Review of the regulatory landscape for Predator Free 2050 activities

Challenges and opportunities for improving system effectiveness

Source: Nga Manu images

Version: 1.0
Status: FINAL
Date: 12.08.25

Status: Final
File reference: PFR 24-647
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A draft of this report was also formally reviewed by a number of other stakeholders who also provided valuable comments. Those reviewers were:

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Executive Summary

This report, commissioned by Predator Free 2050 Limited (PF2050 Limited), explores the regulatory challenges faced by those undertaking research and development, predator elimination, and species translocations at the landscape scale in support of the Predator Free New Zealand 2050 vision of eradicating possums, mustelids and rats.

Landscape Scale Predator Free Project Groups (PF Groups) have identified that the process of developing, applying for and securing regulatory permissions and/or approvals for predator elimination work, research and development, and species translocations (PF activities), is too complex, lengthy, costly, and too often subject to the opinions/views of individuals. Unless addressed, these challenges have considerable potential to jeopardise the achievement of the Predator Free goal of eradicating possums, mustelids and rats from all of New Zealand by the year 2050.

This report:

- Provides an overview of the complexity of the regulatory system in relation to predator elimination, and identifies the regulatory agencies that have oversight for different aspects of the system.
- Outlines the issues and challenges raised by PF Groups in relation to the regulatory system, as well other factors which contribute to these challenges;
- Identifies the root causes of the issues/challenges and identifies the impacts they are having, along with a long list of potential solutions; and
- Identifies synergies between potential solutions and the recommendations resulting from the recent 'Review of permission frameworks for VTAs under the HSNO Act 1996' and 'Agricultural and Horticultural Products Regulatory Review'.
- Presents a methodology for robustly testing and refining the identified solutions with key stakeholders to effect sustainable systems change, providing clarity to those working within and alongside the regulatory system, contributing to reduced complexity, time and cost.

The analysis has revealed up to 33 different approvals under 14 different Acts, issued by 10 different regulatory agencies may apply to the full range of PF activities. Key findings/challenges outlined below as a result of interviews with both PF Groups and regulators, impact every part of the Predator Free system.

Key findings

- The regulatory system is complex and navigating it well depends on relevant experience and skills within PF Groups, as well as clear processes set out by regulatory agencies.
- Legislation and regulatory plans are not optimised to enable the PF2050 vision.
- The Department of Conservation approval system is not optimised to support PF2050 outcomes.
- Ministry of Health permissions for Vertebrate Toxic Agents would be better being managed by other regulatory agencies.

- The complexity of land tenure/status within projects can add significant complexity to the approvals process and operational delivery.
- The process for obtaining Certified Handler Certificates and Controlled Substance Licences is complex, lengthy and subject to uncertain outcomes.
- Data requirements for approval applications are uncertain - particularly for new tools and methods.
- Inconsistent, duplicated and/or unworkable conditions issued with regulatory approvals creates compliance risk and administrative burden.
- The capacity to process approval applications varies by regulatory agency.
- The high turnover of staff within regulatory agencies impacts timeliness and reduces the consistency of decision making.
- Engagement with mana whenua is often required as part of application processes, however applicants have expressed uncertainty regarding knowing who to contact and how to engage, and what to do in situations where a response is not received within required timeframes.

These challenges have broadly arisen due to a variety of legislative nuances, variance in the way applicants approach the regulatory system and in the way regulatory agencies implement legislation, and factors like resource allocation. To inform a strategy for systems change, the root cause(s) of each factor influencing these challenges has been identified in this report, along with the real impacts that have resulted. This approach seeks to ensure that the solutions proposed get to the heart of the issues raised.

Potential Solutions

In identifying potential solutions, we have considered previous regulatory reviews undertaken in response to issues raised by other sectors who are also interfacing with the same legislation. Many of the challenges raised in those reviews, mirror the challenges set out in this report. Synergies between recommendations outlined in those reviews with those put forward in this report have been highlighted for efficiency.

This report identifies 16 potential solutions for addressing the root causes of the challenges raised by PF Groups. These have been prioritised into high priority - high impact, medium priority - medium impact, and low priority - low impact solutions based on which we perceive to have the potential for greatest impact on improving the overall regulatory system for PF2050. Of the 16 solutions, nine have been assigned high priority-high impact status as outlined in Table A below.

Table A: High priority - high impact solutions and challenges addressed.

Potential solutions	Challenges addressed
Re-invigorate the Tuia Te Taiao website to provide a single, comprehensive regulatory guidance resource for PF activities: Create a central, user-friendly online portal specific to PF2050 activities. This portal could sit within the existing Tuia Te Taiao website (https://www.tuiatetaiao.nz/) and be accessed by PF Groups via a login enabling the website to also serve the existing wider function of acting as a 'one stop shop for information about the Predator Free 2050 Movement'.*	• Navigating the regulatory system • Mana whenua engagement guidance • Data requirements and expectations

Potential solutions	Challenges addressed
The portal needs to: - Build on Appendix A to consolidate all relevant guidance, approval requirements, processes, timelines, and decision-maker expectations across all regulatory agencies which interface with PF2050 activities. Agencies should offer explicit checklists of required information for applications. - Include an online directory of resources to assist in navigating the various regulatory processes (e.g. links to SOPs, examples of well-prepared applications including operational maps, risk assessments etc) to guide applicants. - Provide links to where PF Groups can seek assistance with mana whenua engagement e.g. https://www.tkm.govt.nz/ , EPA Māori Engagement Team, and contacts for regional and district councils. - Message board enabling PF Groups to share what is working well, or to troubleshoot issues. **Note that there are a multitude of websites containing information on PF2050. As an external user, this made finding information very difficult. As part of the above-mentioned solution, the online presence could be consolidated by providing links to these websites on the Tuia Te Taiao website.*	
Facilitate relationship building with assessors in regulatory agencies: Establish formal and informal channels (e.g., dedicated PF2050 liaison officers within agencies, regular stakeholder forums, pre-application consultation opportunities) to foster early and consistent relationships between PF Groups and regulatory agency assessors, to increase understanding of the PF2050 context, guide applicants through the regulatory process, and also to inform forward planning regarding any need for additional resourcing within regulatory agencies.	• Optimising the Department of Conservation approvals system • Capacity to process approvals • Consistent and workable approval conditions • Operations supported across land tenures • Data requirements and expectations • Staff turnover and retention of institutional knowledge
Assess level of resourcing within Department of Conservation and the Environmental Protection Authority and/or existing roles/team structures to free up capacity and promote consistency: Both agencies highlighted that resourcing was an issue. An assessment of pipeline PF2050 work should be undertaken to inform the most appropriate course of action to ensure sufficient processing capacity within regulatory agencies. This should include investigation into the types of applications processed, and the most efficient and effective options to process these noting the need for consistency at a national scale. Options could include (but are not limited to): - Advocating for further funding for resourcing	• Capacity to process approvals

Potential solutions	Challenges addressed
- Developing a PF2050 workstream (including consideration of dedicated assessors for kiwi translocations) - Re-defining roles to ensure appropriate balance between fieldwork and application processing	
Explore opportunities to expand on the recommendation of the Agricultural and Horticultural Products Regulatory Review regarding relying on assessments by international regulators: The above-mentioned review found that there is scope for the Environmental Protection Authority and the NZ Food Safety Council to increase their use of information provided by international regulators. The review noted that there is a need for flexibility to ensure that decisions inappropriate for New Zealand are not directly adopted. However, it recommended that regulators should start from a position that recognised international regulators' decisions are sound and focus on any New Zealand-specific considerations or risks. Clear definitions on what requires New Zealand-specific assessment are needed for transparency and consistency. This recommendation by the Ministry for Regulation relates to findings in the review associated with New Zealand's competitive disadvantage, enabling timely access to products, the speed and certainty of approval pathways, efficient and proportionate regulations, and regulator capacity and resourcing. The issues raised in the above-mentioned review are also mirrored in this report. Given this recommendation has already been highlighted to Central Government, there is opportunity to explore wider synergies to ensure any legislative changes also assist the PF2050 context.	• Capacity to process approvals
Undertake a regulatory scan to identify barriers to achieving the PF2050 goal as well as opportunities to support PF2050 activities in statutory documents: This scan should include consideration of whether: - PF2050 goals are reflected in objectives and policies of relevant statutory plans - Rules, standards and programmes enable or hinder PF2050 activities (e.g. regional/district plans, Regional Pest Management Plans, Standard Operation Procedures, performance standards, Department of Conservation pre-approved toxin list) - It is feasible to draft standard PF2050 site-led programmes for insertion into Regional Pest Management Plans to enable powers under the Biosecurity Act 1993 to be relied on and address land tenure challenges. - Legislation allows for a streamlined process to assess variations to approvals and respond to incursions - Assessment criteria for approvals are proportional to risk of PF activities; and - Internal strategies and objectives of regulatory agencies, particularly the Department of Conservation are explicitly aligned with and support the outcomes of PF2050.	• Optimising legislation and regulatory plans • Consistent and workable approval conditions • Capacity to process approvals • Operations supported across land tenures

Potential solutions	Challenges addressed
- There is duplication in requirements, process and function across legislation and regulatory agencies. - Blanket Environmental Protection Authority containment approvals for Vertebrate Toxic Agent trials can be issued. Once this scan has been completed, it is recommended that a resource is appointed to coordinate a process and programme for advocating for/implementing the required changes. This resource should also have oversight of upcoming opportunities for engagement on legislation change and regulatory plans and ensure that feedback from end-users is taken into account to assist in making conditions/rules/requirements SMART* in addition to providing necessary mitigation, risk management, and environmental protection. **Specific, measurable, achievable, realistic, time-bound*	
Expand the existing Department of Conservation project on reviewing the permissions system to also include permissions issued by local DOC offices: The current project led by the Policy and Regulatory Services Group out of Head Office is looking at how the permissions system operates to make sure Department of Conservation systems are clear and understandable, and to assist in addressing backlogs. Whilst the current focus is on national aerial permissions, to ensure that the Department of Conservation permissions system is optimised and duplication of work and process is avoided, the entire permissions system should be included in this review. This should also include ensuring that permissions processes are transparent to both internal staff and applicants. Consideration of how information held within Department of Conservation systems can be used to inform applications without applicants having to request this information from DOC should also be included in the review.	• Optimising the Department of Conservation approvals system • Capacity to process approvals
Support recommendations to centralise process for assessing permission applications currently delegated to public health officers as outlined in the Environmental Protection Authority review of Vertebrate Toxic Agent permissions under HSNO Act: Provide support to the Environmental Protection Authority for actioning recommendations to further streamline the regulatory landscape where it has been identified that current processes are adding little value (e.g. MoH permissions).	• Increased efficiency in Ministry of Health Vertebrate Toxic Agent approvals
Explore a triage process for approval applications within Department of Conservation, Ministry for Primary Industries and Environmental Protection Authority to fast-track assessment of low risk approval applications: Regulatory agencies should review their methodologies for processing applications to determine whether more streamlined processing	• Capacity to process approvals

Potential solutions	Challenges addressed
pathways can be created for applications which present a low level of risk.	
Accept offer from WorkSafe to facilitate a session with PF Groups and certifiers authorised to issue Certified Handler Certificates for Vertebrate Toxic Agents: The purpose of this would be to canvas challenges raised in this report in relation to the Certified Handler Certificate and Controlled Substance Licence approval processes, with a view to assessing what can be addressed.	• Certainty in Certified Handler Certificate and Controlled Substance Licence processes

Recommendations for Systems Change

The challenges identified in this report stem from multiple root causes and must be addressed together in order to effect sustainable change. The detailed methodology for systems change presented in this report accounts for all root causes of factors influencing the challenges identified. Given these challenges touch all levels of the PF system, it is important that a wide range of voices are involved in the process of determining which interventions or solutions are appropriate. This will ensure everyone is invested in the success of the strategy, making it more likely that change will be sustainable.

Whilst there are many different ways to approach systems change, the methodology recommended in this report aligns with 'good practice', is informed by current literature in the field of systems change and provides a blueprint of a process that can be used to arrive at a plan which can be actioned. At a high level this includes:

1. Socialising and testing key findings with help of an independent facilitator/s;
2. Identifying impacts the proposed solutions would have on the system and prioritising a short-list for implementation;
3. Developing an engagement plan to prime the system for change; and
4. Implementing the systems change strategy in accordance with a programme management plan and engagement plan.

To ensure sustainable systems change, we recommend that a dedicated project team is established to:

- Develop and a deliver on a programme management plan for implementing the systems change strategy methodology and resulting solutions which:
    - Sets out the governance structure including roles and responsibilities
    - Identifies champions, stakeholders and delivery teams (workstreams)
    - Defines objectives and success criteria
    - Provides a timeline and milestones, and identifies assumptions, constraints, dependencies and critical path activities
    - Outlines resources and budget required for implementation
    - Includes an engagement and communication plan (refer Appendix D)

    - Details how the system will be prepared for change by identifying any training, mentoring or support structures needed, and addressing any cultural shifts or mindset changes required
    - Defines how progress will be tracked and reported
    - Identifies mechanisms for feedback and how this will be evaluated and incorporated as part of adaptive learning.

- Socialise the long list of potential solutions identified within this report with key stakeholders and implement the methodology for systems change to identify a preferred short-list of solutions.

- Oversee implementation of short-listed solutions.

Conclusion

In summary, the potential solutions identified in this report which are to be delivered through a robust systems change strategy, are anticipated to assist in increasing consistency and timeliness in approval processes and outcomes, and enable more proportionate and effective risk management by:

- Addressing regulatory and process barriers;
- Reducing cost and time delays to projects;
- Ensuring appropriate alignment with PF2050 goals; and
- Fostering more effective engagement and relationships to build trust and create better understanding of the PF context and activities.

The above are key requirements for delivering on the PF2050 goal.

PART ONE - SETTING THE SCENE

1. Introduction

This report, commissioned by Predator Free 2050 Limited (PF2050 Limited), explores the regulatory challenges faced by those undertaking research and development, predator elimination, and species translocations at the landscape scale in support of the Predator Free New Zealand 2050 vision of eradicating possums, mustelids and rats.

PF2050 Limited is a Crown-owned, charitable company established in 2017, that provides co-funding for large, high value landscape-scale predator elimination projects, as well as research and development of new tools and methods for predator control. Currently 17 landscape scale projects are co-funded by PF2050 Limited across Aotearoa New Zealand. Each project is an independent entity (referred to herein as a 'PF Group') led by either a regional or territorial authority, community group, trust, Iwi or company (DOC, 2025).

Landscape scale projects are those which can span hundreds of thousands of hectares and include elimination objectives, both in rural and urban areas, and are therefore different to the backyard and community activated trapping movement overseen by the PFNZ Trust, councils and the Department of Conservation (DOC) (PF2050 Limited, 2025). The activities undertaken by PF Groups as part of their projects are referred to in this report as 'PF activities'. These can span a wide spectrum from field trials, trapping, monitoring using drones, and aerial operations using vertebrate toxic agents, to the use of conservation dogs and returning kiwi.

We have received feedback from individual PF Groups operating at the landscape scale, that applying for and securing regulatory permissions and/or approvals for predator elimination work, research and development, and species translocations, has become complex, lengthy, costly, and too often subject to individual opinions/views. Through our analysis of these problems, many PF Groups have expressed that they face significant uncertainty regarding outcomes of decisions relating to approvals. This is negatively affecting project planning and ultimately the ability to deliver on project objectives. The issues experienced have impact at a range of levels including:

- Unnecessarily increasing the complexity of operations without any additional benefit.
- Creating high levels of uncertainty to projects and programmes undermining confidence to invest at scale.
- Time delays to projects and programmes as a result of lengthy approval processes; and
- Additional costs to projects and programmes.

Without an easy-to-navigate regulatory environment that ensures the safety of operations and enables PF activities, achieving the goal of eradicating New Zealand's top three predators by 2050 is becoming more challenging.

This report sets out the challenges faced by those interfacing with the regulatory system, and identifies root causes and impacts of these challenges to chart a path forward for system change.

1.1. The PF2050 vision and strategy

In 2016, then Prime Minister John Key, announced that his government would provide financial commitment to eradicate possums, stoats, and rats, the three most damaging predators to native flora and fauna in New Zealand, by 2050. Known as Predator Free 2050 (PF2050), this long term elimination goal has been described as *"the most ambitious conservation project attempted anywhere in the world* (Warne & Hammond, 2025)." To deliver on this goal, significant effort is required to be invested into coordinating and mobilising communities and groups to deliver predator control, alongside breakthrough science into novel tools and methods for predator elimination.

In 2020, the Department of Conservation (DOC), as the lead agency facilitating the overall Predator Free 2050 programme, launched their 'Towards a Predator Free New Zealand - Predator Free 2050 Strategy'. With the aim to mobilise, innovate and accelerate progress towards a predator free New Zealand by 2050, the strategy set six pathways for action, including "*Supporting the kaupapa through legislation and policy*"[1].

This pathway outlined a 5 year action plan to ensure that New Zealand has an appropriate legislative framework and policy tools to support PF2050, that these tools are being used effectively, and that legislation and policy doesn't operate as a handbrake to PF2050 delivery. Steering Group members overseeing this action plan included DOC, Ministry for Primary Industries (MPI), Ministry for the Environment (MfE), Regional councils (via biosecurity managers group), Land Information New Zealand (LINZ) and the Environmental Protection Authority (EPA).

The findings and recommendations set out in this report respond directly to the action plan and could be viewed as a first step towards achieving a more supportive legislative framework for PF2050 activities.

