

Lessons learned from one of New Zealand's most challenging civil engineering projects: rebuilding the earthquake damaged pipes, roads, bridges and retaining walls in the city of Christchurch 2011 - 2016.

The governance of SCIRT - the exercise of control

Story: Structure and Governance

Theme: Governance and Decision Making

A document which describes how SCIRT's governance structure was set up and developed in response to the many challenges of the horizontal infrastructure rebuild.

This document has been provided as an example of a tool that might be useful for other organisations undertaking complex disaster recovery or infrastructure rebuild programmes.

For more information about this document, visit www.scirtlearninglegacy.org.nz



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The governance of SCIRT – the exercise of control

How do you govern a multi-billion dollar rebuild of horizontal infrastructure to ensure value for taxpayers and ratepayers after a series of destructive earthquakes?



The SCIRT board in August 2015: Cos Bruyn (Downer), left back, John Mackie (CCC), Andrew Stevens (Fletcher), Jim Harland (NZTA), Robert Jones (Fulton Hogan), Roger McRae (McConnell Dowell), Ian Campbell (SCIRT), left front, Onno Mulder (City Care), and Clare Ansley (SCIRT).

What power and decision-making structures, policies and processes do you establish to make critical decisions about the funding of the repairs and the supervision of their implementation?

Who will determine the amount to be spent on the rebuilding of underground pipe services and roads? How will that be split between the funding authorities who will naturally have different priorities and different constituents to answer to?

These were the questions the New Zealand Government and the Christchurch City Council had to address through much of the horizontal infrastructure repair programme.

Not your standard alliance

Confronted with an almost-crippled underground wastewater system and gaping roads, the authorities decided the alliance model was the best way to tackle the biggest and most complex civil construction programme in New Zealand history.

An alliance offered flexibility, the ability to spread the risks, and speed, and would pull together the capability

of five leading construction companies alongside the key government funders and asset owners.

Construction alliances typically start with two to three participants, being one funder and one or two large contracting companies, a detailed scope and objectives and a statement of the budget.

But SCIRT was not a standard alliance. It was instead a marriage of eight participants - three funding organisations, two of which owned the damaged assets, and five rival construction companies. How would they hold the diverse grouping together to lead the horizontal infrastructure rebuild?

While a funding envelope had been discussed for the purposes of setting up the Alliance, the extent of damage to horizontal infrastructure was still uncertain when SCIRT launched in September 2011. How could the parties at the outset decide on funding and its split if they did not know how much damage there was?

Christchurch had a public commitment from the Government that it would help rebuild the city's horizontal infrastructure but the Government's contribution was not settled for a couple of years. Under the Civil Defence Emergency Management Act and regulations the Government was obligated to help a region recover from a disaster but what level of assistance was required or necessary?

As the Government spending watchdog, the Office of the Auditor-General, noted in its November 2013 report into the governance of SCIRT, multiple funders and constructors rendered the partnership much more complex than standard alliances.

Self-governing start

The infrastructure repairs kicked off after the first earthquake in September 2010 with funding primarily from the Council and its insurers at this stage. In May 2011 the Department of Internal Affairs under civil

defence legislation approved indemnity funding where the bills were presented and paid with few questions asked.

Like most alliances, SCIRT was set up to be self-governing, by a board made up of representatives of the participants within the Alliance. The SCIRT Alliance Agreement did not envisage or acknowledge any other authority or control over its programme of work.

The board's role was to govern the operations and administer the Alliance Agreement. Around the SCIRT board table sat eight directors who were required to come to consensus decisions.

They were senior executives of the three central and local government organisations paying for the roads and underground pipes to be repaired and replaced, and the managing directors or chief executives of the five construction companies.

The three organisations paying for the SCIRT programme, known as the "owner participants", were the NZ Transport Agency (NZTA), the Council, and the newly-minted government department, the Canterbury Earthquake Recovery Authority (CERA).

