatives to improve on farm biosecurity, developed under the auspices of Animal Health Australia (AHA) and Plant Health Australia (PHA) and industry research and development corporations. Examples include the Livestock Biosecurity Network and Grains Research and Development Corporation funded crop protection officers.

The Panel also identified a number of programs that are currently being delivered to farmers and which could be readily modified to include material to address on farm biosecurity. For example, the Queensland Government is heavily investing in 'Best Management Programs' (BMP) to minimise agricultural impacts on the Great Barrier Reef. BMPs give producers and

landholders advice and detail practices in a digestible format. The Panel suggest that inclusion of biosecurity considerations would be a simple, low cost, high impact mechanism to achieve better biosecurity outcomes. Biosecurity Queensland is currently involved with the Great Barrier Reef Water Science Taskforce.

With a relatively modest investment (for example, a program leader or coordinator, and development of some additional materials) and the establishment and agreement to “stretch” goals for uptake of on farm biosecurity systems, the Panel believes significant gains could be made.

The Panel also noted that recent events, particularly Panama disease tropical race 4 affecting the banana industry, have heightened interest in the value of on farm biosecurity.

Regional networks

As detailed above, at a regional level, there are a number of organisations engaged in delivering biosecurity outcomes to meet shared objectives.

These include Local Government Authorities, Regional Organisations of Councils, Regional Natural Resource Management (NRM) groups, LandCare groups, government land management agencies, including the Department of Transport and Main Roads and Department of Environment and Heritage Protection.

In Far North Queensland, this is compounded by region specific bodies, such as the Wet Tropics Management Authority and indigenous land management councils.

These bodies collectively make a very significant investment in managing threats from invasive plants and animals, but the Panel received feedback from many quarters querying the impact of this investment. Concerns centred on both ‘investment in the wrong things’ and ‘lack of coordination’.

The Panel identified two opportunities to leverage existing investment.

The first is to improve coordination of regional investment processes by gaining agreement to align regional investment priorities and include a broader consideration of biosecurity within these priorities. This would require development of an agreed approach to bring together the biosecurity plans developed by Local Government Authorities (LGAs), the regional natural resource management plans developed by regional natural resource management organisations and relevant regional plans developed by state agencies, including Transport and Main Roads and Environment Heritage and Protection. The Panel was provided with some examples of good coordination, which could be built on, including the regional co-investment model for pest animal control, and coordination of council investment through a regional NRM plan. There is undoubtedly an opportunity to more effectively:

- leverage investment from all regional bodies
- expand the reach of Biosecurity Queensland into private and public landholders
- potentially provide a vehicle to set and achieve broader biosecurity outcomes at a regional level.

Secondly, NRM organisations advised the Panel that they have extensive information resources, which are currently not being shared or utilised effectively for biosecurity outcomes. The Panel believes this opportunity should be further explored in the development of the biosecurity surveillance strategy recommended above.

Partnerships with Private Professionals

Improving the effectiveness of the passive surveillance system, which is required for early detection of new pest and disease outbreaks, is critical to ensuring the future of Queensland's biosecurity system. Early detection minimises spread, maximises the likelihood of control and early recovery, reduces the duration of response activities and minimises losses, costs and impacts.

There are a range of professional veterinarians, agronomists and others who supply private services to primary industries and are on-farm on a regular basis. During consultation, the Panel was advised that many of these service providers were likely to be willing to play a greater role within the surveillance system.

Leveraging opportunities across government

The Panel identifies a number of government initiatives, which could provide leverage points, including two recent Commonwealth Government White Papers and several Queensland Government initiatives, including Advance Queensland. There is an existing level of coordination of biosecurity activities across government, for example, there is a coordinating committee for pest and weed control by land management agencies, and the Panel noted that existing coordination arrangements between Biosecurity Queensland and the Queensland Health appear to work well.

