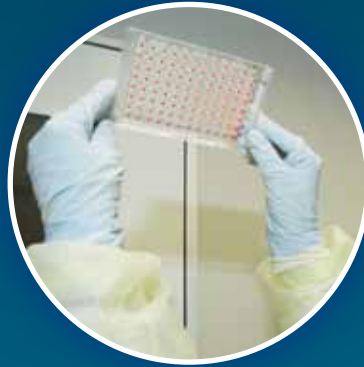


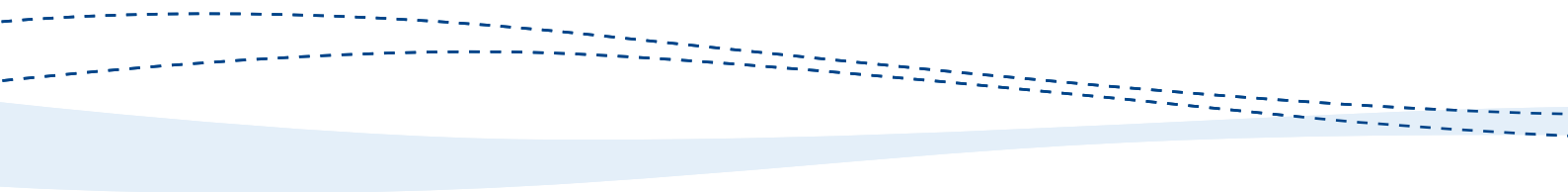


# Statement of Corporate Intent 2011 - 2016



# Contents

Introduction	3
Background - what we do	3
Statement of core purpose	4
Operating environment	6
Outcomes	8
Outcome 1: Safeguard the health of New Zealanders through improvements in the management of human biosecurity and threats to public health	9
Databases and collections	10
Outcome 2: Increase effectiveness of forensic science services applied to safety, security and justice investigations and processes	11
Outcome 3: Enhance protection of New Zealand's food-based economy through the management of food safety risks associated with traded goods	16
Outcome 4: Improve the safety of freshwater and groundwater resources for human use and the safer use of biowastes.	18
Activities supporting the delivery of ESR's core purpose and strategic initiatives, science and services	21
Workforce measures of organisational health	22
Performance measures and targets	24
Business Policies	27
Appendix 1 Statement of Significant Accounting Policies	28
Appendix 2 General Policies - ESR's business policies are publicly available on the ESR website via hyperlink from the online version of this document - <a href="http://www.esr.cri.nz">www.esr.cri.nz</a> .	36
Directory	41



## Introduction

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ESR (the Institute of Environmental Science and Research Limited) is a Crown Research Institute (CRI) incorporated in July 1992 and wholly owned by the New Zealand Government. The two Shareholding Ministers appoint a Board of Directors to govern the company. ESR has scientific facilities in Auckland, Wellington (Porirua and Wallaceville) and Christchurch. It currently has a Board of seven directors and a Strategic Leadership Team of eight.

A key recommendation of the CRI Taskforce was for the Government to publish a Statement of Core Purpose (SCP) for each CRI, defining its purpose, the outcomes to be achieved, the scope of operation and the operating principles. This 2011 Statement of Corporate Intent (SCI) explains ESR's strategy for contributing to the delivery of the outcomes in the next five years, and the performance measures that will be used to demonstrate progress. It is submitted by the Board of Directors of ESR in accordance with Section 16 of the Crown Research Institutes Act 1992.

## Background - What we do

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ESR's operational and research science underpins the health and justice systems in New Zealand. We enable central and local government to deliver better evidence-based policy and operational outcomes through the provision of independent scientific advice and services.

Our work enables government agencies to deliver on their key priorities and organisational and sector outcomes. Our science also assists these agencies to measure the impacts of their work and make good decisions.

ESR is the:

- sole provider of forensic services to New Zealand Police
- principal science advisor and scientific service provider to the Ministry of Health
- science advisor and scientific service provider to the Ministry of Agriculture and Forestry (MAF – biosecurity and food safety), New Zealand Customs Service, Medsafe, Pharmac and the Department of Corrections
- problem solver, advisor and service provider to local authorities, industry organisations and the private sector
- provider of key information to support decision-making.

