

HIGHER CLEARER DEEPER

NIWA
GROUP HALF YEARLY REPORT
FOR THE PERIOD ENDED 31 DECEMBER 2016



Half Yearly Report

for the six months ended 31 December 2016

Overview

At the half year stage NIWA's revenue, profit and cash flow metrics are better than budget.

All science objectives as outlined in the 2016/17 Statement of Corporate Intent are on track, and good progress has been made with the implementation of initiatives to improve NIWA's operational efficiency and effectiveness.

An ongoing focus on collaborating with other science providers has strengthened NIWA's research capability and supported the application of NIWA's science to industry and government agencies, as illustrated below.

Financial Results

NIWA's turnover at \$63.448 million was ahead of the budgeted revenue of \$63.203 million and represented an improvement of \$5.340 million compared with the same period last year. An after taxation loss of \$(0.681) million was better than budget by \$0.339 million.

Although in line with budget, expenses were \$5.445 million higher than during the same period last year. This was due to higher science staff numbers as well as increased spending on science collaboration activity in respect of revenue generating projects.

The closing cash position continues to be favourable, being \$6.343 million ahead of the budgeted cash balance of \$24.914 million. This was due both to the timing of capital purchases and to positive working capital movements.

Financial KPIs

The majority of NIWA's financial KPIs for the first half of the year were in line with or exceeded the budget set out in its Statement of Corporate Intent (SCI), as illustrated in the table below.

Ratios and Statistics as at 31 December 2016

	Actual Year to date	SCI Year to date	SCI Full year
Revenue and other gains (\$000s)	63,448	63,203	133,130
Liquidity			
Current ratio	1.5	1.5	1.4
Quick ratio (aka Acid test)	3.7	2.3	2.0
Profitability (%)			
Adjusted return on equity*	(0.8)	(1.2)	0.4
Return on equity	(0.6)	(0.9)	0.3
Return on assets	(0.9)	(1.1)	0.2
Operational risk (%)			
Profit volatility	36.5	37.0	10.1
Forecasting risk (non-adjusted ROE)	0.5	1.0	1.1
Coverage			
Interest cover	N/A	N/A	N/A
Growth/Investment (%)			
Capital renewal	75.2	126.0	130.7
Financial strength (\$000s)			
Cash and short-term deposits	31,257	24,914	17,212

*Agreed with Officials after adjustment in 2006/07 for restatement of certain land and buildings cost figures.

Collaboration

End-user collaboration

Increased focus on the application of NIWA's science for the benefit of New Zealand has continued this year. Some examples of the benefits of this end-user collaboration are included in the *Positive impacts of NIWA Science* section below.

Research collaboration

One measure of the importance and scale of collaborative relationships NIWA has with many national and international organisations, in order to deliver our Core Purpose and ensure that we deliver internationally leading science, is the publication of jointly-authored papers.

A total of 116 papers were published involving NIWA staff during the first half of the year. Of these papers, 88% involved NIWA scientists collaborating with one or more other organisations.

At a ***national*** level, 41% of the total reflected collaboration with New Zealand organisations, the most frequent collaborations being with the University of Auckland (14 papers), the University of Otago (7 papers), Victoria University of Wellington (6 papers), GNS Science (5 papers), Landcare Research (4 papers), and the University of Canterbury (2 papers). There was also collaboration with an end-user (MPI). These levels of collaboration are significantly above what would be indicated through conventional financial measures such as subcontracting, highlighting a diversity of collaborative models.

At an ***international*** level 47% involved collaboration with international organisations from 25 countries, most frequently with the USA (35 papers), Australia (26 papers), Germany (16 papers), UK (13 papers), Japan (7 papers), and Canada (6 papers). 53% of papers reflected collaboration with more than one other country in the same research activity – one paper had collaboration with 12 countries.

Technology and knowledge transfer

Technology and knowledge transfer activities continued at a high level for the first half of the year. Some qualitative information on transfer activities to New Zealand industry, government and Māori is contained in the *Positive impacts of NIWA Science* section below. Quantitative information follows:

End-user reports and presentations

NIWA completed 208 reports for end users, which supported the information needs of a wide range of central and local government agencies, industry organisations (particularly in the energy and aquaculture sectors) and international agencies. Many of these reports were specifically focused on the technical staff in stakeholder organisations.