However, the Panel identified three areas of opportunity to better leverage existing Queensland Government investment. In addition, opportunities to tap more effectively into emergency and disaster response capability are discussed earlier in the report.

Integrated service delivery in regional areas

Department of Agriculture and Fisheries staff occupy 44 locations across Queensland in addition to the Brisbane CBD. Approximately 85 per cent of Biosecurity Queensland staff are located outside the Brisbane CBD, although only 34 per cent are located outside the south east region. Other agencies, such as the Department of Natural Resources and Mines, also have a strong regional footprint and there would appear to be a significant opportunity, particularly outside the south east region, to develop a landholder focused customer service approach across DAF and across government.

Options include:

- co-location and single 'shop fronts' (the Panel understands this is being trialled in Charleville and Emerald)
- close collaboration with the customer service centre
- agreements between divisions and/or agencies to 'warm referrals' (where the primary contact officer organises for the right person to deal with an inquiry outside their area of expertise)

- cross authorisation for regulatory functions
- creation of a single integrated 'front line service'.

All these options would increase the reach of Biosecurity Queensland and the breadth of understanding of good biosecurity practice.

Due to time constraints, the Panel did not explore any of these options. However, they could potentially achieve significant improvements to both the effectiveness and efficiency of the biosecurity system.

Incorporating biosecurity objectives where they align with the objectives of programs designed for other purposes

A range of programs delivered across government could be adapted with relatively little effort to address biosecurity objectives, for example the Hort360 program, a collaborative initiative between the Queensland Department of Environment and Heritage Protection and Growcom.

Implementation of the Panel's recommended approach to development and governance of a strategy and action plan should facilitate identification of opportunities such as this.

Utilising other government policy levers to achieve biosecurity outcomes

There are a variety of potential policy levers across government that could achieve biosecurity outcomes more efficiently and effectively than through direct intervention by Biosecurity Queensland. Examples include:

- using the planning system to drive appropriate location of intensive agricultural production enterprises to minimise risk of spread of pests and diseases
- using lease conditions for port infrastructure to set expectations for the management of marine biosecurity risks
- imposing conditions on major development applications to manage biosecurity risks, for example from relocation of heavy equipment.

As above, the development and appropriate governance of a strategy and action plan should assist in identifying these opportunities.

Recommendations

4. Develop a Queensland biosecurity surveillance strategy

4.2. Build leveraging strategies into the Queensland biosecurity strategy including better engagement of private professionals and service providers to agricultural industries, supply chain data, Commonwealth Government, other jurisdictional investment and indigenous ranger programs.

- Engage the environment and natural resources portfolios to work with environmental non-government organisations and community groups to develop options for community driven passive surveillance, building on 'citizen science' models.

13. Joint investment in a coordinated on farm biosecurity campaign

13.1. Design and deliver a coordinated project to set targets and drive measurable uptake

of on farm biosecurity under the umbrella of shared governance arrangements and in collaboration with other organisations such as Animal and Plant Health Australia.

12. Build expert and regional capability

12.7. Design and deliver a pilot project with a subset of volunteer Local Government Authorities and natural resource management groups to explore opportunities to better coordinate and leverage investment at a regional level, including taking on a broader biosecurity focus and improving surveillance outcomes.

Funding arrangements

Scope: 1 (c) Outline the decision making and investment criteria that trigger cost sharing and/or a move to different levels of intervention - eradication, containment, management etc.

Deliverable: 5 The specific issue of Biosecurity Queensland's base funding and funding for responses

Queensland operates within a strong national biosecurity system that provides a national framework to manage the governance, funding and response to exotic pest and disease incursions, as well as policy guidance and frameworks for all aspects of biosecurity, including the management of established pests and diseases.

Queensland is a signatory to three national cost-sharing agreements with the Commonwealth, state and territory governments, and plant and animal industries. These agreements recognise that a biosecurity risk in one state has the potential to impact strongly on the economy and environment elsewhere in Australia.

