



Half-yearly Report

for the six months ended 31 December 2012





ESR's purpose is to deliver enhanced scientific and research services to the public health, food safety, security and justice systems, and the environmental sector to improve the safety and contribute to the economic, environmental and social wellbeing of people and communities in New Zealand.



Chairperson's report

The half year to the end of December 2012 sees ESR on target in implementing the 2012–2017 Strategic Plan. The strategy is repositioning the organisation for increased science-based innovation directly applicable to business, industry and Government health and justice targets.

In the last half year, the focus on accelerating revenue growth delivered \$3 million (7.5 percent) above the same period last year. Progress is also being made to commercialise ESR science activities. One example is our association with the Meat Industry Association to further develop our phage technologies to help safeguard New Zealand's \$2 billion meat exports to the United States (US).

This report highlights just three of the major initiatives that are delivering benefits to New Zealand's health and wellbeing. We continue to expand our significant contributions to Government's economic, health and social targets by helping reduce the costs of ill health, crime and threats to export and local markets.



Dr Susan Macken (Chair)

Highlights



New Zealand's future crime scene

ESR's new Crime Scene Investigation (CSI) research could revolutionise forensic work at crime scenes in New Zealand. The Future Crime Scene Project, launched to the public in December, is developing and trialling new technologies to help solve crimes faster and provide juries with detailed 3D virtual tours of crime scenes in the court room.

The research has identified three technology areas that have potential to advance ESR's crime scene services: recording and showing the crime scene in the courtroom using new scanning technologies; transmitting information from the crime scene in real time; and using new devices for field testing at the crime scene.

These developments will further enhance ESR's ability to help investigators solve crimes, eliminate the innocent from suspicion and to present forensic evidence in the court environment in a way that will best assist the criminal justice outcomes.

ESR is working with law enforcement and technology collaborators in US, UK, the Netherlands and Canada to develop the technologies for operational forensic use.

Recognition for the SHIVERS research collaboration

The Southern Hemisphere Influenza Vaccine Effectiveness Research and Surveillance (SHIVERS) influenza research project, led by ESR working with a team of New Zealand and international agencies, released the preliminary findings from its first year. The findings revealed some important new information about the burden of the flu on New Zealand as well as generating useful information for vaccine strain selection. Findings could also influence case definitions of influenza and influenza-like illness drafted by the World Health Organization (WHO) for international public health purposes.

Very positive feedback on this collaborative and world-leading work was received from the WHO and the US funders, the US Centers for Disease Control and Prevention (CDC). This has secured an additional US \$500,000 in funding for the second year of the five-year project (US \$1.5 million for year two).

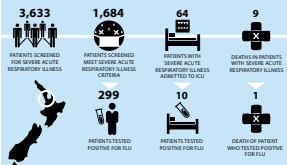
The first year of the study focused on patients hospitalised in Auckland with severe acute respiratory infections (SARI), including intensive care admissions and deaths caused by influenza and other respiratory pathogens. With the additional funding the study will now extend existing influenza surveillance systems by establishing a community-based system as well as a hospital-based one.

THE SHIVERS PROJECT

SOUTHERN HEMISPHERE INFLUENZA VACCINE EFFECTIVENESS RESEARCH & SURVEILLANCE
A CDC five-year, multi-million dollar study TO STUDY INFLUENZA IN AN EFFORT TO BETTER UNDERSTAND THE BURDEN OF THE VIRUS and how to prevent its spread around the world

IMPACT OF SEVERE ACUTE RESPIRATORY INFECTIONS (SARI) CAUSED BY INFLUENZA VIRUSES AND OTHER RESPIRATORY PATHOGENS ON HOSPITALISATIONS IN AUCKLAND

THE BURDEN OF FLU IN AUCKLAND HOSPITALS



WINTER INCIDENCE OF SEVERE ACUTE RESPIRATORY ILLNESS



WHY NEW ZEALAND IS PERFECT

New Zealand is situated well below the Tropic of Capricorn with a long season during the Northern Hemisphere summer, so well for season other specific viral and bacteria during the Northern Hemisphere winter. With our highly effective National Influenza Surveillance System and comprehensive computerised health system, the SHIVERS team have the excellent platform to conduct clinically-relevant and surveillance-ready data from hospitals, labs and GP working in the community. Our response to the A(H1N1) 2009 'Swine Flu' was immediately recognised as best in class and not far from world-class. Highly collaborative multi-disciplinary, multi-centre scientific team to make SHIVERS a reality.



