Independent Assurance Review of New Zealand's Biosecurity International Border Defences for Passenger and Mail Pathways

A review commissioned by:

Director General, Ministry for Primary Industries
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EXECUTIVE SUMMARY

The *"Independent Assurance Review of New Zealand's Biosecurity International Border Defences for Passenger and Mail Pathways"* provides an important opportunity for a status update and forward-looking perspective for the Ministry for Primary Industries and its stakeholders on specific critical elements of the nation's border biosecurity services.

Overall, the Reviewer is in no doubt that New Zealand's border biosecurity services in the targeted areas are world-class, and well-protect New Zealand. However, the Report argues that the very nature of border biosecurity, subject as it is to rapid changes in travel and trade, inability of operators of underpinning infrastructure to be sufficiently agile to adjust to changes, new technology developments, and stakeholder awareness and expectation (among other pressures), means that ongoing tactical and strategic improvement is essential.

The Reviewer argues that it is important to see the border (and pre-border) biosecurity functions as a whole, and as part of the broader New Zealand biosecurity system. While it may be expedient for some stakeholders to focus attention on a narrow (perhaps tiny) part of the suite of border biosecurity measures, the "resource-to-risk" approach that it is essential for MPI to apply, together with the ongoing tactical and strategic agility needed in order to respond to evolving trade and travel patterns, offshore biosecurity threats, technology changes, and New Zealand industry and community changes means that there will often be small cohorts of unsatisfied stakeholders.

The Reviewer wishes to highlight the openness, focus on excellence and commitment all management and staff of the Ministry for Primaries have demonstrated during the Review. The people of New Zealand should be proud and supportive of their biosecurity services personnel, and play their own part in protecting their nation's biosecurity status, consistent with the *Tiaki Promise*.

The Reviewer makes the following Findings for consideration by the Ministry for Primary Industries (MPI):

UNDERPINNING A WORLD-LEADING BORDER BIOSECURITY SYSTEM

- *Finding 2.1: It is critical that MPI's biosecurity services have available fit-for-purpose regulatory powers. The legislative review already underway will progress much-needed operational improvements to the powers and functionality of the Biosecurity Act. The criticality to New Zealand of good biosecurity status invokes a need for proactive future updating of this legislation and its supporting operational regulations.*

- *Finding 2.2: It is in New Zealand's interest that future biosecurity budget allocations (that will be recouped from cost-recovery mechanisms)*

recognize the need to adopt new technology and employ additional staff due to the physical constraints of some infrastructure in which border biosecurity services must operate while addressing expanding and/or changing biosecurity risks.

- *Finding 2.3: The vital importance of data and other intelligence to effective border risk mitigation means that ongoing (recurrent) investment in improving information systems is mission-critical so that they can keep pace with, or even drive, improved border intervention (with the established cost-recovery system underpinning such future-focused investment).*

TARGETED PATHWAYS – AIR PASSENGERS

- *Finding 3.1: The boosting of detector dog numbers to current levels was well-justified, however, the Reviewer did not see a case for further increase; other changes outlined in this report would lead to more effective use of existing detector dog resources, and better future-proofing of the border biosecurity system.*

- *Finding 3.2: The current testing and algorithm development for the latest Real Time Tomography (RTT) scanning technology provides a step-change improvement opportunity for risk mitigation in the passenger pathway. As soon as practicable, an additional RTT scanner should be built into the air-side breeze-way of the most commonly used luggage handling line to expedite image collection and aid whole-of-process experience development for biosecurity personnel.*

- *Finding 3.3: Using an appropriate stage-gate decision process, earliest practical implementation of the proposed operation of RTT scanners for all luggage at Auckland International Airport should proceed, including funding for additional staff and operational infrastructure needed to underpin the development.*

- *Finding 3.4: Current interventions by inspectors and detector dogs in the Green Channel should be augmented by earliest adoption of Computed Tomography (CT) scanner(s) suited to rapid scanning of hand-luggage.*

- *Finding 3.5: Though relatively small, any efficiency gains in use of detector dogs for cruise ships through adoption of other Findings in the report can be used to provide a valuable increase in detector dog availability for the Green Channel at Auckland International Airport (until adequate CT and RTT scanning becomes fully operational).*

- *Finding 3.6: The current steps being taken to ensure that all airlines operating into New Zealand play an approved in-flight biosecurity awareness video are an overdue addition to the national biosecurity system.*

- *Finding 3.7: There is merit in developing a low-cost, practical means of maintaining biosecurity awareness among arriving passengers after they exit the international airport as tourists. Upon the advent of digital travel documentation, new smartphone-enabled digital tools should be deployed to maintain appropriate connection with tourists at minimal cost.*

- *Finding 3.8: In order to enable low-risk air travellers to exit the over-crowded biosecurity area of the airport arrival hall(s), MPI should consider ways to "fast-track" low-risk passengers away from the mainstream crowd of arriving passengers (for example):*
  1. Lower risk passenger cohorts:
      a. Lower-risk ports of origin; and/or
      b. Frequent travellers to New Zealand
  2. Hand-luggage only:
      a. Rapid CT-scanning of all hand luggage and bulky clothing; and
      b. Detector dog random assignment and verification

- *Finding 3.9: To the extent practical, all biosecurity processing of arriving commercial quantities of food should be handled consistently. At international airports, appropriate processes need to be put in place to enable diversion (early in the passenger clearance process) of passengers known or suspected to be carrying commercial quantities of material requiring detailed inspection and clearance.*

- *Finding 3.10: MPI should persist with development and rollout of culturally-supportive, biosecurity-effective ("Biosecurity First") solutions for Pacific Island passenger pathways, noting that operational savings may not be immediately accrued.*

- *Finding 3.11: Consistent with Finding 3.8, the voluntary Tonga arrangement for "pre-cleared food boxes" should move to a compulsory/mandatory system as part of a broader rollout of this approach to other Pacific airports and countries of origin, with any breach of this process resulting in prosecution as opposed to an infringement under current protocols.*

TARGETED PATHWAYS – CRUISE SHIP PASSENGERS

- *Finding 4.1: The biosecurity accreditation protocols for cruise ships are now well-established and well-tested, and all cruise ships bringing passengers into New Zealand should be required to:*
    - *Gain Accreditation via well-established protocols and processes now being utilised on the majority of cruise ships: or*
    - *Complete full stores replacement for biosecurity risk materials*
    - *In the event that a cruise liner operator chooses not to enter into either option (1 or 2 above), that cruise ship should be subject to all necessary MPI biosecurity services, at full cost to the cruise ship operator (above the general passenger levy amount payable).*

- *Finding 4.2: There is an opportunity for an MPI-industry partnership approach to delivering low-cost awareness raising approaches that may improve engagement in targeted ports/ anchorages of both local stakeholders and visiting cruise ship passengers.*

TARGETED PATHWAYS – MAIL AND EXPRESS FREIGHT

- *Finding 5.1: The IMC facilities significantly impede the delivery of cost-effective biosecurity measures. It is essential that MPI, with New Zealand Post and Customs, achieve earliest practical implementation of technology and methodology improvements within the IMC, in order to cover the existing biosecurity risk, using technology and methodology transferable to new IMC facilities when available.*

- *Finding 5.2: Improved digital gathering and analysis of data is essential for the Express Freight pathway, necessitating sustained ongoing investment in modular and stepwise development of digital capability, both in terms of online data and intelligence gathering and risk profiling, and in-line scanning and algorithm-based identification of risk material.*

- *Finding 5.3: Unless MPI is fully satisfied, via annual review of its intervention and verification processes, that Express Freight continues to be a very low risk pathway that is adequately mitigated, it should be prepared to deploy additional random detector dog verification surveillance across the Express Freight system, with appropriate related stakeholder communication.*

In regard to the specific key issues highlighted in the Terms of Reference (1-6), the Reviewer makes the following Recommendations:

1. The overall adequacy of the border defence frameworks for passenger and mail pathways, relative to the rising volumes of passengers, the changing nature of mail, evolving risk profile in country-of-origin, New Zealand's changing risk profile and international best practice.

    o *Recommendation: New Zealand has a world-leading border biosecurity system, however, in order to effectively mitigate the evolving biosecurity risks to New Zealand, the future regulatory, financial support and technology underpinning of MPI border biosecurity operations must be more responsive to the shifts in risk profiles and international trade and travel commerce. The criticality of biosecurity to New Zealand's export-driven economy and social and environmental well-being means that a "biosecurity first" approach must overcome current infrastructure impediments to delivery of appropriate border biosecurity measures.*

2. The reliability of Biosecurity New Zealand's audit and assurance measures for passenger and mail pathway compliance

    o *Recommendation: MPI generally has sound measures in place to deliver high quality biosecurity risk mitigation, verify their effectiveness and openness to external audit of these systems. Operational strategy and resourcing changes, rather than improved audit and assurance measures will strengthen the risk mitigation compliance in the passenger and mail pathways.*

3. Biosecurity New Zealand's capability and tactical deployment of detector dogs across the passenger and mail pathways

    o *Recommendation: New Zealand's strong commitment to use of high-quality detector dogs in various applications is commended. The Review did not conclude that more detector dogs are needed, however, changes highlighted in the Findings would materially improve the deployment and associated effectiveness and efficiency of detector dogs.*

4. The adequacy of the express freight risk analysis systems that determine inspection decisions

    o *Recommendation: The low assessed risk for the Express Freight pathway should not lead to complacency, nor should past failure to develop high-quality integrated border information systems impede the drive to establish such systems (albeit in a more modular and networked model). Both improved risk assessment based on*

improved information access and analysis, and new in-line detection technology are needed.