In the criminal justice, biosecurity and health sectors, ESR's work supports the strategies and operations of large government agencies responsible for delivering benefits to the people of New Zealand.

We work in partnership with our government clients to ensure that the science they purchase is meeting their needs and addressing the Government's priorities. Currently 93% of ESR's total revenue comes from government purchases of scientific services and research to innovate service delivery. Our clients and stakeholders were engaged with us in the development of our Statement of Core Purpose and this Statement of Corporate Intent.

ESR is a project-based organisation, enabling us to bring together the best team to tackle any given task we undertake, be it research, stakeholder engagement, service delivery or evidence for policy. We lead and participate in teams drawn from across ESR, and from external collaborator organisations in New Zealand and overseas.

## Statement of Core Purpose

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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 of and contribute to the economic, environmental and social wellbeing of people and communities in New Zealand.

### Outcomes

ESR will fulfil its purpose through the provision of research and scientific services and the transfer of technology and knowledge in partnership with key stakeholders, including government, industry, the community and Māori, to:

- safeguard the health of New Zealanders through improvements in the management of human biosecurity and threats to public health (Outcome 1)
- increase effectiveness of forensic science services applied to safety, security and justice investigations and processes (Outcome 2)
- enhance protection of New Zealand's food-based economy through the management of food safety risks associated with traded goods (Outcome 3)
- improve the safety of freshwater and groundwater resources for human use and the safer use of biowastes (Outcome 4).

### Scope of operation

To achieve these outcomes, ESR is the lead CRI in the following areas:

- forensic science services
- harm prevention from drugs and alcohol
- surveillance of human pathogens and zoonotic diseases
- domestic and export food safety in partnership with the regulator
- impacts of the environment on human health, including groundwater, fresh and drinking-water quality and safe biowaste use
- integrated social and biophysical research to support decision-making in the environmental, public health and justice sectors.

ESR will work with other research providers and end-users to contribute to the development of the following areas:

- assessing and responding to chemical, biological, radiological and explosive events and environmental threats, including adverse human impacts on natural resources
- biosecurity and freshwater management
- climate change adaptation and mitigation.

## Operating principles

ESR will:

- operate in accordance with a Statement of Corporate Intent and business plan that describes how ESR will deliver against this Statement of Core Purpose, and describes what the shareholders will receive for their investment
- meet its obligations as a Crown Company and remain financially viable, delivering an appropriate rate of return on equity
- develop strong, long-term partnerships with key stakeholders including, government, industry and Māori and work in partnership with them to set priorities for research and service delivery that are well linked to the needs and potential of its end-users
- maintain a balance of research and scientific services that provide for both the near-term requirements of its sectors and demonstrate vision for their longer-term benefit
- transfer technology and knowledge from domestic and international sources to key New Zealand stakeholders, including industry, government and Māori
- develop collaborative relationships with other CRIs, universities and other research institutions (within New Zealand and internationally) to form the best teams to deliver its core purpose
- provide advice on matters of its expertise to the Crown
- represent New Zealand's interests on behalf of the Crown through contribution to science diplomacy, international scientific issues and/or bodies as required
- seek advice from scientific and user advisory panels to help ensure the quality and relevance of its research and scientific services
- establish policies, practices and culture that optimise talent recruitment and retention
- enable the innovation potential of Māori knowledge, resources and people
- maintain its databases, collections and infrastructure and manage the scientific and research data it generates in a sustainable manner, providing appropriate access and maximising the reusability of data sets
- seek shareholder consent for significant activity beyond its scope of operation.

## Operating environment

The next five years will bring change, challenges and opportunities for ESR.