YEAR ONE 2012

COURTESY OF PARLIAMENTARY OFFICERS
HIGH NUMBERS OF PEOPLE HOSPITALISED with respiratory illness tested positive for INFLUENZA VIRUS INFECTIONS

UNDER FOURS AND OVER 80s HARDEST HIT with influenza hospitalisation

PACIFIC ISLAND AND MAORI HAVE HIGH RATE of hospitalisation from flu

SUBSTANTIAL NUMBERS OF HOSPITALISATIONS with influenza hospitalisation were caused by other respiratory viruses

A(H1N1) viruses detected in Auckland January 2012, A(H3N2) in Auckland August/September 2012
A(H3N2) virus dominant cause for year of New Zealand, June/September 2012



IF NORTHERN HEMISPHERE follows same pattern of A(H1N1) virus predominance, then flu hospitalisation rates may be substantial for **very old and very young**

FINDINGS SUPPORT BOOSTING VACCINATION rates to protect most vulnerable to flu

The flu strains circulating in New Zealand changed throughout the winter and new vaccine strains have been selected to better match currently circulating viruses

Development of phage biocontrol strategies for industry benefit

ESR is working with regulators and the meat industry to ensure access for New Zealand meat exports to the US. Since 1993, testing of meat exports to the US for the pathogenic microorganism Shiga toxin-producing *Escherichia coli* O157 (STEC O157) has been mandatory. Control of this organism is a major technical challenge for the meat industry as it is prolific in cattle. The recent addition of six other STEC types as 'adulterants' prohibited from US imports presents a huge, complex and technical challenge to an industry generating \$6 billion in exports each year, \$2 billion of which stems from US exports.

For a decade, ESR has been New Zealand's leader in developing phage technologies to control pathogens. Phages are naturally occurring microorganisms that specifically kill bacteria with no deleterious effect on human, plant or animal cells. ESR has now secured funding from the Meat Industry Association of New Zealand, KiwiNet, and Industrial Research Limited in addition to investment of ESR's own core funding, to conduct major industry trials during the next bobby calf season.

Funding has also been secured for a project on the use of phages to control antibiotic-resistant bacteria. If successful, this would expand utility of the phage work into human and veterinary clinical areas of interest.



Non-financial performance measures

Research collaboration measures

Number of joint scientific peer-reviewed publications and intellectual property outputs with other New Zealand and international research institutions:

Total publications	40
Joint publications	31

Technology transfer and initiatives

ESR staff were involved in 36 knowledge transfer seminars and training events with sector stakeholder organisations involving over 600 people. They also delivered 38 science-related talks with 1,866 attendees.

We are building on our business collaborations with private sector businesses to commercialise ESR-developed technology, particularly in the food sector.

We continue to work with other stakeholders to promote research collaboration with China and have signed consultancy contracts to lead and participate in regional Pacific workshops on water and public health.

We have established the ESR Pioneer Fund to fund new ideas that benefit ESR commercially and result in the transfer of technology or knowledge to industry or government sectors.

End-user collaboration

We continue to work closely with all major customers and end-users to ensure we understand and deliver their needs for the short, medium and long term. One example is the prototype drug intelligence portal we completed for trial by a Customs test user group this half year.

Science excellence

Our new Strategic Science Team (SST) has been established. The team of science leaders is working with the Strategic Science Advisory Panel to develop an overall science strategy for ESR, as well as advising on the allocation of research and funding bids.