5. The adequacy of international passenger awareness and domestic community awareness programs

   o *Recommendation: More attention needs to be applied to awareness of those in the risk-creating pathways, including full deployment of in-flight biosecurity videos, engagement of passengers as they exit border biosecurity control points, and awareness of those industry/community personnel directly involved with biosecurity risk pathways.*

6. What, if any, additional controls could be introduced that would give greater confidence in the effectiveness of the overall system as it applies to passengers and mail.

   o *Recommendation: New scanning technologies provide the greatest opportunities for step-change improvements in the effectiveness and efficiency of MPI's border biosecurity operations. Development of world-leading application of this technology for biosecurity will be aided by faster, wider deployment of CT and RTT scanners, with appropriate personnel and operational resources funded via cost-recovery mechanisms.*

1. BACKGROUND

Context for the Review

New Zealand rightly takes biosecurity very seriously, via its Government and agencies, its industries and businesses and its people. Arguably, no other nation is as dependent on maintaining, and improving where practical, its established outstanding biosecurity status. Why?

New Zealand is directly and indirectly underpinned economically, and socially, by industry sectors that depend to a large extent on New Zealand maintaining the best, or one of the best, levels of pest and disease freedom among the world's nations.

The numbers highlight this – Statistics New Zealand (Stats NZ) data show that 70% of 2018 exports from New Zealand are directly or closely dependent on the nation's outstanding biosecurity status:

- The primary industries underpin the export-based economy of New Zealand: 8 of the top 10 product exports in 2018 were primary industry exports, with two primary product categories also being the fastest growing product exports in 2018
- A dominant proportion of New Zealand's export-focused economy depends on the outstanding international reputation of New Zealand as a *clean, green, healthy, and naturally beautiful* country (*100% Pure New Zealand*). When products and services exports are combined, those economic sectors that depend strongly on outstanding biosecurity status (including international tourism and education) account for 15 out of 30 of the nation's largest exports and 70% of the NZ$80 billion export value.

It is also important to not lose sight of the powerful national commitment to Maori culture, and a commitment to care for New Zealand for now and for future generations under the *Tiaki Promise*. Delivery on this commitment is strongly dependent on New Zealand maintaining an outstanding biosecurity status.

The underpinning economic, social, cultural and reputation drivers for New Zealand mean that biosecurity risks must be in the top five (5) national risks, and consequently, maintenance and improvement of world's best, innovative, agile, diligent and effective biosecurity services is a matter of clear national importance.

It is not being overly dramatic to highlight that the biosecurity status of New Zealand (and therefore, all that can be adversely affected by a major acute or chronic breakdown of it) is under ongoing, increasing and evolving threat.

This type of "globalised world challenge" is not unique to New Zealand nor peculiar to biosecurity risk pathways; other risk-exposed areas (e.g. cyber-security) are also challenged by the need to evolve, grow, improve and adapt on a continuing basis. The Reviewer would expect to see biosecurity more closely considered amongst other macro-risks for New Zealand than is the case in the vast majority of countries.

The following old and more recent quotes are perpetually relevant to biosecurity agencies:

"The significant problems we face today cannot be solved at the same level of thinking we were at when we created them" (Albert Einstein)

"If the rate of change is faster on the outside than on the inside then the end is near" (Jack Welch)

Clear vision and a determined commitment to continuous improvement, with appropriate monitoring, review and adjustment – plus stakeholder engagement – is vital for the ongoing success of New Zealand's biosecurity services. Ideally, this will be achieved with MPI and New Zealand's own version of:

- *Deepening the Practice* – delivering on agreed programs and methods with consistent excellence
- *Ongoing Learning* – continuous improvement in well-disciplined ways under approved governance arrangements
- *Transformation* – grasping step-change improvements as they are made possible by technology and other advances

It is timely that the Director General of the New Zealand Ministry of Primary Industries (MPI) has commissioned this Review of some of the vitally important functions carried out by the Biosecurity New Zealand arm of MPI.

The Reviewer has observed both a strong inherent commitment to improvement of biosecurity measures via MPI's own version of *Deepening the Practice, Ongoing Learning and Transformation,* but has also made observations about additional opportunities to bring forward, or provide greater emphasis to, improvements "already on the radar" of MPI managers.

Terms of Reference summary and approach

The independent Reviewer is obliged to report back to the Director-General on:

- The overall adequacy of the border defence frameworks for passenger and mail pathways, relative to the rising volumes of passengers, the changing nature of mail, evolving risk profile in country-of-origin, New Zealand's changing risk profile and international best practice
- The reliability of Biosecurity New Zealand's audit and assurance measures for passenger and mail pathway compliance
- Biosecurity New Zealand's capability and tactical deployment of detector dogs across the passenger and mail pathways
- The adequacy of the express freight risk analysis systems that determine inspection decisions
- The adequacy of international passenger awareness and domestic community awareness programs

- What, if any, additional controls could be introduced that would give greater confidence in the effectiveness of the overall system as it applies to passengers and mail.

In order to appropriately focus the Review within these Terms of Reference, and to complete the Review within the allocated timeframe, it was necessary to take the approach outlined below.

Conduct of the Review

The Reviewer is very appreciative of the ready access provided to MPI staff, key operational sites, and documentation relevant to this review. The pride of all involved in the important work that they conduct for MPI and New Zealand, and the openness and enthusiasm of all involved to seek opportunities for improvement of biosecurity services is impressive.

It is important to understand <u>what this Review is, and is not</u>:

- It is a sharply focused review for only a subset of the many vital parts of Biosecurity New Zealand
- It is a tight, short-term review, and by necessity cannot cover many areas in detail, nor can it cover detailed design and implementation considerations for recommended solution
- It is a review for MPI and does not repeat back to MPI its own statistical and resource data that is well-known to MPI decision-makers
- It is a designed as a practical review, that includes a focus on practical short-term improvements that MPI can consider for early implementation
- It is not an audit of organizational structures, culture, management, or staffing
- It is not a performance audit of the type that may be conducted by the Office of the Auditor General[1]
- It does not constrain itself to considerations of funding and financing of recommended solutions, which are a matter for MPI and the Minister for Biosecurity
- It is a system review, not a pest-specific review
- It is not a review of the current Fruit Fly incident responses, nor of MPI's incident response capability more generally

The work to complete the Review was actioned immediately after establishment of the Terms of Reference via a visit to Auckland and Wellington by the Reviewer.

The Reviewer has sought to establish - from the meetings and discussions, available documentation and limited site inspections, and email and telephone engagement - where any impediments exist to fully effective and efficient mitigation of biosecurity risks within the pathways that are covered by this Review.

Several overall constructs or frameworks are utilized to give structure to the Review, so that Findings and Recommendations regarding front-line border biosecurity measures can be given appropriate context and support.

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[1]   *For example, a brief search of the website for the New Zealand Office of Auditor General reveals: 184 items matching "biosecurity", 43 items matching "quarantine", 82 items matching "air passenger", 54 items matching "border protection" and 9 items matching "detector dog". Noting that some items will relate to other border agencies, and that there is significant duplication inherent in the searches, it is clear that the OAG has and will continue to audit border biosecurity functions.*

2. UNDERPINNING A WORLD-LEADING BORDER BIOSECURITY SYSTEM

In order to provide context to the review of specific elements of New Zealand's border biosecurity functions, it is important to provide some comments on essential strategic foundations for effective, efficient frontline biosecurity operations.