NIWA staff made 95 presentations at national and international conferences and other meetings. The majority of these were aimed at science audiences and building up knowledge in central and/or local government audiences on key issues and progress in coastal and meteorological research.

Positive impacts of NIWA Science

NIWA's science covers a broad range of activities, as indicated by our National Centre structure (refer to the 2016/17 Statement of Corporate Intent). Some examples of how we have advanced science in our spectrum, and the resulting benefits to end users, are given below.

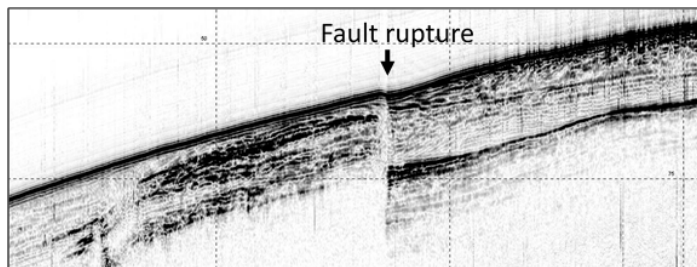
NIWA achieves world-leading ship-based aerosol measurements from the RV *Investigator*. The world-first Australian *Reef2Rainforest* voyage on the Great Barrier Reef seeks to find out whether emissions from symbiotic algae in coral affect clouds and rainfall on the east coast of Australia. NIWA was a key player in this multi-country collaboration (Australia, New Zealand, Japan, USA). We contributed significant new methods with lightweight miniature aerosol-cloud sensors deployed from the RV *Investigator* by our skilled tethersonde flying team. What took an aircraft to deploy 20 years ago has been miniaturised down to a few kilograms, attached to a tethered balloon system.



RV *Investigator* in port (left) and the tethered balloon being launched off the vessel.

The team flew round the clock around the reef, profiling up to 1 km above the ship. We were able to measure the spectrum of atmospheric aerosol from 10 nanometres (billionths of a metre) to 10 micrometres (millionths of a metre) diameter, and gain an understanding of sources of the processes that govern cloud properties. These developments open up the opportunities for future deployments on a range of platforms from balloon to UAV, and will be applied in the future to understanding low-level aerosol-cloud interaction around New Zealand and in the Southern Ocean.

Discovery of a new fault rupture offshore from Kaikoura. After the 14 November 2016 earthquake, we surveyed the seabed in affected areas from RV *Tangaroa*, and found a 34km-long rupture in the offshore continuation of the Kekerengu Fault, known as the Needles Fault (*see image, below*). At the time of the earthquake we were undertaking seismological research on the Hikurangi subduction zone, which is regarded as New Zealand's largest earthquake and tsunami hazard. The new data extends the total fault rupture to about 70km on land and under the sea. Sediment cores taken between Poverty Bay and the Kaikoura coast revealed that the earthquake generated a huge turbidity current in the Hikurangi Trough, offshore from Marlborough and Wairarapa. These observations were reported widely in the media and will contribute to current and ongoing analysis of the earthquake hazard of the central New Zealand region.



Establishing potential flood risk after the earthquake. The earthquake caused a number of landslides which blocked rivers and streams, and impound water behind them. Because of the potential

consequences of failure of some of these dams, we collaborated with GNS Science to evaluate the risks – NIWA with our expertise in hydrological modelling, and GNS Science with its expertise in failure assessment. We undertook rapid modelling and mapping of risk, the biggest concern being an approximately 150m-high dam in the upstream reaches of the Hapuku River. The initial assessment shows a significant potentially affected area, but further flow forecasting and lake level monitoring needs to be undertaken, so we continue to liaise with and support GNS Science on this issue.