Workforce measures of organisational health

ESR's measures of the organisational health of our workforce are based on the '7 key elements' of being a good employer published by the Human Rights Commission.

Workforce measures of organisational health

ESR's measures of organisational health around our workforce are based on the '7 key elements' of being a good employer published by the Human Rights Commission.

Good employer indicator	Output	Metric	6 months ended 31 December 2012
Leadership, accountability and culture	ESR culture is adaptive, client focused and performance oriented	Positive trend for overall staff engagement	Next assessment FY 2014
		Positive behaviours defined within competency framework	Revised performance appraisal system; designed and trialed – implementation will be completed Q3 FY 2013
		Customer satisfaction levels are high (as measured by the State Services Commission common measurement tool)	Not measured this half year
Recruitment, selection and induction	Able to attract and retain staff using fair and effective processes	30% of vacancies filled (offer stage) within 4 weeks of close	70%
		Turnover of staff with less than 6 months' service is <5%	1.23%
Employee development, promotion and exit	ESR invests in staff development and promotion with voluntary turnover at moderate levels	Promotion rate of 20% or better	Promotion completed Dec 2012; promotion rate 29.41%
		L&D spend as a % of total personnel costs is 3% or more	<1%
		95%+ of staff have objectives and development plans	Will be an outcome for performance measurement system implementation
		Staff turnover at 10% or less	8.49%
Flexibility and work design	ESR's working conditions and pay are fair and competitive	% staff working part-time	19%
		% of parental leave returnees	81%
		% staff with teleworking arrangements	Approx 20%

Good employer indicator	Output	Metric	6 months ended 31 December 2012
Remuneration, recognition and conditions	ESR's working conditions and pay are fair and competitive	ESR progress towards pay at the appropriate median market line	Salary movements reflect economic environment and organisation's ability to pay
		ESR Excellence Awards made	Awards made
		Staff satisfaction levels with their conditions of employment	No claims relating to terms and conditions – staff satisfied
Harassment and bullying prevention / Equal Employment Opportunities (EEO)	ESR offers a positive working environment for all staff	Number of harassment and bullying complaints	1 – managed in accordance with established policy
		Demographic trends for age, gender, race, etc.	See charts for demographic information below (annual)
Safe and healthy environment	The working environment at ESR is safe and healthy	Number of work-related ACC claims over \$500	1 new claim over \$500 in the last 6 months
		Working days lost due to sickness	3% (1,520 days)
		Zero serious harm accidents	Zero

Gender	20 – 30 years	31 – 40 years	41 – 50 years	51 – 60 years	61 – 65 years	Over 65 years
Female	6%	21%	18%	14%	4%	2%
Male	4%	8%	12%	7%	3%	1%
TOTAL	10%	29%	30%	21%	7%	3%



Key financial performance measures

	6 months ended 31 Dec 2012 Actual	Year ended 30 June 2013 Plan	Year ended 30 June 2012 Actual	Year ended 30 June 2011 Actual
Revenue, \$m	29.9	62.0	58.6	54.1
Operating margin, %	9.7	12.5	13.0	15.9
Return (NPAT**) on equity, %	0.2	2.8	6.5	9.5
Return (EBIT*) on assets, %	0.1	3.0	4.6	6.8
Acid test, ratio	1.2	1.0	1.5	1.7
Equity ratio, %	68.7	71.1	65.2	64.0
Gearing, %	1.5	–	1.2	0.8
Interest cover	–	–	–	–
Annualised operating margin per FTE	7,252	19,737	20,557	24,942

