

What we want to do as a company & How we are going to do it

Sustainable Development Report

Background

Commitment to sustainable development

As an active member of the New Zealand Business Council for Sustainable Development since 2000, NIWA has a representative on the Executive Committee and is Project Champion for the Council's major project on climate change. We are committed to assisting the development of 'Forms of progress that meet the needs of the present without compromising the ability of future generations to meet their own needs'. This fits closely with NIWA's mission statement 'To provide a scientific basis for the sustainable management and development of New Zealand's atmospheric, marine, and freshwater systems and associated resources'.

NIWA's social and environmental contribution

Under the Crown Research Institutes Act 1992, the principles of operation of CRIs include undertaking research for the benefit of New Zealand, promoting the application of the results of research and technological developments, being a good employer, exhibiting a sense of social responsibility, and maintaining financial viability. Since 1997 NIWA's annual reports have included reports on the achievement of targets for non-financial performance measures which cover CRIs' principles of operation. These are agreed with the shareholding ministers in our Statement of Corporate Intent (SCI) each year. In 2000 this section of our annual report was expanded from 'Non-financial Performance' to 'NIWA's Social and Environmental Contribution'.

Sustainable development reporting

The concept of sustainable development is not new to NIWA, but this year we are making the transition to presenting a sustainable development report as part of our annual report.

This includes some of the non-financial performance measures on which we have routinely reported each year by commentary, plus additional performance measures which have been developed for implementing and reporting on NIWA's contribution to sustainable development. From the 2003–04 financial year, all NIWA's non-financial performance measures will be incorporated into our sustainable development report, with performance assessed against targets set in our SCI at the beginning of each year.

Our performance against the relevant targets in NIWA's SCI for the 2002–03 financial year was as follows:

Non-financial performance measures as proposed in the SCI	Actual 2003	Target 2003	Actual 2002		
Benefit to New Zealand commentary in next section					
Research output*					
Papers in international, externally refereed journals	278	280	269		
Papers in local, internally, or editor-refereed journals	132	150	184		
Conference papers and other presentations	675	500	583		
Research monographs and books	64	75	91		
Popular books	2	2	3		
Client reports	487	430	723		
<i>* measured for a calendar year.</i>					
Application & promotion of science					
Value of consultancies to NZ users	\$23M	\$20M	\$24M		
Achievement of technology transfer objectives in FRST contracts	99%	95%	100%		
Value of TBG and Technet contracts	\$312k	\$750k	\$115k		
Requests serviced for information from NIWA's nationally significant public-good databases	9649*	4150	3680		
Magazine and newspaper feature articles plus TV and radio interviews	185	100	265		
<i>* Includes 7000 automatic updates to regional council websites.</i>					
Good employer					
Policies to meet provisions of CRI Act	commentary in next section				
No. of days lost due to work-related accidents	3	<100	38		
Social responsibility commentary in next section					
Staff composition					
Research teams	450	430	428		
Research support	51	50	49		
General support	97	92	84		
Marketing and promotion	6	6	5		
Management	23	22	22		
Total	627	600	588		
% Male:female	74:26				
Turnover	8%	<5%	3%		
Age profile (%) by 10 year age groups					
Category	<20	20–29	30–39	40–49	50+
Research teams	0.4	8.9	31.3	30.9	28.4
Research support	0.0	2.0	19.6	31.4	47.1
General support	1.0	14.4	28.9	23.7	32.0
Executive/Managers	0.0	0.0	17.4	47.8	34.8
Marketing, promotion, and liaison	0.0	0.0	0.0	50.0	50.0
Total	0.5	8.8	29.2	30.6	30.9
Staff numbers, turnover, and age composition for the year ended 30 June 2003					
Category	No. of staff	No. of FTEs	Turnover (%)	Average age (years)	
Research teams	450	442.1	8.0	40.1	
Research support	51	50.5	4.0	45.9	
General support	97	92.6	12.2	44.7	
Marketing, promotion, and liaison	6	6.0	0.0	48.8	
Management	23	23.0	0.0	46.8	
Total	627	614.2	8.1	45.3	

Sustainable Development Report

This initial sustainable development report focuses on NIWA's core business and does not generally include our subsidiaries, NIWA Vessel Management Ltd, NIWA Environmental Research Institute, NIWA (USA), Incorporated, or NIWA Australia Pty Ltd. We plan to include these subsidiaries in future years.