The five construction companies, known as the "non-owner participants", were City Care, Downer, Fletcher Construction, Fulton Hogan and McConnell Dowell.

Two of the owners had assets requiring repairs. The Council owned the local roads, associated structures, and underground water and wastewater networks within its boundaries.

NZTA owned the highways but also subsidised the other road infrastructure. For the rebuild works the subsidy was increased to a very significant 83 per cent of the road repair costs.

The task ahead

The SCIRT board's main responsibilities were to

- Administer the Alliance Agreement.
- Set policy and provide strategic direction.
- Oversee the assessment of the condition of assets and scoping of the repair work.

- Ensure the delivery of the works to the owner participants' required standards.
- Confirm the work was delivering value for money.
- Ensure achievement of SCIRT's objectives.
- Review issues and resolve differences.
- Approve resources for work.
- Confirm appointments and monitor the performance of SCIRT's management team.

The Alliance Agreement gave considerable authority to the owner-participants. They could:

- Direct the construction companies to ensure SCIRT's work was consistent with and was integrated into the wider recovery strategy for Canterbury.
- Require the constructors to meet their requirements and minimum standards prescribed by them.
- Require them to correct any defective work.
- Appoint external auditors.
- Cease any or all work under the Alliance permanently.
- Then continue that work themselves or contract it to other companies to complete.

Working collaboratively

The SCIRT board engaged a leadership coach for 18 months who helped guide the formation and operation of the board and mentored the board on what governance of an alliance required and how to reach consensus decisions.

SCIRT's first Executive General Manager Duncan Gibb

“They just got on with it and never really had a problem”

- Duncan Gibb, executive general manager 2011 – 2013

said the representatives of the five contractors were able to put their personal and corporate egos aside and accept they needed to work together for the greater good of the people of Christchurch.

“They just got on with it and never really had a problem,” Gibb said.

SCIRT board member Graham Darlow from Fletcher Construction said it was remarkable how well the board functioned given it was made up of the leaders of competing contracting companies and the representatives of the three public sector clients.

“Behaviours and decisions were exemplified by a ‘best for programme’ approach, A number of us had learnt that from other alliances and that helped,” Darlow said.

A key factor in the success of the SCIRT Board was the continuity maintained in its membership. Two of the non-owner participants served for the entire duration of the programme.

Challenge to SCIRT autonomy

It wasn’t long after the signing of the Alliance Agreement that the owner participants were talking about forming their own external governance group. By the end of 2011 the sole authority of the SCIRT Board to govern its work programme was being tested.

Informal meetings had started in May 2011 between a representative of CERA and one from Council to talk about their common issues before they sat around the SCIRT board table and this led eventually to the formal setting up of the Client Governance Group (CGG) in early 2012.

CGG was initially envisaged as a forum for the owner participants to address and resolve common issues to enable clear direction to be given to SCIRT.

The critical unresolved issues were the amount of funding, how much each owner participant would contribute and what standards the damaged assets would be repaired to.

These were political decisions that would naturally cause tension between central and local government and were inappropriate for the non-owner participants

on the SCIRT board to debate.

New tier of governance

Senior executives and managers from the three owner participants - CERA, NZTA and the Council- sat on CGG and its committees.

In 2012, the Minister of Canterbury Earthquake Recovery, Hon. Gerry Brownlee, decided to appoint a trusted and forceful change manager, the late Auckland businessman Mark Ford, to act as CGG’s independent chairman.

CGG’s role was not only to oversee the operations of the SCIRT Alliance but also the other horizontal infrastructure projects in the city.

CGG’s main tasks were to:

- Draw up a governance framework for delivering the total horizontal infrastructure rebuild.
- Ensure the work delivered by SCIRT was consistent with wider recovery strategies.
- Determine reporting requirements from the SCIRT Board to CGG.
- Set up a process for approving decisions about the betterment of horizontal infrastructure and exceptions to the technical standards and guidelines.
- Approve SCIRT’s annual work programme and budgets.
- Coordinate SCIRT’s funding.
- Review audit reports and the implementation of controls.
- Monitor SCIRT’s progress and budget through monthly and annual reports against agreed milestones and performance objectives.
- Ensure value for money and manage prioritisation costs.