1.2. Alignment with other review processes and key reports/strategies

In addition to the above, it is important to note that several other reviews of regulatory systems (outlined below) have been conducted in recent years and have also raised issues with various regulatory systems similar to those outlined in this report. Recommendations from these reviews have been taken into consideration as part of this report. Appendix C which outlines our recommended long list of potential solutions, highlights synergies with these recommendations where relevant.

[1] https://www.tuiatetaiao.nz/about-us/timeline

1.2.1. Review of permissions frameworks for VTAs under HSNO Act 1996

In November 2022, the EPA commissioned a review[2] of the effectiveness of the permissions framework for vertebrate toxic agents (VTAs) used for pest management under s95A of the HSNO Act. The objectives of this review were to:

- Understand the key benefits and / or issues with the current s 95A permission system for Hazardous Substances Used For Pest Management.
- Provide recommendations to other agencies and / or Ministers about the effectiveness of the current s95A permission regime for Hazardous Substances Used For Pest Management.

This review made a number of recommendations, some of which are discussed and supported in this report. It also provides a comprehensive overview of the regulatory regime overseeing VTAs, and provides important context to this report.

1.2.2. Agricultural and Horticultural Products Regulatory Review

Completed in February 2025, this review conducted by the Ministry for Regulation[3] explores ways to improve efficiency and access to agricultural and horticultural products to contribute to economic growth while maintaining the effectiveness of the regulatory systems and ensuring that product risks are appropriately managed (Ministry for Regulation, 2025).

Whilst not directly relevant to this report, the review highlights a number of key issues with the regulatory framework under the HSNO and ACVM Acts which mirror those raised here in respect of getting new tools and methods to market. Sixteen recommendations responding to the findings of the review have been made, including legislative change and amendments to systems and processes for implementation, some of which are relevant to the PF2050 context.

1.3. Purpose

The purpose of this report is to:

- Provide an overview of the complexity of the regulatory system in relation to predator elimination, and identify which regulatory agencies have oversight for different aspects of the system.
- Outline issues and challenges raised by PF Groups in relation to the regulatory system, as well other factors which have contributed to these challenges;
- Identify the root causes of these issues/challenges and identify the impacts they are having, along with a long list of potential solutions based on key findings; and

2 https://www.epa.govt.nz/assets/RecordsAPI/Review-of-permissions-frameworks-under-the-HSNO-Act-1996-for-the-use-of-VTAs-in-pest-control-operations.pdf

3 https://www.regulation.govt.nz/assets/Publication-Documents/Agricultural-Horticultural-Products-Regulatory-Review-full-report.pdf

- Identify synergies between potential solutions with relevant strategies, and also recommendations resulting from the 'Review of permission frameworks for VTAs under the HSNO Act 1996' and 'Agricultural and Horticultural Products Regulatory Review'.
- Present a methodology for robustly testing and refining the identified solutions with key stakeholders to effect sustainable systems change, providing clarity to those working within and alongside the regulatory system, and contributing to reduced complexity, time and cost.

1.4. Structure of report

This report is structured as follows:

- **Section 2** outlines what a systems change strategy is, and how it relates to the PF2050 regulatory system
- **Section 3** provides a high level view of the regulatory landscape overseeing activities required for research and development, predator elimination and species translocation, and identifies data and information requirements.
- **Section 4** details approvals required and key regulatory agencies
- **Section 5** sets out the key findings/challenges identified by those working on landscape scale projects, bringing new tools or methodologies to market, and/or species translocations. This includes identification of root causes of these challenges, impacts that they are having, as well as potential risk to the PF2050 goal.
- **Section 6 and 7** provide a comprehensive methodology to implement systems change, including a long list of potential solutions which address challenges raised, key next steps and the report conclusion.

1.5. Scope

The matters that are within scope of this report are:

- Challenges and barriers experienced by PF2050 Groups relating to the legislative/regulatory system in relation to the necessary approvals required for landscape-scale predator elimination operations, translocations of species, and trials of new tools and methods.
- Testing of findings through surveys and interviews with PF2050 Group Landscape Scale Project Leads and regulatory agencies responsible for issuing approvals.
- Development of recommendations to further test findings and implement a strategy for sustainable systems change.

Matters out of scope of this report include:

- Conditions related to safety data sheets, product labels, and HSNO (Hazardous Substances and New Organisms) controls.
- Legislative or regulatory requirements that fall outside of regulatory approvals for predator elimination, novel toxin testing and species translocations.
- Implementation of recommendations.

Note that the scope of this report shifted through its development due to the Government Budget 2025 announcement which disestablished PF2050 Ltd and transferred their functions to DOC. Changes to scope were made with the approval of PF2050 Ltd.

1.6. Methodology

The following methodology has been undertaken to arrive at the findings and recommendations set out in this report:

1. **Desktop analysis - Identified challenges, policy analysis & regulatory review**

An initial review of challenges identified by those working across the PF2050 system, along with existing legislation, policies, and required applications was conducted to provide insight into the regulatory framework. This established a foundational understanding of the current regulatory environment and informed the design of subsequent engagement activities. Resources relied upon to inform this review are captured in the bibliography to this report.

2. **Survey**

A survey was distributed to all landscape scale PF groups. The survey aimed to introduce the scope of the analysis and collect initial insights into the regulatory challenges and opportunities from the perspective of PF groups. Responses informed key themes and areas of focus for follow-up engagement.

3. **Interviews**

Structured interviews were conducted with PF groups, those involved in research and development, and key regulatory agencies involved in processing predator-free applications for relevant permissions and approvals to ensure a balanced analysis of challenges. Whilst all key regulatory agencies were invited to participate, responses within project timeframes were received from the DOC, EPA, WorkSafe and the Ministry of Health. Interviews with the Ministry for Primary Industries were unable to be conducted.

4. **Analysis of findings**

Findings from the policy review, survey responses, and stakeholder interviews were analysed to identify common themes and points of divergence, building key insights across the PF landscape. Tools such as Miro were used to provide context and to help understand the complexity of issues that groups face and how they are all connected. All issues were compared across groups and agencies and considered within the context of the regulatory framework to ensure that the conclusions are representative and well-balanced.

5. **Testing of key findings and development of a systems change strategy**

Based on the findings of the desktop analysis, surveys and interviews, potential options for addressing the issues raised were tested with PF2050 Ltd staff and PF2050 landscape scale project leads through a review process, along with the final recommendations for developing a methodology for systems change.

2. What is a systems change strategy?

A systems change strategy represents *"an intentional process designed to alter the status quo by shifting the function or structure of an identified system with purposeful interventions"* (Foster-Fishman et al 2007, *as cited in* Badgett, 2022). Systems change involves recognition and exploration of factors which make a system operate in a certain way. These factors often include policies and legislation, relationships, resources, regulatory structures and values. As such, exploring systems change can be inherently complex.

To navigate the process, it is therefore important to address what change is needed, why it is needed, consider what the unintended consequences of change might be, and appreciate the complicated dynamics of the issues to be addressed (Badgett, 2022).

The PF2050 system can be represented by Figure 1 below, where examples of an output could be thought of as successful approval to develop and market new tools and methodologies, undertake predator elimination activities, and to translocate native species to boost population growth.

The inputs to the system are therefore all the components required to get to the point of granted approval. These include understanding the legislation and how it functions in the context of PF2050, navigating the process of preparing and applying for approvals, developing relationships with stakeholders and regulatory agencies, capacity of regulatory agencies to process applications, and the values held by assessors and the role these play in granting approvals or certifications.

The system boundary in Figure 1 represents who and/or what is involved in the problem and the solution. This influences the variety of solutions which can be considered (Abercrombie et al, 2015). In this case, the system boundary includes regulatory agencies and PF groups involved in research and development, landscape scale predator elimination and species translocations within the context of the regulatory approvals system.

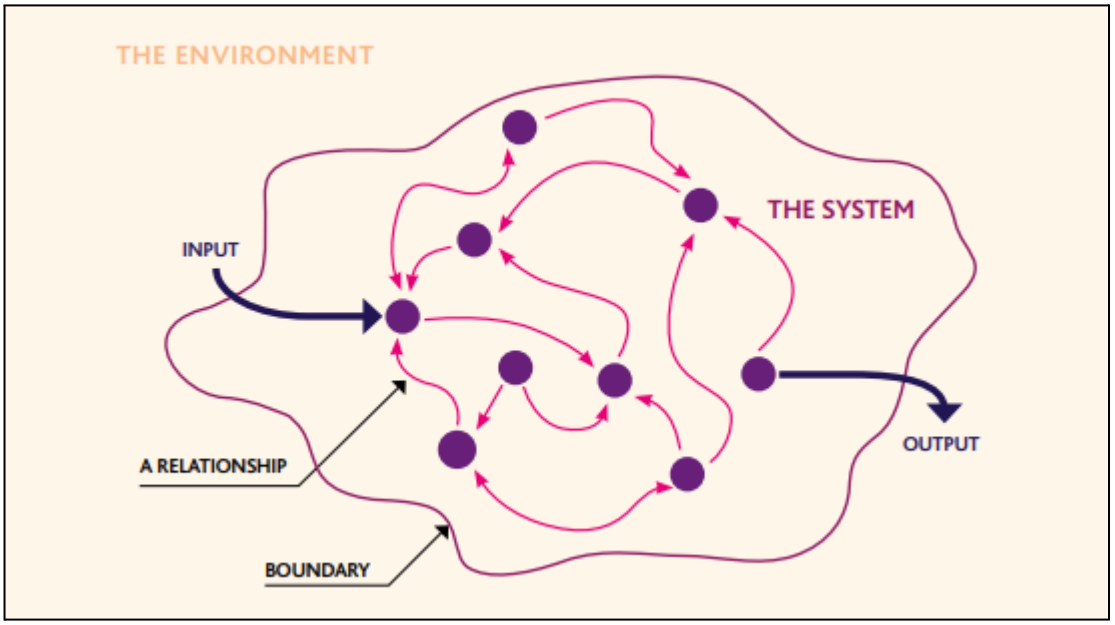

Figure 1: Example of a system (Flood, R. and Jackson, M. (1993) *as cited in* (Abercrombie et al, 2015).

To develop recommendations for systems change, the following sections of this report explore factors influencing challenges with the system, identify the root causes of these factors and build a case for why change is needed. However, in order to provide relevant context, it is important to first understand the regulatory landscape within which PF2050 is operating.

3. Regulatory landscape summary

Activities required to deliver on the PF2050 vision span a broad spectrum and include:

- Testing new tools and methodologies to ensure continued effective knockdown of predators.
- Utilisation of existing tools and methods for predator elimination at the landscape scale.
- Species translocation back into project areas once predator levels are reduced below the required threshold.

This spectrum is summarised by Figure 2 below:

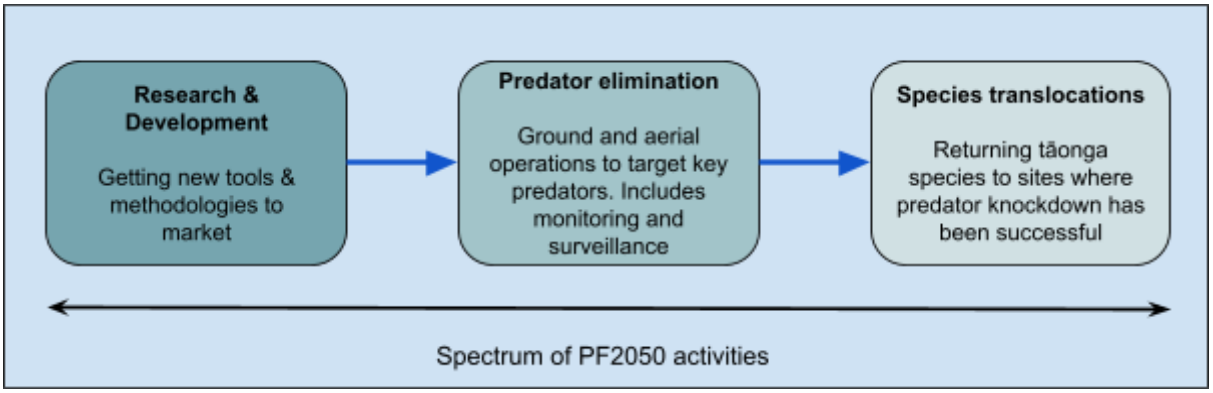

Figure 2: Broad spectrum of activities required to achieve the PF2050 goal. PF2050 groups operating in each box above have been interviewed.

Within these key activity areas exist a variety of peripheral activities, which are also often required for delivery e.g. monitoring and surveillance using thermal drones and detection dogs, fencing, track cutting, hunting, and bait storage and transportation. Whilst not the focus of this report, these activities also often generate the need for a range of approvals and certifications, adding to the complexity faced by those trying to deliver the PF2050 vision.

Regarding legislative requirements, fourteen main Acts apply to, or play a key influencing role in predator elimination activities, all of which combine to necessitate a multitude of approval processes that must be completed before a predator elimination operation can take place (*National Pest Control Agencies*, 2021). A summary of requirements under each of these Acts is provided below.

In reviewing this legislative landscape, it is apparent that a variety of terms are used to describe an authority to conduct an activity, or to approve a hazardous substance. Terms commonly in use include:

- Permit
- Approval
- Authority
- Consent
- Permission
- Concession
- Authorisation
- Certificate
- Licence
- Registration
- Agreement

For simplicity, the generic term 'approvals' has been used in this report to represent any or all of the above. Where specific terms have been used, this has been to aid clarity.

3.1. Hazardous Substances and New Organisms Act 1996 (HSNO)

The Hazardous Substances and New Organisms Act 1996 (HSNO Act) is overseen by the EPA and regulates the importation, manufacture, and use of hazardous substances (including VTAs), the development or release of new organisms, and field trials of new substances or organisms. The purpose of this Act is to protect people and the environment from the risks of hazardous substances and new organisms, by setting conditions to manage things like toxicity in the environment, persistence and ecological impact.

Undertaking any of the above activities requires various approvals under this Act. In addition, where research and development activities involving hazardous substances are undertaken, containment approvals are also issued under HSNO.

3.2. Agricultural Compounds and Veterinary Medicines Act 1997 (ACVM)

Complementary to the HSNO Act, the ACVM Act overseen by the Ministry for Primary Industries (MPI), also applies to VTAs. The purpose of this Act is to ensure that agricultural compounds (including VTAs) are effective, safe, and appropriately labelled for use. Once a substance has been approved for use under HSNO, product developers must then apply to MPI under the ACVM Act to market the product. MPI are responsible for assessing the effectiveness of the product for its intended purpose, label accuracy and effects on food safety (e.g. toxin residues).

Approvals under ACVM are also issued for research and development involving trialling unregistered substances, or using registered products in a non-approved way (e.g. new delivery methods or formulations), or where research involves animals.

3.3. Animal Welfare Act 1999 (AW)

Where research is undertaken which involves live animals for the testing of substances, products or devices, Animal Ethics Approval must be obtained from MPI under the AW Act. This involves compliance with a Code of Ethical Conduct.

3.4. Health and Safety at Work Act 2015 (HSW)

The Health and Safety at Work Act (HSW Act) administered by WorkSafe, is New Zealand's primary workplace health and safety legislation and is primarily concerned with managing risk to both workers and the public resulting from various activities. It applies directly to predator elimination activities as these often involve the use of hazardous substances, physical risks, remote work, and interactions with the public or environment, and sets out a number of duties which must be compiled with e.g. signage, notification, risk management plans, and worker training.

In addition, the Health and Safety at Work (Hazardous Substances) Regulations 2017 set the requirements for Certified Handler Certificates (CHC) and Controlled Substance Licences (CSL). These approvals, which are often both required for predator control, ensure competence and safe handling of hazardous substances (CHC), and restrict access to hazardous substances to those who have been through a police vetting process, to prevent misuse or harm. The CHC is issued by a WorkSafe-authorised compliance certifier, whilst the CSL is issued by WorkSafe.

3.5. Resource Management Act 1991 (RMA)

The Resource Management Act 1991 (RMA) administered by Regional and District Councils, promotes the sustainable management of natural and physical resources by regulating the effects of activities such as discharges through the imposition of consent requirements. The use of VTAs is often classified as a discharge under section 15 of the RMA, and consent requirements which are set in regional and district plans vary across the country. The exception to this is Resource Management (Exemption) Regulations 2017 which exempt aerial and ground applications of 1080 and brodifacoum from section 15 of the RMA (including aerial discharge of brodifacoum in predator-proof sanctuaries). These regulations reduce duplication in the regulatory regime for pest control, so that operations can be more efficiently planned to better protect New Zealand's flora and fauna from pests (Ministry for the Environment, 2021).

Note that the RMA is currently undergoing reform, and the final content of the future resource management system and how it may impact predator elimination operations is not yet known.

3.6. Health Act 1956 (HA)

The Health Act 1956 (HA), administered via Public Health Units (PHUs) and Medical Officers of Health (MOoH), and overseen by the Ministry of Health ensures that predator control operations do not endanger human health, particularly where control operations may impact drinking water supplies or land where the public have access. Whilst formal approvals are not issued under this Act, MoH sign-off for predator elimination operations involving the use of aerial VTAs is often required as part of other statutory processes. Applications are therefore processed where VTAs are:

- Intended to be applied or used in a catchment are from which water is drawn for human consumption, or
- Applied in any other area where a risk to public health may be created.

3.7. Conservation Act 1987 (CA)

Administered by DOC, the purpose of this Act is to manage and protect public conservation land and resources. DOC issues concessions (permits or licences) for activities on conservation land including predator control operations. Conservation Management Strategies, the purpose of which is to implement general policies and establish objectives for the integrated management of all conservation resources and activities in a region are also developed in accordance with this Act.