Biosecurity continuum

The concept of a *biosecurity continuum* is well-established internationally, and applied with distinction in New Zealand and Australia. This includes a well-recognized interdependent 'import + export continuum' covering biosecurity measures to achieve effective risk mitigation on incoming pathways, and in-country measures and export certification to enable export market access and mitigation of potential risks to importing customer countries.

The inward part of a *biosecurity continuum* includes:

- Pre-border targeted measures - risk assessment, incoming pathway risk management, regulatory obligations and cost-recovery from risk-creating activities, reducing risks along importation pathways, importer/passenger awareness and education, detection and diagnostics tools,
- Border measures – regulation-based inspections, surveillance, safe destruction or re-export
- Post-border measures – surveillance, emergency response and eradication

Biosecurity 'preparedness' is too often focused only on the preparedness for emergency responses; by necessity, the preparedness of a biosecurity continuum must also cover the capability, capacity and agility of all parts, functions and operational units of the continuum, including the pre-border and border functions.

The Reviewer observed at all levels of MPI an outcome-focus and future-focus that should effectively underpin preparedness of border biosecurity services to meet the ever-evolving biosecurity challenges confronting New Zealand. MPI will need to continue to develop and sustain the type of ambidextrous leadership (i.e. both for now and for the future) highlighted in the Biosecurity 2025 Direction Statement as essential to an effective biosecurity system performance:

- system leadership and major operational responsibility such as the role held directly by MPI; and
- distributed leadership, in which MPI engages with other system participants who also lead within their own parts of the biosecurity system (including risk creators, risk mitigation service providers, direct and indirect beneficiaries, and other agencies domestically, nationally and internationally).

Essential infrastructure

There are a number of underpinning pre-requisites for a highly effective biosecurity continuum, which are rarely within the unilateral (if any) control of the relevant biosecurity agency, and this is also the situation for MPI:

- Legislation and supporting regulations – It is critical that biosecurity staff have available to them contemporary regulatory powers that are fit-for-purpose, practical and can be applied with confidence to address the target biosecurity risk, without adverse unintended risk to clients, MPI or officers. The New Zealand Biosecurity Act 1993 was world-leading when established, but more than 25 years later, a lot has changed within the international and domestic operating environment in which MPI officers must protect New Zealand from a plethora of biosecurity risks. The evolution of risks, pathways, technologies, stakeholder attitudes, trade policies and laws, domestic case law, etc will necessitate a forward-looking, and preferably bi-partisan approach to ensuring that every day, the underpinning Act of the New Zealand Parliament meets the nation's needs.

    o ***Finding 2.1: It is critical that MPI's biosecurity services have available fit-for-purpose regulatory powers. The legislative review already underway will progress much-needed operational improvements to the powers and functionality of the Biosecurity Act. The criticality to New Zealand of good biosecurity status invokes a need for proactive future updating of this critical legislation and its supporting regulations.***

- Physical infrastructure – Biosecurity operations are often conducted at and/or within operational environments that are owned/controlled by other organizations: vessels, vehicles and aircraft; ports and airports; passenger terminals; freight and mail logistics centres; and so on. These facilities may be outmoded in terms of their capacity and functionality for their current use, compared with their original purpose, scale and processes; and may substantially impede the conduct of highly effective, efficient biosecurity operations. Any public or private infrastructure owner needs to budget for greater infrastructure maintenance as a result of delayed replacement; similarly, border biosecurity services operating within out-dated infrastructure will incur greater costs and potentially reduced effectiveness than would be the case if they were operating within modern purpose-inclusive facilities. "Biosecurity first" commitments will come under ongoing pressure because of the inherent conflict between meeting necessary biosecurity performance levels and meeting performance indicators for customer service speed and satisfaction. Without better infrastructure, more operational resources, or access to transformational technologies, there will increasingly be throughput delays and frustrations.

      o ***Finding 2.2: It is in New Zealand's interest that future biosecurity budget allocations (that will be recouped from cost-recovery mechanisms) recognize the need to adopt new technology and employ additional staff due to the physical constraints of some infrastructure in which border biosecurity services must operate while addressing expanding and/or changing biosecurity risks.***

- Digital infrastructure – The very nature of international trade and travel means that it is increasingly driven by powerful global or commercial competitive forces and technology changes, with which it will be a continuing challenge for border agencies to maintain pace and/or to out-pace. Similarly, the nature of digital technology and the associated investments necessary to develop major information systems that practically meet the needs of border agencies and commercial businesses (that are themselves evolving), means that the necessary design and investment decisions will often lag behind and be inadequate to meet the emergent needs of border agencies like MPI. In the Reviewer's experience, it can also be soundly argued that sustained annual investment in relevant networked information systems (e.g. $10-20 million per annum for 10 years) will deliver much better border risk mitigation outcomes than large episodic expenditure on the latest option for a 'large integrated system' solution (that have in many cases internationally, their own significant risks for delivery timeliness and functionality).

      o ***Finding 2.3: The vital importance of data and other intelligence to effective border risk mitigation means that ongoing (recurrent) investment in improving information systems is mission-critical so that they can keep pace with, or even drive, improved border intervention (with the established cost-recovery system underpinning such future-focused investment).***

There appears to be nothing peculiar about New Zealand in this vital area of underpinning infrastructure, except that there is relatively more at stake due to New Zealand's greater reliance of the national and regional economies on industries and businesses vulnerable to biosecurity threats.

It is arguable that the criticality of effective biosecurity to New Zealand, and both the long-term nature of infrastructure replacement/ upgrade process, and the associated funding, financing and stakeholder engagements processes, means that bi-partisan political support and cooperation in this area is clearly 'in the national interest'.

Risk-creator awareness

The *Biosecurity 2025 Implementation Plan* ('Strengthening the Biosecurity System Together') launched in November 2018 articulates the collective agreement to deliver the goals and outcomes of the *Biosecurity 2025 Direction Statement* to improve and strengthen New Zealand's biosecurity system.

Strategic Directions
1 *A biosecurity team of 4.7 million (people)*
2 *A toolbox for tomorrow*
3 *Smart, free-flowing information*
4 *Effective leadership and governance*
5 *Tomorrow's skills and assets*

This Implementation Plan, which sets out five important areas of work to deliver against the goals and outcomes in the Direction Statement, has a strong and admirable focus on the engagement of all New Zealanders in understanding and contributing to better protection of New Zealand from (mainly) external biosecurity threats.

Work Programmes
1. *Exercise kaitiakitanga - Maintain a strategic view of the system, monitor and report on system health, and drive delivery of Biosecurity 2025.*
2. *Create a movement - Encourage proactive biosecurity behaviours and support collaboration across the system.*
3. *Collaborate in knowledge - Biosecurity organisations share knowledge, and work together in science, research and technology.*
4. *Build resilience - A system approach to investment in biosecurity skills and strategic assets, including regulatory frameworks and networks.*
5. *Enable smart data - Establish ways to share data, to unleash its value for analytics, science, research and intelligence*

What is not so obvious to the Reviewer is the similarly critical need for all in the risk-creating inward pathways to New Zealand to play an appropriate role in mitigating pre-border, or at-border, the biosecurity risks to which they may be contributing. This is particularly obvious for incoming passengers, including returning New Zealanders, previous visitors to New Zealand, and new international visitors. Combined, those arriving in New Zealand total 6.7 million.

It is also the Reviewer's observation that the deep engagement of the native Maori people in New Zealand, and the already well-articulated *Tiaki Promise* as a commitment to care for New Zealand for now and for future generations, provides a strong basis for engaging with arriving passengers – encouraging their responsibility to care for New Zealand and thanking them for doing so.

(See Findings 3.6 and 3.7)

Resource to risk model

It is now well-established worldwide in areas of professional risk management that risks must be:

- implemented at, or as close as practical, to the source of the risk
- prioritised wherever resources are constrained.

Resources are rarely so plentiful that full resourcing can be applied to mitigating "all risks, at all times to the satisfaction of all key stakeholders". This means that in all areas of New Zealand's biosecurity system, managers will need to prioritise risks and the associated application of risk mitigating resources.