Simply put, these agreements are activated when a National Management Group agrees that it is in the national interest, and it is technically feasible and cost beneficial, to eradicate an exotic pest or disease. Under these agreements, governments and affected industries share the decision-making of the response, and share the costs based on public versus private benefits, until such time that an eradication response is finalised or no longer considered feasible.

Funding for Biosecurity Responses

The Panel note the history of decision-making processes to secure funding for responses and the potential operational risks associated with funding uncertainty. With this in mind, they commissioned Synergies Economic Consulting to prepare a report based on the nature of the funding challenges expressed during consultation and recommend options to establish a more certain funding environment.

The report noted a range of problems with the current model for funding for biosecurity incidents and responses. The most challenging is the uncertainty created by delays in the funding process. It also identified the increasing expenditure on responses, and the increasing gap in nationally cost-shared funding.

The consultant report made two recommendations to fine tune the current funding model for responses. These involved:

- Rolling over underspent revenue
- Optimising governance around funding for responses by:
 - explicitly distinguishing between the immediate response phase and the main response;

- enhancing internal capacity for review and evaluation within Biosecurity Queensland;
- improving performance management information within DAF, and within the central agencies of the Department of Premier and Cabinet and Queensland Treasury.

The Panel agrees with the two recommendations made in the Synergies report, whose overall intent is to improve the quality of information provided to decision makers and hence the quality and timeliness of decisions. They are consistent with the broader findings of the panel, and the panel’s recommendations elsewhere.

The Panel also recommends a modest increase to the allocation to the Exotic Pest and Disease Fund to \$1.5m and restricting its use to new outbreaks.

Recommendations

14. Fine tune funding for responses

14.1. The panel recommends that the annual allocation to the Exotic Pest and Disease fund is increased to \$1.5m and its governance revised to restrict its application to new incursions and provide for enhanced oversight. The fund should be reviewed after three years to review the appropriateness of the allocation in an environment of increased risk.

14.2. The Panel recommends that development of the investment and commissioning function for responses and the biosecurity response unit build in:

- a) Clearly differentiated and articulated response phases, with clear purposes;
- b) Enhanced capacity for review and evaluation, particularly of responses and response strategies;
- c) Improved performance management information for DAF and central agencies.

Implementation

Deliverable: Detail a five-year plan with specific recommendations for actions, including costings and options and KPIs to address gaps in biosecurity capability

The Panel’s recommendations form an integrated set designed to build both the capability of the Queensland Biosecurity System and Biosecurity Queensland.

Two parallel processes will be required to drive the necessary change over the next five years. These are illustrated schematically in Table 1 – implementing recommendations overview.

Table 1: Implementing Recommendations Overview

BUILD CAPABILITY OF THE QUEENSLAND BIOSECURITY SYSTEM	BUILD CAPABILITY OF BIOSECURITY QUEENSLAND TRANSFORMATION PLAN
STRATEGY AND ACTION PLAN	
Build the framework for the future Queensland Biosecurity System	Refocus Biosecurity Queensland, including leadership in emergency preparedness and response, risk and decision-making, innovation and business improvement, marine and aquatic biosecurity, and northern Queensland.
Dismantle red tape and improve flexibility for agricultural businesses	Establish a biosecurity innovation function and develop an innovation strategy
Implement new approaches to build better supporting systems	Continue investment in flexible specialist systems

BUILD CAPABILITY OF THE QUEENSLAND BIOSECURITY SYSTEM	BUILD CAPABILITY OF BIOSECURITY QUEENSLAND TRANSFORMATION PLAN
STRATEGY AND ACTION PLAN	
Review and reprioritise investment in biosecurity programs - systematic review	Review and reprioritise investment in biosecurity programs - establish an investment function and leadership
Deliver a coordinated "improving biosecurity on farm" initiative	
Deliver a marine biosecurity initiative	
Build expert and regional capability - coordination and leveraging	Build expert and regional capability - technical and leadership
Develop a Queensland biosecurity surveillance strategy	
Create incentives to report disease	
Establish a biosecurity network	Establish a new preparedness and response unit