### Change

- The science system in New Zealand is being reshaped to deliver more value by targeting resources towards wealth creation and economic growth, including the growth of the Māori economy.
- The government sector is also changing, with frontline services being emphasised over back-room activities.
- ESR's role has been defined in the Statement of Core Purpose to deliver public good services that will contribute to the economic, environmental and social wellbeing of people and communities in New Zealand.
- The operation of ESR is rapidly changing. The organisation is continuing with very significant investments in business infrastructure to support ESR's focus on being efficient, effective and essential to clients as they respond to new priorities and shifting resources.
- ESR is forming new relationships with the leadership of key government client agencies, many of which are undergoing mergers and restructuring.

### Challenges

- Like other countries, New Zealand faces pressures as the global economy emerges slowly from recession. The Government is seeking to reduce borrowings and increase exports.
- The fiscal and operating environment for ESR's government clients will be challenging for the next five years as they cut costs, reduce spending on science advice and services, restructure and right-size.
- ESR has taken a conservative view of government client revenue, although it believes that there have already been some significant adjustments made in the past two years.
- While the Government seems keen to invest in science and innovation, the domestic challenges, especially following the earthquake damage in Christchurch, have placed an even bigger call on all available resources. In this SCI it is assumed that Vote Science will not grow in the short term.

### Opportunities

ESR has become an extremely efficient provider of high-level services to government, with very high customer satisfaction evident from surveys. ESR has an international reputation for the quality of the science and research services, consultancy and advice that are provided to clients. The changes and challenges above provide a unique opportunity for government to re-think the mechanisms and structures that traditionally undertake operational activities within policy agencies. In consultation with the Ministry of Science and Innovation (MSI), government clients and other government agencies, ESR will seek to enhance the value it can deliver to New Zealand, and will explore options to assist government to reduce its costs and provide greater value for money through a logical rationalisation of operational units. ESR will deploy its skills and assets to realise these opportunities.

### International dimensions

ESR places a high priority on using international relationships and collaboration to achieve our purpose. Our involvement with forensic organisations around the world, especially Australia, has led to considerable mutual benefits in both cutting-edge research and improvements in operational activities. ESR leads international research in blood pattern and forensic mRNA research, with core funding augmented by National Institute of Justice (United States) funding.

ESR environmental health scientists participate in multiple European Union-funded projects, particularly in food safety, where we offer unique expertise now being leveraged into China. ESR forensic products and services continue to be targeted to Asia and the Middle East. ESR is also assisting the Ministry of Foreign Affairs and Trade with bilateral relationships with Australia, Asian countries and the Pacific.