The "resource-to-risk" approach underpinning New Zealand biosecurity functions is akin to the "risk return" approach promoted in Australia following the 2009 Beale Review, and is considered by the Reviewer to be fundamentally important.

Over the past decade there have been significant and well-recognized boosts to the level of resources applied to New Zealand border biosecurity, delivering a doubling of staffing over the period. Despite this welcomed boosting of border biosecurity resources, managers at all levels must continue to apply available resources to optimize overall biosecurity risk mitigation in an agile and responsive manner to achieve expected levels of risk mitigation.

"Resource-to-risk" cannot simply be an organizational mantra, but an innate behaviour across MPI's Biosecurity New Zealand operations; every time a shift manager optimizes the allocation of staff, an inspector decides where and how long to inspect, or a verification team is assigned to check an entry pathway for passengers, parcels or mail, then they are making a "resource-to-risk" judgement.

Such agility and diligence will need to be an inherent behaviour across the MPI biosecurity operations indefinitely and will need more appreciation amongst stakeholders and media. While not a core part of this Review, it is the Reviewer's observation that the level of maturity of the MPI-industry partnership is sufficiently high for appropriately open information sharing and clarity of decision-making to be provided to representatives of key partners in New Zealand's biosecurity system:

- that is, the large stakeholder sectors that are paying for or transmitting to clients the cost of mitigation measures; and
- those within New Zealand that would suffer major impacts and meet large direct costs in the event of a major biosecurity failure.

It is not in the interest of New Zealand for narrow stakeholder interests or media to focus intense attention onto particular issues that, whilst they may clearly be biosecurity risks, they are far from the only biosecurity risk, and may not be the biggest challenge by far to the pre-border, border and post-border biosecurity operations that are funded on a resource-to-risk basis to protect New Zealand.

Similarly, arguments that a post-border detection of a biosecurity risk (e.g. fruit fly trap detection) is a failure of the biosecurity system is inaccurate; the trapping network is an essential part of the biosecurity continuum, as are the government-industry partnership arrangements in place post-border.

These post-border settings and operational arrangements are not covered by the current Review, but it is clear that strengthening and maintenance (as personnel inevitably change) of key partnerships and personal relationships is essential.

3. TARGETED PATHWAYS – AIR PASSENGERS

The following section makes observations about the current performance of the relevant border biosecurity measures for international air passengers, and recommends areas for potential improvement via practical steps.

Airline passenger risk pathway

The incoming passenger pathway is the highest profile biosecurity risk area of the New Zealand biosecurity system. Whether that reputation is justified compared to the large, diverse, complex cargo pathway is irrelevant; both are critically important risk pathways that must be effectively mitigated in order to maintain and enhance New Zealand's biosecurity status. The risks must also be seen by key stakeholders to be effectively mitigated in order to maintain their engagement as "partners in biosecurity".

The comprehensive stakeholder engagement and analytical work done under the Biosecurity 2025 initiative is highly commended, and the Biosecurity 2025 Implementation Plan ('strengthening the biosecurity system together') launched in November 2018 provides a challenging work program for all New Zealand stakeholder groups.

The engagement of all 4.7 million New Zealanders in supporting the biosecurity system is a very worthy aspiration, and perhaps only achievable in this remote, single-government, relatively small nation. Whatever words are used to embody and communicate the message that "it takes all of us to protect what we have" in New Zealand, the engagement of the domestic population should be a sustained inter-generational commitment.

What is less clearly stated under Biosecurity 2025 is that "those that help to create the biosecurity risk to New Zealand should contribute to the mitigation of that risk to an appropriately low level" (ideally zero, but in reality, it can often not be zero or cannot be demonstrated to be zero (without stopping all inward trade and travel)).

Bearing this in mind, it is vital that all New Zealanders returning home, and all international visitors to New Zealand are made aware of the importance of biosecurity to sustaining the fantastic country that they are visiting, and do not put its biosecurity status at risk (or are prevented from doing so by outstanding border biosecurity measures).

A number of factors combine to present a challenge to MPI's front-line teams at New Zealand's international airports, particularly Auckland International Airport that handles by far the largest percentage of international flight arrivals from the widest range of overseas origins, and majority of international passenger arrivals:

- Auckland has more passengers arrive from ports-of-origin likely to be considered as potential sources of more risk material, and more serious risks
- The airport's passenger facilities are out-dated and undersize for the volume and expectations of today's (and tomorrow's) airlines and passengers

- The cost of new airport infrastructure is high and decision and planning horizons are usually long, and lag behind the rate of escalation of passenger numbers and attendant biosecurity risk
- Baggage handling systems and other support infrastructure may be difficult or costly to adapt to new technology and methods
- Passengers increasingly expect rapid clearance of border checks
- New flight origins have emerged, and longer-haul aircraft will increasingly "bring the world closer to New Zealand" from both passenger and biosecurity risk viewpoints

Within this context, the Reviewer has focused significant attention on the Auckland International Airport biosecurity pathway(s) which appear to be regarded by many to be the source pathway for recent incursions of Queensland Fruit Fly and Tongan Fruit Fly.

Overall approach to mitigating airline passenger pathway risks

To guide the Reviewer's assessment of the adequacy and reliability of passenger-related biosecurity measures, the Reviewer has toured relevant areas of Auckland International Airport, met with relevant managers, had access to a broad suite of system design information and performance data, and specific pathway measures design information and performance data.

The following summarises the Reviewer's observations and conclusions, noting that in some cases these cannot, given the tightness of the Review timetable, be any more than an experienced opinion:

- Structure/management

  - The Border Operations Group appears to be well-led and organized, and the large numbers of applications for vacant positions and pool recruiting demonstrate that it is seen as an attractive career opportunity.
  - An area of pressure observed by the Reviewer was in regard to the need to draw experienced regulatory staff away from frontline border biosecurity roles to support post-border emergency responses (currently for fruit fly detections). This is a two-edged sword, given the extensive regulatory and leadership experience of these staff, however, it is vital that the border biosecurity services are not compromised by post-border emergency responses (whether or not a body of opinion may exist that the passenger pathway was the source of the fruit fly driving the emergency response). The Reviewer was given clear assurances that this re-allocation of experienced authorised officers away from the passenger pathway did not compromise the "Biosecurity first" standards for the passenger pathway, with any adverse impact being on processing speed (i.e. passenger experience) KPIs not biosecurity KPIs.

- Regulatory application

  - The Biosecurity Act's operational powers need to be contemporary and supportive of their practical application; feedback to the Reviewer indicated that the Biosecurity Act review for which preliminary work has been initiated needs to be completed as soon as practical and must be sufficiently comprehensive, innovative and flexible to underpin current and future needs of passenger biosecurity measures.
  - There appears to be very good support to front-line managers and staff from Wellington-based specialists in dealing with the constraints of the available regulatory powers and their application.

- Operations design

  - Review of program planning and management documentation demonstrates that management continues to pursue excellence in border intervention
  - Well-documented planning, operational management and training resources appear to be available.
  - The Tonga route initiative is a sound example of innovation in biosecurity risk mitigation, with a focus on offshore risk reduction steps, and boosted engagement of pathway participants

- Resource allocation

  - It is likely to be a truism that border biosecurity resources will not keep pace with the current upward trends in passenger numbers, flight origins, offshore risks, etc – particularly, if the ingenuity of the border biosecurity services to innovate, adopt new technology, better use available data and other intelligence is ignored.
  - It seems sensible, and probably necessary, that financing arrangements and staff recruiting/ training arrangements are put in place "at the leading edge of forecast growth" to minimize that gap between demand generated by growing passenger numbers and the ability to address that demand through boosted numbers of trained staff.
  - It seems clear that management and staff are very adept at agile allocation of available resources to deliver optimal biosecurity services and outcomes; however, questions remained as to whether growth in trained staffing and other operational resources was keeping pace with growth and diversification of demand.

- Intervention performance

  o There is substantial high-quality data, including verification data, available for the international passenger biosecurity process.
  o The passenger intervention levels consistently meet target levels, considered sufficient to mitigate the biosecurity risk to an appropriately low level. However, at the high level of passenger arrival (6.7 million per annum) even a very low level of leakage via the Green Channel ('nothing to declare') or undetected risk material via the Red Channel means that there is potential for thousands of risk-carrying passengers to exit international airports into post-border New Zealand.
  o It will remain the view of key stakeholders that 100% multi-point intervention (relevant staff, scanning, detector dog combinations) is the only option that should be considered.
  o Mitigation of the biosecurity risk is the critical target; intervention levels are an important indicator of whether that is likely to be achieved, but are not the end-game in itself. "Nudging' traveller behaviour to reduce risk-presentation at the border, highly effective at-border detection, and better post-border passenger awareness may all have important roles to play.