* Earnings (annualised surplus) before taxation and interest

** Net profit (annualised surplus) after taxation

Statement of comprehensive income

for the six months ended 31 December 2012

	Note	Group unaudited 6 months ended 31 Dec 2012 \$'000s	Group audited 12 months ended 30 June 2012 \$'000s	Group unaudited 6 months ended 31 Dec 2011 \$'000s
Operating revenue				
Revenue from rendering of services		27,265	53,016	25,049
Core funding		2,591	5,534	1,902
		29,856	58,550	26,951
Operating expenses				
Scientific materials and consumables used		(5,848)	(11,411)	(4,995)
Employee benefit expense		(15,691)	(28,104)	(13,770)
Depreciation and amortisation expense		(2,745)	(4,993)	(2,315)
Other expenses		(5,514)	(11,429)	(4,901)
		(29,798)	(55,937)	(25,981)
Operating profit		58	2,613	972
Finance income – interest income		119	271	147
Finance expense		(10)	(11)	(8)
Net finance income / (expense)		110	260	139
Profit before income tax expense		168	2,873	1,111
Income tax expense	2	(84)	(1,077)	(311)
Income tax expense due to change in tax legislation	2	–	580	–
Profit for the period attributable to the institute's shareholder		84	2,376	800
Other comprehensive income		–	–	–
Total comprehensive income for the period attributable to the institute's shareholder		84	2,376	800

The accompanying notes form an integral part of these financial statements.



Dr Susan Macken (Chair)



Ross Peat (Deputy Chair)

Statement of changes in equity

for the six months ended 31 December 2012

	Share capital \$'000s	Retained earnings \$'000s	Total \$'000s
Balance at 1 July 2011	8,494	26,986	35,480
Profit for the period		800	800
Other comprehensive income	–	–	–
Total comprehensive income	–	800	800
Balance at 31 December 2011	8,494	27,786	36,280
Balance at 1 July 2012	8,494	29,362	37,856
Profit for the period		84	84
Other comprehensive income	–	–	–
Total comprehensive income	–	84	84
Balance at 31 December 2012	8,494	29,446	37,940

The accompanying notes form an integral part of these financial statements.

Statement of financial position

as at 31 December 2012

	Note	Group unaudited 6 months ended 31 Dec 2012 \$'000s	Group audited 12 months ended 30 June 2012 \$'000s	Group unaudited 6 months ended 31 Dec 2011 \$'000s
Non-current assets				
Property, plant and equipment		33,181	31,070	30,609
Intangible assets	4	7,535	6,500	6,083
		40,716	37,570	36,692
Current assets				
Cash and cash equivalents		1,586	7,232	3,794
Trade and other receivables		11,423	12,956	11,468
Derivative financial instruments		3	84	–
Income tax receivable / (payable)		60	–	402
Inventories		1,452	1,238	1,502
		14,524	21,510	17,166
Current liabilities				
Trade and other payables		9,552	13,347	9,528
Income tax payable		–	325	–
Employee benefits		2,926	2,739	2,715
Finance lease liabilities		295	217	119
		12,773	16,628	12,362
Net current assets / (liabilities)		1,751	4,882	4,804
Non-current liabilities				
Employee benefits		1,144	1,098	1,040
Finance lease liabilities		297	243	80
Deferred taxation	2	3,086	3,255	4,096
		4,527	4,596	5,216
Net assets		37,940	37,856	36,280
Equity				
Share capital		8,494	8,494	8,494
Retained earnings		29,446	29,362	27,786
Total equity		37,940	37,856	36,280

The accompanying notes form an integral part of these financial statements.

Statement of cash flows

for the six months ended 31 December 2012

	Note	Group unaudited 6 months ended 31 Dec 2012 \$'000s	Group audited 12 months ended 30 June 2012 \$'000s	Group unaudited 6 months ended 31 Dec 2011 \$'000s
Cash flows from / (used in) operating activities				
<i>Cash was provided from:</i>				
Customers		29,167	57,599	25,774
Interest received		136	280	154
		29,303	57,879	25,928
<i>Cash was applied to:</i>				
Suppliers and employees		(28,579)	(49,453)	(24,750)
Interest paid		(3)	(11)	(3)
Income tax paid		(637)	(708)	(408)
		(29,219)	(50,172)	(25,161)
Net cash inflow from operating activities	3	84	7,707	767
Cash flows from investing activities				
<i>Cash was provided from:</i>				
Proceeds from sale of property, plant and equipment		–	19	5
		–	19	5
<i>Cash was applied to:</i>				
Purchase of property, plant and equipment		(4,241)	(4,118)	(1,714)
Purchase of intangible assets		(1,176)	(1,701)	(660)
Acquisition of business		(204)	(2,000)	(2,000)
		(5,621)	(7,819)	(4,374)
Net cash outflow from investing activities		(5,621)	(7,800)	(4,369)
Cash flows used in financing activities				
<i>Cash was provided applied to:</i>				
Dividends paid		–	–	–
Repayment of finance lease liabilities		(109)	(176)	(105)
Net cash outflow from financing activities		(109)	(176)	(105)
Net decrease in cash held		(5,646)	(269)	(3,707)
Cash and cash equivalents at the beginning of the period		7,232	7,501	7,501
Cash and cash equivalents at the end of the period		1,586	7,232	3,794