Getting on with it

To support CGG four sub-committees were set up - Scope and Standards, Funding, Strategy and

Communications.

In practice, most of the work and the decisions of CGG took place in the committees and in the Scope and Standards committee in particular where Council representatives dominated.

Here the standards to which the publicly-owned underground water and wastewater networks, roads, bridges and retaining walls would be rebuilt were debated and reviewed.

The three owner participants had broadly agreed to repair the horizontal infrastructure to the levels of service prior to the September 2010 earthquake.

For this SCIRT's bible was the document which had been developed by Council engineers, the Infrastructure Rebuild Technical Standards and Guidelines (IRTSG), and approved by the owner participants to issue to SCIRT through the Scope and Standards committee.

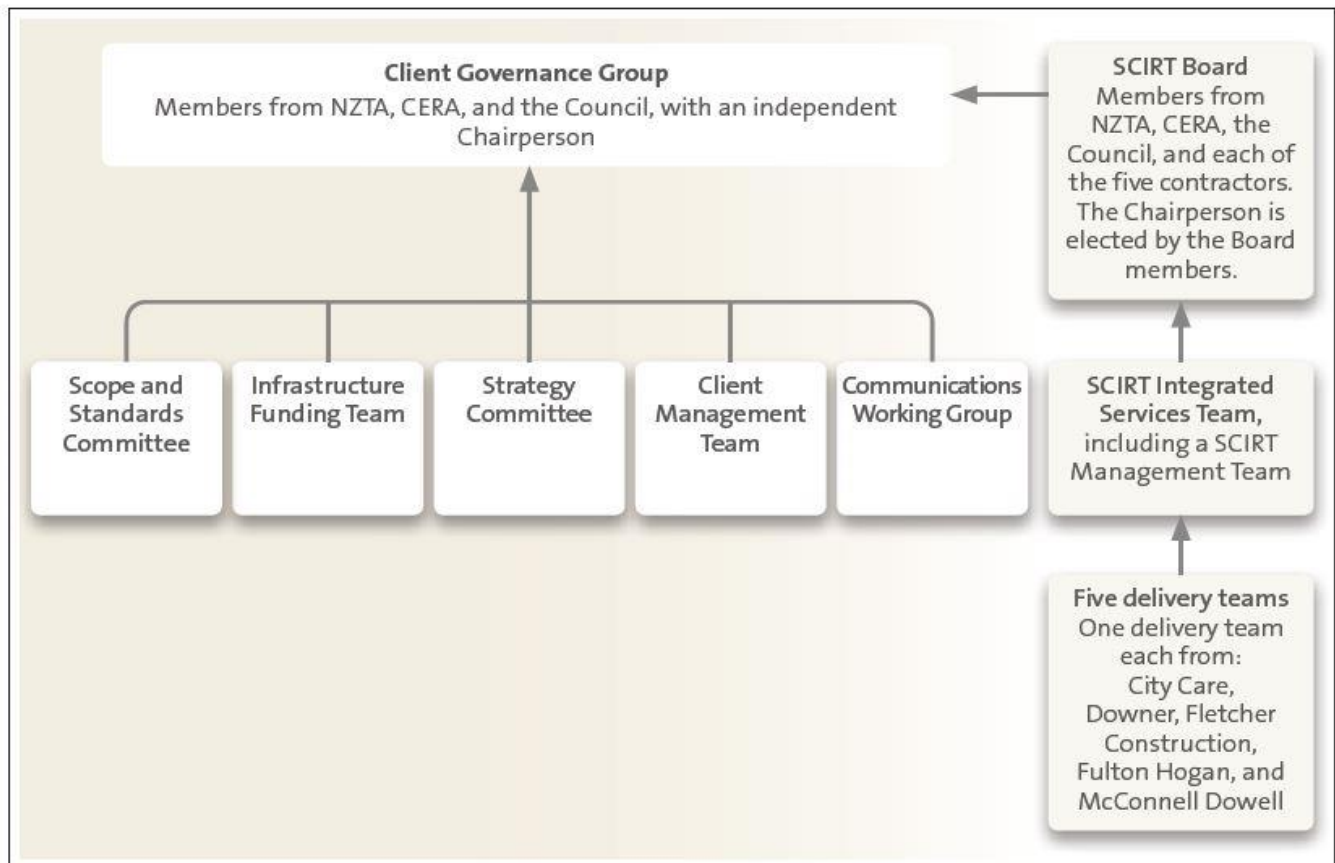
If the SCIRT repair project met the criteria detailed in the IRTSG then SCIRT got on with it. If an interpretation was required it was referred to the Scope and Standards committee for a decision on what should be done.