Benefits from NIWA's science to New Zealand's sustainable development

(What we do)

Many aspects of NIWA's core business contribute directly to the sustainable development of New Zealand, e.g., through the provision of environmental management tools and advice which are aimed at ensuring the maintenance and development of economic, environmental, and social sustainability. Examples include:

- **Sustainable management of marine resources** – our National Centre for Fisheries & Aquaculture is using the unique set of skills within NIWA to assist with the sustainable development and management of New Zealand's marine fisheries and other marine resources.
- **Sustainable land use** – our National Climate Centre provides monthly climate summaries and regional outlooks which are improving New Zealand's ability to manage for climate variations such as droughts. Detailed mapping of climate conditions and the frequency of climate hazards for specific regions, in collaboration with expertise from soil scientists and agricultural specialists in other CRIs and universities, is helping New Zealanders to manage their land sustainably and to identify new land-use opportunities.
- **Sustaining New Zealand's indigenous biodiversity and improving biosecurity management** – our National Centre for Aquatic Biodiversity & Biosecurity is developing tools and services, such as the Freshwater Fish Database, web-based species/habitat tools such as Freshwater Information New Zealand, and identification guides to help central and local government, industry, iwi, and other communities protect and restore New Zealand's unique marine and freshwater biodiversity.
- **Improving the quality of life in our cities, towns, and rural areas** – our National Centre for Climate-Energy Solutions is creating new economic, social, and environmental opportunities associated with climate change and energy reform, including the evaluation of alternative forms of energy in areas such as transport. Our National Centre for Water Resources and the joint NIWA-GNS Natural Hazards Centre are providing information and tools to improve New Zealand's management of its aquatic resources and mitigate the impacts of atmospheric and water-related hazards, such as floods and coastal storm surges.

NIWA's organisational commitment

(How we do it)

In addition to the major contribution which our research makes to New Zealand's sustainable development, NIWA is also committed as an organisation to operating in a manner which minimises the consumption of resources, minimises waste, and takes all practicable steps to minimise the adverse effects of our own activities on the environment. NIWA recognises the connections between economic, environmental, social, and cultural performance. We are continually striving to improve our contribution to sustainable development through our performance in these interrelated areas.

For the 2002–03 year we are reporting on the areas described below, including performance measures and benchmarks where these are appropriate or available. While these measures are listed under economic, environmental, or social and cultural sustainability, we recognise that some are relevant to more than one of these areas. In future years we may expand and modify our reporting to include additional areas or performance indicators, to reflect the realisation of our commitment to sustainable development.

Economic sustainability

We have selected three key measures of NIWA's economic performance. These reflect the shareholders' requirement for CRIs to be financially viable and to undertake research for the benefit of New Zealand:

Financial viability

Operating surplus before tax (\$)

NIWA Group, for the year ended 30 June



Return on equity (%)

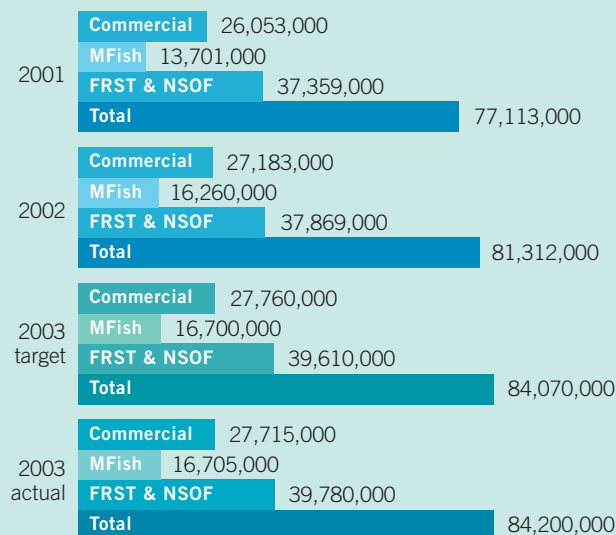
NIWA Group: Net profit after tax/average shareholders' funds



