



COVERSHEET

Minister	Hon Jenny Salesa	Portfolio	Building and Construction
Title of Cabinet paper	Dam Safety Regulations: Release of Discussion Paper	Date to be published	09/07/2019

List of documents that have been proactively released

Date	Title	Author
22/05/2019	Dam Safety Regulations: Release of Discussion Paper	Office of the Minister for Building and Construction
22/05/2019	DEV-19-MIN-0118	Committee Secretary of DEV

Information redacted

NO

Any information redacted in this document is redacted in accordance with MBIE's policy on Proactive Release and is labelled with the reason for redaction. This may include information that would be redacted if this information was requested under Official Information Act 1982.

In Confidence

Office of the Minister for Building and Construction
Chair, Cabinet Economic Development Committee

DAM SAFETY REGULATIONS: RELEASE OF DISCUSSION PAPER

Proposal

1. This paper seeks agreement to release the discussion paper *A Proposed Regulatory Framework for Dam Safety* for public consultation. The discussion paper covers proposed regulations for dam safety in New Zealand.

Executive Summary

2. The failure of certain dams has the potential to cause significant damage to people, property and the environment for a considerable distance downstream.
3. There is currently no comprehensive regime to monitor and maintain the structural integrity of dams in New Zealand. I am seeking agreement to publicly consult on proposed regulations to provide a clear and comprehensive regulatory scheme for ongoing dam safety management.
4. The proposed regulations will bring into force an existing framework for dam safety that is set out in the Building Act 2004. The proposals take a risk-based approach, capturing high-risk dams, while excluding low-risk dams.
5. I seek agreement to release a discussion document about the proposed regulations for public consultation on or about Wednesday 29 May 2019. The consultation will take place over eight weeks.
6. I intend to seek Cabinet agreement to the final policy proposals in October 2019.
7. While the discussion paper is technical in certain areas, chapter one provides an executive summary intended for a general audience.

Background

8. The Building Act 2004 (the Building Act) sets out a framework for dam safety; however, the regulations required to implement the framework fully have not yet been made.
9. Previous dam safety regulations under the Building Act were intended to come into force in 2010, but commencement was deferred three times (in 2010, 2012 and 2014) before the regulations were eventually revoked in 2015 due to concerns about complexity and the potential for regulatory duplication with the Resource Management Act (the RMA) [CAB MIN (15) 21/6 and the Building (Dam Safety) Regulations Revocation Order 2015 refers].

10. The previous government agreed to progress a dam safety scheme through a National Environmental Standard under the RMA as a way to manage potential regulatory overlap between the RMA and the dam safety regime in the Building Act.
11. In March 2018, the Minister for the Environment and I jointly decided to return the regulation of dam safety to the Building Act. This was because under the Building Act, implementation would be simpler and more certain, there would be a reduction in perceived regulatory overlap between the RMA and the Building Act and there would be no requirement to amend the Building Act to revoke redundant dam safety provisions.
12. Key stakeholders have expressed significant concerns about the ongoing delays with implementing a regulatory system for managing dam safety. These stakeholders have devoted considerable time and effort to supporting previous proposals and preparing for implementation and ongoing compliance. If the opportunity to deliver on these regulations is not met, the government risks losing credibility and confidence, particularly in the event of a dam failure.

A dam safety scheme is required to ensure that dams are being managed appropriately commensurate to the risk they pose

13. A comprehensive dam safety scheme is required to ensure that dams are being managed appropriately commensurate to the risk they pose. Regulations are required to bring the existing Building Act framework for dam safety into full effect.
14. Dams are an essential part of New Zealand's infrastructure. The portfolio of dams in New Zealand largely comprises hydroelectric dams, water supply dams, agricultural dams and 'detention dams' (i.e. dams designed to prevent or reduce flooding).
15. The majority of New Zealand's dams are earth structures and most of the known dams were designed before the emergence of modern design criteria in the 1980s. As these dams age, there is a growing recognition of the scale of hazards that dams are exposed to, such as earthquakes, floods, and storms.
16. Once dams are constructed and commissioned, they require ongoing monitoring and maintenance in order to maintain their structural integrity. The failure of a dam could result in significant loss of life, and damage to property and the environment for a considerable distance downstream from the dam.
17. For Māori, taonga such as rivers and streams, have particular significance within mātauranga Māori. They can be important to a person's sense of identity and Māori often consider their personal health and the health of the iwi to be closely linked to the health of their waterbodies. The failure of a dam will adversely impact on these values.