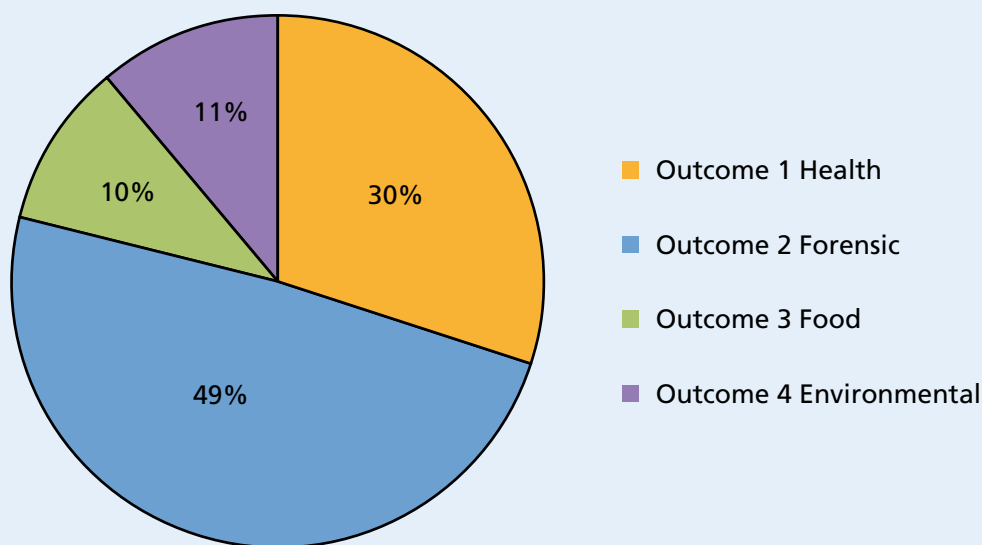
## Vision Mātauranga

ESR has a proud reputation for engagement and collaboration with Māori, particularly on health- and water-related research projects with strong social science dimensions. ESR will continue to incorporate Vision Mātauranga concepts into research and operational activities in environmental health and forensic science. For example, all forensic scientists attending crime scenes receive tikanga Māori training to assist them to do their jobs, while being fully aware of cultural sensitivities and the needs of whānau under difficult circumstances. In addition, ESR will place more emphasis in future on assisting iwi/Māori corporations in their commercial endeavours as well as on health improvement projects and support for local iwi to increase their science capacity and capabilities.

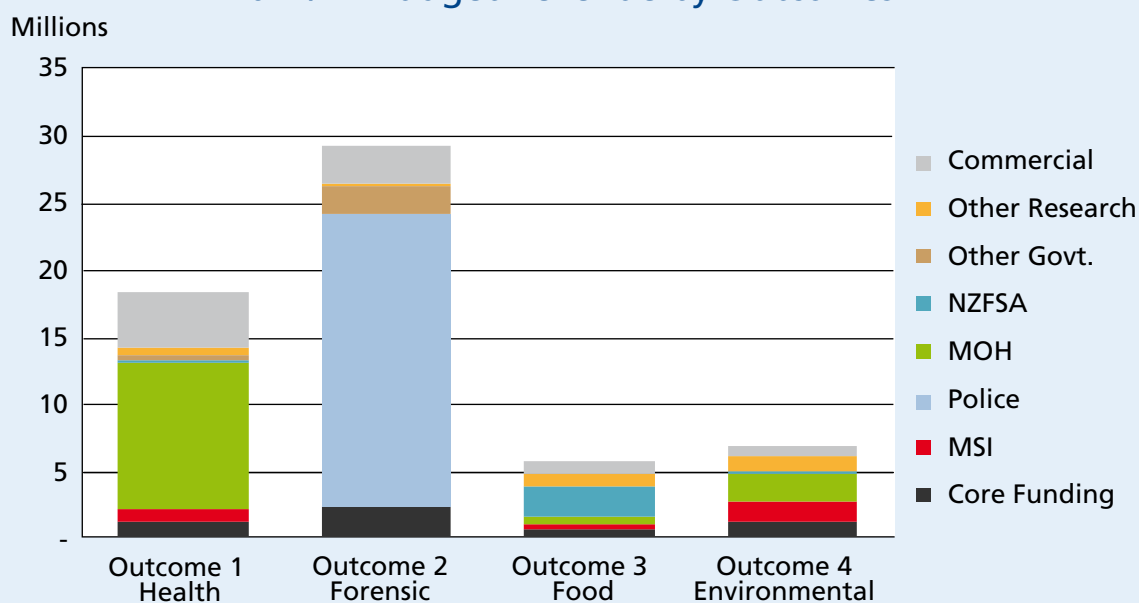
## Outcomes

This section describes how ESR will contribute to the delivery of each of the four outcomes in our Statement of Core Purpose. Three of the ESR outcomes will be delivered by programmes in the Environmental Health Business Group and half of ESR's revenue will be directed to achieving these outcomes. Outcome 1 will be delivered through the Health Programme, Outcome 3 through the Food Programme and Outcome 4 through the Water Programme. The other half of ESR's revenue will be directed to Outcome 2 activities and will be delivered by programmes in the Forensic Business Group.

### 2011/12 Budget Revenue by Outcomes



### 2011/12 Budget Revenue by Outcomes



# Outcome 1: Safeguard the health of New Zealanders through improvements in the management of human biosecurity and threats to public health

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## Background

ESR operates and provides services to central government under negotiated and agreed contracts with the key government health and biosecurity agencies. These contracts also enable us to deliver key health science services at local and community levels to district health boards and local government.