- Verification of performance

  o MPI's border biosecurity services utilize world's best practice in verifying the performance of biosecurity measures through both "Nothing to Declare" and "Something to Declare" channels.
  o The May 2018 Colmar Brunton independent review of passenger and mail compliance monitoring surveys concluded that "the procedures and processes implemented by MPI to maximise measurement validity and reliability are successful", and that "the procedures and processes developed and implemented by MPI to maximise the representativeness of the sample are appropriate." The Reviewer has not seen any information that would lead to a different conclusion from that of the Colmar Brunton study.

- System improvement

  o Border biosecurity management is clearly focused on exploring and adoption of new technology and methodology solutions – as diverse as accredited pre-border risk mitigation measures, new scanning technology, and improved detector dog genetics.
  o It is the Reviewer's observation that MPI's leaders and senior management must back front-line operations more strongly in the faster development and application of new technologies that can enable better and more cost-effective biosecurity outcomes to be achieved (semi-) independent of the adequacy of airport infrastructure.

Current measures under multiple pressures

A range of detailed data is available for inward passenger movement through international airports, with a range of KPIs, including some passenger experience KPIs which are potentially counter to effective mitigation of biosecurity risk.

Auckland International Airport, like its counterparts around the world, has a strong focus on rapid, efficient passenger transit and a high level of passenger satisfaction. Overall, "performance" in relation to incoming passengers includes KPIs for baggage handling, Customs processing and MPI processing. Combined, these KPIs help drive efficient (rapid) processing of international passengers through an airport terminal that is clearly stretched in handling its current throughput (551,105 international passengers in January 2019 at an average daily throughput of 17,778).

For a facility designed for current needs and future growth and evolution, such KPIs would be designed in unison and operate in unison to drive excellent collective performance for all steps in the passenger arrival and clearance process. When such KPIs are developed to apply within a facility clearly not designed to optimize the biosecurity risk mitigation services for incoming passengers, pressure to meet the throughput KPI may distort the appropriately careful processing of passengers to meet the biosecurity KPI.

With the constrained infrastructure capacity and configuration, and decisions on its upgrading and/or replacement out of the hands of MPI, then it is vital the MPI management does not permit infrastructure constraints and processing pressure to compromise mitigation of biosecurity risk, anywhere or at any time. "Biosecurity First" must be deeply embedded in biosecurity operations processing international air passengers.

MPI must (and clearly does) continually seek new technology and passenger behaviour modification tools to augment available staff and detector dog resources; the ability to fund such technology and methodology upgrades from the Passenger Movement Levy means that MPI should move expeditiously rather than conservatively in testing and adopting potential step-change or big-increment improvement.

Finding 3.1: The boosting of detector dog numbers to current levels was well-justified, however, the Reviewer did not see a case for further increase; other changes outlined in this report would lead to more effective use of existing detector dog resources, and better future-proofing of the border biosecurity system.

Finding 3.2: The current testing and algorithm development for the latest Real Time Tomography (RTT) scanning technology provides a step-change improvement opportunity for risk mitigation in the passenger pathway. As soon as practicable, an additional RTT scanner should be built into the air-side

breeze-way of the most commonly used luggage handling line to expedite image collection and aid whole-of-process experience development for biosecurity personnel.

Finding 3.3: Using an appropriate stage-gate decision process, earliest practical implementation of the proposed operation of RTT scanners for all luggage at Auckland International Airport should proceed, including funding for additional staff and operational infrastructure needed to underpin the development.

Finding 3.4: Current interventions by inspectors and detector dogs in the Green Channel be augmented by earliest adoption of Computed Tomography (CT) scanner(s) suited to rapid scanning of hand-luggage.

Finding 3.5: Though relatively small, any efficiency gains in use of detector dogs for cruise ships through adoption of other Findings in the report can be used to provide a valuable increase in detector dog availability for the Green Channel at Auckland International Airport (until adequate CT and RTT scanning becomes fully operational).

Optimizing incoming passenger awareness

All incoming passengers to New Zealand are required to complete a New Zealand Passenger Arrival Card that includes detailed declarations on biosecurity matters. A similar Incoming Passenger Card is completed by all passengers entering Australia.

A key difference between entry into New Zealand and Australia is that, for many years, aircraft incoming to Australia have played a video presentation on Australian quarantine/ biosecurity. This is an established legal requirement upon all airlines operating to Australia, and well-known to Australians who travel internationally, and the many New Zealanders who travel to Australia.

It is not currently a legal requirement for airlines incoming to New Zealand to play an approved biosecurity video, however, it seems certain that the New Zealand Parliament will be presented with legislative clauses to this effect as part of an Amendment Bill to update the Biosecurity Act 1993. This obligation will present only a minor challenge for airlines, because 60% of inbound flights originate in Australia, meaning that the same aircraft have played the Australian biosecurity video on the New Zealand to Australia flight.

On its own, the in-flight biosecurity awareness video is likely to have only a small impact on biosecurity compliance, however, in unison with the Passenger Arrival Card, disposal bins within New Zealand's international airports, and the border biosecurity intervention measures (inspectors, detector dogs, x-ray luggage scanning machines) the in-flight biosecurity video is regarded as an essential element of the combined biosecurity risk mitigation system.

Finding 3.6: The current steps being taken to ensure that all airlines operating into New Zealand play an approved in-flight biosecurity awareness video are an overdue addition to the national biosecurity system.

The Biosecurity 2025 initiative promoted the concept of "a biosecurity team of 4.7 million" through engagement of all New Zealanders to learn and contribute in appropriate ways to maintaining a strong biosecurity for New Zealand. The work programmes promoted as part of the launch in November 2018 of the Biosecurity 2025 Implementation Plan are aligned with that aspiration.

It is the Reviewer's observation that there is merit in MPI considering simple ways to better engage with passengers arriving into New Zealand, so that when they leave the international airport, they are more likely to carry a biosecurity awareness and commitment with them, enabling them to:

- be more biosecurity aware while travelling around New Zealand
- be better placed to influence others
- be better prepared when next they visit New Zealand

Given that MPI airport biosecurity staff currently have some contact with all passengers entering New Zealand, and significant contact with those more likely to be carriers of biosecurity risk material, then it would be a low-cost step to leave these passengers with a 'biosecurity memento'. A "Detector Dog Team" luggage tag (existing) or similar tag attached to a major item of hand luggage or large travel luggage should provide an ongoing reminder to travellers of their "airport biosecurity experience" and biosecurity obligations.

The likely adoption of such digital solutions as an *Electronic Travel Authority* and *Digital Arrival Card* will provide New Zealand's MPI and Customs with low-cost, 'sticky' options to keep travellers informed about important biosecurity, drugs and other messages, and potentially engage travellers in awareness raising competitions redeemed upon exit from New Zealand.

Finding 3.7: There is merit in developing a low-cost, practical means of maintaining biosecurity awareness among arriving passengers after they exit the international airport as tourists. Upon the advent of digital travel documentation, new smartphone-enabled digital tools should be deployed to maintain appropriate connection with tourists at minimal cost.

Innovative delivery options for low and heavy passenger intervention

The outdated airport infrastructure at Auckland International Airport means that border biosecurity managers and staff need to be more innovative than may be the case for an airport with modern and/or under-utilized infrastructure. Two areas stand out where action may be taken to take pressure off the biosecurity frontline within the international arrival hall.

(a) Fast-tracking low-risk passengers

The need to channel low risk passengers through processing that enables the biosecurity risk posed by them to be effectively managed, but extracts them from the mainstream passenger flow, where biosecurity inspectors need to apply more attention

The case examples for passengers able to access this Fastrack exit process would include, but not be limited to, regular business travellers (registered) between New Zealand and Australia; perhaps a trial beginning with passengers from Australian capital cities (that account for about 55% of incoming flights to New Zealand) is an obvious and readily defensible first step.

The planned introduction of an Electronic Travel Authority will pave the way for potential to utilise a Digital Arrival Card to assist with risk-based targeting of passengers for Fastrack processing (including those that transit via international airports), and provision of important biosecurity messaging to (potential) Fastrack passengers.