Immediate Investment

As an immediate priority, the Panel recommends investment in the development of the biosecurity strategy and action plan and associated governance arrangements. Concurrently, there should be investment in the establishment of the new biosecurity response unit and biosecurity network, as well as the recommended skills audit and organisational redesign. An additional investment of at least \$3m in the first year will be required, and will require supplementation in the event of incursions exceeding baseline response capacity. Ongoing funding of this order will be required to maintain the capacity of the response unit.

Completion of the initial steps will enable a more accurate assessment of the quantum of further investment required to implement the action plan and transformation plan to deliver the remaining recommendations. Dollar symbols in the tables in the sections below indicate the relative size and weight of the different initiatives.

Separately, the panel has recommended the allocation to the Exotic Pest and Disease fund is increased from the current \$0.784m to \$1.5m and its governance reviewed. This will require an additional investment of \$0.716m, over and above the minimum of \$3m initial investment detailed above. As noted above, an increased allocation to the fund is unlikely to represent an increase in funding provided to DAF given funds for new incursions are almost always provided through the Mid-Year Fiscal and Economic Review process.

Biosecurity strategy and action plan - building the capability of the Queensland Biosecurity System

A new biosecurity strategy and action plan is required to set the priorities, milestones and key performance indicators (KPIs), and assign responsibilities for biosecurity activities.

The action plan should be the vehicle for setting the priorities for Biosecurity Queensland as well as for partner organisations and should embody the changes required to implement the new *Biosecurity Act 2014*, which is due to commence in July 2016.

A number of industry submissions flagged the need for a transition plan – transitional activities should also be accommodated in the Action Plan, along with the ‘outcome oriented’ recommendations in this report.

Table 2 proposes a tentative prioritisation and schedule for implementation of the Panel’s recommendations in the context of the Action Plan. However, the new Strategy and Action Plan will need to be developed in partnership, and will need to accommodate a far broader range of activities, which will undoubtedly require adjustment of the prioritisation and scheduling of the recommendations. Time frames, milestones and KPIs will need to be developed as each project is properly scoped and planned out.

Table 2: Building the System - 5 Year Action Plan

Recommendation	Year 1	Year 2	Year 3	Year 4	Year 5
1. Build the framework for the future Queensland Biosecurity System \$\$	<ul style="list-style-type: none"> • Confirm core partners • Negotiate roles, responsibilities and contributions • Agree objectives • Develop new biosecurity strategy and action plan • Develop and select options for industry fund(s) 	<ul style="list-style-type: none"> • Formalise governance arrangements • Publish strategy and action plan • Commence implementation of fund option • Report on progress to Cabinet 	<ul style="list-style-type: none"> • Governance in place • Monitor progress and fine tune action plan • Fund in place • Report on progress to public and Cabinet 	<ul style="list-style-type: none"> • Monitor progress and fine tune action plan • Fund in place • Report on progress to public and Cabinet 	<ul style="list-style-type: none"> • Review progress over 5 years • Develop proposals for the future • Fund in place • Report on progress to public and Cabinet
2. Dismantle red tape and improve flexibility for agricultural businesses \$	<ul style="list-style-type: none"> • Develop project for systematic review of regulatory schemes: <ul style="list-style-type: none"> - using commencement of new Act - to decrease costs and increase flexibility for industry - to decrease costs to Government - assign costs to "risk creators" - including transition plan 	<ul style="list-style-type: none"> • Project implementation 	<ul style="list-style-type: none"> • Project completion and evaluation 		
3. Implement new approaches to build better supporting systems \$\$	<ul style="list-style-type: none"> • Review PIC register in context of national systems • Determine diagnostic needs • Evaluate options and implement preferred option for commercial, in house diagnostic service 	<ul style="list-style-type: none"> • Implement new approach to PIC registration • Develop and approach to engagement of private vets for surveillance 	<ul style="list-style-type: none"> • Implement private vets surveillance scheme • Implement full cost recovery for Veterinary Surgeons Board. • Explore engagement of service providers in the plant industries for surveillance 	<ul style="list-style-type: none"> • Implement plant biosecurity service providers scheme for surveillance 	<ul style="list-style-type: none"> • Review surveillance initiatives