Understanding variable tsunami effects. Prior to the earthquake NIWA and GNS Science collaborated in producing a paper that has been published in *Pure and Applied Geophysics* and which estimates the hazard of a tsunami caused by a submarine landslide in the Cook Strait Canyon. The paper gives estimates of the expected wave heights at the coast caused by these tsunamis for different return periods. Interestingly, the earthquake in November produced a considerable amount of undersea movement that caused a tsunami. NIWA and GNS Science collaborated to send a tsunami team to the Kaikoura region to look for evidence of inundation, but because of the uplift (which meant that in Kaikoura the land is one metre higher above sea level than previously) and because the largest wave arrived close to low tide, the effects of the tsunami in Kaikoura and surrounding areas were minimised. The largest effects were further afield – we organised a team of tsunami scientists from NIWA, GNS Science, University of Canterbury, University of Auckland to visit Little Pigeon Bay and surrounding north-facing bays on Banks Peninsula. This including mapping the inundation line, confirming that Little Pigeon Bay was inundated by at least two waves – the larger one reaching 140m inland and an inundation height of at least 2.8m above the predicted sea level at the time (to a height of 4.1m above mean sea level). Surveys of surrounding beaches showed small amounts of inundation, but nothing more than a moderate storm-tide event (1–2 year return period at most). The effects of the earthquake, together with the previous collaborative work, will be able to be used to get a better overall picture of the tsunami hazard facing central New Zealand.



Sir Christopher Mace, KNZM
Chairman

John Morgan
Chief Executive

January 2017

Statement of comprehensive income for the 6 months ended 31 December 2016

in thousands of New Zealand dollars	Note	6 Months to Dec 16 Unaudited	6 Months to Dec 15 Unaudited	12 Months to Jun 16 Audited
Revenues and other gains	1			
Revenue		63,330	57,990	130,308
Other gains		118	9	65
Total income		63,448	57,999	130,373
Operating expenses	2			
Employee benefits expense		(32,597)	(30,799)	(63,473)
Other expenses		(24,554)	(20,907)	(47,060)
		(57,151)	(51,706)	(110,533)
Profit/(loss) before interest, income tax, depreciation and amortisation		6,297	6,293	19,840
Depreciation and impairment		(7,213)	(6,673)	(14,006)
Amortisation		(430)	(412)	(813)
Profit/(loss) before interest and income tax		(1,346)	(792)	5,021
Interest income		403	237	504
Finance expense		(3)	(25)	(33)
Net interest and other financing costs		400	212	471
Profit/(loss) before income tax		(946)	(580)	5,492
Income tax credit/(expense)		265	165	(1,481)
Profit/(loss) for the period		(681)	(415)	4,011
Other comprehensive income				
Foreign currency translation differences for foreign operations		152	(50)	(76)
Total comprehensive income for the period		(529)	(465)	3,935
Profit/(loss) attributable to:				
Parent interest		(684)	(400)	3,974
Minority interest		3	(15)	37
Profit for the period		(681)	(415)	4,011
Total comprehensive income attributable to:				
Parent interest		(532)	(450)	3,898
Minority interest		3	(15)	37
Total comprehensive income for the period		(529)	(465)	3,935

The accompanying 'Notes to the financial statements' are an integral part of, and should be read in conjunction with, these financial statements.

Statement of changes in equity for the 6 months ended 31 December 2016

in thousands of New Zealand dollars	Note	Share capital	Retained earnings	Minority interest	Foreign currency translation reserve	Total equity
Balance at 1 July 2015 (Audited)		24,799	80,608	179	(184)	105,402
Profit for the year		–	(400)	(15)	–	(415)
Translation of foreign operations		–	–	–	(50)	(50)
Total comprehensive income		–	(400)	(15)	(50)	(465)
Balance at 31 December 2015 (Unaudited)		24,799	80,208	164	(234)	104,937
Balance at 1 July 2015 (Audited)		24,799	80,608	179	(184)	105,402
Profit for the year		–	3,974	37	–	4,011
Translation of foreign operations		–	–	–	(76)	(76)
Total comprehensive income		–	3,974	37	(76)	3,935
Balance at 30 June 2016 (Audited)		24,799	84,582	216	(260)	109,337
Balance at 1 July 2016 (Audited)		24,799	84,582	216	(260)	109,337
Profit for the year		–	(684)	3	–	(681)
Translation of foreign operations		–	–	–	152	152
Total comprehensive income		–	(684)	3	152	(529)
Balance at 31 December 2016 (Unaudited)		24,799	83,898	219	(108)	108,808

The accompanying 'Notes to the financial statements' are an integral part of, and should be read in conjunction with, these financial statements.