18. There is currently no comprehensive regime to monitor and maintain the structural integrity of dams. In the absence of specific regulations, some regional councils use conditions on resource consents as a way of managing dam safety. However, this practice is inconsistent. Some dams that pose the same level of risk face different dam safety requirements. Older resource consents may have few or no conditions relating to dam safety, while newer resource consents tend to have more detailed conditions.
19. A dam safety regime will bring New Zealand into line with the majority of Organisation for Economic Co-operation and Development (OECD) countries that already have dam safety regimes in place.

Key elements of the proposed scheme

20. The proposed regulations aim to ensure that people, property and the environment are protected from the harmful effects of dam failure. The regulations are intended to:
 - 20.1. provide a framework for the classification of dams, according to the potential impact the failure of a dam would have on people, property and the environment
 - 20.2. specify criteria and standards to ensure that dams are being managed appropriately commensurate to the hazard they pose
 - 20.3. ensure that there are appropriate procedures in place for the management of dam safety incidents or emergencies
 - 20.4. place responsibilities on the owners of dams to ensure that their dams are maintained to an acceptable level of safety.
21. Regional authorities¹ will enforce compliance with the proposed regulations and the Building Act. Owners of dams who fail to comply with their responsibilities under the Building Act, face committing a number of offences. The penalties for these offences range from fines of \$5,000 to \$200,000.
22. The proposals have been designed to align with existing industry best practice for dam safety and to exclude from regulation small dams, such as those used for stock drinking water, or small-scale irrigation.
23. Information on the characteristics of the New Zealand dam portfolio, such as height and reservoir volume is limited. The proposed regulations will help to collect information on the number, size, location and ownership of all classifiable dams in New Zealand.

¹ Under the Building Act 2004, regional authority means a regional council or a unitary authority.

Proposals for public consultation

24. I seek your agreement to undertake public consultation on the proposed regulations. The public consultation will be through the attached discussion paper *A Proposed Regulatory Framework for Dam Safety*, which sets out the proposed changes.
25. Public consultation will be used to test these proposals and identify any necessary changes. It will also be used to understand the costs and impacts of the proposals.
26. While the discussion paper is technical in certain areas, chapter one provides an executive summary intended for a general audience.
27. The consultation will be targeted at owners of dams, regional authorities (who are responsible for regulating dam safety), and relevant industry organisations such as the New Zealand Society on Large Dams (NZSOLD)². Meetings will be held with these groups.
28. Public consultation on the proposed changes will be for eight weeks.
29. I intend to release the discussion paper on or about Wednesday 29 May, though I seek authorisation to approve the final release date of the discussion paper. I also seek authorisation to make minor and technical changes to the discussion paper and any supporting documents before they are released.
30. This consultation process will have some overlap with public consultation on the Building System Legislative Reform Programme, which will close on 16 June. However, I expect overlapping stakeholder interest will be limited. This is because there is unique dam safety stakeholder interest from NZSOLD, regional authorities who are the building control authorities for dam construction and dam safety, dam owners (such as hydro-electric generators), water supply authorities, irrigators and farmers.
31. Where there is overlapping stakeholder interest, I expect that this may be limited to the New Zealand Insurance Council, Engineering New Zealand and some territorial local authorities who own dams, such as Auckland Council.
32. Following consultation, the Ministry of Business, Innovation and Employment (MBIE) will analyse the submissions and make appropriate changes to the proposals. I intend to seek Cabinet agreement to the final policy proposals in October 2019.

The discussion paper outlines the main regulatory proposals for feedback

Only dams that meet a height and volume threshold will be required to meet the regulations

33. Under the Building Act, the owners of “classifiable dams” must have their dams classified according to the potential impact of a failure of the dam on people, property and the environment. If the dam is classifiable, the owner must notify the relevant regional authority of the location and size of the dam.

² The New Zealand Society on Large Dams is a Technical Interest Group within Engineering New Zealand.

34. The regulations propose that a classifiable dam is defined as a dam that meets or exceeds the following classification threshold:
 - 34.1. the Building Act's definition of a "large dam" (at or above four metres in height and 20,000 or more cubic metres of water or other fluid in volume) OR
 - 34.2. below four metres in height, but at 30,000 or more cubic metres of water or other fluid in volume.
35. Using the first factor means that all large dams, as defined under the Building Act, are captured. Analysis of height and volume scenarios identified the second factor as best striking a balance between compliance costs and risk reduction.
36. There are around 3,200 known dams in New Zealand. Of these, MBIE estimates that around 900 dams would be affected by the proposed classification threshold, including all known high impact dams. However, information on dams is not comprehensive due to limitations in source data. The proposed regulations will help to address gaps in information about dams in New Zealand

Dams will be classified according to their potential impact in the event of failure

37. The classification method will result in a Potential Impact Classification (PIC), which is an estimate of the potential impact of dam failure on downstream populations, property, and the environment.
38. The proposed framework to determine a dam's PIC is based on the NZSOLD *New Zealand Dam Safety Guidelines* (2015). These guidelines are consistent with advice for dam safety issued by the International Commission on Large Dams.
39. The framework relies on three key variables:
 - 39.1. the population at risk
 - 39.2. the potential for loss of life
 - 39.3. the damage level to property and environment.

