

Science Programme Review and LTP

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Recent History

- ORC Science programme externally reviewed in 2019-20
 - Assessed against 2019 policy environment (2017 NPSFM)
 - Identified gaps in both capacity (Freshwater) and capability (coast, land, and terrestrial biodiversity)
 - Team was expanded to address capability gaps



Recent History

- Since 2019-20 expansion of team:
 - Significant improvement in our understanding of Otago's environment
 - New programmes in soil health, Terrestrial biodiversity, land use, estuary and coast, wetlands
 - Ever changing policy environment and demands

National Policy Statement for Freshwater Management 2020
Amended December 2025

National Policy Statement for Indigenous Biodiversity 2023
Amended December 2025

National Policy Statement for Highly Productive Land 2022
Amended December 2025

Published: 18 December 2025
Reference: ME 1949

Publication National Policy Statement Resource management

**New Zealand
Coastal Policy
Statement 2010**
As amended in 2025

2022/168

Version as at 15 January 2026



Resource Management (National Environmental Standards for Freshwater) Regulations 2020

(LI 2020/174)



Water Services (Drinking Water Standards for New Zealand) Regulations 2022

Role of ORC's science programme

- Inform regulatory and non-regulatory decision making
 - Identifying if there is an issue*
 - Detect trends and if exceed national bottom lines
 - Support catchment and community group action
 - What actions, and where should we do them, to help the issue
 - Catchment actions plans (CAPs)
 - Limit setting, target setting, and allocation processes*
 - Informing policy and Regional plans
 - Assess whether actions have worked*

*Legislative requirement under
RMA and/or NEB

Science Focus Areas:

- Water quality
- Water quantity
- Groundwater
- Lakes
- Air quality
- Land use and soil health
- Wetlands
- Coast and Estuaries
- Freshwater ecology
- Terrestrial ecology

Challenge of policy uncertainty

- Many policy driven questions rely on long term data collection
 - Trends (often 10 years), state (often 5 years),
- Recently, changes in national policy direction hampers stability of science programmes



Programme Review- anticipated needs and themes (for feedback/discussion)

1. Programmes should provide value for investment
 2. Meet the needs and expectations of Otago's communities
 3. Programme should provide required information to support the full environmental management cycle for Otago's issues
 4. Programme sufficiently integrates across land, water, coast and biodiversity
 5. Focused on aspects and areas ORC can directly influence
 6. Programme should be rapidly adaptable and suitable under multiple policy settings to provide long term stability
-

