



# GNS SCIENCE 2020 HALF YEAR REPORT 31 DECEMBER





Cover photo: Braided channels in the Waimakariri River, Canterbury  
Inside front cover: Tongaporutu Beach, northern Taranaki coast



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The Board of GNS Science is pleased to present the organisation's financial statements and reports for the six months ended 31 December 2020.

# DIRECTORS' REPORT

## Recruitment activities progressed more slowly than planned as a result of the COVID-19 pandemic.

Progressing international recruitment in a timely manner has been difficult and, as a result our capacity to progress and complete the 2020/21 work programme is a challenge. We continue to contract international appointees from their existing country as well as sub-contract other parties to increase capacity. The near-term risk landscape remains uncertain. Although New Zealand remains physically isolated and insulated from the worst effects of the COVID-19 pandemic, neither the extent nor the duration of economic or societal impact can be forecast with any certainty.

## Received charges as a result of the WorkSafe New Zealand investigation into the Whakaari/White Island eruption.

The year-long investigation into the Whakaari/White Island eruption in December 2019 concluded with charges being laid against GNS Science and other parties. We are working through the legal process, while carrying on with the crucial role GNS Science has in monitoring and sharing scientific information about Aotearoa New Zealand's geohazards, including volcanoes.

## Signed a Memorandum of Understanding with the Provincial Development Unit.

This formalises GNS Science's role as lead science provider for national water storage and aquifer mapping.



## Renewed a Memorandum of Understanding with the Japan Oil, Gas and Metals National Corporation.

This continues our partnership in the geothermal energy sector – working together to mitigate environmental impacts, develop survey methodologies and enhance management and sustainability of geothermal reservoirs, helping us both to reach our goal of secure, low-carbon energy through sustainable development of our geothermal resources.

## Recognised at the Geoscience Society of New Zealand Awards.

GNS Science researchers won three of the top awards:

- The Endeavour funded Hikurangi subduction earthquakes and slip behaviour project team led by GNS Science was awarded the inaugural Hayward Geo-communication award for the most meritorious geo-communications in New Zealand in the previous three calendar years;
- **Susan Ellis** won the McKay Hammer, the Society's top award for the most meritorious contribution to Geology published in the previous three calendar years; and

- **Fabio Caratori Tontini** won the New Zealand Geophysics Prize for the most meritorious publication in the field of Geophysics published in the previous two calendar years.

## GNS Scientist recognised for developing a break-through method for determining past sea-level rise.

**Dr Georgia Grant** received the Royal Society Te Apārangi Hatherton Award for her paper that reveals the scale and implications for sea level rise in New Zealand from Antarctic ice sheet retreat occurring under 2°C warming.

## Received funding for a major revision of the National Seismic Hazard Model.

The revised model will include updated scientific knowledge and best practice, including international best practice and learnings from the Canterbury earthquake sequence and the Kaikōura earthquake. The model will be freely available when completed.

## Awarded 25.4 million from the MBIE Endeavour Fund.

Two programmes led by GNS Science have been awarded 5 years of funding, studying green hydrogen and rapid earthquake/tsunami characterisation.



GNS Science is also making a significant contribution to a project led by another organisation (solar tsunami prediction to protect energy infrastructure).

### **Awarded Royal Society Marsden Funding for two new programmes.**

The new programmes will run over the next three years looking at whether it is possible to do geological fingerprinting of earthquake rupture directions, and detecting subtle physical changes inside the Hikurangi subduction zone to enable more accurate forecasts of fault failure.

### **Supported Māori participation in science.**

Three Ahunuku Māori Summer Scholarship recipients joined GNS Science for a summer of hands-on experience and learning. The GNS Science Ahunuku programme is a joint programme between Te Herenga Waka Victoria University of Wellington and GNS Science. The long-term goal is to increase Māori participation in science and provide university students of Māori descent with the opportunity to enhance their skills and gain valuable experience within the Earth Sciences field, with the guidance and support of our expert GNS Science researchers.

### **Celebrated women in science.**

GNS Science published a series of videos of some of our women scientists sharing stories about one or two defining moments of their careers, and the challenges and rewards of being a woman in science.

