POLICY BRIEF

February 2026

Critical infrastructure recovery: Key lessons from past disasters

Recent extreme weather has caused significant damage to critical infrastructure across the North Island of New Zealand, damaging essential roads, bridges, and utilities. Extreme weather events are becoming more frequent and intense, driving up infrastructure repair and replacement costs. Rebuilding these systems exactly as they were before is becoming unsustainable and costly.

This brief outlines key lessons from international disaster recovery efforts to help infrastructure owners build more resilient and cost-effective systems.

Establish strategic governance

Effective infrastructure recovery requires a governance body that provides clear direction and balances immediate needs with long-term recovery objectives.

These bodies are common after large disasters and ensure recovery efforts are strategic and transparent. They also make sure money is spent wisely and recovery goals are met in line with clearly agreed principles.

The body works closely with key groups, including operational teams, funders, and community stakeholders. This approach gives strategic oversight, separate from day-to-day operations and keeps affected communities at the centre of recovery. Representation in the body may change as recovery needs and priorities change.

Engage Iwi and communities meaningfully

Successful disaster recovery puts affected communities at the heart of decision-making.

This means doing more than just asking for opinions. Communities should be empowered to shape recovery plans and stay informed about progress. Iwi should be active recovery partners.

Effective engagement requires clear and honest communication. Face-to-face talks work best, especially if trust is low. Organisations should use different ways of communicating to reach all community members. Using simple, straightforward

language helps everyone understand what's happening. Coordinate engagement and messaging with other agencies, where possible.

Recovery teams must balance community input with the need to work quickly. Spending too much time talking can slow down important work. Engagement strategies should keep communities involved without wearing them out. Doing what Involving communities from the start can reveal ways to

improve infrastructure. It also helps people feel they own part of the rebuilding process.

Prioritise strategic infrastructure recovery and stay flexible in decision-making

Community needs drive the order of recovery work, helping communities recover faster.

Infrastructure that provides basic needs, like water, power, and transport, comes first. Target service levels help set recovery goals and manage community expectations. Use temporary solutions while developing the best long-term reconstruction options.

Projects that reduce future hazard risks are crucial for long-term recovery. So are projects that prioritise work with the most economic benefit and investment opportunity. Use recovery as an opportunity to fast-track master planning intentions.

Recovery requires balancing quick action with careful consideration of potential impacts and risks. Decision-makers must make choices with limited or uncertain information. Using standardised processes can speed up decision-making, but this must be balanced against opportunities to optimise recovery work and reduce future risks. Aligning decisions with overall recovery goals and going through proper governance processes helps achieve this balance. Strategies like scenario planning and input from subject matter experts can help manage uncertainty.

Coordinate recovery operations

Large infrastructure recovery efforts benefit from having a multi-organisational team coordinating ground operations.

This team tracks project progress. It monitors resource allocation and stakeholder communication. Their oversight keeps individual projects aligned with overall recovery goals and uses resources effectively.

A well-coordinated team is crucial to keep recovery on track. Without a clear project pipeline, contractors struggle to plan, slowing progress. A consistent work pipeline provides visibility to contractors. This enables better resource planning and ensures continuity of recovery. The team establishes shared values and procedures, bringing different delivery organisations together under common recovery objectives.

By sharing planning efforts and collaborative platforms, the team coordinates work to enable efficient decision-making and helps address challenges across recovery activities as they arise. Coordinating work across different areas reduces disruptions. This means carefully managing activities like underground works to minimise disruption to communities. Aligning infrastructure recovery with other efforts, such as housing and social services, maximises overall recovery efficiency and timelines.

Remaining flexible is key. Work allocation and scheduling must adapt to new information and changing conditions. This ensures recovery efforts remain responsive and effective.

Manage recovery resources strategically

Rebuilding infrastructure after a disaster requires quickly bringing together the right people and teams.

Clear and shared values will help different teams work well together. Finding skilled workers for disaster recovery is challenging, with construction skills in high demand across different regions. Organisations might need to look beyond local hiring, including bringing in workers from other countries to meet long-term recovery needs.

Existing agreements with contractors can help start recovery work fast. Organisations can improve how they choose workers over time, based on performance. Offering competitive wages, temporary accommodation, and targeted job training can help attract and keep skilled workers.

Recovery workers face unique challenges. Many workers may be experiencing the disaster's impact in their own lives while also doing complex recovery work. Supporting their health and wellbeing is crucial to keep recovery on track.