3.8. Wildlife Act 1953 (WA)

Administered by DOC, the purpose of this Act is to protect native wildlife. If predator control operations may affect non-target protected wildlife, DOC may require approval to be applied for under the WA. The WA also applied to species translocations, tagging and handling of species including kiwi, kea and bats.

3.9. National Parks Act 1980 (NPA)

Administered by DOC, the purpose of the NPA is to preserve national parks in perpetuity for their intrinsic and for the benefit, use and enjoyment of the public, and it affords these areas greater protection than the other Acts. DOC grants approvals for activities within national parks, such as predator control, under this Act to ensure park values are protected. National Park Management Plans are also developed in accordance with this Act and set out how National Parks are to be managed over a 10 year period to give effect to the principles outlined in the Act.

3.10. Reserves Act 1977 (RA)

The purpose of the RA is to manage scenic, scientific, recreation and other reserves. Predator elimination activities such as trapping, use of VTAs, bait stations and monitoring on reserves may trigger the requirement for permits/approvals or written authorisation from the administering body of the reserve in question. The administering body is often DOC for scenic and scientific reserves and territorial authorities (e.g. district or city councils) for recreation, local purpose or historic reserves.

3.11. Wild Animal Control Act 1977 (WACA)

The purpose of the WACA is to control populations of wild animals (primarily deer, pigs and goats) that damage native ecosystems. Wild animals are also classified as any member of any species or class of land mammals that the Governor-General may from time to time, by Order in Council, declare to be wild animals for the purposes of this Act. Whilst not a primary piece of legislation relating to PF2050 predator elimination activities, from time to time concessions may be issued by DOC for animal control operations involving hunting.

3.12. Heritage NZ Pouhere Taonga Act 2014 (HNZPT)

The purpose of the HNZPT Act is to promote the protection, preservation, and conservation of New Zealand's historic and cultural heritage. If any activity associated with predator elimination may modify or destroy such a site, archaeological authority from Heritage New Zealand Pouhere Taonga who administer the Act, must be sought.

3.13. Civil Aviation Act 2023 (CAA)

The purpose of the CAA, which is administered by the Civil Aviation Authority of New Zealand, in relation to predator elimination activities, is to regulate civil aviation activities to ensure the safe use of airspace and craft. All manned and unmanned aircraft (including drones) must comply with the Act, and in certain circumstances apply for permission to fly.

3.14. Biosecurity Act 1993 (BSA) - supporting legislation

In addition to the above legislation, the BSA also plays an important role in pest management by providing the legal framework for MPI and others to help keep harmful organisms out of New Zealand. It also provides the framework for response and management of harmful organisms already present within New Zealand.

Under this Act, national and regional pest management and pathway plans can be established to help manage pests and their vectors through the imposition of specific programmes and rules. Pests may also be assigned unwanted organism status further supporting their management. This Act and the plans under it are enabling and do not typically require permits or approvals to be obtained for PF2050 work.

4. Approvals required and key regulatory agencies

This review through desktop analysis, surveys and interviews, has revealed up to 33 different regulatory and non-regulatory approvals that could apply to predator free activities. The approvals are in addition to the requirements of HSNO controls and label requirements set under the Hazardous Substances and New Organisms Act 1996 (HSNO) and Agricultural and Veterinary Medicines Act 1997 (ACVM) for VTA use which must also be met. It is noted that the number of

approvals required for any given PF2050 project will depend on the activities proposed, and the land tenure on which they are to be carried out.

Figure 3 below highlights the complex approvals landscape, and shows that where Public Conservation Land or Reserve land administered by DOC is concerned, the number of approvals required increases significantly. Whilst several of these approvals[4] are not specifically driven by legislative requirements, meaning they are a direct agreement between certain parties, PF work often cannot commence until these are obtained. Therefore in practical terms, they have the same effect on project outcomes as any form of statutory approval. Appendix A sets out potential approvals by activity type and land tenure in more detail, and also specifies which regulatory agency is responsible for issuing approvals, and if they are operating under delegated authority.

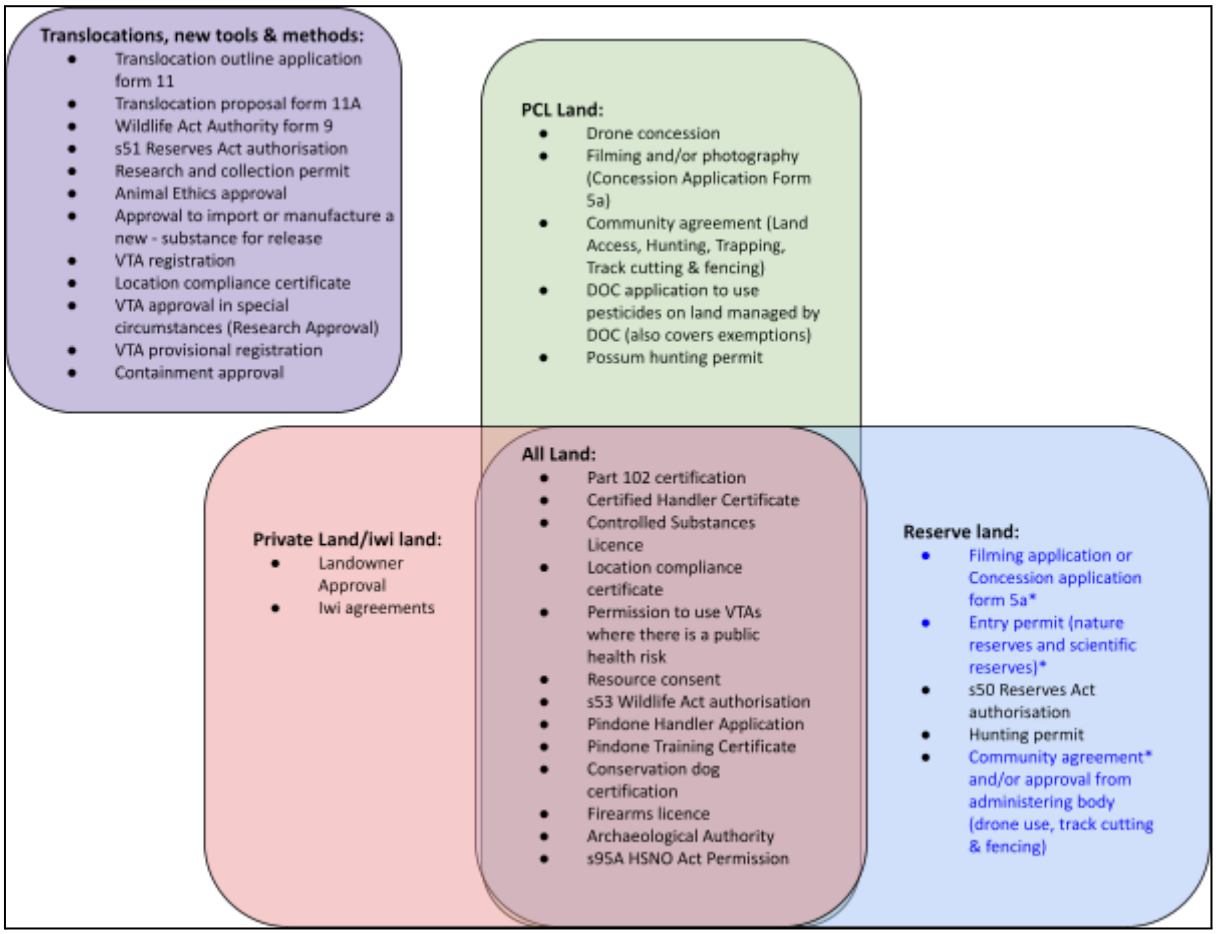

Figure 3: Summary of approvals required - The complexity of the approvals landscape is shown by land tenure. Note that the purple box applies regardless of land tenure if translocations are to take place or new tools and methods are to be developed and/or trialled. Many of the permits denoted by an asterisk and blue text in the blue box (Reserve land) are also issued by DOC when they are the administering body for a reserve.

Approvals are overseen by different regulatory agencies outlined below, each with its own requirements and processes. Those in bold represent the key regulatory agencies relevant to PF2050 activities due to the number of approvals routinely required:

[4] E.g. landowner agreements, iwi agreements and DOC community agreements

- **Department of Conservation**
- **Environmental Protection Authority**
- **Ministry for Primary Industries**
- **Ministry of Health**
- **WorkSafe**
- Heritage New Zealand Pouhere Taonga
- Regional and District Councils
- Civil Aviation Authority
- Firearms Safety Authority New Zealand

In addition to the above, approval from landowners and/or iwi and hapū is also often required to carry out landscape scale projects, particularly where private or Māori land is concerned, or where cultural values may be impacted.

5. Key findings

The analysis of the approvals landscape has revealed the following challenges that affect the full breadth of PF activities:

- The regulatory system is complex and navigating it well depends on relevant experience and skills, as well as clear processes set out by regulatory agencies
- Legislation and regulatory plans are not optimised to enable the PF2050 vision
- The DOC approval system is not optimised to support PF2050 outcomes
- MoH permissions for VTAs are better managed by other regulatory agencies
- Land tenure can impact operational delivery
- The process for obtaining CHCs and CSLs is complex, lengthy and subject to uncertain outcome.
- Data requirements for approval applications are uncertain - new tools and methods
- Inconsistent, duplicated and/or unworkable conditions creates compliance risk and administrative burden
- Capacity to process approvals varies by agency
- High turnover of staff within regulatory agencies
- Engagement with mana whenua is often required as part of application processes, however applicants have expressed uncertainty regarding knowing who to contact and how to engage, and what to do in situations where a response is not received within required timeframes.

These challenges broadly arise due to a variety of legislative nuances, variance in the way both applicants approach navigation of the regulatory system and in the way regulatory agencies implement legislation, and external factors like resource allocation. To inform the strategy for systems change, the root cause(s) of each factor influencing these challenges has been identified, and to assist with prioritisation of potential solutions, where possible the impacts that have resulted are presented. Root causes are conditions that explain *why* a problem or challenge is occurring. Often root causes will also have additional underlying root causes which need to be fleshed out as part of the design of a systems strategy (Watson, 2024).

It is important to note that whilst presented separately, each of the findings set out below often have several dependencies in terms of root causes and can impact many areas of the overall system. Therefore to effect positive change going forward, addressing the system as a whole is imperative.

5.1. Navigating the regulatory system well depends on relevant experience and skills

With a potential 33 different approvals to navigate, applying for approvals can be complicated, especially for those persons with little regulatory experience. The survey and interview process highlighted that there is no single source of guidance specifically relevant to PF2050 projects which steps those undertaking PF activities through all the different approval requirements across regulatory agencies. All respondents agreed that if a PF group had no prior experience or skills in securing regulatory approvals, that the regulatory system would be incredibly difficult to navigate. Some PF groups that have been in this position, described their experience of the regulatory system as *"going through a maze"* and it is clear from our analysis that this impression is indeed accurate.

Having an experienced team with the right mix of regulatory skills for each project is imperative. Unless PF groups have team members/contractors with previous regulatory experience, or who hold relationships with relevant regulatory agencies, groups are often in the dark on how to go about applying for the necessary approvals, how long the process might take, and who is responsible for decision-making. Some PF groups commented that this often results in a *"process of discovery"* where it is not known what regulators require in an application until asked, and that often relies on the PF groups asking the right questions. This process of discovery can be incredibly time consuming and has made operational planning for these groups difficult. In some instances, PF Groups have changed methodologies to trapping as the approval process is easier to navigate, particularly where public conservation land (PCL) is concerned.

The above was tested through our analysis of different approvals required. We had a staff member new to the field, attempt to find the relevant information to apply for various approvals. Our staff member noted that with the exception of MoH and WorkSafe, websites of regulatory agencies were not easily navigable, and not all approval application forms could be found online, indicating that for some approvals direct contact with the regulatory agency would need to be made. This process took considerable time and effort.

On the contrary, those PF groups fortunate enough to have staff/contractors with previous experience of the regulatory system, or who had partnered with council or DOC through the project, often reported a more positive experience when navigating and securing the required regulatory approvals. These groups typically have access to legal, regulatory and health and safety teams (through their project partners) that provide support and assistance. They also often have the advantage of established relationships with assessors within the regulatory agencies, and this appeared to result in a higher degree of satisfaction with and understanding of regulatory processes.

However, this was not the experience of every PF Group. One PF Group (who had access to external expertise in navigating regulatory systems) noted that at times, it felt as though DOC staff were not clear on their internal process that needed to be followed to issue an approval. Further the PF Group also felt that there was a level of subjectivity within the DOC decisionmaking process with different staff views overriding others within DOC. Not having clear processes within regulatory agencies that are transparent to both applicant and assessor also compounds the complexity faced by applicants in navigating the regulatory system.

To test whether the level of experience of PF Groups with the regulatory process is having an impact on application quality and leading to potential delays in obtaining approvals, in our interview with MoH staff we queried the quality of applications their PHUs and MOoH received. MoH staff noted that there was a wide variance in the quality of information included with applications, with most PF Groups providing the bare minimum of information required, and others providing more than what is needed. MoH staff attributed this difference to the level of experience of applicants with the regulatory system, noting that some PF Groups appeared to be coming into projects with limited prior experience. Often applications are received without maps or much detail, necessitating further requests for information, contributing to delays in processing.

MoH staff also highlighted that the Ministry issued comprehensive guidelines in 2022 to assist applicants applying for approvals. These guidelines[5] are publicly available and provide practical advice on how permission applications should be assessed, examples of how risk assessment will be conducted by MoH staff when an application is received, and what an appropriate operational map should look like. They also outline model permit conditions, and provide a checklist of what applications should cover.

MoH staff have recommended that PF Groups refer to these guidelines to assist them in navigating the permissions process. Further, establishing a good working relationship with assessors at MoH ahead of applying for permission, was also noted as a critical step by the MoH staff we interviewed, and one that would assist applicants in navigating the permissions process.

Root causes, impacts and risks
Challenge summary ● PF groups, especially those with no prior experience, often do not know what is required in terms of approvals, how long approval processes will take and who makes the decisions on applications. ● Approval processes within regulatory agencies are sometimes not clear and/or transparent to both applicant and assessor, and there can be a level of subjectivity experienced in decision making. ● Approvals are taking longer than anticipated to be issued.
Root causes ● The system is really complex with a potential 33 approvals, and no single source of guidance on the regulatory process specific to PF2050 activities that spans across all relevant regulatory agencies. ● PF groups overseeing PF2050 activities can be made up of staff new to the regulatory process or who have not worked in predator elimination.

5 https://www.health.govt.nz/system/files/2011-11/guidelines-for-issuing-permissions-for-the-use-of-vertebrate-toxic_agents-29_july.pdf

• Relationships with assessors from the relevant regulatory agencies may not be well established. • Not all approval application forms are available on the websites of regulatory agencies, and some websites are hard to navigate. • Applications do not necessarily contain all relevant information. • Internal processes are not clear and transparent to both assessor and applicant.
Impacts • Significant time and effort spent on the discovery process means less funding is invested into PF activities. • Some PF Groups are choosing to rely on trapping due to the complexity of navigating approvals to operate on PCL. This is despite trapping not being the most effective or efficient option for delivering elimination activities as part of the project.
Risk if not addressed • PF project milestones set as part of funding agreements are not met.

5.2. Legislation and regulatory plans are not optimised to enable PF2050 vision

In our review of documentation relating to the establishment of the PF2050 vision and the supporting PF2050 Strategy, it is unclear whether a regulatory scan of legislation for potential barriers (and conversely enablers) to achieving the PF2050 goal was undertaken. Based on their experience with the regulatory system in obtaining the necessary approvals required to carry out PF activities, several PF Groups have expressed their frustration that it feels as though they are trying to fit a square peg into a round hole when it comes to applying for approvals, and at times, the controls and conditions that can result.

Often this is because the legislation and regulatory plans overseeing the activities being delivered have not anticipated the scale or type of PF activities required to be undertaken, the pace at which they need to be delivered, or the requirement for PF projects to remain agile in order to respond quickly to unanticipated issues, or to change direction. Other times, the issues stem from an inability to deviate from process or a disconnect between policy and operations.

Flexibility is a tricky thing to provide for in a regulatory system. By nature, regulatory approvals which must give effect to overarching legislative requirements, are fairly rigid and process driven. This is in order to ensure approval decisions are defensible, and that any deviation from what has been approved has the opportunity to be appropriately assessed in order to ensure risks and/or effects are adequately mitigated. Examples of some of the challenges experienced by various PF Groups at the legislative level are outlined below.

Example 1: Variations to EPA approvals under HSNO

A PF Group in an application to the EPA to undertake an aerial trial of para-aminopropiophenone (PAPP) sausage, specified that bait would be manually thrown from a helicopter. However shortly after approval was obtained, the group was presented with an opportunity to instead manually load a machine within the helicopter which would distribute the baits instead. This minor change in method necessitated a variation to the approval despite the risk profile of the activity being the

same as the original. This cost an additional $2500 in application fees, as well as additional staff time to prepare the relevant documentation, along with significant delays to the operation while waiting for the variation to be processed. The PF Group expressed that if they had instead written *"baits to be deployed from a helicopter"* rather than *"baits will be manually thrown"* in the original application, the need for a variation would have been negated.
In response to challenges of this nature, EPA staff have commented that they try to be pragmatic when it comes to minor changes and want to limit regulatory burden where possible. However, they note that this often needs to be balanced with following legislation and making sure risk is accounted for. For example, if a minor change change in methodology was required, and it didn't affect the risk profile of the trial, and the wording of the conditions set in the original approval could still be followed, the EPA expressed that they would communicate with the approval holder and let them know they could continue without amendment to their approval.