### **Honoured the 10 year anniversary of the Canterbury earthquake sequence.**

A series of communications to mark the 10-year anniversary of the Canterbury earthquake sequence was launched. This included video slideshows, articles about what we've learned in the decade since the sequence began, and reflections from science experts.

### **Recognised in the Colmar Brunton Public Sector Reputation Index.**

GNS Science was included in Colmar Brunton's Public Sector Reputation Index for the first time in 2020, and was ranked 11<sup>th</sup> for overall reputation.

### **Financial Summary**

GNS Science has had a positive six months, achieving good science outcomes and organisational successes despite the disruption of COVID-19. GNS Science recorded a net profit after tax of \$2.8m, which is \$0.6m ahead of budget, and \$2.7m better than the same period last year. Revenue recorded for the period was \$50.4m, \$3.6m behind budget but \$4.4m ahead of the same period last year. The year to date revenue includes a one-off Government COVID-19 grant of \$4.2m, without which, we would be reporting a deficit year to date. The unfavourable variance to budget is primarily a consequence of the delayed spend in project disbursements. GNS Science continues to achieve better than budgeted results in commercial work; however, this has caused delays on other research projects, given the lower than anticipated numbers of science staff.

**Left:** Scientists working on the green hydrogen project at GNS Science from left, Jérôme Leveueur, John Kennedy, Vedran Jovic, and Prasanth Gupta.

**Above:** Geology field camp at Mason Spur on Mt Morning volcano, 100km southwest of Scott Base.

# FINANCIAL STATEMENTS

## CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

For the six months ended 31 December 2020

<i>in thousands of New Zealand dollars</i>	<b>Unaudited 6 Months Dec-20</b>	Unaudited 6 Months Dec-19	Audited 12 Months Jun-20
<b>Revenue</b>			
Research contracts	<b>28,749</b>	32,836	64,861
Commercial	<b>7,764</b>	6,755	13,233
GeoNet services	<b>9,716</b>	6,379	12,849
COVID-19 funding	<b>4,170</b>	-	4,170
Other income	<b>4</b>	40	303
<b>Total revenue</b>	<b>50,403</b>	46,010	95,416
<b>Operating expenses</b>			
Employee benefit expense	<b>24,466</b>	23,134	47,587
Other operating expenses	<b>17,683</b>	18,460	38,645
GeoNet direct expenses	<b>1,891</b>	1,826	4,272
<b>Total operating expenses</b>	<b>44,040</b>	43,420	90,504
<b>Profit before interest, tax depreciation and amortisation</b>	<b>6,363</b>	2,590	4,912
Depreciation	<b>2,451</b>	2,440	4,848
Amortisation	<b>113</b>	212	384
<b>Profit/(loss) before interest and tax</b>	<b>3,799</b>	(62)	(320)
Interest income	<b>87</b>	201	320
Interest expense	-	-	(2)
<b>Profit before tax</b>	<b>3,886</b>	139	(2)
Income tax (expense)/benefit	<b>(1,088)</b>	(39)	433
<b>Net profit after tax</b>	<b>2,798</b>	100	431
Other comprehensive income	-	-	-
<b>Total comprehensive income attributable to owners</b>	<b>2,798</b>	100	431

*The accompanying notes form part of these financial statements.*

**CONSOLIDATED STATEMENT OF CHANGES IN EQUITY**

For the six months ended 31 December 2020

<i>in thousands of New Zealand dollars</i>	Share capital	Equity reserves		Total equity
		Retained earnings	Cash flow hedge reserve	
<b>Balance at 1 July 2019</b>	6,167	28,396	-	<b>34,563</b>
Profit after tax	-	100	-	<b>100</b>
<b>Balance as at 31 December 2019</b>	6,167	28,496	-	<b>34,663</b>
Profit after tax	-	331	-	<b>331</b>
<b>Balance at 30 June 2020</b>	6,167	28,827	-	<b>34,994</b>
Profit after tax	-	2,798	-	<b>2,798</b>
<b>Balance at 31 December 2020</b>	6,167	31,625	-	<b>37,792</b>