## Operating environment

The continuing pressure to make efficiencies and deliver more from static baseline funding is resulting in more innovative thinking in the health sector in New Zealand, and ESR is assisting the Ministry of Health by providing it with robust, timely information for public health action and evidence based policy making. ESR and the Ministry negotiate responsive work plans that maximise the value we provide as New Zealand's national reference laboratory and health intelligence provider. ESR places a priority on retaining critical expertise that gives us the flexibility required to respond to public health events and emergencies.

## Rationale for activities

ESR undertakes many activities that underpin and inform government responses and decision- and policy-making to minimise the impacts of micro-organisms and other environmental hazards on public health.

These include:

- microbiological reference laboratory testing (including the National Influenza Centre, SARS Laboratory, Polio Laboratory, Enteric Reference Laboratory, Nosocomial Infection Laboratory, Invasive Pathogens Laboratory, Legionella Laboratory, Bloodborne Virus Laboratory, Leptospira Laboratory and Anti-microbial Resistance Laboratory)
- operation of EpiSurv the New Zealand notifiable disease surveillance system
- identification of aberrant patterns of infectious disease
- microbiological and epidemiological investigations and analyses of infectious disease outbreaks
- maintenance of the National Culture Collection for organisms infecting humans
- storage and distribution of vaccines, forecasting of vaccine requirements (including recommendations on the composition of seasonal influenza vaccines) and oversight of tendering processes for the provision of vaccines to the Ministry of Health
- research into infectious diseases, public health events, climate change and social systems research to improve health service delivery.

The economic cost of human disease is very high as a result of lost productivity, direct costs to the health system of illness and ongoing disability and the social costs to individuals, families and communities. Māori and Pacific peoples, the young and the old suffer ill health disproportionately, affecting their ability to participate fully in society.

Human biosecurity incursions pose a particular threat, shown by the 2009/10 H1N1 influenza pandemic. Operating from the newly opened National Centre for Biosecurity and Infectious Disease, ESR provided information to assist the Ministry of Health to delay the entry of the swine flu virus to New Zealand. This provided much-needed time to prepare for the inevitable

arrival of the disease and slowed its spread. The New Zealand response contained the social and economic costs of the pandemic impacts.

Every year ESR recommends the optimal composition of the seasonal influenza vaccine based on knowledge of the virus strains circulating in our region. In 2010 this advice saved New Zealand millions of dollars because the seasonal vaccine contained the pandemic strain. Other countries had to provide pandemic influenza vaccinations in addition to seasonal vaccination programmes. ESR will continue to be proactive in our planning and readiness for public health emergencies. ESR will provide national leadership and best practice in quality assurance and operate with high standards of accreditation to underpin laboratory and health and safety processes.

## Databases and Collections

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On behalf of the Ministry of Health, ESR is responsible for managing the New Zealand Reference Culture Collection, Medical Section. ESR assists other CRIs, universities and laboratories to perform their functions by providing access to the cultures in the collection on a cost-recovery basis.

### Key outcome/impact indicators (sector impact)

1. Critical scientific advice provided to major government clients when needed.

Measured by:

- Client satisfaction surveys.

2. Manage and innovate National Reference Laboratory and Health Intelligence functions on behalf of the Ministry of Health and support the New Zealand health sector's infrastructure, policy advice and decision-making.

Measured by:

- Ministry of Health service description reporting mechanisms.

3. Invest core funding to undertake excellent, timely and relevant research using new, rapid molecular technologies to improve the identification of new and emerging human diseases.

Measured by:

- MSI non-financial reporting indicators.

## Outcome 2: Increase effectiveness of forensic science services applied to safety, security and justice investigations and processes

### Background

ESR's work supports justice sector outcomes through the provision of mutually agreed contracted services for key government agencies. These include supporting:

- New Zealand Police in meeting its key forensic priorities and a significant number of its cross-sector outcomes
- the Department of Corrections in meeting a key priority in relation to reducing drug use among prison inmates
- Courts through the provision of timely, high-quality scientific evidence to inform the criminal justice process and through the introduction of improved and cost-effective new technologies for evidence presentation
- New Zealand Customs Service border-control activities, particularly related to drug seizures and supply.