Sustainable Development Report

Total revenue (\$)

NIWA Group, for the year ended 30 June



NIWA has exceeded its financial targets for the year ending 30 June 2003. Operating surplus before tax decreased slightly in comparison with previous years due largely to increases in the use of subcontractors. Return on equity and total revenue have continued to increase. Full details and commentary are provided elsewhere in this annual report.

Environmental sustainability

Resource use

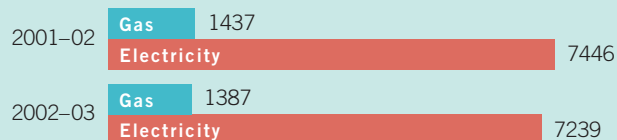
NIWA is a foundation member of the Energy Wise Government Programme, which is administered by the Energy Efficiency and Conservation Authority (EECA). We are committed to practising energy efficiency throughout all our premises, plant, and equipment wherever it is cost-effective. An energy audit conducted at our largest site, Greta Point (Wellington), and subsequent energy efficiency improvements through upgrades to the hot water, lighting, and air conditioning systems and their management resulted in substantial savings in electricity and gas use between 1999 and 2001. As a result, NIWA received an EECA Energy Wise Award in 2001 in the small energy user section.

We have carried out energy audits at all major NIWA sites and made improvements through upgrades to lighting and air conditioning systems and have installed building management systems at major sites. This, along with greater staff awareness, has contributed to savings in 2002–03 in line with requests from EECA. Baselines of current energy use and potential energy-saving mechanisms have been established. *Our objective is to achieve at least a 15% saving per fulltime staff equivalent in NIWA's energy use (from the baseline for the 2001–02 financial year) over the 5-year period to 30 June 2007. We aim to achieve this reduction without compromising NIWA's service, productivity, or staff comfort.*

Energy use (electricity and gas) (kWh)

Per full-time staff equivalent

Year ended 30 June

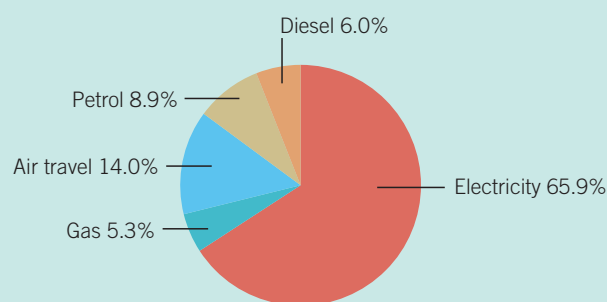


In addition to auditing NIWA's use of electricity and gas, we have gathered data on our use of motor vehicles, taxis, and air travel to enable assessment of the greenhouse gas emissions produced by NIWA's activities. The consumption of fossil fuels to support NIWA's activities (excluding NIWA Vessel Management Ltd) was estimated to have emitted 2933 t of carbon dioxide in the year ending 30 June 2002 and 3034 t for the year ended 30 June 2003, using the protocol from the New Zealand Business Council for Sustainable Development. The use of motor vehicles, taxis, and air travel is essential to NIWA's business. Although we will continue to minimise travel where possible, NIWA's use of these resources is likely to increase as our business grows. We will attempt to balance this through energy savings, so that *NIWA's total annual contribution to carbon dioxide emissions based on fulltime staff equivalents does not increase above its current level (as at 30 June 2002) in the 5-year period to 30 June 2007.*

Electricity is a significant resource used by NIWA. It accounts for 66% of the total carbon dioxide emissions. NIWA's major resource use in 2002–03 was:

Resource use

Year ended 30 June



Based on the number of full-time staff, the emission of carbon dioxide for the year ended 30 June 2003 has reduced in comparison with that in the year ended 30 June 2002:

CO₂ gas emissions (t) per full-time staff equivalent

(Excludes research vessels)



NIWA Vessel Management Ltd

NIWA Vessel Management Ltd manages two research vessels – *Tangaroa* (deepwater) and *Kaharoa* (inshore and coastal). Both operate on diesel fuel, and the levels of carbon dioxide emissions for the past two financial years have been estimated as:

Year ending 30 June 2002	6682 t or 11.9 t per sea-day
Year ending 30 June 2003	6091 t or 10.1 t per sea-day

To ensure the level of emissions for diesel is minimised, work scheduling plans are continuously reviewed, servicing plans constantly updated, and *Tangaroa* is on a three year maintenance plan. The most recent dry-docking for the vessel overhaul occurred in November 2002 (cost over \$300,000).

Waste management and recycling

NIWA is increasing its strategic focus on waste management and recycling. This includes items such as paper, glass, plastics, metal, and liquid and hazardous waste. NIWA has always recycled items; however, there has never been a comprehensive plan to our approach. Goals for increasing recycling and minimising waste will be set during 2004. Our progress towards achieving these goals will be reported in subsequent annual reports, beginning in 2005. Current (baseline) levels of recycling of paper and other wastes will be assessed, and toxic and other waste disposal procedures will be documented at all sites by 30 June 2004.

Our recycling programmes will emphasise the need to increase recycling. This will involve procedures such as weighing and recording recycled products. This information will then be used as a benchmark for measuring the performance against that in future years. Total solid waste will be measured from 2003–04. We have taken initiatives to reduce the effects of our operations on the environment wherever possible through initiatives like installing bioswales to treat runoff, minimising discharges, and increasing staff awareness of the need to minimise disturbance to the natural environment during field activities.

Paper use

Paper has been identified as the most significant area of waste production for NIWA. We plan to take further steps to reduce the amount of paper purchased and used. We are implementing procedures to have all computers print double-sided as default and encourage staff to copy double-sided in photocopiers and to print only essential documents. Paper purchased and used will be recorded in 2003–04 as a benchmark to measure performance against in future years.

National Sustainable Development Committee

From 1 July 2003, a National Sustainable Development Committee has been established to focus on the national significance of sustainable development for NIWA. It will set the aims and mission statement of NIWA in fulfilling its obligation under the SDR framework, and will take responsibility for policy setting, regional initiatives, the outputs generated, and preparing the SDR for the annual report.

Use of animals in research

NIWA maintains a high regard for animal welfare. We use animals in environmental research for purposes such as understanding the ecological requirements of indigenous species and assessing the effects of proposed developments on environmental health. All manipulations must be approved by our Animal Ethics Committee (AEC), in accordance with the Animal Welfare Act (1999).

Our AEC meets regularly and conducts some of its business by email. It ensures that all our animal-based research is conducted in accordance with NIWA's Code of Ethical Conduct for the Use of Live Animals in Research, which has ministerial approval as required by the Act. Animal usage is reported annually to the Ministry of Agriculture and Forestry.

Our code of ethical conduct permits the use of animals only when the AEC considers that the benefits of the research outweigh any suffering imposed on the animals. Only the minimum number of animals needed to produce statistically sound results can be used. The total number of animals and the range of species used (mainly fish) depends entirely on the funded projects. Consequently, use varies from year to year.

Social and cultural sustainability

Benefits to New Zealand: helping New Zealand meet its international obligations

NIWA's expertise is made available to various Government departments to provide policy advice and meet New Zealand's obligations to international conventions to which this country is a signatory. This commitment is substantially elaborated in 'Contribution to New Zealand's international obligations' on page 30 of this annual report.