It is important to note that this proposal:

➢ Does not afford Fastrack passengers a lesser level of biosecurity checking (though it may appear to be a different combination of checking measures)
➢ Would be based entirely on mitigation of biosecurity risk, without any favouring of nationalities, professions, etc
➢ Would enable MPI to better focus border biosecurity staff and other specialist border intervention measures to provide an overall strengthening of the biosecurity protection provided to New Zealand

Finding 3.8: In order to enable low-risk air travellers to exit the over-crowded biosecurity area of the airport arrival hall(s), MPI should consider ways to "fast-track" low-risk passengers away from the mainstream crowd of arriving passengers (for example):
   1. ***Lower risk passenger cohorts:***
         a. ***Lower-risk ports of origin; and/or***
         b. ***Frequent travellers to New Zealand***
   2. ***Hand-luggage only:***
         a. ***Rapid CT-scanning of all hand luggage and bulky clothing; and***
         b. ***Detector dog random assignment and verification***

b) Treating passengers carrying commercial quantities of risk-material as commercial importers

There is a need to channel passengers who are bringing commercial quantities of biosecurity risk material through the passenger pathway, diverting the attention of biosecurity inspectors for significant periods of time during peak demand periods when large numbers of moderate/high risk passengers may be within the airport arrivals hall.

It appears to be a perennial problem for border inspection services that some passengers bring with them quantities of quarantine risk material that is clearly more than can be regarded as "for personal use".

Historically, there may have been some justification for accommodating individual passenger preferences in this area, however, the proliferation of digital communication combined with a high level of travel to New Zealand by people from many countries means that there is likely to be a high level of awareness of both:

- what specialist food, etc is available in New Zealand (that has been imported via approved biosecurity procedures)
- what are the biosecurity restrictions and requirements for New Zealand.

This material should be diverted for processing by biosecurity officers outside of peak demand periods for passenger clearance, for subsequent pickup by the owner. Consideration should be given to additional charges for checking of such material, more in line with cost-recovery measures applying to normal commercial consignments.

Application of MPI's significant expertise in passenger behaviour influencing ('nudging') and modification of key process steps will assist in quickly achieving a modified border biosecurity regime that enables more effective overall biosecurity services at international airports (especially Auckland).

Finding 3.9: To the extent practical, all biosecurity processing of arriving commercial quantities of food should be handled consistently. At international airports, appropriate processes need to be put in place to enable diversion (early in the passenger clearance process) of passengers known or suspected to be carrying commercial quantities of material requiring detailed inspection and clearance.

(c) Pacific Island pathway innovation

Specific attention has been given to the Tonga-New Zealand airline passenger pathway not simply because Tongan Fruit Fly has been detected in Auckland, but rather because it involves a valuable biosecurity risk-based innovation, and because this innovation (if fully successful) has potential to be expanded to other Pacific countries.

The cultural practice of Tongan people bringing food gifts for family and friends has been cleverly accommodated by Biosecurity New Zealand via the Air Passenger Tonga Food Programme – and associated Tonga Passenger Food Export Systems (TPFES) and the Tonga Food Verification System (TFVS).

These arrangements support the formal commitment between New Zealand's MPI and Tonga's Ministry of Agriculture, Forest, Food and Fisheries (MAFFF) to mitigate the biosecurity risk of specified food items imported into New Zealand from Tonga through the air passenger pathway.

The Reviewer has had access to detailed documentation covering the Tonga air passenger pathway and is satisfied that border biosecurity measures have been diligently developed and applied. The incursion of Tongan Fruit Fly detected in Auckland is of concern, but does not signify a breakdown or inappropriateness of the approach taken by MPI. In fact, the latest verification report for the Tonga Food Programme (December 17, 2018 to February 28, 2019) shows an overall compliance rate of 99.82%.

An in-flight biosecurity video playing on all Tonga – New Zealand flights (which are mainly to Auckland) would have been a valuable part of an integrated approach; with a limited number of airlines servicing this route, it should not be difficult to close this system gap.

A more robust approach for MPI consideration is the imposition of a requirement that all food carried by passengers (from everywhere, including the Pacific Islands) be subject to a pre-clearance process by the relevant government authority in the country of embarkation. The voluntary Tonga arrangement should move to a compulsory/mandatory system for any passenger carried food as part of a broader rollout of this approach. Any breach of this process would result in prosecution for the passenger as opposed to an infringement under current protocols. MPI would need to advise the offshore inspection and certifying authority that, if pre-clearance processes were not up to a suitable standard, the Program would be suspended or stopped for that originating country. A shift to appropriate compulsory arrangements, and introduction of an in-flight biosecurity video could significantly reduce the risk of fruit fly incursion.

However, what seems clear from the collective data and management experience, is that new ways of mitigating passenger pathway risks are not quick-fixes and bedding down the new combination of measures for the Tonga passenger pathway, including building (potential) passenger awareness and improved behaviour patterns back into the Tongan community takes time. Rollout of the "Tonga-model" to other relevant Pacific Islands will likely require a significant short-term boost in border biosecurity resources in order to gain a sustainable improvement over the medium/long term.

Finding 3.10: MPI should persist with development and rollout of culturally-supportive, biosecurity-effective ("Biosecurity First") solutions for Pacific Island passenger pathways, noting that operational savings may not be immediately accrued.

Finding 3.11: Consistent with Finding 3.8, the voluntary Tonga arrangement for "pre-cleared food boxes" should move to a compulsory/mandatory system as part of a broader rollout of this approach to other Pacific airports and countries of origin, with any breach of this process resulting in prosecution as opposed to an infringement under current protocols.

4. TARGETED PATHWAYS – CRUISE SHIP PASSENGERS

The following section makes observations about the current performance of the relevant border biosecurity measures for international cruise ships and passengers, and recommends areas for potential improvement via practical steps.

Adequacy of current measures

MPI implemented the Trial Cruise Line Accreditation Scheme in 2016/17 as a means to reduce biosecurity risk associated with the cruise industry while reducing compliance resource requirements and supporting a positive passenger experience.

A review of available documentation and discussions with MPI managers has not identified to the Reviewer significant improvements that need to be made to the existing biosecurity processing effectiveness and/or efficiency; that is, the current intervention methods are appropriate and effective. However, there is a significant weakness in the overall handling of cruise ships and passengers that increases biosecurity risk, adds MPI cost, and has a material opportunity cost regarding resource diversion from other higher risk pathways.

Systemic industry-wide improvement

There is a wide diversity of cruise liners visiting New Zealand, from large ships that are regular visitors, to small boutique ships that may be visiting New Zealand for the first time. The vast majority of cruise liners visiting New Zealand call at Auckland, and all cruise ships call at a major controlled port, before visiting other ports and anchorage points around New Zealand.

Cruise liner companies, and cruise ships, that are covered by the Cruise Liners Industry Association (CLIA) cover about 96% of cruise ship passengers visiting New Zealand. This provides an effective engagement mechanism for MPI in developing improved biosecurity measures that will be as practical as possible for cruise ship crews to implement.

Based on a cooperative assurance model, with information sharing with MPI, and development and application of on-board biosecurity risk mitigation measures, a sound accreditation regime has been developed.

Biosecurity services covering cruise ships are funded by a Border Clearance Levy charged on all passengers.

There now three (3) regimes covering cruise ships and passengers entering New Zealand:

1. Accreditation
2. Stores replacement
3. Non-accredited ships

Cruise ships visit both major ports, and remote ports and anchorages around New Zealand. There is stakeholder concern that both the ship as a whole, and disembarking passengers, can pose a significant biosecurity risk, and all should be subject to full disembarkation checks, including use of detector dogs.

The MPI strategy for biosecurity risk posed by cruise ship passengers is sound. Based on it being nearly always prudent to "mitigate the risk at or as close to the source as possible", it is both most effective and efficient to mitigate the biosecurity risk on-board so that the risk posed by any and all passengers is reduced to an appropriately low level. In this way, relatively agile and lower cost awareness and inspection measures can be applied at disembarkation points. These final measures can then be a low-intervention additional or supplementary risk mitigation step, not one of the critical steps in substantially reducing the original uncontrolled risk.

MPI can then focus more resources on:

- Verification checks for Accredited cruise ships
- Re-allocation of resources inefficiently deployed to remote ports and anchorages to higher volume risk-pathways like Auckland International Airport

Currently, those cruise line operators that remain non-accredited consume more MPI resources than are covered by the standard passenger movement charges, and pose a potentially higher biosecurity risk to New Zealand.