A typical referral to Scope and Standards was an increased scope of repair where the repair design included additional earthquake resilience or betterment of the asset. Council funded any betterment of its assets separately.

A good deal was achieved in the first two years of the programme. One of the SCIRT principles was to repair the worst damage first and through SCIRT's prioritisation system and applying the IRTSG large parts of the wastewater systems in the east of Christchurch were replaced.

Overall the relationship between CGG and SCIRT was collaborative facilitating the progress of the SCIRT

SCIRT's governance arrangements in September 2013



From "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", Office of the Auditor General, 2013.

programme. During this period SCIRT’s work proceeded at pace under guidance of the IRTSG, ramping up to a monthly construction expenditure of \$30 million by early 2013.

Funding tensions

Under the civil defence and emergency legislation indemnity funding was approved in May 2011 where the Crown’s contribution for “eligible” repairs was 60% for the cost for water, wastewater and storm water networks and 83% for road repairs with the Council paying the rest.

Relations between the Crown and the Council were strained over Crown reimbursements for the “three waters” repairs.

The Council was reluctant to sell any of its assets to fund its infrastructure and other earthquake-rebuild obligations. The Government questioned this.

Governance wanting

The first official report card from the Office of the Auditor General in November 2013 was critical of the external governance of SCIRT, in particular CERA’s inconsistent attendance at CGG committees and lack of commitment to governance of SCIRT.

OAG pointed out that CERA did not consistently send the same people to meetings of the SCIRT board and CGG and some representatives of CERA had lower levels of delegations than those from Council and NZTA contributing to slower approval processes.

While several parties involved in the SCIRT programme believed in the self-governing alliance model and that no external governance was needed, the OAG’s report indicated it considered that was necessary and that CGG was performing the role inadequately.

The government spending watchdog confirmed the choice of an alliance was “a good fit with the post-earthquake situation in Canterbury”.

SCIRT had sound business systems that created efficiencies and was making the most of its highly-trained specialists to develop practical solutions. And its projects were reasonably priced when relevant

“The effectiveness of the CGG is undermined by a lack of clarity about its role ...”

- Office of the Auditor-General, 2013

variables like Christchurch ground conditions and available resources were considered.

But the three clients had failed to define the scope of the SCIRT programme, to agree on levels of service and the quality of infrastructure SCIRT should deliver and CGG’s role lacked clarity.

“The effectiveness of the CGG is undermined by a lack of clarity about its role and the role of the independent chairperson,” the OAG report said.

“CERA has not fully engaged with the CGG or with SCIRT to the extent needed to effectively facilitate planning for the horizontal infrastructure rebuild. CCC and NZTA are engaged enough,” OAG said.

External governance stepped up

In response, the SCIRT owner participants established a revised governance body, Horizontal Infrastructure Governance Group (HIGG), with greater control over SCIRT, to replace CGG.