Benefits to New Zealand: education

NIWA continues to be strongly committed to the advancement of science education and knowledge in schools, universities, and the wider public. NIWA provides pupils with a hands-on science experience on *Kaharoa*, is a major sponsor of regional school science fairs, and sponsors the marine education facility at Kelly Tarlton's Underwater World. NIWA has strong links with New Zealand universities; for example, through the joint NIWA–University of Auckland Institute of Aquatic and Atmospheric Sciences and the postgraduate Centres of Excellence with Victoria University of Wellington, the University of Otago, and the University of Canterbury. NIWA supervised more than 60 postgraduate students, provided 7 PhD scholarships, offered 13 sponsored and self-funded training courses for staff in regional councils, government departments, and consultancies, and provided funding for 18 postdoctoral fellowships. Additional details are provided in 'Education and Training' on page 27 of this annual report.

Working with Māori

NIWA is committed to building strong relationships with Māori through the continued development of collaborative research partnerships at 'flax roots' level with iwi, hapū, and Māori organisations. Our Māori Research and Development Unit, Te Kūwaha, is working mainly on research that underpins Māori aspirations for business development and sustainable resource management. A key objective for Te Kūwaha is to raise awareness of the Māori tikanga within NIWA to improve our interactions with Māori and thus make NIWA an attractive place for Māori researchers to work.

Te Kūwaha comprises a General Manager with 10 key Māori scientists and technicians. Examples of the unit's research and development are given in 'Te Kūwaha' on page 26 of this annual report.

Number of staff in Te Kūwaha



Good employer

NIWA is committed to providing a safe working environment which promotes innovation and excellence in science, enhances professional and career development, and rewards staff within the financial constraints of the company.

Facilitation of science

Retention of key staff through the facilitation of effective science is a major objective of NIWA's management. This includes a strong capital investment programme to purchase state-of-the-art science equipment, and a project management system which gives staff the opportunity to lead and manage research projects with a high level of responsibility for both scientific and financial performance. We also have a substantial overseas travel programme for staff, technical training and sabbatical awards for staff, and a visiting scientist programme. These play a vital role in maintaining and enhancing NIWA's extensive international research networks, which ensure that NIWA's research is at the forefront of global atmospheric and aquatic science.

Staff benefits and entitlements

The terms and conditions of employment of our staff are specified in NIWA's current Collective Employment Agreement (CEA), which has a 3-year term expiring on 1 July 2004. The CEA was negotiated with the Public Service Association (PSA), which is the only union representing our staff. Membership is voluntary, and 49% of our staff are currently members. The terms and conditions of employment of staff who choose not

to join the PSA are identical to those of union members, except for two clauses in the CEA which are exclusive to the PSA. These clauses cover a healthcare insurance subsidy and the NIWA-PSA Partnership Forum, which was established to maintain harmonious employment relations by promoting partnership, openness, trust, and involvement. This forum meets quarterly.

Benefits available to all permanent staff include an annual review of remuneration and discussion of progress towards career goals, unlimited sick leave for cases of genuine illness or accident, annual leave of 3 weeks a year, increasing to 4 weeks a year after 3 years of service, NIWA-subsidised superannuation, life insurance of up to twice an annual salary, disability insurance, 4 weeks long service leave after 20 years continuous service, parental leave of up to 1 year with payment of up to 6 weeks, training leave of 3 days per year which may be accumulated up to 15 days, and various other entitlements. These benefits reflect NIWA's strong commitment to fair and equitable treatment of staff.

Our Human Resources Policy and Procedures Manual, which was developed and is added to as required by a staff working group, addresses a wide variety of issues from staff training and equal employment opportunity to recruitment and remuneration. This manual is available online to all staff.

Staff satisfaction

Since 1996 independent surveys of the New Zealand science sector have consistently shown that NIWA's staff have a more positive attitude about working for NIWA than that shown by staff towards their employer in other science organisations included in the survey (mainly CRIs).

Staff satisfaction

(Percentage of staff positive about working for NIWA)



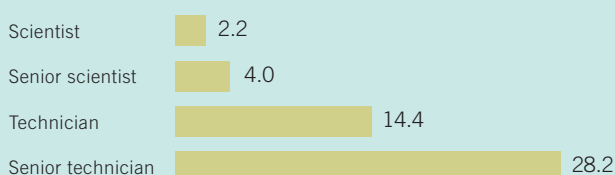
(Average scores across 15 questions in independent surveys of staff in the science sector, mainly CRIs; benchmark is average score for all participating organisations.)