*The accompanying notes form part of these financial statements.*

**CONSOLIDATED BALANCE SHEET**

As at 31 December 2020

<i>in thousands of New Zealand dollars</i>	<b>Unaudited Dec-20</b>	Unaudited Dec-19	Audited Jun-20
<b>Equity</b>			
Share capital	<b>6,167</b>	6,167	6,167
Retained earnings	<b>31,625</b>	28,497	28,828
<b>Total equity</b>	<b>37,792</b>	34,664	34,995
<i>Represented by:</i>			
<b>Non-current assets</b>			
Property, plant and equipment	<b>27,188</b>	28,093	27,691
Intangible assets	<b>292</b>	488	448
Investments	<b>30</b>	30	30
<b>Total non-current assets</b>	<b>27,510</b>	28,611	28,169
<b>Current assets</b>			
Cash and cash equivalents	<b>20,452</b>	3,638	8,591
Short-term investments	<b>8,037</b>	11,073	11,073
Trade receivables	<b>5,444</b>	3,721	8,305
Prepayments	<b>2,104</b>	2,858	2,652
Work in progress	<b>4,881</b>	3,052	2,340
Current tax	<b>-</b>	4	-
Deferred tax	<b>1,572</b>	815	1,572
<b>Total current assets</b>	<b>42,490</b>	25,161	34,533
<b>Total assets</b>	<b>70,000</b>	53,772	62,702
<b>Non-current liabilities</b>			
Non-current provisions	<b>1,415</b>	710	1,313
<b>Total non-current liabilities</b>	<b>1,415</b>	710	1,313
<b>Current liabilities</b>			
Trade and other payables	<b>6,599</b>	5,067	8,425
Current provisions	<b>3,360</b>	3,558	3,552
Revenue in advance	<b>20,245</b>	9,773	14,200
Provision for income tax	<b>589</b>	-	217
<b>Total current liabilities</b>	<b>30,793</b>	18,398	26,394
<b>Total liabilities</b>	<b>32,208</b>	19,108	27,707
<b>Net assets</b>	<b>37,792</b>	34,664	34,995

*The accompanying notes form part of these financial statements.*

For and on behalf of the Board:



**Dr Nicola Crauford**  
Chair

24 February 2021



**Sarah Haydon**  
Deputy Chair

24 February 2021

**CONSOLIDATED STATEMENT OF CASH FLOWS**

For the six months ended 31 December 2020

<i>in thousands of New Zealand dollars</i>	<b>Unaudited 6 Months Dec-20</b>	Unaudited 6 Months Dec-19	Audited 12 Months Jun-20
<b>Cash flows from operating activities</b>			
<i>Cash was provided from:</i>			
Receipts from customers	<b>56,735</b>	48,050	97,371
Interest received	<b>120</b>	318	459
	<b>56,855</b>	48,368	97,830
<i>Cash was applied to:</i>			
Payments to suppliers and employees	<b>(45,424)</b>	(47,514)	(89,800)
Interest paid	<b>-</b>	-	(2)
Income tax paid	<b>(716)</b>	(330)	(394)
	<b>(46,140)</b>	(47,844)	(90,196)
<b>Net cash flows from operating activities</b>	<b>10,715</b>	524	7,634
<b>Cash flows from investing activities</b>			
<i>Cash was provided from:</i>			
Sale of property, plant, equipment and intangible assets	<b>27</b>	2	580
Maturity of short-term investments	<b>3,071</b>	4,500	17,500
	<b>3,098</b>	4,502	18,080
<i>Cash was applied to:</i>			
Purchase of property, plant, equipment and intangible assets	<b>(1,915)</b>	(3,447)	(6,180)
Placement of short-term investments	<b>(37)</b>	(8,073)	(21,073)
	<b>(1,952)</b>	(11,520)	(27,253)
<b>Net cash flows from investing activities</b>	<b>1,146</b>	(7,018)	(9,173)
<b>Net increase/(decrease) in cash and cash equivalents</b>	<b>11,861</b>	(6,494)	(1,539)
Effect of exchange rate changes on cash held in foreign currency	<b>-</b>	-	(2)
	<b>8,591</b>	10,132	10,132
<b>Opening cash and cash equivalents</b>			
<b>Closing cash and cash equivalents</b>	<b>20,452</b>	3,638	8,591