### Operating environment – meeting justice sector outcomes

The 'cost of crime' in New Zealand is estimated at \$10 billion (Minister of Police, September 2010). This includes \$3.5 billion for the direct costs of New Zealand Police, the courts and the Department of Corrections.

The New Zealand Police Statement of Intent 2011-2014 explicitly recognises that New Zealand Police's contribution to the Government's goals relies on it having strong connections with other agencies. Justice sector agencies collectively plan their interventions, expenditure and services to increase their effectiveness. To deliver a 'safe and just society', a set of justice sector shared outcomes has been agreed with the Government, achieved through two high-level outcomes of 'safer communities' and 'civil and democratic rights and obligations enjoyed'. These are supported by shared outcomes towards which the justice sector can work.

ESR supports agencies to deliver six of the eight shared justice outcomes:

- **Crime reduced:** The rate of criminal offending needs to be reduced in a manner that prevents those at risk of becoming offenders from offending and reduces the likelihood that existing offenders will re-offend
- **Offenders held to account:** Individuals who are identified, apprehended and found guilty of committing crimes are held to account for their offending, and victims' rights are recognised
- **Impact of crime reduced:** The harmful impacts of criminal activities, including the social and economic costs and impacts, are mitigated and reduced
- **Accessible justice services:** Individuals and communities have access to resources, legal information and representation, as necessary, so they can have their rights upheld and fulfil their legal obligations
- **Trusted justice system:** In order for agencies within the justice system to uphold and enforce the law successfully, it is important that they enjoy the confidence and respect of users, individuals and groups living both within and outside New Zealand. This includes an independent, high-quality forensic science service
- **International connectedness:** The contributions of justice sector agencies to the protection of New Zealand's security, upholding of international law obligations and assisting development of trans-national justice stability.

The enduring vision of New Zealand Police is 'Safer Communities Together'. Supporting this vision are two strategic outcomes:

- Confident, safe and secure communities
- Less actual crime and road trauma, fewer victims.

ESR social scientists are assisting New Zealand Police in the Wellington region, particularly in Porirua, to develop community engagement tools and processes to increase visibility and accessibility to the community. Police intend to adopt progressively more preventative approaches, and apply intelligence-led, problem-solving methods to policing. ESR's activities will assist New Zealand Police to achieve the impacts sought from the initiatives in its Statement of Intent, namely:

- confidence in the Police is maintained, and fear of crime and crashes is reduced
- New Zealand is seen as a safe and secure place in which to live, visit and conduct business
- the public, especially victims of crime, express satisfaction with police service
- less harm from crime, crashes and anti-social behaviour
- vulnerable people are protected and safe (that is, fewer victims and repeat victims)
- the rate of increase in demand on the criminal justice system is abated.

## Rationale for activities - ESR's contribution to justice sector outcomes

Through the delivery of government-contracted forensic operations and services, ESR directly supports key justice sector government agencies, including New Zealand Police, the courts, coroners, pathologists, prisons and the judiciary to achieve shared justice outcomes.

12

ESR's contribution to this outcome, and our clients' outcomes, is shaped by the work required of us by those clients. ESR balances the pressure on our justice sector clients, in particular the constrained spending environment of government agencies, with their increasing demand for new and improved services and the need for ESR continually to develop and maintain capabilities. In the next five years, ESR will continue to deliver cost-effective forensic services from the crime scene to the courtroom, providing independent science underpinning an effective and trusted criminal justice system.

The New Zealand forensic service provider model has proved to be both cost effective and efficient. New Zealand is one of the few countries in the world that does not have a backlog of forensic work. Our turnaround times in DNA analysis are among the best in the world. Through the development of mutually agreed end-to-end processes with justice sector partners, we have dramatically improved the timeliness of delivery of forensic services to investigators and to the courts.