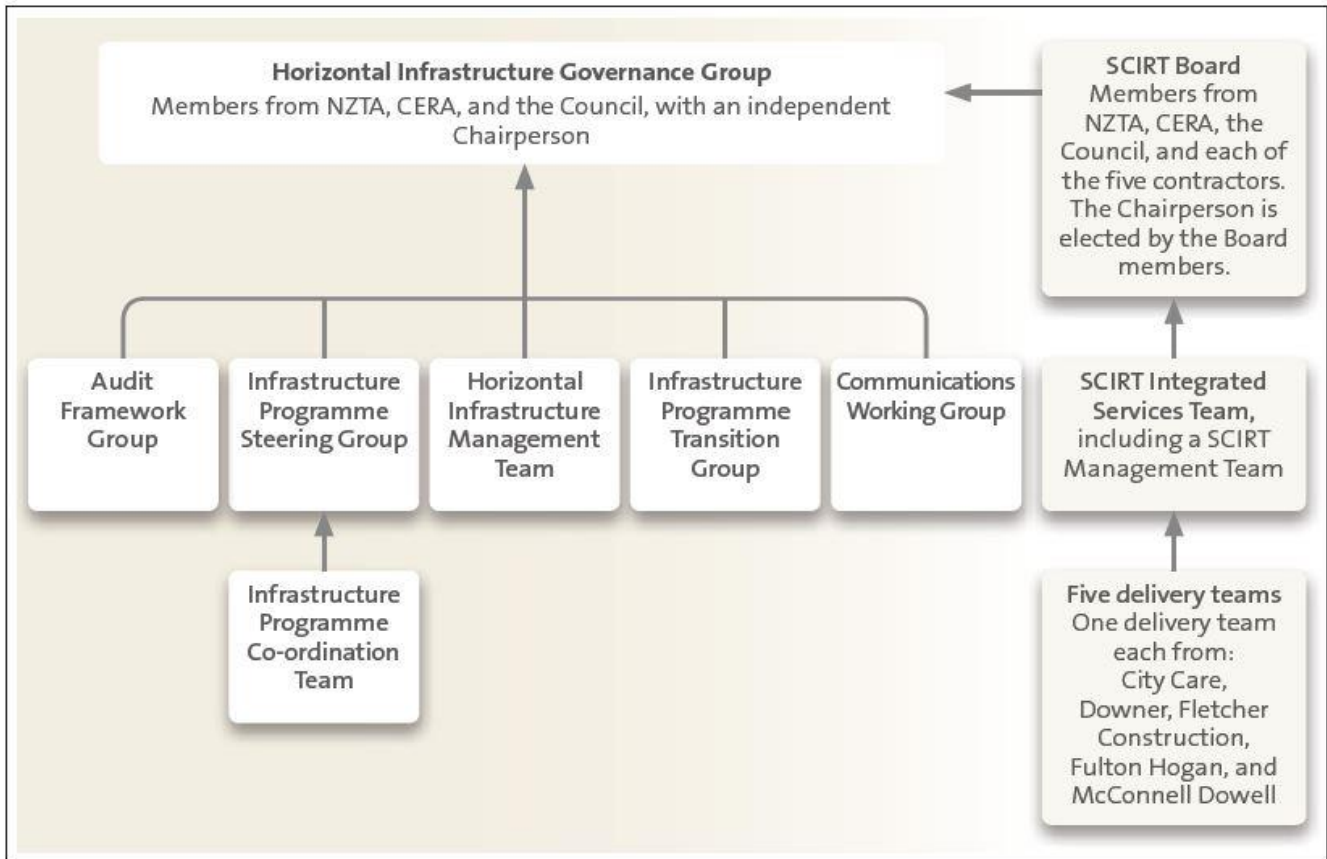
By 2013 the Government was focusing more on the longer term rebuild of Christchurch. It was concerned about the cost of the pipes and roads rebuild programme under the current technical standards and guidelines.

By that time also, rebuilding of the worst-damaged assets had been completed and the less critical repairs remained.