Programme review and development process

Governance

2. Framework review and preferred approach discussion

4. Draft Programme review

6. Programme options and scope refinement through LTP process

Operational/Staff

1. Framework development and high level gaps

3. Programme alignment, integration, and scoping

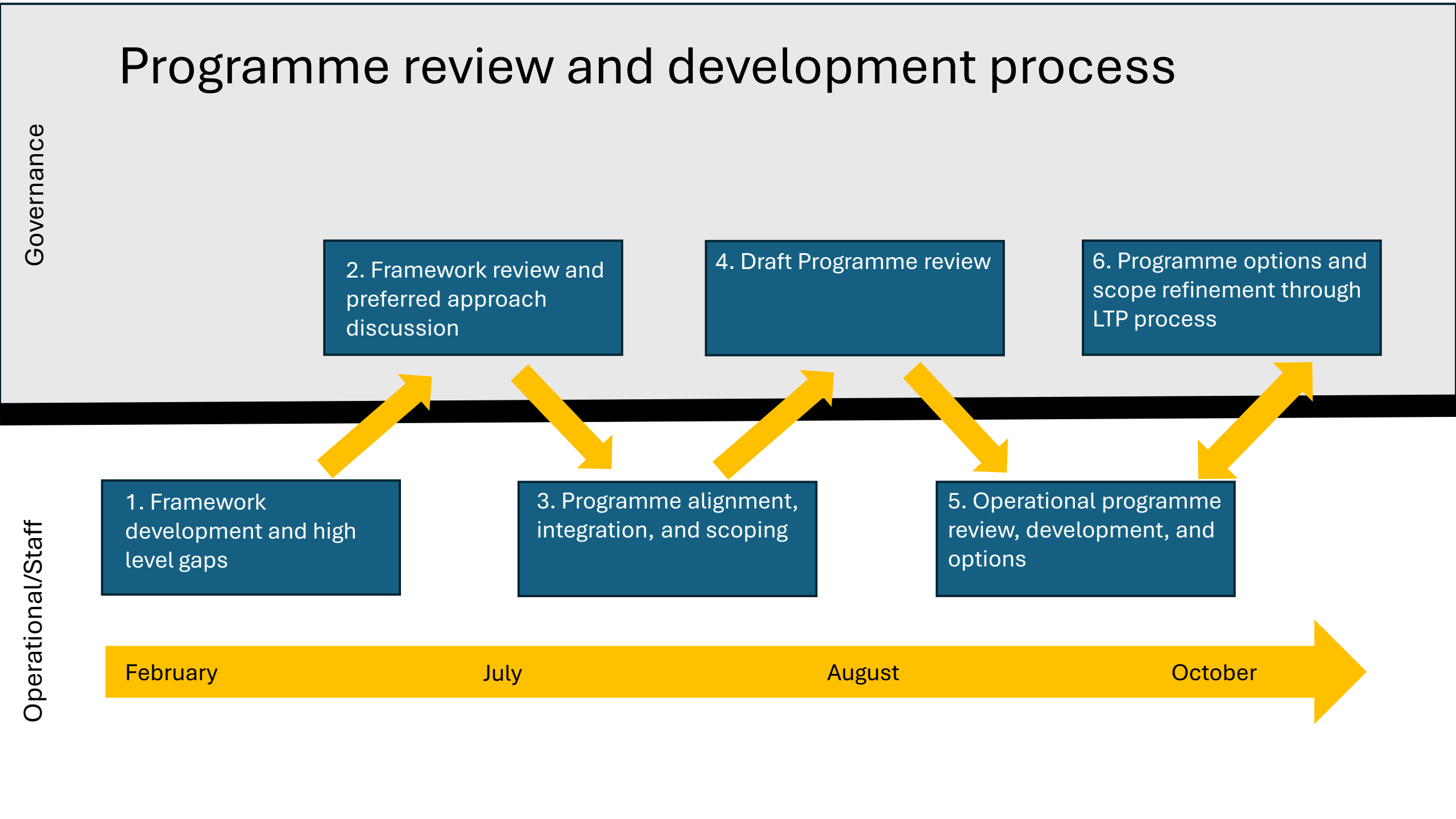
5. Operational programme review, development, and options