However, if amendment was required, as part of best practice EPA staff have noted that they would endeavour to assign the same advisor who processed the original application to ensure any delays in getting up to speed with the application are minimised. Although, the EPA has commented that ultimately they are constrained by the legislation they operate under, and that for the HSNO Act, the only way to change an approval is to meet the Act requirements in relation to section 92.

Section 92 states *"The Authority may modify any permit to correct any clerical error or omission."* In comparison to section 80 of the ACVM Act which also deals with errors, the HSNO Act appears to be more constraining in its specificity. Section 80 of the ACVM Act states *"Where any mistake exists in the register or in any other document made or issued under this Act, the Director-General may correct the mistake; and, for that purpose, may require the registrant or any holder of an approval to produce the certificate of registration or any other document held by the registrant or holder of the approval."*

Example 2: EPA Containment Approvals

A further example of where rigidity in legislation has impacted delivery of PF activities is the inability of the EPA to issue generic blanket approvals for containment trials covering multiple VTAs. This approach would allow trials to be undertaken without separate approvals being generated so long as the conditions of the blanket approval could be met. At present, a containment approval is required to be applied for every time a VTA trial is undertaken. This has resulted in one PF Group lodging approximately 30 containment approval applications with the EPA to undertake pen and field trials. Each time approval is required, additional cost, time, and project delays are incurred. PF Groups note that there may be precedent for issuing generic blanket approvals across VTAs, as this approach has been previously used by the EPA in regard to plant protection products and veterinary medicines.

Currently, PF Groups are undertaking containment trials for the toxin Norbormide. Norbormide is a rat-specific toxin that leaves birds, pets, and livestock unharmed. It also doesn't bioaccumulate meaning that animals that scavenge on a rat which has ingested the toxin are not harmed. Scientists worldwide have been exploring how to make norbormide palatable to rats (Scott, 2024). In New Zealand, trials involve feeding animals in the laboratory, and putting out bait stations on private, secured sites (not on PCL or reserves). For these trials to be conducted successfully,

favourable weather windows are required. PF Groups have commented that having generic blanket containment approvals would allow weather windows to be used to their full advantage. Instead, at present containment approval applications are often caught in the EPA application processing system and these weather windows are missed. This can result in delays to trials and ultimately jeopardises ongoing investment into new tools and methods.
In response to this challenge, staff working directly with containment approvals at the EPA have commented that issuing generic blanket containment approvals for VTAs might prove more difficult, as there is potentially less standardisation across substances and trials. However, the EPA is open to exploring this opportunity with PF2050 Ltd, noting that this decision would need to come from higher up in the organisation.

In regard to accounting for favourable weather windows, EPA staff noted that in the absence of generic blanket containment approvals, they aim to accommodate weather windows where possible. However, ultimately this depends on the capacity of the EPA to process containment approval applications in a timely manner. The EPA also advised during our interview that PF Groups, when applying for containment approvals, should build a few months' contingency into the timeframes they are asking for, and explain the reasons for this contingency in the application. In general, the EPA has commented that they are reasonably comfortable with issuing containment approvals for a 3 year period.

Example 3: Duplication in approvals under ACVM and HSNO for VTA trials

When trialling new tools and VTAs, PF Groups have also found that there is duplication in process between the HSNO and ACVM Acts. For example, approvals under both the HSNO and ACVM Acts are required when trialling unregistered VTAs in containment, usually in the form of an EPA containment approval (HSNO), and a provisional registration or special circumstances approval (research approval) from MPI (ACVM). Those working in research and development have commented they feel that the risks managed by the ACVM approvals are already adequately managed by the EPA containment approval. Furthermore, as these products are not yet registered, they cannot be sold or used outside of containment, which further mitigates any risk.

Example 4: Level of risk not well reflected in regulatory processes

Interview respondents noted that they felt regulatory processes under the ACVM and HSNO Acts for changes in formulations or delivery methodologies involving VTAs are onerous, particularly when a vast body of data already exists or the risk profile of what is being proposed is low. For example, the effects and management of 1080 is already well documented and understood.

Despite this, the process to obtain approval for new delivery methodologies, like 1080 laced meat sausage, or using dead wild-caught rats that have ingested a lethal dose of 1080 cereal baits in a captive facility, is onerous. PF Groups note that whilst these delivery methodologies have a slightly different risk profile to currently approved formulations, in reality the risk profile is the same or less than an aerial operation using 1080. The PF Group noted that both MPI and EPA acknowledged in correspondence with them that they understood that the risk profile was akin to an aerial operation, however the regulators commented that the process was the process.

In response to this issue, EPA staff have commented that when assessing applications they do look to what has already been assessed and approved in the past. However, in implementing the HSNO Act it is important that the requirements under the Act in terms of risk assessment are given effect to. EPA staff further note that, previous applications and approvals cannot always be relied on as new information and science is continually coming to light, and internal EPA policy on risk assessment may have also changed in this time.

PF Groups have also expressed similar concerns in relation to the DOC approval system. In one example, interview respondents noted that the process to obtain approval from DOC to use brodifacoum in a 12ha reserve on PCL is the same as that to apply the VTA over 500,000ha of national park. They further noted that there doesn't appear to be any ability within the system to reconcile these different contexts. In this instance, the complexity of the approval process resulted in PCL land being excluded from operations. When pursuing an eradication goal it is imperative to target all land within a project area.

Root causes, impacts and risks
Challenge summary ● Variations to approvals are not easy to make. ● Pen and field trials require individual containment approvals for VTAs and multiple assessment processes. ● There is potential duplication between HSNO and ACVM Acts in regard to research trials.
Root causes ● Lack of upfront regulatory scanning during PF2050 strategy development resulting in regulatory systems which are not designed to respond to large-scale, fast-paced and innovative predator control and which are duplicated. ● Legislation restricts the ability of regulatory authorities to provide flexibility in approvals. ○ Section 92 of the HSNO Act which deals with modifications to approvals has not been reviewed since the inception of the Act in 1996. Conversely, section 80 of the ACVM Act (which is more flexible) was reviewed in 2007. ● Potential for standardisation across substances and trials (in relation to VTAs) to determine suitability of blanket containment approvals has not been explored. ● Potential overlap in regulatory scope between the HSNO and ACVM Acts, inconsistent legislative design and a lack of coordinated implementation between the two Acts. ● Application triage processes not well aligned to actual operational risks or context.
Impacts ● Time-sensitive operation windows may be missed due to approval delays ● Increased administrative costs as a result of variations ● PF Groups change approach due to complexity of approvals and delays in the regulatory process, potentially resulting in less effective operations.
Risk if not addressed ● Loss of confidence and funding as a result of delays and increased operational costs ● Innovation stagnates and PF Groups become reliant on legacy tools with known limitations. ● Increased risk of non-compliance where duplication in approval conditions exists ● The PF2050 goal may be undermined.

5.3. The DOC approval system is not optimised to support PF2050 outcomes

DOC manages the majority of New Zealand's most valued biodiversity land which contains abundant food sources for predators. It is therefore no surprise that PF Groups interface with this government agency the most out of all regulatory agencies. In addition, DOC also carries out predator control in support of PF2050 projects in some circumstances, and therefore also must obtain approvals under its own system.

Whilst the DOC regulatory approval system has its challenges, all interview respondents were keen to point out that they recognise DOC staff are doing the best they can with the resources and time they have available, and are generally helpful in providing advice when it comes to navigating their approval processes. However, our analysis has uncovered a number of challenges outlined below, which contribute to the DOC system being disproportionately harder to navigate than other regulatory agencies, highlighting that it contributes to uncertainty in approval processes and is not optimised to support PF2050 outcomes.

Processing functions split between national and local DOC offices

DOC staff interviewed noted that their approval system is complex, and that to their knowledge there is no list within DOC outlining all the potential approvals required for predator elimination activities - many approvals get picked up during the processing of applications. However, they noted that applications involving the use of VTAs are sent in one of two directions for processing - either national head office in Wellington if the proposal involves aerial control, or to the relevant local DOC office if control is solely ground based. DOC staff highlighted several potential inefficiencies in this process which may be contributing to the delays experienced by PF Groups in obtaining permissions.

There is a stark contrast between head and local offices in the nature of work conducted. For example, head office staff are largely desk-based, whereas local office staff must also often balance fieldwork on top of maintaining a desk based role. This leads to two issues which create inefficiencies:

- Correspondence between PF Groups and assessors processing aerial applications at head office is primarily online, with limited opportunity for face to face engagement. This can make it difficult for PF Groups to establish relationships with assessors to assist in explaining the context of their projects and to build ongoing trust. DOC staff also noted emails relating to approval applications also have the potential to get lost in the system.
- In contrast, whilst it is easier for PF Groups to build relationships with DOC staff in local offices, these staff are generally field-based, and processing of approval applications often comes on top of their day-to-day work. Assessing approval applications can therefore sometimes be assigned a lower priority in the workflow, especially when DOC staff are also working to weather windows for their own projects. The majority of control operations undertaken by PF Groups are ground-based.

The above can result in delays to approvals being granted and can also create a backlog of applications. One PF Group commented *"We have all other permissions sorted, but DOC have said it will be up to a year before they will look at the DOC application."* DOC staff note that they are actively working on this issue, and new government targets have been set in respect of processing timeframes to address the backlog of permissions in the system. However, they also note that their teams are often at capacity.

The exception to the above process are applications for approval to translocate kiwi. These applications must go through a two step process which is outlined in the next section.

Root causes, impacts and risks
Challenge summary ● Delays in the processing of DOC approvals are being experienced by PF Groups
Root causes ● DOC processing functions split between national and local offices impacting ability of relationships to be established ● Prioritisation of approval applications for processing required to be balanced with other work ● Resourcing within DOC to assess applications as they come in is not matched to demand
Impacts ● Some PF Groups are choosing to rely on trapping due to the complexity of navigating approvals to operate on PCL. This is despite trapping not being the most effective or efficient option for delivering elimination activities as part of the project.
Risk if not addressed ● PF project milestones set as part of funding agreements are not met.

Kiwi translocation approval challenges - expertise, criteria and implementation

Kiwi translocations are a success story of PF2050. When a translocation takes place it shows that predator control has been effective enough for tāonga species to return and to have a good chance of survival. The current DOC Kiwi Recovery Plan 2018-2028 sets an objective to grow all kiwi species by 2% each year and notes that achieving this goal at a national level will require continued intensive predator reduction (Germano et al, 2018). As such, strong collaboration between PF2050 Groups and DOC is imperative.

Applications for kiwi translocations must go through a two-step process. First the application is sent to the Kiwi Recovery Group (KRG) based in Hamilton for their input. This DOC-led group is made up of a mix of DOC staff and external experts who have expertise in kiwi recovery and translocation. The role of the KRG is to provide technical advice to kiwi practitioners and DOC staff in decisionmaking roles. Following this step, the application is then passed onto the relevant local DOC office to process.

PF Groups undertaking kiwi translocations have also noted this two-step system can present challenges which ultimately result in delays in issuing approvals. This and other challenges which

are contributing to delays in planning and permitting in relation to kiwi translocation are outlined below.

- Recognition of expertise outside of DOC:
    - PF Groups interviewed noted that there is a wealth of expertise sitting within their projects regarding kiwi health, translocations and pest control. However, this expertise doesn't appear to be as well recognised by DOC as that of their own staff and the KRG. As a result, when viewpoints between these groups differ, the outcome of an application is often dependent on the level of comfort a DOC decisionmaker has in overriding technical advice from the KRG. When a decisionmaker chooses to override the advice of the KRG an additional layer of scrutiny is required, and at times this has involved escalation to the Director General of DOC, further adding to permitting delays. The process of funneling all translocation permit applications through the KRG for input can therefore result in bottlenecks, particularly where advice given contradicts what is being experienced by PF Groups on the ground.
- Inconsistent approaches to criteria for translocation and application requirements:
    - All applications for translocation permits are submitted with a significant body of evidence to demonstrate the likelihood of a successful translocation. Before translocation can take place, certain criteria must be met, however PF Groups note that there are no hard and fast guidelines on what these criteria are. For example, in regard to pest control, the level of pest suppression required appears to differ depending on which DOC technical advisor is assessing the application. In addition, the requirements for supporting plans e.g. dog management plan, ferret plan, and invertebrate surveys also differ depending on the processing officer assigned. This makes for an inconsistent approach across the country, and makes planning for translocations difficult.
- DOC decisionmakers often not familiar with what translocations involve:
    - To release a kiwi is approximately one year in the making, and kiwi can only be released between January and June. In dealing with DOC processing officers, the experience of PF Groups has been that many are not aware of the planning involved or the significant investment required to get to the point of being able to release a kiwi. When there is uncertainty regarding when or if permits will be issued, or if permits are issued a few weeks prior to release date, this can place the goodwill of community, iwi and funders at risk.
    - In one instance where this occurred, a PF Group faced potentially losing their project due to permitting delays. This would have resulted in $4 million of sunk investment. The nature of joint funding schemes makes these delays a huge problem. Another respondent commented that they had secured an additional $1.5 million in philanthropic funding, which was very difficult to do to begin with. Yet

due to delays there was the possibility that the funding may have to be returned due to lack of progress on obtaining approvals.

    - However, despite the above, PF Groups note that significant progress has been made in the Waikato region recently. Several DOC staff have accompanied PF Groups on kiwi translocations, and a dedicated person within the Hamilton DOC office to focus on kiwi translocation permits has been appointed. This has resulted in a greater level of understanding amongst decisionmakers in the Waikato and a higher level of trust regarding PF Group expertise. PF Groups would like to see this approach continue and expand across the country.

- Conservative DOC risk management approaches regarding kiwi is at odds with PF2050 and community aspirations:

    - Conservative approaches to risk management and interpretation of legislation within DOC has also been highlighted by PF Groups as a factor hindering the pace at which kiwi populations can be built up, and is at odds with the innovative approach fostered by PF2050. For example, the number of kiwi which can be translocated is currently limited by DOC despite community and iwi aspirations to see populations flourish and hundreds of kiwi being ready for translocation.

    - In addition to impacting recovery of populations, conservative approaches to translocation are also affecting the ability of iwi to express kaitiakitanga and manaakitanga, with many iwi feeling strongly about gifting kiwi to other areas of Aotearoa. PF Groups highlighted that a possible reason for this approach could be that DOC officers are not comfortable with the risk of translocations being unsuccessful. This differs to the view of PF Groups and iwi who want to create an abundance of kiwi around Aotearoa, so if there are instances of loss the population is not severely affected. At times these differences in approach have led to applications for translocation being declined.

- Rigidity in the DOC system means the process for translocation is the same for 1 kiwi as it is for 100 kiwi:

    - PF groups note that risk is not well reflected within the DOC permitting system, and depending on the number of kiwi being translocated, permitting processes can be onerous.

- Information sharing across DOC offices not readily occurring:

    - PF Groups have expressed that this is resulting in inconsistent approaches to permitting across the country which is making it difficult to plan translocations at a national level.

Root causes, impacts and risks
Challenge summary ● Approvals for kiwi translocation are complex and the process can be inconsistent, lengthy,

onerous and uncertain
Root causes ● Lack of communication between DOC offices handling kiwi translocation permit applications ● Relationships between PF Groups undertaking translocations with DOC decisionmakers (outside of Waikato) not well established and/or in their infancy contributing to a lack of understanding ● No clear, agreed national criteria for translocations ● Uncertain process for recognising credibility of expertise in field ● DOC internal strategies potentially not aligned with PF2050 vision and outcomes
Impacts ● Future funding for translocations jeopardised, and potential for sunk investment ● Missed opportunities to increase kiwi populations
Risk if not addressed ● The following outcomes outlined in the 'Toward a Predator Free New Zealand - PF2050 Strategy' are not achieved: ○ 'Indigenous wildlife returning to abundance and richness' ○ 'Whānau, hapū and iwi expressing kaitiakitanga/rangatiratanga' *These outcomes also link to the following outcomes in Te Mana o te Taiao - Aotearoa New Zealand Biodiversity Strategy 2020:* ● *'Indigenous species and their habitats across Aotearoa New Zealand and beyond are thriving'; and* ● *'Treaty partners, whānau, hapū and iwi are exercising their full role as rangatira and kaitiaki'*

Layered approvals increases complexity, & information requirements are not streamlined

PF Groups interviewed agreed with DOC staff that their approvals process is complicated, highlighting that it often involves three layers:

- A community agreement - non-statutory agreement covering low risk activities where DOC standard operating procedures can be followed;
- An Assessment of Environmental Effects (AEE) which covers activities with risk (e.g. trapping, VTAs, night shooting, use of detection dogs); and
- Adherence to DOC performance standards. These can be numerous depending on how many tools are proposed to be used. For example, each trap used on PCL has its own performance standard which must be followed. PF Groups have noted that whilst the performance standards serve a purpose, they are relatively rigid, and the purpose of the standards are often outside of elimination making it difficult for PF Groups to achieve this goal.

Whilst PF Groups acknowledge this process is necessary for managing risk, it highlights the complexity faced by applicants both in applying for approvals, and also maintaining oversight of compliance. In addition, PF Groups note that often many different approvals are required to carry out PF activities on PCL. When these are issued with varying lapse and/or expiry dates this creates administrative burden and compliance risk.

PF Groups have also commented that applications for approvals across the DOC system require a lot of front-end work, with DOC application templates often not optimised to make this task easier. For example, many of the templates are internal facing, not online, peppered with acronyms and internal weblinks, and information requirements are not explicit. In contrast, the MoH approval system is web-based and questions have been designed to be more outward-facing with clear information requirements for external applicants.