In June 2013 the Crown and the Council announced a Cost-Sharing Agreement (CSA) which set down how much each party would contribute to the horizontal infrastructure rebuild and to the city’s “anchor projects”.



SCIRT’s governance arrangements in 2016



From “Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit”, Office of the Auditor General, 2013.

To repair Christchurch’s damaged underground pipes and roads the Government was prepared to contribute \$1.8 billion and the Council \$1.14b, a total of \$2.94 billion, which included the SCIRT programme along with various non-SCIRT earthquake-related repairs and operating costs.

CGG had estimated a few months earlier that the total SCIRT and non-SCIRT work would cost \$3.4 billion if the city’s horizontal infrastructure assets were restored to the same overall level of service that existed prior to the September 2010 earthquake.

Coupled with the Cost-Sharing Agreement was a Memorandum of Understanding establishing HIGG in October 2013.

Repair programme reduced

HIGG’s independent chairman Chris McKenzie said the

Government decided that the indemnity funding by the Department of Internal Affairs was no longer required by mid-2013 because large parts of the worst damaged horizontal infrastructure had been replaced, particularly in the east of Christchurch.

“The Government’s obligations under the civil defence indemnity were to help a local authority to get back on its feet with infrastructure repairs and then the local authority’s usual maintenance and renewals programmes would resume.”

“The Government’s financial obligations are set out in “The Guide to the National Civil Defence Emergency Management Plan” and that set limits on its financial assistance to Christchurch.”

“The purpose of emergency recovery is to restore the affected community to a position in which normal social and economic activity may be resumed as quickly as

“The Government was particularly concerned whether SCIRT’s systems could demonstrate full value for money when the work was not being tendered on a competitive basis ...”

- Jim Harland, NZTA

possible,” Section 26 of the guide said.

“The aim of any government assistance is to provide the minimum level of assistance required to restore to the community the capacity for self-help and to provide solutions that are the most appropriate long-term solutions.”

“This does not imply an obligation to restore a community to a better state than existed before the emergency, and nor is there an obligation to restore to previous levels if those are not sustainable in the longer term,” the guide said.

McKenzie said: “For the Government the issues were what standards and levels of service will Christchurch’s horizontal infrastructure be rebuilt to and what is the appropriate amount that taxpayers should contribute.”

In August 2014 HIGG and SCIRT conducted what was termed an “optimisation” review of the programme to determine which projects were a priority and which were not.

This led to HIGG revising the rebuild technical standards and guidelines which effectively reduced how much of the remaining less critical damage would be repaired.

“Our aim with the SCIRT programme was to have everyone in Christchurch able to flush their toilets, have water draining away from their properties, have clean water supply and be able to drive on roads that were in

a functional state,” McKenzie said.

“One of the lessons from Christchurch is that HIGG should have been operating from early on, not starting two years into the SCIRT programme,” McKenzie said.

“The Crown and the Council did not get into gear on the key issues of funding and scope early enough. SCIRT needed that higher level oversight and prioritisation guidance early in the piece.”

One of the architects of HIGG, Jim Harland of NZTA, said that as more information came in about the conditions of Christchurch’s essential infrastructure and about the city’s financial position the Government decided there needed to be more tension in governance versus delivery than what CGG had delivered.

“The Government was particularly concerned whether SCIRT’s systems could demonstrate full value for money when the work was not being tendered on a competitive basis in all situations.”

Pendulum swings

HIGG had a lot more power over SCIRT’s programme than CGG. All SCIRT projects required HIGG approval to proceed to detailed design and then again to proceed to construction.

CERA took a prominent role at HIGG. It set up a dedicated infrastructure team and reviewed all earlier projects authorised by CGG.

The CSA included a funding package for not only horizontal infrastructure but also for a range of city “anchor projects”. It was clear in the CSA that the Crown was taking a lot more control over the funding stream. The funding debates between CERA and the Council on HIGG continued.

The SCIRT programme slowed while the debates around work scope were resolved.