Recommendation	Year 1	Year 2	Year 3	Year 4	Year 5
4. Review and reprioritise investment in biosecurity programs - systematic review* *costed in transformation plan	<ul style="list-style-type: none"> • Develop project for systematic review of investments • Agree objectives • Agree sequencing and information needs 	• Project implementation	• Project implementation	• Project completion and evaluation	
5. Deliver a coordinated 'improving biosecurity on farm' initiative \$\$	<ul style="list-style-type: none"> • Identify project partners and related initiatives • Develop project and agree targets and time frames. 	• Project implementation	• Project implementation	• Project implementation	• Review and evaluation
6. Build expert and regional capability - coordination and leveraging \$	<ul style="list-style-type: none"> • Build biosecurity objectives into planning for the Northern CRC • Build linkages to Commonwealth Department of Agriculture to leverage biosecurity investment in northern Australia and agriculture white papers • Develop and commence implementation for project for regional organisations leveraging and coordination pilot 	• Implement leveraging and coordination pilot	• Implement leveraging and coordination pilot	• Review leveraging and coordination pilot	
7. Develop a Queensland biosecurity surveillance strategy \$	• Establish surveillance priorities	• Review and reallocate current surveillance investment to meet priorities			
8. Create incentives to report disease \$		• Explore in the context of industry fund and dismantle red tape initiatives			
9. Establish a biosecurity network \$\$	<ul style="list-style-type: none"> • Identify potential partners • Identify employment / engagement mechanisms 	<ul style="list-style-type: none"> • Desktop exercise to test whole of government capacity • Formally engage reserve partners • Develop 'just in time' training packages 	• Deliver training	• Desktop exercise with reserve partners	

Funding arrangements

Funding for implementation of the Action Plan should largely be drawn from reprioritisation of the existing core Biosecurity Queensland budget, excluding 'infrastructure' costs such as management, systems and corporate support. As noted above, some initial funding will be

required to implement the framework and will be required to develop, maintain and activate the biosecurity network.

This funding should be quarantined in a separate account, and any savings or additional revenue generated as a result of Action Plan initiatives should be returned to this account to be reinvested in other initiatives. This will provide a source of revenue to implement initiatives requiring new funding.

The establishment of one or more industry biosecurity funds or other mechanisms for contributions from industry or other parties will facilitate joint funding of Action Plan projects. Funds could also potentially be matched on a project basis by contributions from other government agencies with shared objectives.

It would be expected that priority for new funding would be given to projects where there are significant contributions from other parties.

It is important to note that the flexibility of reprioritisation will be constrained by the fact that an estimated 75 per cent of the core Biosecurity Queensland budget is assigned to staff costs. Nonetheless, the process of prioritisation, leveraging contributions from other sources and coming up with new and more effective ways of delivering outcomes will still deliver a more balanced and higher impact portfolio of biosecurity activities and will build the capability of the system for the future.

Leadership and governance

Leadership and governance arrangements for delivery of the Action Plan will be needed at two levels.

An appropriately skilled and qualified committee or board should oversee development and delivery of the Action Plan, should make prioritisation decisions and ensure that appropriate accountability and reporting mechanisms are in place. While the agreed core parties should be represented on the board or committee, it should be a skills-based, rather than a representative entity. It should be chaired independently by an appointee of the Minister.