Owners of high and medium PIC dams must prepare and follow a dam safety assurance programme

40. If the PIC of the dam is low, the dam owner will have only limited regular ongoing obligations. If the PIC is medium or high, owners of dams must:
 - 40.1. prepare, or arrange for the preparation of, a dam safety assurance programme for the dam, consistent with dam safety management principles in the *New Zealand Dam Safety Guidelines*, and have the dam safety assurance programme audited and certified by a 'Recognised Engineer'
 - 40.2. provide the dam safety assurance programme to the relevant regional authority

- 40.3. review the dam safety assurance programme every five years (if the dam's classification is high) or seven years (if the dam's classification is medium) after the first review
- 40.4. provide a dam compliance certificate to the regional authority every year to demonstrate that the dam safety assurance programme has been complied with
- 40.5. review the dam safety assurance programme when:
 - 40.5.1. building work that requires a building consent is done on the dam and may affect the classification of the dam; or
 - 40.5.2. when requested by the regional authority, if the dam is earthquake-prone or flood-prone.

The discussion paper defines who is a 'Recognised Engineer' for dam safety

41. The Building Act requires a 'Recognised Engineer' to perform certain dam safety functions, including the certification of dam classifications and audit of dam safety assurance programmes.
42. The Building Act requires a 'Recognised Engineer' to be registered under the Chartered Professional Engineers of New Zealand Act 2002 (CPEng) and have prescribed qualifications and competencies. Regulations are necessary to prescribe the qualifications and competencies for recognised engineers.
43. The discussion paper proposes that a 'Recognised Engineer' must meet some or all of the competencies that relate to dam construction and management such as geotechnical principles, design principles, operation and maintenance, surveillance, dam safety systems and emergency response planning. Engineering New Zealand (ENZ) advise that this is consistent with international practice.
44. Further work on whether CPEng is still fit-for-purpose is being considered as part of the Building System Legislative Reform Programme, which was released for public consultation in April 2019.

Regulations are also required to define key terms for dangerous dams

45. The Building Act defines dangerous, earthquake-prone and flood-prone dams as high or medium PIC dams that are likely to fail in certain situations. Those situations are:
 - 45.1. for a dangerous dam, in the ordinary course of events or in a 'moderate earthquake' or a "moderate flood"
 - 45.2. for an earthquake-prone dam, in an 'earthquake threshold event'
 - 45.3. for a flood-prone dam, in a 'flood threshold event'.
46. The Building Act requires the terms 'moderate earthquake', 'moderate flood', 'earthquake threshold event' and 'flood threshold event' be defined in regulations.

47. Due to the technical nature of these key terms, the proposed definitions have been developed in conjunction with suitably qualified engineers who specialise in the construction and management of dams in New Zealand. The proposed definitions were previously consulted on in 2013 and were set at a level considered appropriate by specialists. MBIE has also engaged with NZSOLD on the proposed use of these terms.
48. MBIE will use the consultation process to test with stakeholders whether the specific requirements for dangerous, earthquake-prone and flood-prone dams are still fit-for-purpose.

Overlap with the Resource Management Act

49. In the absence of a regulatory scheme to monitor and maintain the structural integrity of dams, some regional authorities have used conditions on resource consents as a way of managing dam safety. Some of these conditions may then duplicate some of the regulatory proposals in this Cabinet paper.
50. Owners of dams have the ability under section 127 of the RMA to apply for a change or cancellation of a consent condition, which could result in the removal of duplicating conditions relating to dam safety that are covered by the new regulations.
51. Additionally, in a small sample of resource consents processed between 2005 and 2015, most dams had resource consent conditions that could be reviewed by the relevant council under section 128 of the RMA. Any council-led review could also result in the removal of conditions relating to dam safety that are covered by the Building Act regulations.

Climate Change

52. The proposed regulations are a significant step forward in post-construction dam safety and they will be reviewed as information of dams in New Zealand and knowledge of factors affecting dam safety, such as extreme flood events, grows.
53. *The New Zealand Dam Safety Guidelines (2015)* do not recommend the inclusion of the effects of climate change in the estimation of extreme flood events, as the understanding of these effects on dam safety was considered to be in its infancy.
54. Future amendments to the regulations could take into consideration any recommendations by the International Commission on Large Dams, which has an active technical committee on global climate change, and, other relevant bodies of knowledge on the topic.
55. For now, the proposed definitions for 'moderate flood' and 'flood threshold' events are related to annual exceedance probabilities and, therefore, would not need to be amended to accommodate climate change.