The accompanying notes form an integral part of these financial statements.

Notes to the financial statements

1. STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES

Reporting entity

These financial statements of the Institute of Environmental Science and Research Limited and its subsidiaries ("ESR" and the "Group") are for the six months ended 31 December 2012.

ESR is a Crown entity incorporated and domiciled in New Zealand. The address of its registered office is 34 Kenepuru Drive, Porirua.

ESR is a Crown research institute that provides specialist scientific services and research, particularly to the health and justice sectors. Its purpose is to deliver enhanced scientific and research services to the public health, food safety, security and justice systems, and the environmental sector to improve the safety and contribute to the economic, environmental and social wellbeing of people and communities in New Zealand.

Basis of preparation

The interim financial statements are Parent (ESR) and Group financial statements. The two subsidiaries of ESR are dormant non-trading entities; consequently there is no difference between the financial statements of the Group and those of the Parent.

These interim financial statements are prepared on the basis of historical cost as modified by the revaluation of derivative financial instruments.

These interim financial statements should be read in conjunction with the financial statements and related notes included in ESR's annual report for the year ended 30 June 2012 (2012 Annual Report).

The interim financial statements are presented in New Zealand dollars and all values are rounded to the nearest thousand dollars (\$000).

The accounting policies set out in the 2012 Annual Report have been applied consistently to all the periods in these interim financial statements. There have been no changes in accounting policies from those applied in ESR's 2012 Annual Report. Where necessary, comparative figures have been reclassified for consistency with current year disclosures.

Statement of compliance

These interim financial statements for the six months ended 31 December 2012 have been prepared in accordance with International Accounting Standard 34 Interim Financial Reporting, the New Zealand equivalent to International Accounting Standard 34 Interim Financial Reporting issued by the New Zealand Institute of Chartered Accountants, and other applicable financial reporting standards, as appropriate for profit-oriented entities.

The financial statements have also been prepared in accordance with the requirements of the Crown Entities Act 2004, the Crown Research Institutes Act 1992, the Companies Act 1993 and the Financial Reporting Act 1993.

2. TAXATION

As a result of the change in tax legislation that was enacted on 31 May 2010, effective for the 2012 income year, the tax depreciation rate on buildings with an estimated useful life of 50 years or more was reduced to 0%.

ESR conducted a review in the 2011/12 year to assess the division of its buildings between depreciable and non-depreciable components for tax purposes. As a result of this review, a credit of \$580,000 has been recognised in tax expense in the year 30 June 2012.