In response, DOC staff have noted that they are currently working on a project looking at how the permissions system operates to make sure DOC systems are clear and understandable, and to assist in addressing backlogs. However, this project is being run by the Policy and Regulatory Services Group out of Head Office and is therefore focussed on national aerial permissions, and is unlikely to encompass ground based approvals at this stage.

PF Groups have also expressed frustration that often information required to be submitted with an application is information that is held by DOC e.g. information on biodiversity values and threats and history of VTA use on PCL. This results in a process where PF Groups are contacting DOC staff to obtain the required information, insert it into an application to then only give it back to DOC for processing resulting in inefficiencies. Some PF Groups have also noted that the level of information and detail required to be submitted by external applicants is about twice that of DOC staff applying for the same approvals. DOC staff note that whilst their work goes through the same approval processes, the requirements for following standard operating procedures varies for DOC operations, and this may be a reason for the differences in information requirements experienced between internal and external applications.

The process of applying for and obtaining the various approvals can also take considerable time and effort ranging anywhere from a few weeks to several years depending on the approval type, and different PF Groups have had different experiences across the country. For example, one group found getting community agreements in place relatively easy with the process taking approximately 6 weeks, whereas others have spent over a year trying to get these agreements. In this instance, the delay appeared to stem from a capacity issue within DOC, as the community agreement application was sent to a DOC office in another city to process.

Root causes, impacts and risks
Challenge summary • Several layers of approvals are required (depending on the project), and the time taken to prepare and obtain the relevant approvals is significant. • Layered approvals increases administrative burden
Root causes • Inefficient systems - application forms and information required for applications is not streamlined with several different applications required, and systems are largely inward focused • DOC Performance Standards have potentially not been reviewed in the context of the PF2050 elimination goal • Capacity within DOC to process approvals
Impacts • Additional resourcing in terms of staff time and cost is often required to navigate the DOC approvals process. This time and money could be invested into PF projects if the approvals system

was more streamlined. ● Varying lapse and/or expiry dates creates administrative burden and compliance risk. ● Capacity within DOC to process approvals can lead to delays.
Risk if not addressed ● Time is spent on navigating a process that could be more effectively spent elsewhere to progress towards achieving the PF2050 goal.

Requested changes to applications can generate significant re-work for little value

In comparison to other regulatory agencies, several PF Groups spanning the full spectrum of PF activities have noted that once an application is in the system, there is often a considerable level of scrutiny applied by DOC staff to DOC applications. Whilst this is often necessary for risk management, some of the changes to applications being requested seem onerous and can have significant flow on effects in terms of the amount of re-work generated.
For example, PF Groups have been requested by DOC staff to change the formatting of applications, the way maps are presented, and wording of notification letters when the letters already meet the requirements of controls relating to notification. This all takes considerable time to do, for an outcome that does not materially affect risk or regulatory compliance.

Root causes, impacts and risks
Challenge summary ● Requested re-work of some components of approval applications can take significant time for little value.
Root causes ● A more conservative interpretation of regulatory controls or internal guidelines than is necessary. ● Potential lack of clear, standardised guidance or templates within DOC leading to different interpretations of what is required and resulting in 'preference driven' requests instead of changes being driven by requirements. ● Conservative approach to risk management, particularly in public-facing or politically sensitive contexts which may be leading to additional layers of review which are not always proportionate to the actual risk.
Impacts ● Administrative burden increased - time and resources are diverted to make changes that do not materially affect risk or compliance ● Reduced efficiency - slower processing and turnaround times
Risk if not addressed ● Collaborative relationships between PF Groups and DOC may be undermined.

Innovation and regulation - misalignment in risk management

The PF2050 programme is inherently designed to push boundaries and take risks in a managed way in order to find out what works and what doesn't. However, several PF Groups note that in their experience, decision-makers within DOC are more conservative when it comes to risk and this

tension presents a challenge for the PF2050 ambition. This is also a particular challenge for those undertaking research and development into new innovative products. DOC has a list of approved toxins which can be used on PCL, and if a new product is not on this list PF Groups have commented that DOC will not issue approval. Not having a way to test these products on PCL makes it more tricky to get them to market.

In addition to the above, some PF Groups feel conservative approaches may be influenced by personal views of assessors, how well supported assessors are in making judgement calls, and their capacity to process approval applications. All PF Groups expressed the importance of establishing good working relationships with assessors to enable familiarity with projects and the context within which they operate, and provide assessors with a greater level of comfort. However, at times, it has proven difficult for PF Groups to work out who makes the decisions within DOC so that these relationships can be established. One group noted that this process of discovery took them almost two years and required contacting the Director General - Penny Nelson.

DOC staff also reiterated the importance of establishing relationships with their assessors, noting that this should be done early in the process and long before any approvals are applied for. However, ultimately the ability of PF Groups to do this, depends on the capacity of assessors to participate.

Root causes, impacts and risks
Challenge summary ● There is a misalignment between the innovative approaches required to achieve the PF2050 ambition and conservative risk management approaches within DOC
Root causes ● DOC staff are required to exercise caution in their role as regulators, and legislation under which they operate is not geared towards delivering the PF2050 goal ● Success in establishing relationships with assessors hinges on knowing who to engage, and their capacity to engage consistently ● Assessors are often under-resourced making it hard for them to engage early or meaningfully with PF Groups ● Lack of internal support may lead to assessors making more conservative judgement calls ● Pre-approved toxin list limits flexibility for testing new, potentially more effective tools ● Cultural mismatch - DOC operates in a compliance-based, reputational and risk sensitive environment. PF2050 requires an experimental, adaptive and innovation led environment where projects can pivot as required.
Impacts ● Promising innovations may take longer to reach the market and/or some tools may never be tested or scaled due to the barrier to trial on PCL being too high. ● PF Groups are reliant on existing tools and technologies which may be less effective, more expensive or unsustainable at scale. ● Disconnection between DOC and PF2050 expectations and operating models undermines effective collaboration.
Risk if not addressed ● New tools and technologies may not be developed or tested in time to meet the PF2050 goal, and public and political confidence in DOC's ability to lead the PF2050 strategy may be undermined. ● Continued reliance on existing tools could make PF operations more expensive and less scalable, resulting in poor return on investment, and ultimately withdrawal of investors from the market.

- There is an opportunity cost to biodiversity - without access to new, more effective, or targeted predator control tools, biodiversity may continue to decline.

Circular processes, dependencies, and internal tension - DOC and MoH approvals

In highlighting frustrations with the complexity of the regulatory approval system in general, several PF Groups raised issues with circular processes and dependencies which left them in limbo. One example given was where a PF Group wanted to undertake aerial control on PCL using brodifacoum on the basis of recommendations from their technical advisory group (TAG). This was determined after considerable time and effort was spent on feasibility studies looking at the suitability of aerial 1080 first.[6]

In order to drop brodifacoum, a pest fence was required to be constructed. Both the pest fence and the use of brodifacoum required two separate permissions from DOC. However, before approval for the fence could be granted, a successful exemption approval for using brodifacoum was required. Given the fence and VTA applications could not be bundled together, this made project planning difficult. To further complicate matters, DOC were unable to grant permission to use brodifacoum until permission from the MoH had been obtained. However, MoH permission was unable to be obtained until the exemption from DOC had been granted.

In addition to the above, internal tensions within DOC also appeared to influence the above process, with the PF Group noting delays of 1-2 years in obtaining necessary approvals for aerial brodifacoum control. The PF Group felt that these tensions stemmed from philosophical disagreements between DOC staff regarding the appropriateness and worth of the overarching PF2050 goal.

Due to the intertwined DOC and MoH processes and internal conflicts, a clear path to obtaining permission for the aerial operation could not be established within the project's timeframe. This led to missed contract milestones and the withdrawal of approximately $1 million in committed funding. The consequence of this outcome was the subsequent decision to shift from aerial to ground control and alter the target species, to allow the project to proceed within the reduced funding envelope. This came after considerable time and effort had already been invested into feasibility studies and planning for aerial operations.

Root causes, impacts and risks
Challenge summary ● Circular dependencies between regulatory processes are creating inefficiencies in the approvals process. ● Internal tension within DOC regarding overarching PF2050 goal is contributing to delays in the approvals process.
Root causes ● Mutually dependent processes between agencies can lead to a deadlock without a lead agency to

[6] It is noted that the TAG came on-board following completion of the feasibility studies.

resolve dependencies and/or a joint approval process ● Lack of bundled or integrated approval pathways for functionally dependent activities creates unnecessary complexity ● Potential gap in leadership within DOC regarding PF2050 objectives.
Impacts ● In this case, less effective methods were deployed, the original suite of pests were unable to be targeted and the process resulted in a sunk investment of $1 million
Risk if not addressed ● PF Project milestones may not be met

Scale of PF operations and incursion responses not well catered for

PF Groups undertaking field trials or incursion responses have found that in their experience the DOC approvals system does not seem to be adapted to the type, amount and pace of approvals being applied for. Where DOC staff are not adequately supported, are unfamiliar with the context of PF2050 applications, or are uncomfortable with the speed at which PF projects need to move at, PF Groups noted that this is typically reflected in approval conditions which are more risk adverse.

For instance, approval conditions do not adequately cater to incursion responses which often require immediate action. One example provided was that of a rat being detected in an operational area where rats had been effectively eliminated. The conditions of approval required a 2 week notification period to be adhered to on PCL land before aerial 1080 could be used to spot treat the incursion. This delay significantly raised the risk of reinvasion.

Root causes, impacts and risks
Challenge summary ● DOC approvals process not adapted to type, amount and pace of approvals being applied for. Flexibility to respond to incursions in a timely manner on PCL is limited.
Root causes ● Regulatory system is not designed for speed or agility - ability to respond to incursions is limited by not having a tailored process for such situations ● Assessors unfamiliar with PF2050 context through lack of direct operational experience with incursion response or field trials may lead to imposition of approval conditions which are more conservative ● Staff may be under resourced or managing competing workloads, and/or uncomfortable in making decisions without strong internal guidance through policy or legislation
Impacts ● Predator breeding populations may re-establish compromising suppression and eradication work and negating investment ● PF Groups are unable to manage risk to projects in the most effective and efficient manner resulting in missed opportunities to suppress or eradicate pests and/or potentially higher control costs per hectare ● Slower progress towards the PF2050 goal
Risk if not addressed ● PF2050 goal will take longer to reach

Role clarity and responsibilities not clearly defined

Some PF Groups have reported that where a project area encompasses PCL, clarity on who is responsible for undertaking predator control is blurry. In some instances, DOC staff have told PF Groups that it is the responsibility of DOC to control predators on PCL, yet this hasn't translated into on the ground action. This makes it difficult for PF Groups to meet their project targets, especially when they have capacity to deliver control. DOC staff have been very upfront with PF Groups, noting that at the local level they are resource poor and stretched thin.

Conversely, some PF Groups have also been tasked with contributing to wider biodiversity monitoring through putting cameras out to monitor for bird species, or to financially contribute to monitoring as part of their permission conditions. Whilst happy to undertake this work, they note that they see biodiversity monitoring as part of DOC's mandate, and that PF Groups would benefit from further definition of role clarity.

Root causes, impacts and risks
Challenge summary • Breakdown in role clarity, resource alignment and shared accountability between DOC and PF Groups, particularly when project areas include PCL.
Root causes • Resourcing constraints within DOC • Role definition between DOC and PF Groups not clearly defined in terms of responsibilities in relation to predator control and wider biodiversity monitoring • Inconsistent interpretation and application of expectations across local DOC offices • Biodiversity monitoring is under-resourced with PF Groups potentially being used to fill the gaps
Impacts • Areas left untreated become sources for reinvasion of surrounding controlled landscapes • PF Groups may miss milestones or deliverables tied to outcomes across entire project areas, including PCL • PF resources diverted into peripheral monitoring potentially takes away from achieving core project goals
Risk if not addressed • Delays, reputational risk and potential loss of funding, particularly if project milestones are not met. • Slower progress towards achieving PF2050 goal

5.4. MoH permissions for VTAs are better managed by other regulatory agencies

The review into the permissions framework for VTAs under the HSNO Act commissioned by the EPA and conducted by Kristy McDonald in 2022 outlined several key findings relevant to this report.

The review noted that the EPA is responsible for assessing the risk associated with hazardous substances under the HSNO Act and approving the use of substances subject to controls to manage this risk. For some VTAs, controls imposed under HSNO require a more localised assessment of risk pertaining to their use through a separate permissions process. Whilst the EPA are also responsible for the permissions regime, they have delegated decision making to public health officers (MoH) and DOC to enable appropriate assessments of risks to public health and conservation (McDonald, 2022).

Delegation to MoH is largely a legacy of previous regimes prior to the HSNO Act, and recently one of the functions of MoH which was to manage drinking water, has been transferred to the newly created Taumata Arowai - Water Services Authority. Since the establishment of Taumata Arowai in 2021, MoH staff now no longer have access to databases used to help manage drinking water risks. As such, it is expected institutional knowledge within public health units under MoH relating to VTAs and drinking water will swiftly become out of date (McDonald, 2022). As a result, MoH now regards water safety issues relating to VTAs in drinking water to be out of scope for public health permissions (McDonald, 2022).[7]

In addition, public health risk to food resulting from VTA use is largely managed under ACVM by MPI, and the MoH also considers this to be out of scope of their permissions as they have no expertise in this area.[8] The scope of the permissions issued are therefore largely limited to how and where VTAs are to be used, and assessment of geography and placement is not necessarily something that needs to be undertaken by a public health officer. It could be undertaken by anyone with relevant training (McDonald, 2022).

One of the key findings of this review was that the current functions performed by those issuing MoH approvals do not require specialist public health knowledge, and that the conditions imposed on operations under MoH permissions are standard. Further, the myriad of requirements a VTA user must meet to obtain a Certified Handler Certificate (CHC) and Controlled Substance Licence (CSL) along with the controls imposed on the substances themselves, ensure safe use of substances and appropriate risk management. Therefore the key risk posed by VTA operations is that of accidental release, and this is a risk that occurs regardless of regulatory processes. As such, the review recommended that the current permissions regime overseen by MoH should be transferred to the EPA, as oversight of hazardous substances fits within their remit, and that the EPA should be adequately resourced to do this (McDonald, 2022).

MoH staff we interviewed for this project support the above view and further commented that in their experience, they are not seeing MoH permissions add any value to the management of VTAs. At present the cost of the permissions regime to MoH is in excess of $1 million per annum. MoH staff expressed concern that if their operating budgets tighten any further they may no longer be able to process these permissions and that this would have a negative impact on PF operations unless the regime changes. Like other regulatory agencies, MoH and its staff are responsible for overseeing a wide remit of activities and processing VTA permission applications is not their primary role.

[7] Also refer to pgs 1-2 of the MoH Guidelines for Issuing Permissions for the Use of Vertebrate Toxic Agents: Revised 2022
[8] *Ibid.*

However, if the current regime is to remain, MoH staff we spoke to expressed that they are happy to assist PF2050 Ltd (or DOC as its successor) with any initiatives to further streamline the system to make it easier for operators.

Root causes, impacts and risks
Challenge summary ● Approvals issued by MoH are not adding value and are resulting in duplication
Root causes ● Legacy delegation of functions from pre-HSNO regimes. ● Regulatory misalignment and role redundancy ● Erosion of institutional knowledge now that MoH functions regarding VTA operations transferred to Taumata Arowai
Impacts ● Inefficient use of resources - costing approximately $1 million per annum to administer the regime ● Delays to PF operations as a result of having to go through processes better managed by other agencies ● Additional expenditure in time and resources for PF Groups to go through MoH processes that could be better utilised elsewhere
Risk if not addressed ● Continuation of regulatory overlap and duplicated assessments which undermines coherence and efficiency across the regulatory system

5.5. Land tenure can impact operational delivery

Our analysis has revealed that operating on PCL (including reserves administered by DOC) requires a greater number of approvals to be obtained than operating on private land (refer Figure 3), and the approval process can be more intense in terms of requirement, time and cost. This is due to the fact that DOC are required to implement the legislation under which they operate and ensure appropriate management of risk. However, when PF2050 projects span a variety of land tenures and approvals are required from both DOC and private landowners and/or iwi this can present a number of issues outlined below:

- Time to obtain the relevant approvals from DOC can be drawn out in comparison to obtaining landowner permission, and may delay operations;
- Control methodologies can vary across the operational area in order to satisfy requests from different landowners/DOC. This can create inefficiencies in delivery and has the potential to impact both time and cost;
- Conditions imposed on DOC approvals can be onerous in comparison to treating adjacent private land, and having different approval conditions over some parts of an operational area can increase the potential for inadvertent non-compliance, especially where conditions have similarities.

    - PF Groups have commented that they have found that DOC approval conditions in general can also be onerous in their requirements, especially when PCL makes up a very small proportion of the overall operation area.

- Control tools on PCL can be limited in comparison to private land.

    - Brodifacoum can be used on private land, however on PCL it is generally prohibited unless an exemption is granted by DOC. DOC staff have noted that for brodifacoum in particular, approvals are required to give effect to internal policy to avoid risk and non-target impacts. The half-life of brodifacoum is long, and in the past it has been detected in Kiwi. DOC therefore takes a cautious approach to its use to ensure it is not overused or used incorrectly. In some instances exemptions have not been able to be obtained and this has impacted project goals where a PF Group has been unable to get possums on DOC scenic reserve land to low density without the use of brodifacoum.