The Biosecurity Queensland Ministerial Advisory Council should be tasked with developing and recommending the detail of the governance arrangements and should operate as the interim governing committee, albeit with the capacity to make recommendations rather than decisions, consistent with its role in advising the Minister for Agriculture and Fisheries.

This will enable development of the new Biosecurity Strategy and Action Plan and other initial steps to be undertaken.

In addition, there will need to be governance arrangements at the individual project level involving project level partners to ensure joint ownership and accountability for delivery of project outcomes.

These mechanisms will together achieve the coordination and leveraging across the Queensland Biosecurity System, which the review has found to be lacking.

Biosecurity Queensland Transformation Plan

Targeted investment in building the capability of Biosecurity Queensland will be required if the organisation is to meet immediate demands as well as transform itself into the leading and enabling role required for the future.

A Biosecurity Queensland transformation plan will be required to sequence and manage the roll out of these investments in parallel with the Biosecurity Strategy and Action Plan.

Table 3 sets out a high level schedule as the basis for a transformation plan.

Table 3: Building BQ Capability - 5 Year Transformation Plan

Recommendation	Year 1	Year 2	Year 3	Year 4	Year 5
1. Refocus Biosecurity Queensland \$\$	<ul style="list-style-type: none"> • Appoint strategic change manager, commence engagement with staff and fine tune transformation plan using project management methodology • Identify non-biosecurity functions (for example, animal welfare) and transition into a separate organisational unit. • Commence strategic engagement with internal and external partners to explore options for management of non-biosecurity functions. 	<ul style="list-style-type: none"> • Change management and staff engagement • Commence transition out of non-biosecurity functions 	<ul style="list-style-type: none"> • Change management and staff engagement • Continue transition out of non-biosecurity functions 	<ul style="list-style-type: none"> • Change management and staff engagement • Continue transition out of non-biosecurity functions 	<ul style="list-style-type: none"> • Change management and staff engagement • Complete transition out of non-biosecurity functions
2.	<ul style="list-style-type: none"> • Develop a new organisational design for Biosecurity Queensland • Appoint leaders and establish function in emergency preparedness and response*, risk and decision-making*, innovation and business improvement*, marine and aquatic biosecurity*, and Northern Queensland*. *costed elsewhere 	<ul style="list-style-type: none"> • Implement new organisational design 			
3.	<ul style="list-style-type: none"> • Undertake a skills audit. 	<ul style="list-style-type: none"> • Prepare a training and development plan • Prepare a succession plan 	<ul style="list-style-type: none"> • Implement training and development plan • Implement succession plan • Implement a graduate program • Develop and implement expert virtual networks • Develop and implement a fellows program for retiring staff 	<ul style="list-style-type: none"> • Implement training and development plan • Implement succession plan • Run graduate program • Run virtual networks • Run fellows program 	<ul style="list-style-type: none"> • Review and evaluate capability using NEBRA and APS frameworks • Run virtual networks • Run fellows program