3. RECONCILIATION OF PROFIT AFTER TAXATION TO CASH FLOWS FROM OPERATING ACTIVITIES

	Group unaudited 6 months ended 31 Dec 2012 \$'000s	Group audited 12 months ended 30 June 2012 \$'000s	Group unaudited 6 months ended 31 Dec 2011 \$'000s
Profit for the period	84	2,376	800
Non-cash items:			
Depreciation and amortisation	2,745	4,993	2,315
Finance charge on leases	–	–	98
Impairment of investment	–	88	–
Bad debts written off	–	9	–
(Decrease) / increase in deferred taxation liability	(169)	(785)	56
Foreign exchange (gain) / loss	(31)	34	1
Fair value gain on derivatives	(3)	(84)	–
	2,542	4,255	2,470
Impact of changes in investing activities:			
Loss on sale of assets	–	20	–
	–	20	–
Financing			
Finance charge on leases	3	11	–
	3	11	–
Changes in working capital:			
Decrease / (increase) in trade and other receivables	1,614	(2,575)	(1,087)
(Increase) / decrease in income tax receivable	(385)	574	(153)
(Increase) in inventories	(212)	(237)	(129)
Increase in employment benefits	233	694	410
(Decrease) in financial liabilities	–	–	(94)
(Decrease) / increase in trade and other payables	(3,795)	2,589	(1,450)
	(2,545)	1,045	(2,503)
Net cash inflow from operating activities	84	7,707	767

The accompanying notes form an integral part of these financial statements.

4. BUSINESS COMBINATIONS

On 1 December 2011, ESR acquired the business and net assets of National Radiation Laboratory (NRL). NRL performs radiation monitoring services for local and international customers. The acquisition is expected to increase ESR's commercially generated revenue, provide additional profits to ESR's business and reduce cost through economies of scale. The excess consideration paid over tangible assets acquired of \$1,338,000 is attributable to the acquired customer base and the expectation of future profits.

	Group unaudited 6 months ended 31 Dec 2012 \$'000s	Group audited 12 months ended 30 June 2012 \$'000s	Group unaudited 6 months ended 31 Dec 2011 \$'000s
Total purchase consideration			
– cash paid	204	2,000	2,000
– additional consideration payable	(204)	204	220
	–	2,204	2,220
Recognised amounts of identifiable net assets acquired and liabilities assumed			
Property, plant and equipment	–	811	811
Accounts receivable	–	181	197
Revenue in advance	–	(295)	(197)
Inventories	–	371	371
Employment benefit liabilities	–	(202)	(202)
Deferred tax	–	–	56
Net identifiable net assets	–	866	1,036
Goodwill and other identifiable intangible assets	–	1,338	1,184
Total	–	2,204	2,220

Acquisition-related costs

Acquisition-related costs of \$nil (2011: \$237,000) have been charged to administration expenses and are included in the statement of comprehensive income.

Revenue and profit contribution

The acquired business has contributed revenues of \$2,723,000 (2011: \$416,000, since 1 December 2011). The business made a direct contribution of \$721,000 (2011: \$35,000). If the acquisition had occurred on 1 July 2011, consolidated revenue and consolidated profit for the half year ended 31 December 2011 would have been \$27,884,000 and \$1,015,000 respectively.

5. CAPITAL COMMITMENTS

The following amounts have been committed to by ESR, but have not been recognised in the financial statements:

	Group unaudited 6 months ended 31 Dec 2012 \$'000s	Group audited 12 months ended 30 June 2012 \$'000s	Group unaudited 6 months ended 31 Dec 2011 \$'000s
Property, plant and equipment	1,337	212	100
Intangibles – software	209	–	–
Total capital commitments	1,546	212	100

6. CONTINGENT LIABILITIES

There are no known material contingent liabilities at 31 December 2012 (2011: nil).

7. EVENTS SUBSEQUENT TO BALANCE DATE

There were no events subsequent to reporting date that require disclosure in the financial statements.

Directory

Directors

Dr Susan Macken (Chair)
Ross Peat (Deputy Chair)
Marion Cowden
Dr Judith Johnston
Tahu Leslie Potiki
Patricia Schnauer
Professor Bill Denny

Chief Executive

Graham Smith

Senior managers

Dr Keith Bedford	General Manager Forensic
Esther Livingston	General Manager Human Resources
Steven Pyne	Chief Information Officer
Dr Fiona Thomson-Carter	General Manager Environmental Health
Nigel Thomson	General Manager Business Services

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Auditor

Chris Barber of PricewaterhouseCoopers on behalf of the Auditor-General

Banker

The ANZ Bank of New Zealand Limited

Solicitor

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