Share capital

The Group has issued and fully paid capital of 24,798,700 ordinary shares (2016: 24,798,700 ordinary shares). All shares carry the equal voting and distribution rights and have no par value.

Statement of financial position as at 31 December 2016

in thousands of New Zealand dollars	Note	6 Months to Dec 16 Unaudited	6 Months to Dec 15 Unaudited	12 Months to Jun 16 Audited
Equity				
Share capital		24,799	24,799	24,799
Equity reserves		83,790	79,974	84,322
Shareholders' interest		108,589	104,773	109,121
Non-controlling interest		219	164	216
Total equity		108,808	104,937	109,337
Non-current liabilities				
Provision for employee entitlements		1,004	1,011	1,001
Deferred tax liability		7,051	7,661	7,050
Total non-current liabilities		8,055	8,672	8,051
Current liabilities				
Payables and accruals		6,998	8,082	11,210
Revenue in advance		22,504	11,557	10,453
Provision for employee entitlements		7,531	6,819	7,482
Tax payable		–	–	545
Forward exchange derivatives		–	35	36
Total current liabilities		37,033	26,493	29,726
Total equity and liabilities		153,896	140,102	147,114
Non-current assets				
Property, plant and equipment		97,077	100,310	98,782
Identifiable intangibles		957	1,240	1,215
Prepayments		19	59	38
Total non-current assets		98,053	101,609	100,035
Current assets				
Cash and cash equivalents		31,257	13,004	20,328
Receivables		8,835	8,668	17,771
Prepayments		2,912	2,576	1,900
Taxation receivable		1,112	953	–
Uninvoiced receivables		9,539	11,226	5,065
Inventories		2,175	2,066	2,015
Forward exchange derivatives		13	–	–
Total current assets		55,843	38,493	47,079
Total assets		153,896	140,102	147,114

The accompanying 'Notes to the financial statements' are an integral part of, and should be read in conjunction with, these financial statements.

Cash flow statement for the 6 months ended 31 December 2016

in thousands of New Zealand dollars	Note	6 Months to Dec 16 Unaudited	6 Months to Dec 15 Unaudited	12 Months to Jun 16 Audited
Cash flows from operating activities				
Cash was provided from:				
Receipts from customers		79,848	64,048	132,725
Dividends received		1	1	1
Interest received		403	237	504
Cash was disbursed to:				
Payments to employees and suppliers		(62,232)	(52,982)	(107,948)
Interest paid		(3)	(25)	(33)
Taxation paid		(1,457)	(1,428)	(2,188)
Net cash inflow from operating activities	3	16,560	9,851	23,061
Cash flows from investing activities				
Cash was provided from:				
Sale of property, plant and equipment		120	9	64
Cash was applied to:				
Purchase of property, plant and equipment		(5,575)	(6,339)	(11,835)
Purchase of intangible assets		(172)	(5)	(421)
Net cash outflow in investing activities		(5,627)	(6,335)	(12,192)
Cash flows from financing activities		–	–	–
Net cash inflow (outflow) from financing activities		–	–	–
Net increase/(decrease) in cash and cash equivalents		10,933	3,516	10,869
Effects of exchange rate changes on the balance of cash held in foreign currency		(4)	(375)	(404)
Opening balance of cash and cash equivalents		20,328	9,863	9,863
Closing cash and cash equivalents balance		31,257	13,004	20,328
Made up of:				
Cash		1,272	424	637
Short-term deposits		29,985	12,580	19,691
Closing cash and cash equivalents balance		31,257	13,004	20,328

The accompanying 'Notes to the financial statements' are an integral part of, and should be read in conjunction with, these financial statements.

Preparation disclosures

Reporting Entity

The National Institute of Water & Atmospheric Research Ltd ('NIWA' or 'the Company') and its subsidiaries form the consolidated Group ('the NIWA Group' or 'the Group'). NIWA is a profit-oriented company registered in New Zealand under the Companies Act 1993.