Finding 4.1: The biosecurity accreditation protocols for cruise ships are now well-established and well-tested, and all cruise ships bringing passengers into New Zealand should be required to:

1. ***Gain Accreditation via well-established protocols and processes now being utilised on the majority of cruise ships: or***
2. ***Complete full stores replacement for biosecurity risk materials***

In the event that a cruise liner operator chooses not to enter into either option (1 or 2 above), that cruise ship should be subject to all necessary MPI biosecurity services, at full cost to the cruise ship operator (above the general passenger levy amount payable).

This approach will enable some Detector Dog/ Biosecurity Officer resources to be redeployed to higher priority risk pathways, that are probably in Greater Auckland.

Options for dealing with perceived residual risk

It is reasonably certain that it will be difficult to convince some stakeholders in highly susceptible industries and regions that cruise ships and passengers pose a minimal risk to horticulture industries.

There are some components of the New Zealand horticulture sector that are very proximate to cruise ship anchorage/ berthing and disembarkation sites; Napier and Tauranga have been highlighted as examples where the consequence of pest or

disease incursion is considered by stakeholders to be so severe that a miniscule risk of incursion is considered too high.

Short of preventing cruise ships and other perceived higher-risk activities from coming close to intensive, susceptible agricultural industries, the only practical options available are either:

- further (over?) investment in risk mitigation steps to address perceived risk of incursion
- improved engagement with stakeholders to gain better awareness
- intensification of trapping and other surveillance measures

It is the Reviewer's observation that:

1. the risk posed by cruise ships (as a whole) and by disembarking day-trip passengers is best addressed by "rigorous mitigation of the risk at its source" (arrival in New Zealand) – which is best achieved by the measures recommended elsewhere for implementation at the first port of call in New Zealand. It is intended that a biosecurity (education) officer, but not necessarily a detector dog, would continue to meet all cruise ships disembarking day-trip passengers.
2. there is an opportunity to better raise awareness among both industry/ community stakeholders in smaller sea ports and cruise ship passengers by:
   - Improved communication to industry/ community stakeholders in more remote ports and anchorage areas information about the excellent steps taken to mitigate biosecurity risks posed by cruise ships
   - the New Zealand horticulture sector making available to cruise ships "100% Pure New Zealand" labelled fruit to provide to disembarking day-visit passengers. For example, a partnership between MPI, Horticulture New Zealand and CLIA could arrange for New Zealand apples, kiwi fruit, stone fruit, milk drinks, etc) to be available to disembarking passengers under a program focused on "Enjoy the 100% Pure New Zealand food produce that you have helped to protect".

Finding 4.2: There is an opportunity for an MPI-industry partnership approach to delivering low-cost awareness raising approaches may improve engagement in targeted ports/ anchorages of both local stakeholders and visiting cruise ship passengers.

5. TARGETED PATHWAYS – MAIL AND EXPRESS FREIGHT

The following section makes observations about the current performance of the relevant border biosecurity measures for international mail and express freight, and recommends areas for potential improvement via practical steps.

The Reviewer had a brief opportunity to visit the International Mail Centre, Auckland and to discuss both mail and express freight clearance with MPI staff; follow-up review of available documentation and phone discussion has sufficiently covered the key risk elements for these pathways.

This set of pathways carried 38.2 million mail items last year, including 16 million letters and 10 million bulk mail items, plus 4.1 million Express Freight items. While these pathways are unlikely avenues for entry for such biosecurity risk material as fruit fly carrying foods, the pathways may nonetheless present material risks for New Zealand's biosecurity status.

These evolving pathways are likely to present an ongoing wrestle between deliberate/ inadvertent importers of risk material and combined efforts of airport, aircraft and border security agencies. They may also be a relatively high-risk entry point for "hitchhiker pests", such as the Brown Marmorated Stink Bug.

Infrastructure impediments to biosecurity risk mitigation

New Zealand's only point of entry for mail (letters and bulk mail), the International Mail Centre (IMC) within the Auckland Airport Precinct, is clearly a facility that is no longer fit-for-purpose for the volume, types and diversity of mail arriving into New Zealand. The Reviewer understands that New Zealand Post's IMC facility is proposed to be replaced by a modern facility elsewhere in the Auckland Airport Precinct, however, no timetable or plans were available to the Reviewer.

It is the Reviewer's observation that "there are plans to replace the IMC" which has impeded adoption of, or may have been used as a reason for not investing in, new biosecurity technology and process solutions. Two observations stand out:

- In some areas, MPI must harden its focus on "Biosecurity First" in relation to the mail pathway, irrespective of business drivers and constraints of other organizations, whether government-owned or private businesses. Put more bluntly, some of the biosecurity risks to New Zealand could have much more serious impacts, and be much more difficult to reverse, than the business impact on infrastructure operators of having to accommodate improved biosecurity systems.
- Where the main physical infrastructure impedes the delivery of adequate biosecurity risk mitigation, then the facilities operator and MPI must implement other refurbishment, technology or staffing options to close down as a matter of urgency any remaining biosecurity risk gap.

Mail pathway -adequacy of current measures

A review of available documentation, site visit to the IMC and discussions with MPI managers has not given the Reviewer the necessary level of confidence that biosecurity risk within the evolving international mail pathway can currently be adequately mitigated at all times. This is assessed to be the case despite the very committed and diligent efforts of biosecurity staff and managers.

It is worth noting at the outset that intervention and verification checks for mail pathways in New Zealand and elsewhere have consistently shown these pathways to be low-risk. In recent years, this has almost certainly been helped by such factors as:

- The majority of growth in mail/ parcels has been in online buying for which most (but clearly not all) is low-risk from a biosecurity viewpoint
- Aircraft and airport security measures that include full luggage and freight scanning have prevented and may have intercepted potential biosecurity risk material at the point of submission or transhipment in the pathway

Nonetheless, it is vital that border biosecurity staff do not become complacent about the risk posed, because other areas of international risk (drugs, weapons, cyber-security, etc) have clearly demonstrated the potential for evolution (or deliberate criminal shift) of risks. The complexity of the future operating environment is exacerbated by the vast diversity of: potential risk-regions, risk perpetrators and risk materials.

There is significant merit in New Zealand's border security agencies being at, or near, the forefront of international and border risk identification and mitigation technology. There is also merit in communication to domestic stakeholders, travellers, importers and offshore interests that MPI is continuously updating the "national risk mitigation toolbox". A credible positioning of MPI as "being ahead of the game" will have significant benefit in "nudging" the behaviour of risk-creators in the needed direction.

In regard to New Zealand's mail pathway the following observations are made:

- the outmoded IMC main infrastructure limits space and impedes the process improvements necessary for effective, efficient biosecurity operations (and probably similarly for Customs)
- the existing automated parcel sorting capability is a good pathway/ process option for inclusion of CT scanning; whilst initial operation will be part of a broader MPI trial and development process, ongoing expansion of the image library and algorithm improvement will lead to progressive operational application of this technology
- earliest focus is needed on options to improve the operational infrastructure, processes, and technology in the main mail sorting hall, such as:
  - replacement of the single x-ray machine with a CT-scanning machine

- use of integrated or linked parcel label scanning technology to free expert staff for high technical skill tasks
- continuing engagement with scanning technology companies, international counterparts and offshore airports, mail/freight companies, etc to stay current with whole-of-path risk mitigation technology solutions and new technology applications

Finding 5.1: The IMC facilities significantly impede the delivery of cost-effective biosecurity measures. It is essential that MPI, with New Zealand Post and Customs, achieve earliest practical implementation of technology and methodology improvements within the IMC, in order to cover the existing biosecurity risk, using technology and methodology transferable to new IMC facilities when available.