*The accompanying notes form part of these financial statements.*

# NOTES TO AND FORMING PART OF THE CONDENSED CONSOLIDATED INTERIM FINANCIAL STATEMENTS

For the six months ended 31 December 2020

## 1. REPORTING ENTITY AND ACTIVITIES

The Institute of Geological and Nuclear Sciences Limited (trading as GNS Science) is established under the Crown Research Institutes Act 1992 and the Companies Act 1993. Its subsidiary companies are established under the Companies Act 1993. These financial statements have been prepared in accordance with the Crown Research Institutes Act 1992, the Public Finance Act 1989, the Companies Act 1993, the Crown Entities Act 2004, the Financial Reporting Act 2013 and New Zealand generally accepted accounting practice (NZ GAAP).

The principal activities of the Group are to undertake geoscience and isotope science research, development and commercial projects, predominantly in New Zealand. GNS Science International Limited holds a 50% interest in EDDI Project, an unincorporated joint operation formed to undertake a contract for dam hazard management in Vietnam.

The wholly owned subsidiaries of the Institute of Geological and Nuclear Sciences Limited (the Parent) are:

- IsoScan Limited
- IsoScan Food Limited
- Geological Surveys (New Zealand) Limited
- Geological Risk Limited
- GNS Science International Limited

These unaudited condensed consolidated interim financial statements are for the six months ended 31 December 2020 and were approved by the Board on 24 February 2021.

## 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

These unaudited condensed consolidated interim financial statements for the six months ended 31 December 2020 do not include all the notes of the type normally included in an annual financial report but have been prepared using the same accounting policies and methods of computation as, and should be read in conjunction with, the financial statements and related notes included in the Group's Annual Report for the year ended 30 June 2020.

The financial statement figures for the six-month period ended 31 December 2020, and for the comparative six-month period to 31 December 2019 are unaudited. The figures for the year ended 30 June 2020 are audited.

The same significant judgments, estimates and assumptions included in the notes to the financial statements in the Group's Annual Report for the year ended 30 June 2020 have been applied to these unaudited condensed consolidated interim financial statements.

These financial statements are presented in New Zealand dollars which is the Group's functional currency. Amounts have been rounded to the nearest thousand dollars.

### 3. RELATED PARTY TRANSACTIONS

The New Zealand Government is the ultimate shareholder of the Parent. No other transactions with New Zealand Government owned entities are considered as related party transactions in terms of NZ IAS 24 *Related Party Disclosures*.

#### Key management personnel

Key management personnel, considered to be the Directors and Executive Management, are those people with responsibility and authority for planning, directing and controlling the activities of the entity. A number of key management personnel also provide

directorship services to other third-party entities that have transacted with the Institute during the reporting period, in all circumstances on commercial terms.

The Group purchases directors' and officers' insurance for the benefit of key management personnel in relation to the services they provide to the Group.

<i>in thousands of New Zealand dollars</i>	<b>Unaudited 6 Months Dec-20</b>	Unaudited 6 Months Dec-19	Audited 12 Months Jun-20
<b>Key management personnel compensation comprised:</b>			
Directors' fees	86	86	171
Benefits for the Executive Leadership Team	1,067	1,265	2,176
<b>Total key management personnel compensation</b>	<b>1,153</b>	1,351	2,347