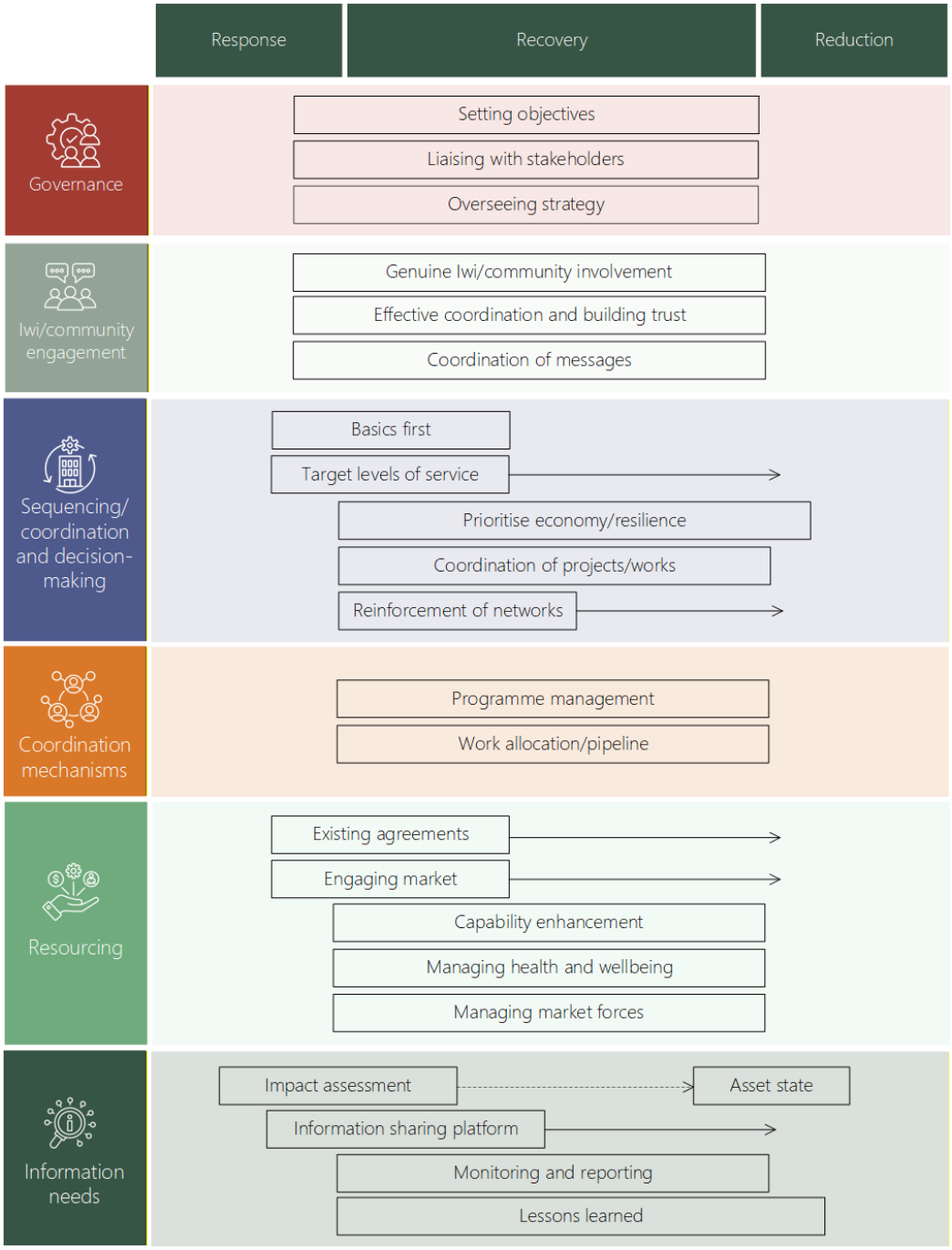
Manage recovery information effectively

Accurate, detailed information on infrastructure impacts is crucial for effective disaster response and recovery.

When agencies and organisations share information about damage, resources, planning, and progress in a single platform, recovery work becomes more efficient.

Geographic information systems (GIS) and other technology can help track and analyse recovery efforts. However, it is likely that recovery organisations will need to work through individual data management policies to make sharing possible. This is an organisational challenge, not a technological one. A centralised information platform can serveas a repository for critical data, enabling better coordination across different recovery activities.

Reporting and monitoring help maintain accountability. By tracking progress against recovery goals, organisations can measure actual outcomes, identify areas for improvement, and be transparent about recovery efforts



Adapted based on original brief: Mace and Brown (2023). Critical infrastructure recovery: key lessons. (resorgs.org.nz/wp-content/uploads/2023/07/NIEWE_critical_infrastructure_-recovery_key-lessons.pdf)

Read the supplementary report: Mace, H., Brown, C., (2024). Critical infrastructure recovery: Key lessons. Supporting critical infrastructure recovery project. (resorgs.org.nz/wp-content/uploads/2024/03/Critical_infrastructure_recovery_key_lessons_2024.pdf)

For more information, see the companion investment decision-making documents:

- Brief: Curran and Brown (2023). Building resilience through recovery: Investment decision making. (resorgs.org.nz/wp-content/uploads/2023/07/NIEWE_critical_Infrastructure_resilience.pdf).
- Supplementary Report: Curran, P., Brown, C., (2024). Building resilience through recovery: investment decision making. Supporting critical infrastructure recovery project. (resorgs.org.nz/wp-ontent/uploads/2023/07/NIEWE_critical_Infrastructure_resilience.pdf).

Contact

Charlotte Brown
ResOrgs
e: charlotte.brown@resorgs.org.nz
w: resorgs.org.nz