Express Freight pathway – adequacy of current measures

Similar issues and risks apply to the Express Freight, with several significant exceptions:

- Express Freight is handled by international/ national commercial operators utilizing their own facilities, within which MPI must operate
- There is no single-entry point; over 90% comes through Auckland International Airport, and via two Cargo Receivers and five express freight companies operating Transitional Facilities, with limited volume entering via Wellington and Christchurch.
- There is no current application of biosecurity scanning technology, although all incoming freight will have passed through one or more offshore pre-flight security scanning processes
- The Express Freight pathway has application of significant MPI resources to document-based risk assessment
- The Express Freight pathway has reputedly been a limited beneficiary only, via availability of the partially functional *Single Trade Window,* of a significant expenditure in the Joint Border Management System (JBMS) project

The following observations are made in regard to the way forward for biosecurity risk mitigation for Express Freight:

- The 4.1 million items of Express Freight entering New Zealand is likely to increase
- MPI should not assume that the low-risk status of Express Freight will remain universal, and should be considering 'Black Swan' entry of biosecurity risk material via this pathway
- The so-called 'auto-screening' process is over-described and largely consists of manual desktop screening of documentation and related information, in lieu of non-availability of the planned JBMS

- Data and other information are critical to border risk mitigation, just as speed, reliability and security is critical to freight companies and their customers. MPI, with Customs, needs to further consider options to boost intelligence available for Express Freight via either (and, as soon as practical, both):
  - o Ongoing development of JBMS-replacement capability via modular IS development, including incorporation of modern algorithm capability to provide advanced risk assessment for consignors, consignees and consignments (shape, size, packaging, etc), and/or;
  - o In-line installation of advanced CT scanning technology, as part of a broader thrust by MPI (with Customs) of having several scanning and inspection methods available for agile application at-border
- Remain focused on being up with, or ahead of, the international risk environment in which MPI operates at the border, consistent with the *"toolbox for tomorrow"* and *"smart free-flowing information"* aspirations espoused in the *Biosecurity 2025* Direction Statement.

- ***Finding 5.2: Improved gathering and analysis of digital data is essential for the Express Freight pathway, necessitating sustained ongoing investment in modular software system development and stepwise development of overall digital capability; this is needed, both in terms of online data and intelligence gathering and risk profiling, and in-line scanning and algorithm-based identification of risk material.***

- ***Finding 5.3: Unless MPI is fully satisfied, via annual review of its intervention and verification processes, that Express Freight continues to be a very low risk pathway for which risks are adequately mitigated, it should be prepared to deploy additional random detector dog verification surveillance across the Express Freight system, with appropriate related stakeholder communication.***

6. RECOMMENDATIONS

In regard to the specific key issues highlighted in the Terms of Reference (1-6), the Reviewer makes the following Recommendations:

1. The overall adequacy of the border defence frameworks for passenger and mail pathways, relative to the rising volumes of passengers, the changing nature of mail, evolving risk profile in country-of-origin, New Zealand's changing risk profile and international best practice.

    Recommendation: New Zealand has a world-leading border biosecurity system, however, in order to effectively mitigate the evolving biosecurity risks to New Zealand, the future regulatory, financial support and technology underpinning of MPI border biosecurity operations must be more responsive to the shifts in risk profiles and international trade and travel commerce. The criticality of biosecurity to New Zealand's export-driven economy and social and environmental well-being means that a "biosecurity first" approach must overcome current infrastructure impediments to delivery of appropriate border biosecurity measures.

2. The reliability of Biosecurity New Zealand's audit and assurance measures for passenger and mail pathway compliance

    Recommendation: MPI generally has sound measures in place to deliver high quality biosecurity risk mitigation, verify their effectiveness and openness to external audit of these systems. Operational strategy and resourcing changes, rather than improved audit and assurance measures will strengthen the risk mitigation compliance in the passenger and mail pathways.

3. Biosecurity New Zealand's capability and tactical deployment of detector dogs across the passenger and mail pathways

    Recommendation: New Zealand's strong commitment to use of high-quality detector dogs in various applications is commended. The Review did not conclude that more detector dogs are needed, however, changes highlighted in the Findings would materially improve the deployment and associated effectiveness and efficiency of detector dogs.

4. The adequacy of the express freight risk analysis systems that determine inspection decisions

Recommendation: The low assessed risk for the Express Freight pathway should not lead to complacency, nor should past failure to develop high-quality integrated border information systems impede the drive to establish such systems (albeit in a more modular and networked model). Both improved risk assessment based on improved information access and analysis, and new in-line detection technology are needed.

5. The adequacy of international passenger awareness and domestic community awareness programs

   Recommendation: More attention needs to be applied to awareness of those in the risk-creating pathways, including full deployment of in-flight biosecurity videos, engagement of passengers as they exit border biosecurity control points, and awareness of those industry/community personnel directly involved with biosecurity risk pathways.

6. What, if any, additional controls could be introduced that would give greater confidence in the effectiveness of the overall system as it applies to passengers and mail.

   Recommendation: New scanning technologies provide the greatest opportunities for step-change improvements in the effectiveness and efficiency of MPI's border biosecurity operations. Development of world-leading application of this technology for biosecurity will be aided by faster, wider deployment of CT and RTT scanners, with appropriate personnel and operational resources funded via cost-recovery mechanisms.

In many ways, this Review draws on a "nudge" approach to system improvement. The Recommendations and Findings of this report are not headline grabbers, nor require major restructuring or confronting levels or resource (re-)allocation, but if responded to collectively, MPI will bring about significant improvements to the relevant areas of border biosecurity settings and operations.

In completing this report, I am confident in the ability of MPI to continue to mitigate the risk to New Zealand from offshore biosecurity threats, and to continue to improve the ways in which the organization and its people carry out that important responsibility.

7. APPENDICES

Terms of Reference – Independent Assurance Review of New Zealand's Biosecurity International Border Defences for Passenger and Mail Pathways

Background

Biosecurity New Zealand is responding to a rapidly expanding range and intensity of biosecurity risks in a context of increasing international passenger arrivals via air and cruise ships and a rapidly changing environment in Mail affecting volume and risk profile. Many of the options concerning pre-border activities that are available in the cargo pathway such as pre-treatment of potential risk goods are not available in the mail and passenger pathways. Biosecurity New Zealand responds to this challenge by taking a multi-layered, intelligence-led and targeted approach to border security in the passenger/cruise pathway.

In 2017/18, 99% of international air passengers were reported as complying with biosecurity requirements by the time they left an airport. Two million arriving passengers were screened for risk goods between December 2017 and February 2018, a 5% increase on the previous summer. In 2017/18, nearly 4,000 infringement notices were issued to passengers with undeclared goods that could harbour pests or diseases. There were 3,111 fresh produce seizures which is the vector of one of NZ's most dangerous threats, the Queensland Fruit Fly.

Express Freight is Air Cargo that has guaranteed delivery timeframes and often offers direct to door delivery. All assessment and clearance processes are the same as the general cargo pathway with electronic data and goods travelling through transitional facilities.

Volumes in the express freight pathway are doubling every three years and this trend is forecasted by NZ Post to continue until 2027. As the volumes rise Biosecurity NZ's ability to detect threats using past clearance practices is increasingly under pressure.

Traditional mail volumes have significantly increased from Asia at a rate of more than doubling year on year. This has had a significant impact on the biosecurity risk in the pathway particularly with the proliferation of small enterprises selling seeds that are prohibited from entering into NZ.

The rise in B2C e-Commerce activity by the NZ public has rapidly changed the dynamics of the express freight component of the pathway. Up to 50% of current volumes are not traditional mail but goods that previously would have entered NZ through the cargo pathway.

Biosecurity interventions are generated by electronic Target Evaluation where officers will often inspect a single item rather than a consignment of many items.

Biosecurity New Zealand has an ongoing continuous improvement model. It works closely with airports, airlines and the cruise industry to establish models that provide a high level of biosecurity assurance that NZ requires. Specifically, in the cruise pathway, an accreditation programme has been developed placing the emphasis on cruise lines to comply with Biosecurity NZ's requirements and be audited for their compliance. In the passenger pathway there are various arrangements with airport companies to facilitate passengers for risk assessment and relating aspects of the layered system.

Scope and Approach

The independent Reviewer will report back to the Director-General on:

- The overall adequacy of the border defence frameworks for passenger and mail pathways, relative to the rising volumes of passengers, the changing nature of mail, evolving risk profile in country-of-origin, New Zealand's changing risk profile and international best practice
- The reliability of Biosecurity New Zealand's audit and assurance measures for passenger and mail pathway compliance
- Biosecurity New Zealand's capability and tactical deployment of detector dogs across the passenger and mail pathways
- The adequacy of the express freight risk analysis systems that determine inspection decisions
- The adequacy of international passenger awareness and domestic community awareness programs
- What, if any, additional controls could be introduced that would give greater confidence in the effectiveness of the overall system as it applies to passengers and mail.

Timetable

The independent Reviewer will report back to the Director-General with a prioritised list of findings and Findings by Friday 5 April 2019.