### 4. RECONCILIATION OF PROFIT AFTER TAX TO NET CASH FLOWS FROM OPERATING ACTIVITIES

<i>in thousands of New Zealand dollars</i>	<b>Unaudited 6 Months Dec-20</b>	Unaudited 6 Months Dec-19	Audited 12 Months Jun-20
<b>Profit/(loss) after tax</b>	<b>2,798</b>	100	431
<i>Add/(less) items classified as investing activities:</i>			
Net gain on disposal of property, plant and equipment	(27)	(2)	(378)
	(27)	(2)	(378)
<i>Adjust non-cash items:</i>			
Depreciation	2,451	2,440	4,848
Amortisation	113	212	384
Increase/(decrease) in credit allowance for doubtful debts	-	(43)	-
Net unrealised exchange (gain)/loss	-	7	-
Increase/(decrease) in provision for income tax	-	(4)	-
Increase/(decrease) in deferred tax	-	-	(757)
Increase/(decrease) in non-current provisions	102	(930)	(327)
	<b>2,666</b>	1,682	4,148
<i>Add/(less) movements in working capital items:</i>			
Decrease/(increase) in trade receivables and prepayments	3,409	2,714	(1,704)
Increase/(decrease) in payables, current provisions, revenue in advance	4,399	(4,628)	3,372
Change in trade payables relating to investing activities	10	271	664
Increase in work in progress	(2,540)	387	1,101
	<b>5,278</b>	(1,256)	3,433
<b>Net cash flows from operating activities</b>	<b>10,715</b>	524	7,634

### 5. DIVIDEND

No dividends were declared by the Group for the six months ended 31 December 2020 (31 December 2019: Nil).

## 6. COMMITMENTS

### Non-cancellable operating lease commitments

Operating lease payments are recognised on a systematic basis representing the pattern in which economic benefits from the leased asset are consumed over the lease term.

Leases are classified as finance leases whenever the terms of the lease transfer a significant portion of all of the risks and rewards of ownership to the lessee. All other leases are classified as operating leases. The Group has no leases which would be classified as finance leases.

### Operating lease commitments

<i>in thousands of New Zealand dollars</i>	<b>Unaudited 6 Months Dec-20</b>	Unaudited 6 Months Dec-19	Audited 12 Months Jun-20
Within one year	155	149	73
Between one and five years	304	85	-
Over five years	-	-	-
	<b>459</b>	234	73

### Capital commitments

<i>in thousands of New Zealand dollars</i>	<b>Unaudited Dec-20</b>	Unaudited Dec-19	Audited Jun-20
Contracted and on order	359	904	856
Authorised but not yet contracted	5,113	3,303	725
	<b>5,472</b>	4,207	1,581

## 7. CONTINGENT LIABILITIES

The Group has no contingent liabilities (31 December 2019: Nil).

## 8. EVENTS AFTER THE BALANCE DATE

There were no significant events after the balance date (31 December 2019: Nil).

# STATEMENT OF RESPONSIBILITY

The Board is responsible for the preparation of the Group's half year financial statements and for the judgements made in them.

The Board through management is responsible for establishing and maintaining a system of internal control designed to provide reasonable assurances as to the integrity and reliability of the financial reporting.

In the opinion of the Board, the financial statements for the six months ended 31 December 2020 fairly reflect the financial position and operations of GNS Science.

For and on behalf of the Board:



**Dr Nicola Crauford**  
Chair

24 February 2021



**Sarah Haydon**  
Deputy Chair

24 February 2021

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# DIRECTORY



## DIRECTORS

**Dr Nicola Crauford**

Chair

**Sarah Haydon**

Deputy Chair

**Chris Bush**

**Felicity Evans**

**Dr John Sharpe**

**Paul White**

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## EXECUTIVE LEADERSHIP TEAM

**Ian Simpson**

Chief Executive

**Dr Gary Wilson**

General Manager,  
Strategy & Chief Scientist

**Justine Daw**

General Manager,  
Stakeholder Relations

**Peter Benfell**

General Manager,  
Science

**Andrew Simpson**

General Manager,  
Business Services

**Rose Macfarlane**

General Manager,  
People and Culture

**Tania Gerrard**

General Manager,  
Māori Strategy and Partnerships

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## BANKERS

ANZ

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## AUDITOR

Silvio Bruinsma  
Deloitte Limited  
On behalf of the Auditor-General

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## SOLICITORS

Chapman Tripp

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## WEBSITES



[www.gns.cri.nz](http://www.gns.cri.nz)  
[www.geonet.org.nz](http://www.geonet.org.nz)

## PHOTOGRAPH ACKNOWLEDGEMENTS

Lloyd Homer, GNS Science	Front cover, inside front cover
Margaret Low, GNS Science	P4
Dougal Townsend, GNS Science	P5

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Our Half Year Report is also available in digital format at [www.gns.cri.nz](http://www.gns.cri.nz)

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