The financial statements for the NIWA Group are presented in accordance with the requirements of the Crown Research Institutes Act 1992, the Crown Entities Act 2004, the Public Finance Act 1989, the Companies Act 1993, and the Financial Reporting Act 2013.

Nature of activities

The NIWA Group conducts research and applied science in water and atmospheric sciences in New Zealand and internationally.

Basis of preparation

The measurement basis adopted in the preparation of these financial statements is historical cost, except for financial instruments as identified in specific accounting policies. Cost is based on the fair value of consideration given in exchange for assets.

The presentation currency of the Group and functional currency used in the preparation of these financial statements is New Zealand Dollars.

Accounting policies are selected and applied in a manner that ensures that the resulting financial information meets the concepts of relevance and reliability, ensuring that the substance of the underlying transaction or event is reported.

The accounting policies have been consistently applied in preparing the financial statements for the six months ended 31 December 2016; and the comparative information for the six months ended 31 December 2015 and the year ended 30 June 2016.

Statement of compliance

The financial statements have been prepared in accordance with New Zealand generally accepted accounting practice (NZ GAAP). They comply with the New Zealand equivalents to International Financial Reporting Standards (NZ IFRS) and other applicable financial reporting standards appropriate for profit-oriented entities.

The financial statements comply with International Financial Reporting Standards (IFRS).

These interim financial statements have been prepared in accordance with the requirements of NZ IAS 34: Interim Financial Reporting. They should be read in conjunction with the 2016 annual report.

Accounting judgements and major sources of uncertainty

In the application of the accounting policies, the Group makes judgements, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised and in any future periods affected.

Comparatives

The financial statements for the six months ended 31 December 2016 and for the comparative six month period to 31 December 2015 are unaudited. The comparative figures for the year ended 30 June 2016 are audited.

Notes to the financial statements for the 6 months ended 31 December 2016

1. Revenues and other gains

in thousands of New Zealand dollars	6 Months to Dec 16 Unaudited	6 Months to Dec 15 Unaudited	12 Months to Jun 16 Audited
Research			
Rendering of services	34,538	33,118	68,896
Applied Science			
Rendering of services	27,233	23,407	57,376
Sale of goods	1,558	1,464	4,036
Dividends	1	1	1
Gain on sale from property, plant and equipment	118	9	64
Total operating revenue	63,448	57,999	130,373

2. Operating expenses

Employee benefits

in thousands of New Zealand dollars	6 Months to Dec 16 Unaudited	6 Months to Dec 15 Unaudited	12 Months to Jun 16 Audited
Defined contribution plans	1,396	1,364	2,725
Termination benefits	–	–	–
Other employee benefits	31,201	29,435	60,748
Employee benefit expense	32,597	30,799	63,473

Other expenses

in thousands of New Zealand dollars	6 Months to Dec 16 Unaudited	6 Months to Dec 15 Unaudited	12 Months to Jun 16 Audited
Materials and supplies	2,867	2,707	10,489
Research collaboration	7,984	5,020	14,671
Property occupancy costs	2,862	2,954	5,870
Information technology	2,663	2,296	4,860
Remuneration of directors	149	155	297
Foreign currency gain (loss)	(77)	1	(38)
Movement within the doubtful debt provision	–	–	25
Bad debts written off	–	–	–
Change in the fair value of derivatives	(49)	35	(36)
Other expenses	8,067	7,647	10,742
	24,466	20,815	46,880

Auditor's remuneration

in thousands of New Zealand dollars	6 Months to Dec 16 Unaudited	6 Months to Dec 15 Unaudited	12 Months to Jun 16 Audited
Auditor's remuneration comprises:			
Audit of the financial statements	85	89	177
Other assurance services (ACC audit)	3	3	3
Total auditor's remuneration	88	92	180