Recommendation	Year 1	Year 2	Year 3	Year 4	Year 5
4. Establish a biosecurity innovation function and develop an innovation strategy \$\$	<ul style="list-style-type: none"> Consider preferred model for the innovation function as part of the organisation redesign Appoint innovation leader 	<ul style="list-style-type: none"> Develop formal innovation strategy 	<ul style="list-style-type: none"> Implement strategy initiatives 	<ul style="list-style-type: none"> Implement strategy initiatives 	<ul style="list-style-type: none"> Implement strategy initiatives
5. Continue investment in flexible specialist systems \$	<ul style="list-style-type: none"> Review proposed functionality of BIMS in the context of a distributed surveillance system 	<ul style="list-style-type: none"> Continue to implement BIMS 	<ul style="list-style-type: none"> Continue to implement BIMS 	<ul style="list-style-type: none"> Expand functionality to operationalise for external partners 	
6. Review and reprioritise investment in biosecurity programs - establish an investment function and leadership \$\$	<ul style="list-style-type: none"> Appoint investment (risk and decision making) leader Identify capability gaps in risk and information analysis at fine grain Incorporate staff skills development/recruitment plan in to training and development plan Commence building relationships with key partners in investment decision making 	<ul style="list-style-type: none"> Implement development / recruitment plan Establish internal investment framework (commissioning function) Implement new budget allocation processes to prioritise investment for actions identified in the Biosecurity Strategy and Action Plan. Support systematic review of investments 	<ul style="list-style-type: none"> Support systematic review of investments under the biosecurity action plan Implement commissioning function 	<ul style="list-style-type: none"> Support systematic review of investments under the biosecurity action plan Implement commissioning function 	<ul style="list-style-type: none"> Implement commissioning function
7. Build expert and regional capability - technical and leadership \$\$\$	<ul style="list-style-type: none"> Appoint leader for NQ Develop northern biosecurity action plan 	<ul style="list-style-type: none"> Implement northern action plan Appoint "regional technical specialists" 	<ul style="list-style-type: none"> Implement northern action plan Regional technical specialists 	<ul style="list-style-type: none"> Implement northern action plan Regional technical specialists 	<ul style="list-style-type: none"> Implement northern action plan Regional technical specialists
8. Establish a new preparedness and response unit \$\$\$\$	<ul style="list-style-type: none"> Appoint leader for preparedness and response Establish preparedness and response unit Develop staff training plan and agree delivery approach Commence training delivery 	<ul style="list-style-type: none"> Commence review of response protocols Continue training Commence establishment of biosecurity network (see action plan) 	<ul style="list-style-type: none"> Continue review of response protocols Continue training Continue building biosecurity network 	<ul style="list-style-type: none"> Conduct major series of exercises (subject to concurrent responses) Continue training Continue building biosecurity network 	<ul style="list-style-type: none"> Review preparedness Continue training Continue building biosecurity network
9. Establish marine biosecurity function \$\$	<ul style="list-style-type: none"> Appoint leader and establish marine biosecurity function Pathway and risk analysis Establish project with key partners and appropriate governance arrangements Evaluate suitability of Western Australian tools 	<ul style="list-style-type: none"> Implement enhanced approach to marine biosecurity 	<ul style="list-style-type: none"> Implement enhanced approach to marine biosecurity 	<ul style="list-style-type: none"> Implement enhanced approach to marine biosecurity 	<ul style="list-style-type: none"> Implement enhanced approach to marine biosecurity

Funding arrangements

The Panel has identified that there does need to be investment in capability and believes this should be provided as an ongoing supplement to the current budget. It will be important for this investment to be made as a sign of good faith and to encourage co-investment in the strategy and action plan. There should be an assessment of progress after four years to establish the need for ongoing funding, with the expectation that implementation of the Panel's recommendations should have realised opportunities for the organisation to operate more effectively within fiscal constraints.

Leadership and governance

The transformation plan will need to operate under an effective project management framework with a dedicated project director and should report to the DAF Executive Board or a subcommittee of its members.

Reporting of progress

Progress with delivery of both plans should be reported to Cabinet and publicly.

Other comments

The Panel's review and approach to this report has assumed a continuation of current arrangements whereby Biosecurity Queensland operates as a division of the Department of Agriculture and Fisheries.

The Terms of Reference for the review did not require consideration of business models for Biosecurity Queensland. However, a number of submissions recommended that Biosecurity Queensland be set up as an independent statutory authority for a variety of reasons. Consideration of alternative business models is also a logical extension of a shift to a system focus, rather than a regulatory focus.

The Panel did explore some of these models and considered that the concerns raised could be addressed through other mechanisms recommended in the report.

While none of these models is being recommended for immediate consideration by the Panel, the Panel considers that models which involve joint industry and government investment in an incorporated entity are effective at achieving shared responsibility for biosecurity outcomes.

Relevant models should be considered as the Queensland Biosecurity System matures, and in the context of further exploring the concept of an industry fund.