Some PF Groups are finding that it is easier to exclude PCL from their projects due to the above. However, this presents a risk to overall project success. PCL is often valued for its high biodiversity, and can provide important food sources for predators. Not undertaking control across the entire project area, or using the most effective control methods, means that projects are continuously patching a leaky bucket as these areas can act as reservoirs for predators.

It is also important to note that whilst formal approval processes are less complex for privately owned land, many of the same issues and impacts can also arise. Private landowners have the ability to determine which pests are targeted on their land, as well as the methodologies used. This can also result in operational inefficiencies. Several examples are provided below:

- In one instance, a PF Group reported that permission to operate on private land was obtained on the proviso that only rats were monitored and controlled, and that no toxins were used. Whilst rats are an important part of the PF2050 vision, they are only one of the suite of predators requiring targeting.
- In other instances, PF Groups have had to change their methodology from aerial to ground-based control using VTAs due to social readiness of landowners and the communities within which they were operating. Of note is that some external funders will not fund aerial control due to community perception issues, and obtaining landowner support for project methodologies is critical in ensuring continued funding from sources outside of PF2050 Ltd. Not choosing the most effective methodology for the target pests present has the potential to reduce overall project outcomes.
- In another example, due to the presence of Kauri dieback on a private property, control operations also switched from ground to aerial control. This decision was made after purchasing consumables for ground control, and the change wasn't accounted for in the project budget.

PF Groups have noted that having specific programmes in Regional Pest Management Plans (RPMPs) relating to the PF2050 vision can assist in instances where landowners will not provide their approval to undertake predator control. Including target pests in RPMPs enables powers under the Biosecurity Act 1993 to be relied upon, including the ability for the management agency to direct landowners to undertake control, or to allow control to be undertaken on their land.

One overwhelming factor in mitigating some of the above issues, which came to light during the interview process was the importance of PF Groups establishing positive relationships with both regulators and landowners. Where these relationships were based on mutual trust and respect, PF Groups often reported that they had a significant positive impact on operational planning and delivery.

Root causes, impacts and risks
Challenge summary ● Different approvals are required to undertake PF operations depending on land tenure. This often adds to project complexity in terms of operational planning and delivery, and in some instances approvals to use certain toxins on PCL have not been granted.
Root causes ● Variance in legislative (and policy) requirements across different land tenures - can restrict tool selection and influence conditions imposed on approvals. ● Landowner and community preferences can influence permission to access private land, target pests and methodologies used. This often relates to the ability to undertake effective and early engagement to build social licence. ● Approvals can be process heavy and not always proportionate to risk.
Impacts ● Not all pests are targeted or low densities of pests are unable to be reached. ● Methodologies used can be less effective and efficient. ● Risk of non-compliance increases if conditions which are similar in intent, but set slightly different requirements, are imposed over different parts of the operational area. ● Some land tenures are excluded from operational areas due to the process becoming too cumbersome. These areas can act as reservoirs for predators contributing to continual reinvasion. ● Changes in methodology are not necessarily accounted for in project budgets, and at times may result in sunk cost.
Risks if not addressed ● Overall progress towards the PF2050 goal may be hindered resulting in timeframes not being met.

5.6. Certified Handler Certificates and Controlled Substance Licences - process and implementation

The process of obtaining Certified Handler Certificates (CHCs) and Controlled Substance Licences (CSLs) is currently causing a number of challenges for PF Groups. These certifications, which are key requirements for those who use VTAs ensure that only people who possess the correct knowledge and skills to safely handle the substances (CHCs) and who are deemed to be ‘a ‘fit and proper’ person (CSLs) can use them.

In order to obtain a CHC, evidence of competence must be submitted to a compliance certifier who has been approved by WorkSafe. In addition a police check is conducted as part of the ‘fit and proper’ person test under the CSL process. Whilst certifiers of CHCs are independent of WorkSafe and operate in a ‘free market’ regime, WorkSafe provides oversight of the regime through auditing to ensure approved certifiers are following correct processes. WorkSafe is also responsible for issuing CSLs and cancelling certifications if they have been obtained fraudulently, if the holder has

been negligent or incompetent, or the holder no longer meets the requirements for the issue of the certificate or licence (WorkSafe, 2018).

Obtaining a CHC is the most comprehensive and time consuming part of the certification process process with applicants required to demonstrate:

- Knowledge of hazardous properties of the substance and how to protect people. This includes the substance classification, regulations about safe handling, including safe work instruments, and what to do in an emergency.
- Working knowledge of any operating equipment, including the protective clothing and safety equipment required to handle the substance safely; and
- The controls imposed by the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Applicants must also provide evidence of competence describing how the applicant's knowledge and skills were assessed, and the results of that assessment. There are two pathways an applicant can take to provide evidence of competence, one is through attending a course and completing a qualification offered by a training provider, the other is having a manager or supervisor corroborate on the job training.

Evidence of training and instruction under a PCBU is also required to be submitted with the application. This must cover practice in safely using any equipment, machinery and PPE that will be used when working with the hazardous substances, and a period of practical experience under direct supervision. CHCs require renewal every 5 years (WorkSafe, 2018), and WorkSafe staff we interviewed noted that whilst the timeframes for issuing CHCs are dependent on a certifiers capacity, they expected the process to not take more than a few months.

Once a CHC has been obtained, an applicant can then apply to WorkSafe for a CSL. This is a more simple process involving police checks and enables a person to possess VTAs. From receipt of a complete application and payment, the process of issuing a CSL is expected to take approximately 2 months (WorkSafe, 2025). CSLs also require renewal every 5 years.

The following challenges regarding the above processes have been identified by PF Groups interviewed:

- The content of the courses provided by some training providers adds little value for the cost and is not equipping participants with the knowledge to confidently navigate the CHC process. Some PF Groups felt that the course they attended was more of a tick box exercise, with time spent referring attendees to undertake further reading rather than taking them through the practicalities of using VTAs safely. Some PF Groups noted their training course was conducted online and cost approximately $1000 for each person, others attended in-person training courses at roughly the same cost. However, in both instances these groups felt that the training provided did not adequately prepare them for going through the CHC and CSL processes. Based on responses from interviews, this issue is not nationwide and appears to be limited to certain providers.

- Some training providers have been known to coach participants through answers required as part of the evidence required to be submitted to certifiers for a CHC. This rightly resulted in CHCs not being issued, as several applications presented the same answers.

- There are a limited number of certifiers who are specialized in assessing CHC applications for VTAs, and PF Groups have difficulty in knowing who to contact for assessment. When asked if PF Groups knew about the register of certifiers on the WorkSafe website,[9] many groups had no knowledge of this resource. Currently only 15 certifiers are approved to issue CHCs for VTAs, and not all certifiers are qualified to issue CHCs for the specific VTAs used by PF Groups. Further, of these 15 certifiers some have additional conditions regarding their ability to certify which must be met, and others have placed their authorisation to certify into voluntary suspension as their employees who were certified have moved to a different company.

- Some certifiers who are qualified to issue CHCs for 1080 will not approve certificates for this substance due to the personal views they hold regarding its use.

- In some cases, the time taken for CHCs to be issued by certifiers is taking in excess of 15 months and this is having a significant impact on the ability of PF Groups to be able to conduct control operations using VTAs.

- Requirements to submit evidence of work under the supervision of a PCBU can be difficult to meet, especially where opportunities to work with VTAs are limited to an annual control operation. In these cases, those applying for their CHC are either having to wait a significant amount of time for the right opportunity, or are having to volunteer on other projects which costs time and money to gain this experience. Those PF Groups working on islands also face difficulty in getting control work overseen by a PCBU, especially if people with these qualifications do not reside on the island. In some instances, the CHC process has been abandoned, which has a direct impact on the ability of PF Groups to conduct control work.

- The timeframe that CHCs and CSLs are valid for are considered too short given the significant process applicants must go through to obtain the certificates. PF Groups also note that the renewal process requires a substantial amount of time to prepare for, and that this process should be simpler.

- The WorkSafe process to obtain a CSL is, at times, taking a substantial amount of time - especially for applicants who are not New Zealand citizens. PF Groups commented that in these instances international police checks are required.

In response to the above challenges, WorkSafe staff noted in our interview that given the properties of the hazardous substances in question, the process to obtain a CHC and CSL needs to be rigorous to ensure safety. The timeframes that certificates are valid for are set under regulation and there have been instances in the past where people who have obtained a CHC have then left New Zealand for several years and not used their certificates. If the certificates were valid for a longer period of

9 https://compliancecertifiers.worksafe.govt.nz/home/FilterForm/?Search=&types=Certified+handler&types2=Vertebrate+toxic+agents&regions=&action_resultsWithFilter=GoWithFilter&sorting=asc

time, potential exists for operating practices and procedures to have changed while the person has been out of operation. Five years therefore ensures that those certified maintain their currency.

Regarding timeframes to process a CHC application, WorkSafe staff commented that 15 months is too long and that they would be willing to explore why this is occurring. One suggestion made by WorkSafe was for PF2050 and/or regional councils to put a couple of people through the process of becoming test certifiers for VTAs to ensure sufficient capacity within the system, or for PF Groups to align with a specific certifier who routinely processes applications within acceptable timeframes.

In response to personal views on substances influencing the outcome of CHC applications, WorkSafe staff commented that certifiers need to remain impartial and that personal views should not come into their assessment. If issues remain, a complaint can be made to WorkSafe and they will investigate.

WorkSafe staff noted that they are committed to helping PF Groups resolve any challenges they may be experiencing with the CHC and CSL regime, and should PF2050 Ltd be interested, have offered to facilitate a meeting of compliance certifiers authorised for VTAs to see what can be addressed.

Root causes, impacts and risks
Challenge summary • The process for obtaining CHCs and CSLs is complex, lengthy and subject to uncertain outcome.
Root causes • Limited number of certifiers and low awareness amongst PF Groups of WorkSafe's certifier register • Inconsistent practical training opportunities, and quality of theoretical training • Personal bias of certifiers regarding some VTAs • Lack of awareness regarding WorkSafe's complaint processes
Impacts • PF operations may be hindered due to not having oversight by persons with appropriate certifications • Increased costs and compliance risk - inadequate training or misunderstanding of requirements increases the risk of non-compliance. • PF workforce capacity is impacted by delays in obtaining CHCs and CSLs.
Risk if not addressed • Delays to VTA operations as a result of not having staff with the required certifications may lead to reduced programme effectiveness and undermining of the PF2050 goal.

5.7. Data requirements are uncertain - new tools and methods

Those who have lodged applications with the EPA for approvals relating to new tools and/or methods, have expressed their frustration regarding not knowing with certainty what data the EPA requires to support such applications. Interviewees noted that after spending two years in the

queue waiting to have their approval applications accepted for processing, the EPA issued further information requests concerning the validity of the data submitted. Had the applicants known that the EPA would have concerns with the data, this issue could have been rectified during the time spent waiting in the queue.

Of significant concern is the delay that issues like this cause in obtaining approvals. Interview respondents noted that the longer an application for approval takes, the more costly continued investment becomes due to escalation of costs, and there comes a point where investment can no longer be justified. Further, some PF Groups noted that they found it difficult to know who to contact within the EPA and as a result did not have established relationships with assessors which would have allowed them to address data gaps early.

In response to the above, EPA staff note that they adhere to OECD Principles of Good Laboratory Practice (GLP) in order to ensure that the integrity of any data assessed is upheld and to maintain the same standards across all assessments. The OECD website notes the following about these principles:

> *"The Principles of Good Laboratory Practice (GLP) are a managerial quality control system covering the organisational process and the conditions under which non-clinical health and environmental studies are planned, performed, monitored, recorded, reported and retained (or archived). The OECD Principles of GLP are followed by test facilities carrying out studies to be submitted to receiving authorities for the purposes of assessing the health and environmental safety of chemicals and chemical products which may also be of natural or biological origin and, in some circumstances, may be living organisms.*
>
> *The Principles of GLP define the responsibilities of test facility management, study director, study personnel and quality assurance personnel that are operating within a GLP system, and minimum standards concerning the suitability of facilities and equipment to perform studies, the need for standard operating procedures, documentation of raw data, study reports, the archiving of records, etc (OECD, 2025)."*

The OECD website also notes that:

> *"The principles of GLP concern "non-clinical" testing of a chemical or chemical product, examined under laboratory conditions or in the environment, including work conducted in greenhouses and in the field. They do not include studies which use human subjects. Examples of studies carried out under GLP include, inter alia:*
>
> *I. physical-chemical testing;*
> *II. toxicity studies;*
> *III. mutagenicity studies;*
> *IV. the environmental toxicity studies on aquatic and terrestrial organisms;*
> *V. studies on behaviour in water, soil and air; bioaccumulation;*
> *VI. studies to determine pesticide residues in food or animal feedstuffs;*
> *VII. studies on effects on mesocosms and natural ecosystems; and*
> *VIII. analytical and clinical chemistry testing (OCED, 2025)."*

EPA staff emphasised the importance of ensuring that any studies conducted and used in support of an application can meet these principles.

Root causes, impacts and risks
Challenge summary ● Expectations regarding information requirements to support applications to the EPA are not well-known upfront, resulting in submission of incomplete applications and subsequent processing delays.
Root causes ● No clear guidance on what standards information submitted with applications are required to meet ● Feedback is delayed due to resourcing constraints and processing queues ● Relationships between PF Groups and assessors not established resulting in inadequate communication channels and missed opportunities to flag data gaps early.
Impacts ● Delays in decisionmaking which slows the availability of innovative control tools ● Resubmission of data can add months or years to project timelines ● Continued investment is potentially jeopardised
Risk if not addressed ● Long and unpredictable approval timelines create financial risk for those developing new tools who require regulatory certainty to secure investment, and investors who may see reduced value or progress from their investments. This may ultimately discourage continued investment in innovation and slow progress towards the PF2050 goal.

5.8. Inconsistent, duplicated and/or unworkable conditions

Where approval conditions are duplicated across different approvals issued by different regulatory agencies, this has the potential to create both a large administrative burden as well as increase compliance risk.

For example, DOC approvals for aerial 1080 operations contain conditions relating to public notification. In addition, notification requirements are also set by the controls for 1080 under HSNO and are overseen by the EPA. PF Groups note that this is not an issue if the conditions are perfectly duplicated across approvals, but where it becomes an issue is when inconsistencies arise as the different conditions seek to manage the same risk, but require additional administration which adds to the cost burden. The MoH have recently recognised this issue and that the controls on aerial 1080 under HSNO adequately manage the risk relating to public notification and no longer include this condition in their approvals for aerial 1080 operations. However, duplication with HSNO controls is still present in regard to DOC approvals.

Other PF Groups have also experienced inconsistent conditions being applied by DOC when they have sought an extension to operational areas covered by their approvals, and note that this also makes compliance difficult. For example in this case, in the original operational area applied for, a condition was issued requiring the PF Group to notify DOC 5 days before VTA application. However

when they sought extension of the operational area into an adjacent block, a new condition was imposed for this area requiring notification 10 days prior to applying VTAs.

In response to this specific example, DOC staff noted that ideally they would expect consistent conditions especially where blocks were adjacent to each other. It was queried whether this issue may have arisen as a result of different processing officers, or the operation covering different DOC district boundaries, or whether there had been a change in methodology or target species. DOC staff highlighted that applicants could request to see draft conditions prior to approvals being issued and advised that applicants should engage with DOC early, particularly during planning phases and prior to lodging applications.

As part of our analysis for this project, it was also brought to our attention that MPI are currently in the final stages of reviewing controls on brodifacoum imposed under the ACVM Act (MPI, 2025), with a further additional review by the EPA under the HSNO Act programmed for 2027 (EPA, 2025). One of the proposed controls requires *"all uneaten bait to be collected and removed from the area when baiting has ceased."* Having been involved in clearing 1080 baits from tracks, a respondent to our interview process commented that the logistics to comply with this proposed control for brodifacoum would be next to impossible given aerial operations cover vast areas. If the control is not amended to be more workable, brodifacoum may no longer be able to be used for landscape scale control.

Root causes, impacts and risks
Challenge summary ● Controls and/or approval conditions can be operationally unworkable and/or duplicated creating increased administrative burden and compliance risk
Root causes ● Disconnect between risk assessment processes and realities of operational environments. Potentially as a result of limited opportunities for end-user input and/or feedback mechanisms to refine conditions post-approval. ● Overlapping regulatory systems which seek to manage the same risks.
Impacts ● Unworkable controls and conditions can render existing tools ineffective, further limiting the toolbox. ● Additional time and money that could be invested into control or PF activities is spent on administrative oversight.
Risk if not addressed ● Compliance risk is increased. ● Duplicated and conflicting approval conditions may slow progress, increase costs and limit the ability of PF Groups to meet elimination targets. ● Tool options may be limited. ● It may take longer to reach the PF2050 goal.

5.9. Capacity to process approvals varies by agency

Time delays in processing applications and uncertainty regarding when, or if, approvals will be issued, is a challenge keenly felt right across the spectrum of PF Groups. Outside of the time taken to obtain CHCs and CSLs, of all the regulatory agencies, the EPA and DOC were the most frequently mentioned agencies in terms of delays. In regard to VTA approvals issued by MoH, many of the PF Groups interviewed were satisfied with the MoH process, noting that these applications were processed relatively quickly. Commentary on delays experienced in relation to the DOC approvals system has already been provided earlier in this report. An overview of EPA delays is outlined below.

EPA - delays

Those involved in research and development commented that once an application is prepared, it can take up to two years for the EPA to receive the application and determine if there are gaps in information or what processing pathway it will follow - there is a queue that applications join. This is particularly true for applications to register new products.