3. Reconciliation of the profit for the period to net cash inflow from operating activities

in thousands of New Zealand dollars	6 Months to Dec 16 Unaudited	6 Months to Dec 15 Unaudited	12 Months to Jun 16 Audited
Profit for the period	(681)	(415)	4,011
Add/(less) items classified as investing activities			
Net loss/(gain) on disposal of property, plant and equipment	(54)	219	232
	(54)	219	232
Add/(less) non-cash items			
Depreciation and impairment	7,213	6,673	14,006
Amortisation of identifiable intangibles	430	412	813
Net foreign currency (gain)/loss	156	291	327
Increase/(decrease) in deferred tax liability	(1)	(40)	(603)
	7,798	7,336	14,543
Add/(less) movements in working capital items			
Increase/(decrease) in payables and accruals and revenue in advance	7,842	5,827	7,514
Increase/(decrease) in employee entitlements	52	166	814
(Increase)/decrease in receivables and prepayments	7,943	4,702	(3,783)
(Increase)/decrease in inventory and uninvoiced receivables	(4,634)	(6,429)	(217)
(Increase)/decrease in taxation receivable	(1,657)	(1,603)	(102)
(Increase)/decrease in forward exchange derivatives	(49)	48	49
	9,497	2,711	4,275
Net cash flows from operating activities	16,560	9,851	23,061

4. Related party transactions

The Government of New Zealand (the Crown) is the ultimate shareholder of the NIWA Group. No transactions with other New Zealand Government-owned entities are considered as related party transactions in terms of NZ IAS 24. No related party debts have been written off or forgiven during the year. Any business the NIWA Group has transacted in which a director or an employee has an interest has been carried out on a commercial basis. Any potential conflict is recorded and minuted in Board meetings for directors and a separate interest register for employees. The interest register containing all relevant interests is updated on a regular and timely basis.

5. Key management personnel compensations

in thousands of New Zealand dollars	6 Months to Dec 16 Unaudited	6 Months to Dec 15 Unaudited	12 Months to Jun 16 Audited
Short-term benefits	3,963	3,530	7,159

The table above includes remuneration of the Chief Executive Officer and all key management positions.

6. Commitments

Operating lease arrangements

in thousands of New Zealand dollars	6 Months to Dec 16 Unaudited	6 Months to Dec 15 Unaudited	12 Months to Jun 16 Audited
Lease expense recognised in the year	1,125	1,096	2,213
Obligations payable after balance date on non-cancellable operating leases:			
Within 1 year	2,344	2,541	2,592
Between 1 and 2 years	1,843	1,960	1,912
Between 2 and 5 years	3,349	4,916	4,210
Over 5 years	2,910	2,875	2,819
	10,446	12,292	11,533

Operating leases relate to office and laboratory facilities within New Zealand and Australia with lease terms between 1 and 11 years, with various options to extend.

Capital commitments

in thousands of New Zealand dollars	6 Months to Dec 16 Unaudited	6 Months to Dec 15 Unaudited	12 Months to Jun 16 Audited
Commitments for future capital expenditure:			
Approved, but not contracted for	6,798	4,602	–
Contracted, but not provided for	2,131	7,922	590
	8,929	12,524	590

7. Contingent liabilities

There are no material contingent liabilities (2016: Nil).

8. Subsequent events

There were no subsequent events (2016: Nil).

National Institute of Water & Atmospheric Research Ltd

Directory

BOARD OF DIRECTORS

Sir Christopher Mace, KNZM (Chairman)
Nicholas Main (Deputy Chairman)
Dr Helen Anderson
Prof. Keith Hunter
Prof. Gillian Lewis
Michael Pohio
Jason Shoebridge

EXECUTIVE TEAM

John Morgan, *Chief Executive Officer*
Geoff Baird, *General Manager, Communications & Marketing*
Patrick Baker, *Chief Financial Officer*
Dr Barry Biggs, *General Manager, Operations*
Dr Bryce Cooper, *General Manager, Strategy*
Dr Mary-Anne Dehar, *General Manager, Human Resources*
Dr Rob Murdoch, *General Manager, Research*
Andrew Watkins, *General Manager, Information Technology*

Auditors

Karen Shires with the assistance of PricewaterhouseCoopers on behalf of the Auditor-General

Bankers

ANZ Bank of New Zealand

Registered Office and Address for Service

41 Market Place, Auckland Central 1010, New Zealand

Solicitors

Atkins Holm Majurey
Meredith Connell

Insurance Broker

Marsh Limited

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