February

July

August

October



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February

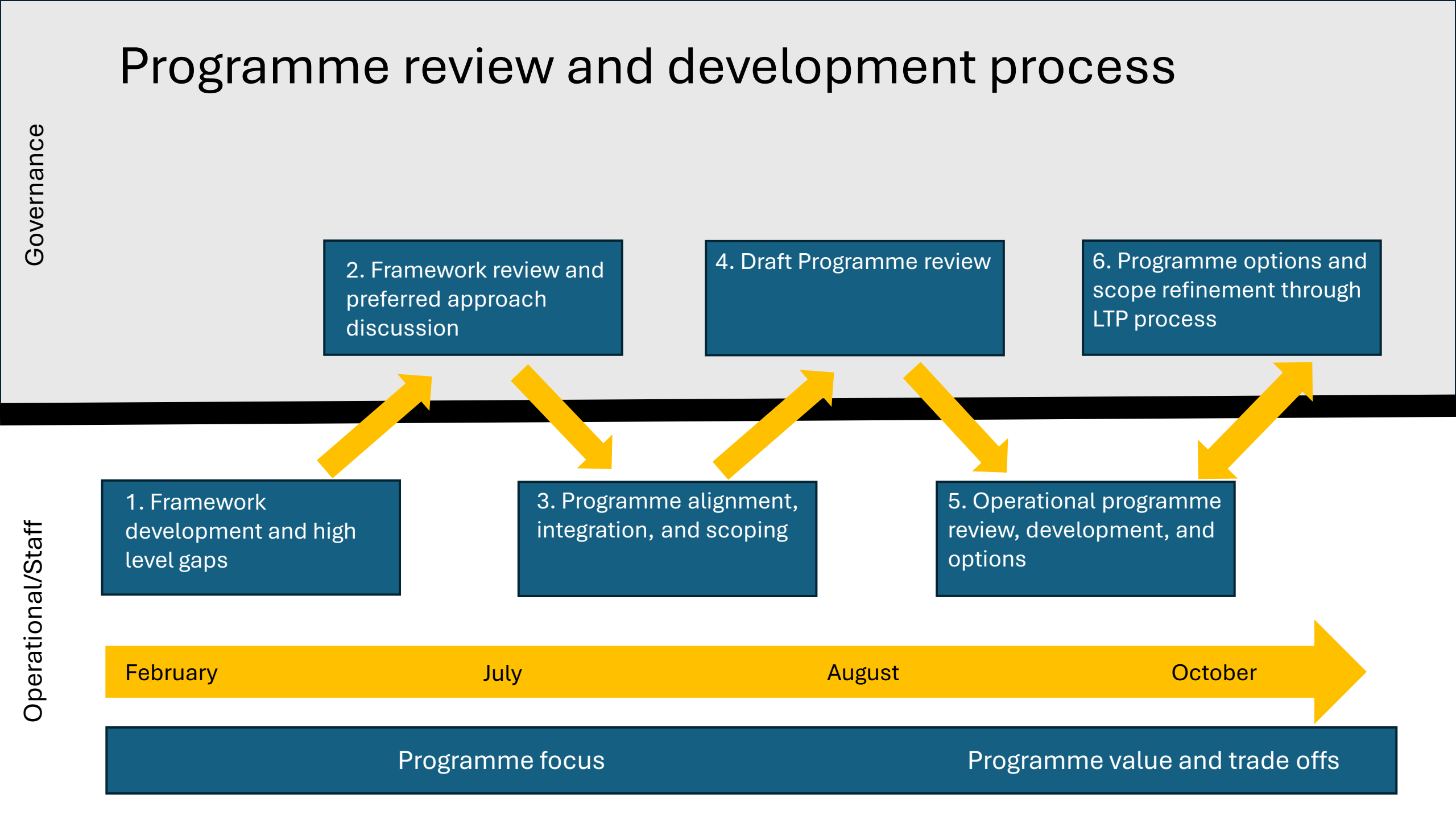
July

August

October

Programme focus

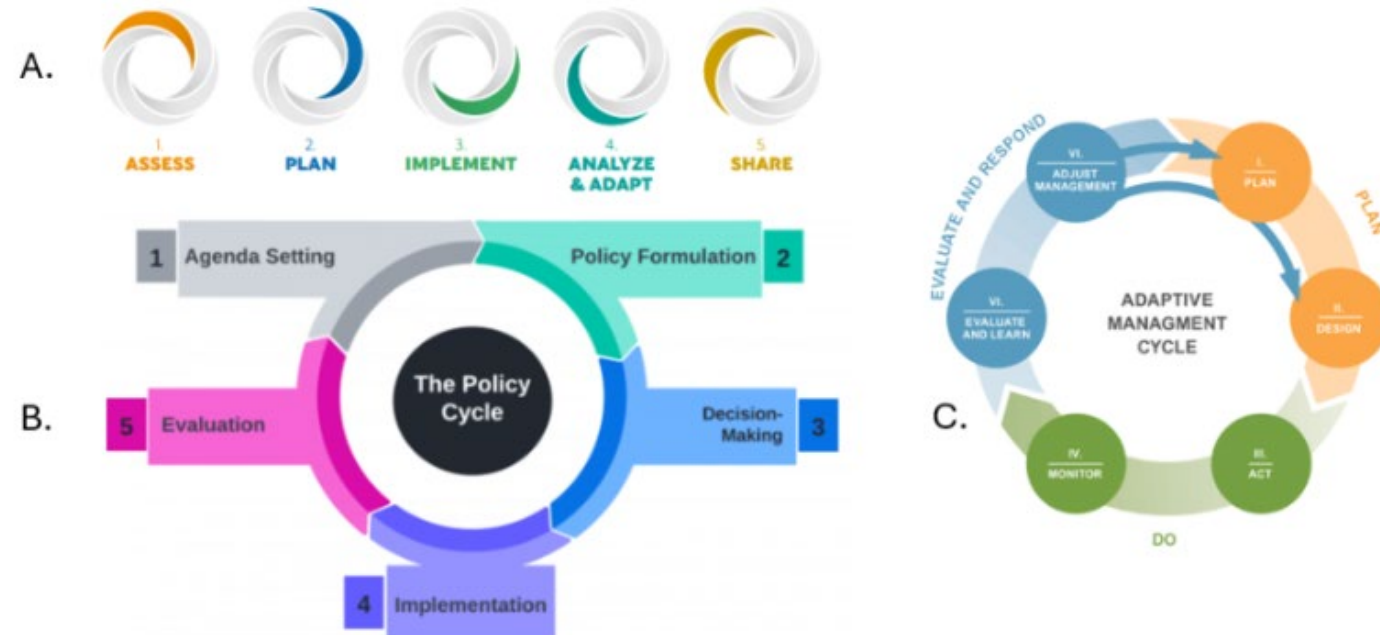
Programme value and trade offs



Programme Framework

- Aimed at full management cycle
 - i.e. Conservation standards, policy cycle, adaptive management
- Facilitate integration
- Meet community needs
- Adaptable to multiple policy settings and alternative local government boundaries

A framework for adapting
environmental information
programmes



The conservation standards cycle reproduced from CMP, 2025; B. The policy cycle reproduced from UoA, 2022; and C. the adaptive management cycle reproduced from Kovacs et al., 2014.

1. Where are we and do we need to act?



2. Where do we want to be and how do we get there?

3. Did anything work and what have we learned?

4. What's coming our way?



1. Where are we and do we need to act?

2. Where do we want to be and how do we get there?

3. Did anything work and what have we learned?



Programme Focus and Key Questions

Where are we and is action needed?



Programmes

- State of environment
- State/accounting resource use, threats, and pressures
- Establishing reference state/baseline

Knowledge Outcomes

- Issues/Risks
- Immediate action management
- Baselines and decision windows
- Base understanding

Where do we want to be and how do we get there?



Programmes

- Potential interventions
- Potential target and scenario modelling
- Priority and decision support tools

Knowledge Outcomes

- Management options
- Scale of intervention needed
- Relatable change scenarios
- Priority areas

Did anything work and what have we learned?



Programmes

- Policy effectiveness
- Post intervention outcome monitoring

Knowledge Outcomes

- Adaptive management
- Evidence based refinement

What's coming our way?



Programmes

- Future issues/scenarios (climate change, emerging contaminants, new invasives)

Knowledge Outcomes

- Proactive risk identification
- Future proofing options
- Proactive monitoring installation