Once an application is assessed by the EPA and deemed 'complete' only then is it formally lodged by the EPA and statutory timeframes commence. Appendix B provides an overview of the EPA hazardous substance application process. This process outlines four assessment pathways - 'Rapid', 'Category A and B' which include existing active ingredients, and 'Category C' which includes at least one new active ingredient. Statutory timeframes for each pathway set under the HSNO Act for release applications are presented in Table 1 below.

Table 1: Statutory timeframes for processing of release applications under HSNO Act.[10]

Statutory timeframes for release applications following formal receipt of application	**Processing pathway**			
	Rapid	Category A	Category B	Category C
	10 working days	30 working days	30 - 100 working days* **dependent on notification*	30 - 100 working days* **dependent on notification*

EPA staff interviewed were very aware of the issues that delays in processing applications cause, and recognised this is a major issue for applicants. They noted several factors which contribute, or have contributed to delays in the recent past, including data packages being incomplete necessitating further information requests, and resourcing and capacity of the hazardous substances team who process applications.

In regard to the timeframes, EPA staff expressed that these may be extended, especially where further information on an application is required. For example, in reference to release applications,

10 https://www.epa.govt.nz/hazardous-substances/substance-approvals-and-group-standards/applying-for-a-new-approval/timeframes-to-process-a-new-application/

these often require a full data package, and additional delay to the process can be introduced when there are gaps in the data. EPA staff recognise that acquiring full data packages can be difficult for applicants, especially if data isn't proprietary to them, or if the substance is older. Whilst the EPA endeavours to leverage off overseas regulators for use patterns for agrichemicals, EPA staff highlighted that this is particularly challenging for VTAs, as the New Zealand context is unique and often overseas studies do not exist e.g. there are no overseas studies on the effects of VTAs on kiwi.

EPA staff also acknowledged that delays in processing can be attributable to resourcing within the hazardous substances team at the EPA. In recent years the hazardous substances team has received an influx of over 20 substantial applications for processing, and this has coincided with the loss of several experienced staff, particularly around the time of the Covid-19 pandemic. Given the capacity of the EPA to work on approximately 8 applications at a time, this has unfortunately resulted in a queue where new applications wait to be lodged.

EPA staff confirmed that it can take several years to reach the front of the queue and that over the past year, the EPA has been actively trying to reduce these timeframes and have been successful in hiring more assessors. This has reduced the queue of applications for new formulations by approximately 20% in the 2023/24 financial year. EPA staff commented that applications for containment approvals are now being assessed as they come in, and are being processed in approximately 30 working days which is the statutory timeframe set under the HSNO Act.

PF Groups, especially those operating in the research and development space expressed concerns that the EPA may face staff cuts in response to Government targets. They also recognise that resources are stretched, especially when PF2050 is not the only industry the EPA hazardous substances team deals with. Of key concern is the impact that delays in getting new tools to market has on both private investment and the ability to meet the PF2050 goal.

One PF Group noted that when private investors look at the regulatory process to get products registered and how long this can take, in comparison to the size of the market in New Zealand and potential returns investors will receive, investment is disincentivised. In order to achieve the PF2050 goal, investment is needed. As a result of experiencing complex and lengthy processes to obtain approvals, the current feeling amongst those undertaking trials of new substances and methods is that *"New Zealand is not open for business, we're out for a siesta!"*

An example of where delays in getting new products to market is having an impact on the ground, is the ability to target stoats. PF Groups specifically controlling stoats have noted the lack of innovation in this space. Whilst a paste containing PAPP was approved for stoats, PF Groups understand that there have been issues with the formulation and the paste is not currently available. Stoat control is therefore primarily reliant on trapping at present. Whilst several applications to modify existing tools and trial new tools to better target stoats are underway, delays in the regulatory process have meant that these tools are not yet available.

Root causes, impacts and risks
Challenge summary ● Those in research and development are frustrated with the time it takes for applications to the

EPA to be assessed and approvals issued.
Root causes ● Resourcing within the EPA to assess applications as they come in is not matched to demand
Impacts ● Investment opportunities are lost and/or existing investment is discontinued ● Data packages become out of date in the time it takes for an application to be received, processed and issued
Risk if not addressed ● New tools and methods are not available at the rate required to deliver the PF2050 goal

5.10. High turnover of staff within regulatory agencies

A key theme raised during the interview process was that of the high turnover of assessors within the different regulatory agencies, and particularly the EPA and MPI. Many PF Groups responded that each time they submitted applications for approval, it appeared that assessment teams had changed. Whilst how long a person stays within an organisation or role is a personal decision, high turnover within these roles has several ramifications for PF Groups.

Many expressed that they experience difficulty in maintaining relationships with assessors as a result of high turnover, and a considerable amount of time is spent re-educating assessors on various aspects of their activity and the PF2050 ambition. In addition, high turnover also results in a lack of institutional knowledge regarding PF2050 and/or this knowledge not being maintained. Both of these factors can influence the outcomes of decisions, as assessors are seemingly more risk averse until they are comfortable with the PF2050 context.

One PF Group who routinely lodges applications with the EPA and MPI noted that they had dealt with approximately 20 different assessors within the EPA in the last 5 years, and the same within MPI. They commented that prior to this period of turnover, when staff understood their objectives this was a huge help, and generic approvals which provided flexibility were issued as a result.

In response to the above, EPA staff acknowledged in their interview that turnover has been an issue and many staff left during the time of covid lockdowns. However, since this time the EPA has actively focused on recruitment and the number of toxicologists and eco-toxicologists within the EPA has now surpassed pre-covid levels. The EPA is also starting to build specific capability across several assessors within their team to process VTA containment approvals as part of succession planning. Staff also attend annual meetings with MPI and DOC to receive updates on research and trials.

MoH staff we interviewed also noted that turnover increased within their agency following Covid-19 lockdowns, however staff numbers now appear to have stabilised.

Root causes, impacts and risks
Challenge summary • High turnover of assessors leads to increased time spent reeducating new assessors on the context of PF activities, and also the imposition of more conservative approval conditions
Root causes • Sector-wide workforce instability following Covid-19 • High competition for specialist skills may be influencing staff retention • Potential lack of robust internal systems for transferring and maintaining institutional knowledge • Potential lack of continuity in case management - without a system of dedicated P2050 leads or case managers, applicants must rebuild relationships and re-explain technical concepts • Resourcing constraints
Impacts • Delays in approval applications being assessed and issued • Loss of institutional knowledge leading to inconsistent decision-making as each new assessor may interpret risk or policy differently • Lower comfort in issuing approvals which provide for greater flexibility • Increased time and effort spent by PF Groups in re-educating assessors on PF2050 activities that could be better utilised elsewhere • Potential loss of investment if lengthy timeframes for issuing approvals continue
Risk if not addressed • Continued delays in application processing • Weakening of relationships and trust and erosion of confidence in the regulatory process • Innovation not delivered at the pace required to achieve the PF2050 goal

5.11. Mana whenua - partnership and engagement

Surveys and interviews with PF Groups highlighted that where they were able to partner with mana whenua and involve them in project governance, real benefits to the project were realised. However, a key theme across the majority of PF Groups interviewed is that mana whenua are stretched thin in terms of their capacity to be involved, and are often being pulled in different directions depending on priorities.

Some approvals require engagement with mana whenua as part of the application process. PF Groups who don't hold existing relationships, noted that often they found it difficult to know who to contact. This concern was more prevalent amongst groups that did not have a council or DOC as a project partner, as these entities often have established relationships and networks. Those undertaking research and development, found mana whenua engagement to be a particular challenge as EPA requirements for approval applications under HSNO require engagement on a national scale. They noted that *"iwi engagement is broken"* citing that there is no comprehensive national network that can be tapped into, no formal process for engagement and no timelines.

When we raised this issue with EPA staff, they commented that they recognise it can be a challenge, and encouraged those interfacing with their processes to contact the EPA Māori Engagement team who can provide guidance and assistance. Further, if an application was received and engagement with iwi was unable to be undertaken despite best attempts, EPA staff noted that they would still assess the application providing the application outlined the process which had been undertaken.

Root causes, impacts and risks
Challenge summary ● Knowing which iwi and/or hapū to engage with can be difficult and there is uncertainty on how long engagement will take and what to do if mana whenua cannot be reached.
Root causes ● Mana whenua have limited capacity to engage and are often not financially compensated for their time. ● No centralised comprehensive national framework or guidance regarding mana whenua engagement for PF Groups to follow exists. ● PF Groups unaware of current resources to assist the engagement process.
Impacts ● Delays to approval processes - particularly where PF Groups are unable to identify the right iwi or hapū to contact and/or they have limited capacity to engage with the PF project. ● Limited capacity of mana whenua to engage may result in missed opportunities for long-term collaboration, as well as PF Groups missing valuable insights that could improve project design, control strategies and/or outcomes.
Risk if not addressed ● Without clear guidance or networks, PF Groups risk defaulting to superficial engagement. This may reduce trust, lead to reputational risk and resistance from mana whenua. It also undermines the following outcomes specified in the Aotearoa New Zealand Biodiversity Strategy and PF2050 Strategy: ○ *'Treaty partners, whānau, hapū and iwi are exercising their full role as rangatira and kaitiaki' (ANZBS)* ○ *'Whānau, hapū and iwi expressing kaitiakitanga/ rangatiratanga' (PF2050 Strategy)*

5.12. Summary

As the lead agency for PF2050, DOC highlights through their website and PF2050 strategy that the work they are involved in is innovative and collaborative. Key messaging also alludes to systems and processes that are flexible and adaptable to enable a learning based approach to predator elimination. Considering this, in conjunction with the wider challenges raised in this report regarding other approval processes, it is apparent that what is happening on the ground is, at times, at odds with this perception and there remains room for improvement. Addressing the challenges raised, will ensure the integrity of this message is maintained and that those undertaking PF2050 work remain invigorated to achieve this ambitious goal.

PART TWO - POTENTIAL SOLUTIONS & SYSTEMS CHANGE STRATEGY

6. Systems Change Strategy

As previously mentioned in this report, a systems change strategy can be described as *"an intentional process designed to alter the status quo by shifting the function or structure of an identified system with purposeful interventions"* (Foster-Fishman et al 2007, *as cited in* Badgett, 2022).

Whilst there are many different ways to approach systems change, the methodology set out below aligns with 'good practice', is informed by current literature in the field of systems change and provides a blueprint of a process that can be used to arrive at a plan which can be actioned. As the challenges identified in this report stem from multiple root causes, these must be addressed together in order to effect sustainable change (Watson, 2024). The following methodology accounts for all root causes of factors influencing the challenges identified.

Given these challenges touch all levels of the PF system, it is important that a wide range of voices are involved in the process of determining which interventions or solutions are appropriate. This will ensure everyone is invested in the success of the strategy, making it more likely that change will be sustainable. It is therefore recommended that a variety of workshop and facilitation techniques be employed, and that these are tailored to the relevant audiences.

6.1. Recommended solutions & next steps for addressing key challenges

The following outlines our recommended solutions and methodology for addressing the challenges raised with the regulatory system in relation to PF2050.

6.1.1. Long list of potential solutions

The recommended solutions for addressing the key challenges identified in this report are set out in Table 2 below. These solutions have been prioritised as follows:

- Red = high priority - high impact
- Orange = medium priority - medium impact
- Green = lowest priority - low impact

Priorities have been assigned based on which solutions we perceive to have the potential for greatest impact on improving the overall system.

Table 2: Long list of potential solutions to address the key challenges raised.

Potential solutions	Challenges addressed
Re-invigorate the Tuia Te Taiao website to provide a single, comprehensive regulatory guidance resource for PF activities: Create a central, user-friendly online portal specific to PF2050 activities. This portal could sit within the existing Tuia Te Taiao website (https://www.tuiatetaiao.nz/) and be accessed by PF Groups via a login enabling the website to also serve the existing wider function of acting	• Navigating the regulatory system • Mana whenua engagement guidance • Data requirements and expectations

Potential solutions	Challenges addressed
as a 'one stop shop for information about the Predator Free 2050 Movement'.* The portal needs to: - Build on Appendix A to consolidate all relevant guidance, approval requirements, processes, timelines, and decision-maker expectations across all regulatory agencies which interface with PF2050 activities. Agencies should offer explicit checklists of required information for applications. - Include an online directory of resources to assist in navigating the various regulatory processes (e.g. links to SOPs, examples of well-prepared applications including operational maps, risk assessments etc) to guide applicants. - Provide links to where PF Groups can seek assistance with mana whenua engagement e.g. https://www.tkm.govt.nz/ , EPA Māori Engagement Team, and contacts for regional and district councils. - Message board enabling PF Groups to share what is working well, or to troubleshoot issues. **Note that there are a multitude of websites containing information on PF2050. As an external user, this made finding information very difficult. As part of the above-mentioned solution, the online presence could be consolidated by providing links to these websites on the Tuia Te Taiao website.*	
Facilitate relationship building with assessors: Establish formal and informal channels (e.g., dedicated PF2050 liaison officers within agencies, regular stakeholder forums, pre-application consultation opportunities) to foster early and consistent relationships between PF Groups and regulatory agency assessors, to increase understanding of the PF2050 context, guide applicants through the regulatory process, and also to inform forward planning regarding any need for additional resourcing within regulatory agencies.	• Optimising the DOC approvals system • Capacity to process approvals • Consistent and workable approval conditions • Operations supported across land tenures • Data requirements and expectations • Staff turnover and retention of institutional knowledge
Assess level of resourcing within DOC and the EPA and/or existing roles/team structures to free up capacity and promote consistency: Both agencies highlighted that resourcing was an issue. An assessment of pipeline PF2050 work should be undertaken to inform the most appropriate course of action to ensure sufficient processing capacity within regulatory agencies. This should include investigation into the types of applications processed, and the most efficient and effective options to process these noting the need for consistency at a national scale. Options could include (but are not limited to): - Advocating for further funding for resourcing	• Capacity to process approvals

Potential solutions	Challenges addressed
- Developing a PF2050 workstream (including consideration of dedicated assessors for kiwi translocations) - Re-defining roles to ensure appropriate balance between fieldwork and application processing	
Explore opportunities to expand on the recommendation of the Agricultural and Horticultural Products Regulatory Review regarding relying on assessments by international regulators: The above-mentioned review found that there is scope for the EPA and the NZFS to increase their use of information provided by international regulators. The review noted that there is a need for flexibility to ensure that decisions inappropriate for New Zealand are not directly adopted. However, it recommended that regulators should start from a position that recognised international regulators' decisions are sound and focus on any New Zealand-specific considerations or risks. Clear definitions on what requires New Zealand-specific assessment are needed for transparency and consistency. This recommendation by the Ministry for Regulation relates to findings in the review associated with New Zealand's competitive disadvantage, enabling timely access to products, the speed and certainty of approval pathways, efficient and proportionate regulations, and regulator capacity and resourcing. The issues raised in the above-mentioned review are also mirrored in this report. Given this recommendation has already been highlighted to Central Government, there is opportunity to explore wider synergies to ensure any legislative changes also assist the PF2050 context.	• Capacity to process approvals
Undertake a regulatory scan to identify barriers to achieving the PF2050 goal as well as opportunities to support PF2050 activities in statutory documents: This scan should include consideration of whether: - PF2050 goals are reflected in objectives and policies of relevant statutory plans - Rules, standards and programmes enable or hinder PF2050 activities (e.g. regional/district plans, RPMPs, SOPs, performance standards, DOC pre-approved toxin list) - It is feasible to draft standard PF2050 site-led programmes for insertion into Regional Pest Management Plans to enable powers under the Biosecurity Act 1993 to be relied on and address land tenure challenges. - Legislation allows for a streamlined process to assess variations to approvals and respond to incursions - Assessment criteria for approvals are proportional to risk of PF activities; and - Internal strategies and objectives of regulatory agencies, particularly DOC are explicitly aligned with and support the outcomes of PF2050. - There is duplication in requirements, process and function across legislation and regulatory agencies. - Blanket EPA containment approvals for VTA trials can be issued.	• Optimising legislation and regulatory plans • Consistent and workable approval conditions • Capacity to process approvals • Operations supported across land tenures

Potential solutions	Challenges addressed
Once this scan has been completed, it is recommended that a resource is appointed to coordinate a process and programme for advocating for/implementing the required changes. This resource should also have oversight of upcoming opportunities for engagement on legislation change and regulatory plans and ensure that feedback from end-users is taken into account to assist in making conditions/rules/requirements SMART* in addition to providing necessary mitigation, risk management, and environmental protection. **Specific, measurable, achievable, realistic, time-bound*	
Expand the existing DOC project on reviewing the permissions system to also include permissions issued by local DOC offices: The current project led by the Policy and Regulatory Services Group out of Head Office is looking at how the permissions system operates to make sure DOC systems are clear and understandable, and to assist in addressing backlogs. Whilst the current focus is on national aerial permissions, to ensure that the DOC permissions system is optimised and duplication of work and process is avoided, the entire permissions system should be included in this review. This should also include ensuring that permissions processes are transparent to both internal staff and applicants. Consideration of how information held within DOC systems can be used to inform applications without applicants having to request this information from DOC should also be included in the review.	• Optimising the DOC approvals system • Capacity to process approvals
Support recommendations to centralise process for assessing permission applications currently delegated to public health officers as outlined in the EPA review of VTA permissions under HSNO Act: Provide support to the EPA for actioning recommendations to further streamline the regulatory landscape where it has been identified that current processes are adding little value (e.g. MoH permissions).	• Increased efficiency in MoH VTA approvals
Explore a triage process for approval applications within DOC, MPI and EPA to fast-track assessment of low risk approval applications: Regulatory agencies should review their methodologies for processing applications to determine whether more streamlined processing pathways can be created for applications which present a low level of risk.	• Capacity to process approvals
Accept offer from WorkSafe to facilitate a session with PF Groups and CHC certifiers authorised for VTAs: The purpose of this meeting would be to canvas challenges raised in this report in relation to the CHC and CSL approval processes, with a view to assessing what can be addressed.	• Certainty in CHC and CSL processes
Ensure right skill mix within PF Groups:	• Navigating the regulatory system