Views on external governance

SCIRT’s first Executive General Manager Duncan Gibb considered external governance through HIGG was unnecessary for the accountability and value for money operation of SCIRT.



Duncan Gibb, SCIRT's first executive general manager.

“Each of the three clients had a member on the SCIRT board and the opportunity to drive the outcomes they were looking for. And that happened initially.”

“HIGG was getting right into the management of the SCIRT programme. To me the lesson is the separation of governance and management,” Gibb said.

“Government needs to be really clear about the goals and objectives to be delivered about its value framework and how it defines success and then let the organisation get on and deliver it.”

“We had absolute clarity and that was captured in the Alliance Agreement. What complicated that was the debate between the clients around funding,” Gibb said.

Some involved closely with governance consider that the three owner participants needed a forum to debate and resolve funding and the scope of the SCIRT programme, but that HIGG became too involved in the detail of designs and standards of the programme.

They believed SCIRT should have been given a funding envelope early on and was competent to make the best decisions for the benefit of the city.

Others comment that the self-governance of the alliance model was not well understood in Government but performed well and was responsible for the innovation in the SCIRT programme. It was the OAG's first report in November 2013 which had considerable influence in setting up the more hands-on external governance of HIGG.

“It was important for the three funding partners to have their own governance group so CGG and HIGG served that purpose,” said Graham Darlow, the representative of Fletcher Construction on the SCIRT Board.

“But it was a struggle at times because CGG and HIGG members did not understand nor necessarily agree with alliancing and in particular the power of the SCIRT Alliance model. The principles of dual governance were sound. It was the way the two worked together that could have been improved,” Darlow said.

“I think CGG and HIGG served a clear purpose but the impact of HIGG on SCIRT was certainly underestimated,” SCIRT Board chairman Onno Mulder from City Care said.

Alliance model applauded

Council General Manager City Services Dave Adamson, a member of HIGG, said one of the key lessons learnt from the SCIRT programme was that “the alliance was a brilliant vehicle to deliver a great deal of work very quickly.”

It also provided the freedom to innovate and that was done throughout the programme and saved it money, he said.

“SCIRT has been an interesting advancement of the alliance model and the lessons learnt have been used to enhance further alliancing contracting in New Zealand.”

“While it evolved out of a civil defence crisis, certainly some lessons learnt fed into large infrastructure project delivery generally.” Adamson said.

In familiar territory

With the establishment of HIGG the Government reverted to a governance structure with which it usually operated - the funder-deliverer split.

In 2014 CERA, on behalf of the Government, commissioned consultants to investigate if SCIRT was achieving value for money by examining how it estimated and priced its construction projects.

The Morrison Low report in September 2014 was favourable to SCIRT and validated its approach to

estimating the cost of a construction project.

But it was difficult for Government to reconcile the alliance structure with the way it normally operated. Other than NZTA, such relationship contracts were not well-used or trusted in Government.

HIGG governance

HIGG's duties were to:

- Try to resolve different views among the funders.
- Identify opportunities for value for money.
- Approve all projects and expenditure.
- Ensure effective governance of the infrastructure rebuild programme.
- Maintain oversight of progress against budgets.
- Recommend an annual work programme.
- CERA to approve a rolling quarterly work programme and expenditure.
- Make changes to the technical standards and guidelines and the prioritisation methodology.
- Implement monthly value-for-money reporting
- Direct SCIRT and other delivery agents.
- Ensure the Horizontal Infrastructure Programme was integrated with the other anchor projects.

Attention to detail

In August 2014 two new committees to support HIGG were set up – the Infrastructure Programme Steering Group (IPSG) and the Infrastructure Programme Co-ordination Team (IPCT).

IPSG was the gatekeeper approving projects' entry into the SCIRT programme in compliance with HIGG guidelines. IPCT coordinated the individual SCIRT projects to ensure that project designs were in line with HIGG guidelines.

Two more committees were also set up. The Audit Framework Group (AFG) reported to IPSG on financials including project costs assessment, project audits, and risk management.