Question	Sub question	Legislative requirement? (RMA Focus – pending NEB generally more explicit/directive)	Context / Level of Discretion?
Where are we and do we need to act?	What's the state of the environment?	RMA S35 – required to carry out functions	Scale/intensity of monitoring network
	What's the state of resource use?	RMA S30(1)(fa) Required for limit setting NPS-FM 3.29	Not traditionally done across all focus areas. Provides the current amount/state and changes over time/trends in resource use, such as the amount of water abstracted from a river
Where do we want to be and how do we get there?	What are potential interventions?	RMA S30(1)(a), S32 (1)	Essential for developing reg and non-reg plans. Provide actions which could be implemented to reduce pressure and improve environmental outcomes
	How do relatable management scenarios compare to potential targets?	RMA S32 (2) – broad cost/benefit assessment	How management scenarios compare to potential targets to inform limit setting and support economic, financial, social, and cultural impact assessments.
	What are priority or high risk areas?	Discretionary	Provide potential priority areas where the biggest gains can be made.
Did anything work and what have we learned?	How effective was our plan?	RMA S35(2)(b) Local authorities must monitor efficiency and effectiveness of policies, rules...	Indication of the effectiveness of the “plan” as a whole
	How effective are individual rules/provisions	Discretionary	Can investigate specific actions of interest (controversial, expensive, etc.).
What's coming our way?	What are likely future issues?	Discretionary with exception of RMA s7(i) (climate change)	Developing an understanding of likely medium to long term future change scenarios (land use, practice, etc.)
	How may future issues influence state?	Discretionary	Maintaining awareness of Otago's exposure to new or emerging issues such as new contaminants, invasive species, and other environmental pressures.

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‘Discretionary’ questions commonly have highest local interest, non-regulatory ROI, or potential environmental benefit

Options for answering questions

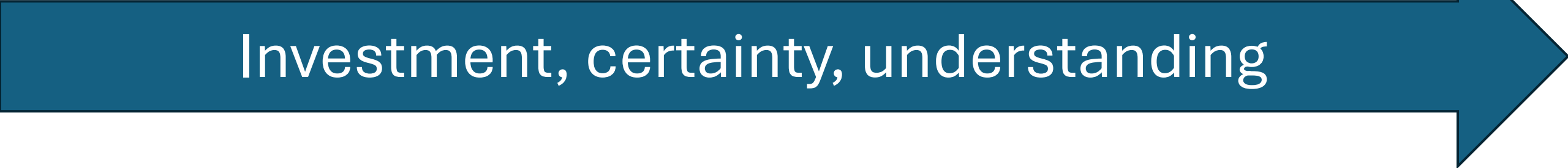
Use existing
literature

National models

Calibrate/adapt national
research to local
conditions (region scale)

Local case
studies
(catchment
understanding)

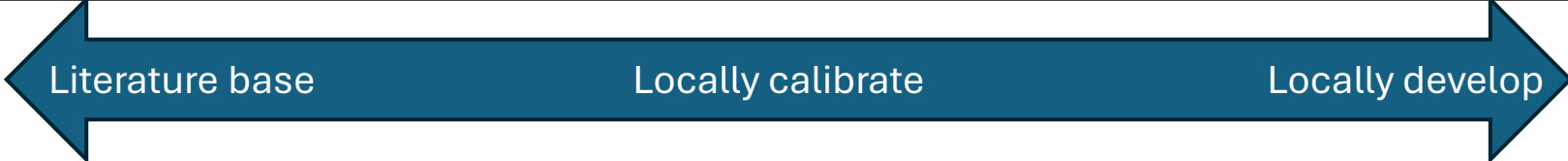
Develop fully local
understanding
(sub-catchment)



Investment, certainty, understanding

What influences preferred way of answering?

- Community expectation and need
- Level of competing values
 - Catchment with agriculture, tourism, recreation, and urban areas vs. one in a national park with few pressures
- Consequences of uncertainty in decision making
 - Will the community face significant cost without achieving the desired outcome if wrong?
- Existing understanding
 - We know enough already

Question	Sub question					
		Literature base	Locally calibrate		Locally develop	
Where are we and do we need to act?	What's the state of the environment?					
	What's the state of resource use?					
Where do we want to be and how do we get there?	What are potential interventions?					
	How do relatable management scenarios compare to potential targets?					
	What are priority or high risk areas?					
Did anything work and what have we learned?	How effective was our plan?					
	How effective or individual rules/provisions					
What's coming our way?	What are likely future issues?					
	How may future issues influence state?					

Investment, certainty, understanding