Rewarding staff

NIWA has a performance management system and performance-based remuneration policy that pays for the range, depth, and type of skills of our staff, recognises an individual's worth to NIWA and the value of each staff member's contribution, and allows for career development of staff. In addition, we have a profit-share scheme, which allows for the distribution to all staff of a proportion of NIWA's post-tax operating surplus when this exceeds our profit target for the year. Our consistent financial success has enabled us to raise staff remuneration to a level significantly above the market median for the New Zealand science sector.

Market relativity – total remuneration

(Percentage above market median)



Health and safety

NIWA has developed and implemented a comprehensive Health and Safety Plan with strong participation from staff. Since July 2000, NIWA has been part of the ACC Partnership Programme under the full self-cover option. Annual audits

conducted under the Partnership Programme have resulted in premium discounts of 15% for each of the last two years, in recognition of safe workplace practices at a secondary level. The latest audit (July 2002) assessed NIWA's occupational health and safety as achieving the highest (tertiary) performance level in seven of the eight critical elements considered. Our workplace injury rate has remained extremely low for the last three years, with less than 0.02% of total working days per annum lost because of workplace accidents. Only one accident resulted in lost days in 2003.

Safety

Number of work days lost because of workplace accidents

NIWA Science, for the year ended 30 June (excludes vessel company)



Our Health and Safety Plan includes the appointment of laboratory managers in all our facilities and the development of a code of practice as required under health and safety legislation and the Hazardous Substances and New Organisms Act. The code of practice is being developed in conjunction with other CRIs, universities, and ERMANNZ.

Deloitte Touche Tohmatsu
Deloitte House, 8 Nelson Street
PO Box 33, Auckland
New Zealand

**Deloitte
Touche
Tohmatsu**

9 September 2003

The Directors
National Institute of Water and Atmospheric Research Limited
Private Bag 99 940
Newmarket
AUCKLAND

Dear Directors

LIMITED INDEPENDENT VERIFICATION STATEMENT TO THE SHAREHOLDERS OF NATIONAL INSTITUTE OF WATER AND ATMOSPHERIC RESEARCH LIMITED

As auditors of National Institute of Water and Atmospheric Research Limited (the 'Group'), appointed by the Auditor-General, we have provided statutory audit opinions under New Zealand law and New Zealand auditing standards for the financial periods ending 30 June 2001, 30 June 2002 and 30 June 2003.

We report on the following financial information, presented as part of the Group's Sustainable Development Report:

- Financial Viability and Return on Equity on page 37
- Sector Revenues on page 38
- Staff satisfaction on page 40
- Safety on page 41

These disclosures are the responsibility of the Board of Directors with whom the objectives and terms of the engagement were agreed. It is our responsibility to express an independent opinion on the Sustainable Development disclosures set out on pages 36 to 41 for the financial year ended 30 June 2003, prepared and presented by the Board of Directors, and report our conclusions and findings based on the terms of engagement as agreed.

We take no responsibility for, nor do we report on, any part of the Sustainable Development Report disclosures not specifically mentioned in this report.

Basis of Opinion

We have undertaken procedures to provide reasonable assurance that the calculations of the financial information set out in the Group's Sustainable Development Report on pages 37, 38, 40 and 41 (as detailed above) of this report, have been correctly calculated and that the inputs to the calculations have been correctly taken from the Group's records for the financial years ended 30 June 2001, 30 June 2002 and 30 June 2003. Our procedures did not involve verification of the trends disclosed in the information referred to above. We therefore have not performed an audit of these disclosures and therefore do not express an audit opinion on them.

Conclusion

In our opinion, the calculations of the financial information set out in the Group's Sustainable Development Report on pages 37, 38, 40 and 41 (as detailed above) of this report, have been correctly calculated, and the inputs to the calculations have been correctly taken from the Group's records for the financial years ended 30 June 2001, 30 June 2002 and 30 June 2003.

Yours faithfully

DELOITTE TOUCHE TOHMATSU