The Infrastructure Programme Transition Group (IPTG) was established to ensure a smooth transition of repaired assets to asset owners at the end of the horizontal infrastructure rebuild and to ensure maximum transfer of lessons learnt to all stakeholders.

Tick of approval

By 2016 the Government's spending watchdog was more satisfied with the governance of SCIRT by the public bodies.

In her May 2016 report the Auditor-General Lyn Provost commended the owner participants for addressing her recommendations from the November 2013 report.

The changes had brought clearer roles and responsibilities, more effective guidance from HIGG, clearer direction to SCIRT and improvements in its reporting.

"The public entities faced challenges in deciding appropriate funding and levels of service for the horizontal infrastructure. In disaster recovery work, getting the balance right between competing interests is difficult," OAG said.

The funding had been confirmed, the levels of service to which the repairs should be done had also been agreed, and a second independent review of the technical standards and guidelines had been carried out.

However, the 19 months it took for Crown and Council to settle funding arrangements created uncertainty for about 30 SCIRT projects for more than eight months and slowed the SCIRT programme considerably.

"Prompt resolution of disagreements is important in the effective and efficient operation of an alliance," OAG said.

Funding for wastewater and storm water repairs was finally settled in late November 2015 through a Cabinet decision and a memorandum from CERA and Council to HIGG in January 2016.

OAG noted that the public entities (owner participants)

“Prompt resolution of disagreements is important in the effective and efficient operation of an alliance”

- Office of the Auditor-General, 2016

had shifted away in 2014 from the approach of all damaged assets being repaired to a “network performance approach” where repairs were prioritised to consider the overall functioning of the water, wastewater and storm water networks.

That meant some earthquake-damaged pipes were not repaired because they did not reach a threshold for repair and that Council expected to increase its rate of replacing or repairing pipes and roads for the next 20-30 years.

OAG also noted, “The public entities shifted away from the original goal of restoring the horizontal infrastructure to the levels of service delivered before the earthquake.” OAG said the Council described this shift in its Infrastructure Strategy 2015-45.

“SCIRT’s scope was to originally restore pre-earthquake levels of service. However, due to the budget reductionsthe SCIRT scope is now focused on repairing earthquake damage,” the Council’s Infrastructure Strategy 2015-2045 said.

Lessons learnt:

Determine governance structures early on: In SCIRT’s case the establishment of HIGG substantially disrupted the delivery of the horizontal infrastructure programme because the new governing body required major reviews of technical repair standards and guidelines which brought delays to construction projects.

Commit to resolving funding matters early on:

Where there are multiple government agencies funding a post-disaster recovery organisation natural tensions will exist. Determine a funding model and respective contributions as soon as practicable. If the extent of damage is unclear the funding arrangements should be flexible enough to accommodate that as more information flows in.

Determine rebuild and repair standards as soon as practicable:

SCIRT would have benefited from an early determination of the work scope, primarily what was eligible for repair and rebuild and to what standards that should happen.

Set out clear roles and responsibilities of governing bodies:

SCIRT started as a self-governing alliance but a second client governance body was established half-way through the programme requiring adjustments by all parties and causing delays in the programme.

Commit to resolve disagreements as soon as possible:

Funding disagreements at the HIGG table between Crown and Council impacted on the efficiency of SCIRT delivery.

Keep governance and management separate:

The separation of governance from management is generally held to be beneficial for the effective and efficient running of an organisation.

Identify what constitutes value:

A major challenge for a recovery organisation is to identify and set down clearly at the outset what constitutes value in a post-disaster context. A detailed written set of objectives included in terms of reference for the organisation is a good way to do this.

Select key personnel carefully:

Strong personalities are required to lead emergency response organisations to ensure actions are taken quickly but of course this can lead to clashes of personalities.

Ensure consistency and suitability of governance representatives:

The effectiveness of governance is reliant on retaining key personnel with the required skill set and experience.