Potential solutions	Challenges addressed
When PF Groups are established, ensure that someone with regulatory expertise is appointed to assist in navigating the relevant approvals.	
Establish nationally agreed criteria for kiwi translocations and a process for acknowledging and leveraging external expertise: - Develop clear, agreed-upon national guidelines and criteria for kiwi translocations, including pest suppression levels and requirements for supporting plans. This will reduce inconsistency and provide certainty for PF Groups. - Formalise a process for recognising expertise in kiwi translocation where those experts sit outside of DOC. A suitably qualified and experienced expert could be a person who is willing to certify (by signature) that the content of any assessment or advice they have produced complies with good practice and professional standards, and to stand by the conclusions of that report/advice. For example, a person certifying a report should be someone who could ultimately stand in the Environment Court and provide expert testimony, and whose experience and qualifications stand up to Court scrutiny.	• Data requirements and expectations • Capacity to process approvals
Where circular dependencies between regulatory approval processes exist, establish a process for resolution: This should include consideration of: - Feasibility of bundled approval processes for functionally dependent activities; - Appointment of a lead agency to coordinate information sharing and resolve dependencies where approval processes span multiple agencies.	• Optimising legislation and regulatory plans • Optimising the DOC approvals system
Consider putting people through the process of becoming test certifiers for VTAs and or aligning with a specific certifier: WorkSafe have suggested that those regularly using VTAs (e.g. PF2050 Groups, regional councils, OSPRI, DOC) put a couple of people through the process of becoming test certifiers for VTAS to ensure sufficient capacity within the system, or for PF Groups to align with a specific certifier who routinely processes CHC applications within acceptable timeframes. It is noted that PF Banks Peninsula are currently pursuing this route.	• Certainty in CHC and CSL processes
Improve accessibility and clarity of online resources: **Review regulatory agency websites to ensure:** - They are navigable to an external user; and - All application forms are readily available online, use clear, outward-facing language with minimal acronyms and internal jargon, and expressly state application requirements.	• Navigating the regulatory system
Cross-agency agreement on content requirements for standard sections of application forms:	• Navigating the regulatory system

Potential solutions	Challenges addressed
Explore with the EPA, DOC, MPI and MoH the potential to develop agreed content requirements for standard sections of application forms to increase consistency and efficiency - both for applicants and assessors.* **All application forms have sections which are standard across approvals e.g. details of activity (what, when, where, why, how), applicant details, geographic area (maps), duration, other approvals applied for, consultation etc.*	• Data requirements and expectations • Capacity to process approvals
Clarify role of DOC and PF Groups in the PF2050 system: Where there is overlap between the mandate of DOC and PF2050 activities (e.g. predator control and wider biodiversity monitoring), the role, expectations and responsibilities of each group should be clearly defined and agreed.	• Navigating the regulatory system

An expanded version of the above table is provided in Appendix C and this sets out synergies between potential solutions with the following documents and legislative reviews:

- Aotearoa New Zealand Biodiversity Strategy (ANZBS) 2020,
- DOC PF2050 Strategy Policy and Legislation Action Plan
- EPA Review of Permissions Frameworks under HSNO; and
- Agricultural and Horticultural Products Regulatory Review

It is expected that this list of recommended solutions will be further tested through implementation of the methodology outlined in section 6.1.2 below.

6.1.2. Recommended methodology for sustainable systems change

Step 1 - Socialise and test key findings with help of an independent facilitator/s

- Socialise the findings of this report with the following groups below, and test the challenges raised, factors influencing the challenges, root causes of these factors and the impacts that are resulting.
    - PF Landscape Scale Project teams
    - DOC
    - EPA
    - MPI
    - MoH
    - WorkSafe
- This could be addressed through workshop sessions run by an independent facilitator to ensure neutrality and to assist in objectively analysing key findings with the groups. These workshop sessions should seek to:

- Either confirm or amend key findings;
- Identify any additional underlying root causes which may be influencing the root causes identified; and
- Identify aspects of the system that are working well (and therefore should be enhanced), why these are working well and whether any adaptations are needed. This may also include exploration of effective strategies being employed by others outside of the system to address similar challenges as those raised in this report.

Step 2 - Identify impacts proposed solutions would have on the system and prioritise a short-list

- Undertake a second round of independently facilitated workshops with the same groups as above. Using Appendix C and building on the outcomes of Step 1:
  - Undertake an ideation brainstorming session with workshop participants to generate any additional possible solutions and to ensure a diverse range of perspectives are considered. Cluster additional solutions generated into logical groups and add to the long list in Appendix C.
  - Identify the impacts each of the proposed long list of solutions would have on the system and score these impacts using a rating system to determine those solutions that have the greatest potential for system change. Those that rate highly will form a prioritised short-list. In rating each solution consider:
    - The number of root causes the solution addresses;
    - Whether the solution can be embedded into existing structures, processes and/or operations;
    - Feasibility of implementation; and
    - Any unintended consequences that may result.
  - For each short-listed solution clarify the 'who, what, when, where, how' to assist in planning for implementation.

Step 3 - Develop an engagement plan to prime the system for change

- Develop an engagement plan to prime the system for change prior to implementation of the strategy. An example of a methodology for developing this plan is provided in Appendix D.

Step 4 - Implementation

- Action the systems change strategy in accordance with the programme management plan set out in the recommendations below and engagement plan.

6.2. Next Steps - Implementing sustainable systems change

To ensure sustainable systems change, we further recommend that a dedicated project team is established to:

- Develop and a deliver on a programme management plan for implementing the systems change strategy methodology and resulting solutions which:
    - Sets out the governance structure including roles and responsibilities
    - Identifies champions, stakeholders and delivery teams (workstreams)
    - Defines objectives and success criteria
    - Provides a timeline and milestones, and identifies assumptions, constraints, dependencies and critical path activities
    - Outlines resources and budget required for implementation
    - Includes an engagement and communication plan (refer Appendix D)
    - Details how the system will be prepared for change by identifying any training, mentoring or support structures needed, and addressing any cultural shifts or mindset changes required
    - Defines how progress will be tracked and reported
    - Identifies mechanisms for feedback and how this will be evaluated and incorporated as part of adaptive learning.
- Socialise the long list of potential solutions in Appendix C with key stakeholders and implement the methodology for systems change outlined in section 6.1.2 of this report to identify a preferred short-list of solutions.
- Oversee implementation of short-listed solutions.

7. Conclusion

The long list of potential solutions identified in Table 2 above and Appendix C seek to:

- Address regulatory and process barriers;
- Ensure appropriate alignment with PF2050 goals; and
- Foster more effective engagement and relationships to build trust and create better understanding of the PF context and activities.

It is anticipated that these solutions will assist in increasing consistency and timeliness in approval processes and outcomes, and enable more proportionate and effective risk management.

8. References and Bibliography

Abercrombie, R., Harries, E., & Wharton, R. (2015, June 26). *Systems change: A guide to what it is and how to do it* [Report]. New Philanthropy Capital / Lankelly Chase. https://lankellychase.org.uk/publication/systems-change-a-guide-to-what-it-is-and-how-to-do-it/

Badgett, A. (2022, September 19). *Systems change: Making the aspirational actionable*. *Stanford Social Innovation Review*. Retrieved June, 2025, from https://ssir.org/articles/entry/systems_change_making_the_aspirational_actionable

Department of Conservation. (n.d.). *Predator Free 2050*. New Zealand Government. Retrieved June, 2025, from https://www.doc.govt.nz/nature/pests-and-threats/predator-free-2050/

Department of Conservation. (2025). *Briefing: Predator Free 2050 Limited's Annual Report 2023-24* [PDF]. Retrieved July 2025 from https://www.doc.govt.nz/globalassets/documents/about-doc/oia/2025/24-b-0532-briefing-pf2050ltd-2023-24annualreport.pdf

Department of Conservation (n.d.). *About us: Timeline*. Retrieved July 2025 from https://www.tuiatetaiao.nz/about-us/timeline

Department of Conservation (n.d.). *Policy and legislation action plan* [PDF]. https://www.tuiatetaiao.nz/assets/Uploads/Website-copy-PF2050-Policy-and-Legislation-Action-Plan.pdf

Department of Conservation (n.d.). *Tuia Te Taia main site [webpage].* Retrieved July 2025 from https://www.tuiatetaiao.nz/

Department of Conservation. (n.d.). *Predator Free 2050 strategic documents [webpage].* Retrieved July 2025 from https://www.doc.govt.nz/nature/pests-and-threats/predator-free-2050/our-work/predator-free-2050-strategic-documents/

Department of Conservation. (n.d.-b). *National Parks Act* [webpage]. Retrieved June 2025 from https://www.doc.govt.nz/about-us/our-role/legislation/national-parks-act/

Department of Conservation. (2020). *Aotearoa New Zealand biodiversity strategy 2020* [PDF]. Retrieved June 2025 from https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020.pdf

Department of Conservation. (n.d.). *Predator Free 2050: Our work* [webpage]. Retrieved June 2025 from https://dxcprod.doc.govt.nz/nature/pests-and-threats/predator-free-2050/our-work/

Department of Conservation. (n.d.). *Recreational drone use on conservation land: Apply for permits* [webpage]. Retrieved June 2025 from https://www.doc.govt.nz/get-involved/apply-for-permits/all-permissions/drone-use-on-conservation-land/recreational-drone-use/

Department of Conservation. (2020). *Towards a Predator Free New Zealand : Predator Free 2050 Strategy* [PDF]. Retrieved June 2025 from https://www.doc.govt.nz/globalassets/documents/conservation/threats-and-impacts/pf2050/pf2050-towards-predator-freedom-strategy.pdf

Environmental Protection Authority. (n.d.). *Approval process explained* [EPA website]. Retrieved June 2025 from https://www.epa.govt.nz/hazardous-substances/substance-approvals-and-group-standards/applying-for-a-new-approval/approval-process-explained/

Environmental Protection Authority. (n.d.). *Timeframes to process a new application* [EPA website]. Retrieved June 2025 from https://www.epa.govt.nz/hazardous-substances/substance-approvals-and-group-standards/applying-for-a-new-approval/timeframes-to-process-a-new-application/

Environmental Protection Authority. (2024). *Reassessments work plan* [EPA website]. Retrieved June 2025 from https://www.epa.govt.nz/hazardous-substances/substance-approvals-and-group-standards/reassessments-and-changes-to-approvals/reassessments-work-plan

Environmental Protection Authority. (2024). *Quarterly performance report to the Minister: 1 July to 30 September 2024 (amended)* [PDF]. Retrieved July 2025 from https://www.epa.govt.nz/assets/RecordsAPI/Quarterly-performance-report-to-the-Minister-1-July-to-30-September-2024-Amended.pdf

Germano, J., Barlow, S., Castro, I., Colbourne, R., Cox, M., Gillies, C., Hackwell, K., Harawira, J., Impey, M., Reuben, A., Robertson, H., Scrimgeour, J., Sporle, W., & Yong, S. (2018). *Kiwi (Apteryx spp.) recovery plan 2018–2028* (Threatened Species Recovery Plan No. 64). Department of Conservation.

McDonald, K. (2022, November 10). Review of permissions framework under the Hazardous Substances and New Organisms Act 1996 for the use of vertebrate toxic agents in pest control operations. Environmental Protection Authority.
https://www.epa.govt.nz/assets/RecordsAPI/Review-of-permissions-frameworks-under-the-HSNO-Act-1996-for-the-use-of-VTAs-in-pest-control-operations.pdf

Ministry for Regulation. (2025, February 27). *Agricultural and horticultural products regulatory review: Full report* (Report). Retrieved July 2025 from https://www.regulation.govt.nz/assets/Publication-Documents/Agricultural-Horticultural-Products-Regulatory-Review-full-report.pdf

New Zealand Government. (2017). Resource Management (Exemption) Regulations 2017, DLM7104062. Regulations made under the Resource Management Act 1991, s 360. Retrieved June 2025, from https://legislation.govt.nz/regulation/public/2017/0021/latest/DLM7104062.html

Ministry for Primary Industries. (2025). *Reassessment of registered vertebrate toxic agent (VTA) products containing brodifacoum*. Retrieved June 2025 from https://www.mpi.govt.nz/animals/vertebrate-toxic-agents-making-selling-using/reassessment-of-registered-vertebrate-toxic-agent-vta-products-containing-the-active-ingredient-brodifacoum/

Ministry for Primary Industries. (2020). *Introduction to biosecurity legislation*. Retrieved June 2025 from https://www.mpi.govt.nz/legal/legislation-standards-and-reviews/biosecurity-legislation/introduction-to-biosecurity-legislation/

Ministry for the Environment. (2021). *Streamlining use of three vertebrate toxic agents*. Retrieved June 2025 from https://environment.govt.nz/acts-and-regulations/regulations/streamlining-use-vertebrate-toxic-agents/

Ministry of Health. (2022). *Guidelines for issuing permissions for the use of vertebrate toxic agents* [PDF]. Retrieved June 2025 from https://www.health.govt.nz/system/files/2011-11/guidelines-for-issuing-permissions-for-the-use-of-vertebrate-toxic_agents-29_july.pdf

New Zealand Government. (1996). *[Hazardous Substances and New Organisms Act 1996]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/1996/0030/latest/DLM381222.html

New Zealand Government. (1997). *[Agricultural Compounds and Veterinary Medicines Act 1997]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/1997/0087/latest/DLM414577.html

New Zealand Government. (1999). *[Animal Welfare Act 1999]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/1999/0142/latest/DLM49664.html

New Zealand Government. (2015). *[Health and Safety at Work Act 2015]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/2015/0070/latest/DLM5976660.html

New Zealand Government. (1991). *[Resource Management Act 1991]*. Retrieved June 2025 from https://legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html

New Zealand Government. (1956). *[Health Act 1956]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/1956/0065/latest/DLM305840.html

New Zealand Government. (1987). *[Conservation Act 1987]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/1987/0065/latest/DLM103610.html

New Zealand Government. (1953). *[Wildlife Act 1953]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/1953/0031/latest/DLM276814.html

New Zealand Government. (1980). *[National Parks Act 1980]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/1980/0066/latest/whole.html

New Zealand Government. (1977-a). *[Reserves Act 1977]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/1977/0066/latest/DLM444305.html

New Zealand Government. (1977-b). *[Wild Animal Control Act 1977]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/1977/0111/latest/whole.html

New Zealand Government. (2014). *[Heritage New Zealand Pouhere Taonga Act 2014]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/2014/0026/latest/DLM4005414.html

New Zealand Government. (2023). *[Civil Aviation Act 2023]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/2023/0010/latest/whole.html

New Zealand Government. (1993). *[Biosecurity Act 1993]*. Retrieved June 2025 from https://www.legislation.govt.nz/act/public/1993/0095/latest/DLM314623.html

Nichols, M., Dent, J., & Edwards, A. (2022). Toxin-laced rat carcass baits for stoat elimination. *New Zealand Journal of Ecology, 46*(1), Article 3453. https://newzealandecology.org/nzje/3453

Organisation for Economic Co-Operation and Development. (n.d.). *Good laboratory practice and compliance monitoring*. Retrieved June 2025 from https://www.oecd.org/en/topics/sub-issues/testing-of-chemicals/good-laboratory-practice-and-compliance-monitoring.html

Predator Free New Zealand Trust. (2024). *World-first revival of the rat-specific toxin*. Retrieved May 2025 from https://predatorfreenz.org/research/world-first-revival-of-the-rat-specific-toxin/

Predator Free 2050 Ltd. (n.d.). *Frequently Asked Questions*. Retrieved June 2025 from https://pf2050.co.nz/frequently-asked-questions/

Taumata Arowai. (n.d.). Retrieved July 2025 from https://www.taumataarowai.govt.nz/

Te Kāhui Māngai (TKM). (n.d.). Retrieved July 2025 from https://www.tkm.govt.nz/

Warne, K., & Hammond, R. (2025, January). New Zealand wants to kill millions of invasive predators to save these fragile birds. National Geographic. Retrieved July 2025 from https://www.nationalgeographic.com/animals/article/new-zealand-birds-invasive-predator-eradication

Watson, E. (2024, September). *Summer Institute for Systems Change: Session 4 workbook: Designing systems change strategies* [PDF]. Resilient North Carolina. https://resilientnorthcarolina.org/wp-content/uploads/2024/09/Summer-Institute-for-Systems-Change-Session-4-Workbook-Designing-Systems-Change-Strategies.pdf

WorkSafe New Zealand. (2018). *Certification of people: Certified handlers (hazardous substances)*. https://www.worksafe.govt.nz/topic-and-industry/hazardous-substances/certification-authorisation-approvals-and-licensing/certification-of-people/certified-handlers/

WorkSafe New Zealand. (2025). *Certification of people: Controlled substance licences*. https://www.worksafe.govt.nz/topic-and-industry/hazardous-substances/certification-authorisation-approvals-and-licensing/certification-of-people/controlled-substance-licences/

WorkSafe New Zealand. (n.d.). *Register of Compliance Certifiers*. https://compliancecertifiers.worksafe.govt.nz/home/FilterForm/?Search=&types=Certified+handler&types2=Vertebrate+toxic+agents&regions=&action_resultsWithFilter=GoWithFilter&sorting=asc