56. The proposed dam safety assurance programmes will include a regular review of whether a dam meets appropriate flood performance criteria. The dam safety assurance programme would therefore be progressively adapted to include the effects of climate change.

Engagement with the dam sector

57. In developing the proposed regulations, MBIE has engaged with Engineering New Zealand, Auckland Council, Regional Councils, Genesis Energy, the New Zealand Insurance Council and a Technical Working Group (comprising members of NZSOLD, Federated Farmers, Irrigation New Zealand, Meridian Energy and the Otago, Canterbury and Waikato Regional Councils, and the University of Canterbury Quake Centre).
58. These stakeholders broadly support the proposed regulations and some have expressed significant concerns about the ongoing delays with implementing a regulatory system for managing dam safety.
59. MBIE has also contacted Ngāi Tahu, Waikato-Tainui, and Ngāi Tūhoe to gauge their interest. Local Government New Zealand has been informed.

Impact analysis

60. The Regulatory Quality Team at the Treasury has determined that no separate Regulatory Impact Assessment is required in support of the proposal since the analysis at this stage is covered in the discussion paper.
61. The proposed changes will impose additional costs on the owners of dams although this will depend on the extent to which they are already observing industry best practice. Compliance costs will mainly affect the owners of dams that are not currently operating safety activities consistent with the *New Zealand Dam Safety Guidelines*. These owners will face initial set-up costs to comply with the regulations and ongoing compliance costs.
62. Feedback from the owners of dams such as Auckland Council, Water Care, Mercury, Genesis Energy, and Meridian Energy is that they are already complying with the *New Zealand Dam Safety Guidelines* or operating in excess of the proposed regulations. The proposed regulations will have implications for government departments and Crown organisations, such as the Department of Conservation and Land Information New Zealand, who administer large landholdings and own dams.
63. MBIE will undertake a cost-benefit analysis to ensure that the benefits of the regulations outweigh the costs. Public consultation will help to inform this work.

Departmental Consultation

64. The following agencies have been consulted on this paper and the draft discussion paper: Ministry for the Environment; Ministry for Primary Industries; Te Puni Kokiri; Departments of Conservation and Internal Affairs, the Department of Prime Minister and Cabinet (Ministry of Civil Defence and Emergency Management); Land Information New Zealand and the Treasury. DPMC's Policy Advisory Group, Landcorp and the Energy Efficiency and Conservation Authority have been informed.

Financial Implications

65. There are no financial implications from the proposal to consult.

Legislative Implications

66. There are no immediate legislative implications from the proposal to consult. Following consultation, regulations will be required to implement Cabinet's decisions on the final proposals for implementing the dam safety regime under the Building Act.

Human Rights, Gender Implications and Disability Perspective

67. This paper has no implications under the *New Zealand Bill of Rights Act 1990* or the *Human Rights Act 1993*. There are no gender or disability implications arising from this paper.

Publicity

68. The Minister for Building and Construction intends to issue a media statement accompanying the release of the discussion paper. The discussion paper and summary documents will be made publicly available on MBIE's website.

Proactive Release

69. The Minister for Building and Construction proposes to release this Cabinet paper and associated Cabinet Minute. The Cabinet paper and Minute will be published along with the discussion paper on MBIE's website.

Recommendations

The Minister for Building and Construction recommends that the Committee:

1. **note** that there is no comprehensive regime to monitor and maintain the structural integrity of dams in New Zealand;
2. **note** that regulations are proposed to bring into force an existing framework for dam safety in the Building Act 2004;
3. **note** that key stakeholders have expressed significant concerns about the ongoing delays with implementing a regulatory system for managing dam safety;

4. **note** that I intend to release the attached discussion paper *A Proposed Regulatory Framework for Dam Safety* for public consultation on or about Wednesday 29 May 2019;
5. **authorise** the release of the attached discussion paper on a final date to be decided by the Minister for Building and Construction;
6. **authorise** the Minister for Building and Construction to make minor amendments and refinements to the discussion paper and supporting documents before they are released;
7. **note** that the Minister for Building and Construction will report back to Cabinet in October 2019 on the outcome of the consultation and seek agreement to final policy proposals for dam safety regulations under the Building Act 2004.

Authorised for lodgement

Hon Jenny Salesa

Minister for Building and Construction

PROACTIVELY RELEASED