We will continually assess and implement innovative technologies that meet new challenges in criminal investigations. We will introduce more efficient and cost-effective ways of delivering scientific evidence to support more efficient criminal justice processes. In particular ESR is upgrading its forensic facilities to support current client requirements and provide for future diversification as part of the Mount Albert Science Centre refurbishment.

Through regular discussions and reviews of contracted services with key agencies, ESR will ensure that forensic science solutions are aligned with justice sector and crime-reduction initiatives. We will continue to develop, adapt and innovate new and existing technologies to meet the casework requirements of criminal investigations and the wider needs of the justice system through:

- delivery of forensic services ‘from the crime scene to the courtroom’ to an international quality accreditation level, to underpin an effective and trusted criminal justice system [*quality*] by training staff in all aspects of the system ESR supports, including tikanga Māori
- assessment and implementation of innovative technologies that meet new challenges in criminal investigations [*innovation*] by an investment of core funding
- delivery of scientific evidence rapidly to improve the efficiency of criminal investigations and to support ‘streamlined’ criminal justice processes (including Government Criminal Procedure Simplification initiatives) [*improving timeliness*] by investing in enabling infrastructure
- alignment of forensic science solutions with wider justice sector and crime-reduction initiatives, including working with Ministry of Justice on ‘mapping the justice system’ to high-level government outcomes [*alignment with government priorities*] by making ESR expertise in social systems science available
- provision of innovative services that enhance crime prevention, law enforcement, public safety and justice sector activities, including drug- and alcohol-free workplaces and counterterrorism preparedness [*public good focus*] through the proactive and targeted use of core funding.

## Key outcome/impact indicators (sector impact)

1. As custodian of the National DNA Databank, ESR ensures that the Databank is utilised as a primary criminal intelligence tool, is managed efficiently and with integrity and meets all legislative standards.

Measured by:

- Percentage of crime-to-crime intelligence links
- Percentage of crime-to-person intelligence links
- Contracted turnaround times with New Zealand Police for delivery matched or bettered by keeping a focus on continual improvement to assist the client
- Regular audits against legislative standards and requirements.

2. Assess, develop and introduce new technologies and techniques for utilisation in forensic and criminal investigations.

Measured by:

- Number of new forensic technologies and techniques assessed and piloted for potential adoption in New Zealand
- The uptake of new services by New Zealand Police.

3. Assess and introduce new technologies that enable forensic evidence to be delivered more efficiently and cost effectively to the court system.

Measured by:

- Delivery of evidence in timeframes that support initiatives for reduced court times
- Justice sector client satisfaction surveys
- Use of new technologies by criminal justice sector agencies.

4. Provide innovative drug investigation and analysis services to meet cross government priorities on drugs and alcohol.

Measured by:

- Illicit drug analysis, tracking and monitoring
- Advice requested on new substances and drug trends to support agency border operations
- Drink- and drug-driving services that meet the needs of New Zealand Police and the courts
- Delivery of evidence that meets court needs measured by annual reports
- Client surveys that show the Workplace Drug Testing Programme is meeting the needs of its clients, including supporting the control of drugs in prisons
- New drug-testing solutions are introduced and adopted by clients.

## Investments required to achieve outcomes

- Continued investment in ensuring that ESR's laboratories, equipment and information management infrastructure are fit for purpose.
- An investment of core funding in innovating new techniques for use at crime scenes and in new digital technologies and processes to improve the understanding and delivery of forensic evidence.
- Joint research projects with agencies in New Zealand, Australia, the US and elsewhere to:
  - Discover innovative solutions to challenges with which clients are grappling
  - Collaborate on cutting-edge research
  - Strengthen the science that underpins forensic science internationally.

14

## Linkages/liaison with Justice Sector

ESR has a long-term agreement with New Zealand Police for the provision of forensic services and advice. This agreement sets out the priorities for the provision of ESR's forensic operations, including crime scene investigations, management of the National DNA Databank drink- and drugged-driver testing, and clandestine laboratory and illicit drugs work. Through this agreement ESR also provides independent services to the wider justice system, including the courts, coroners and pathologists.

In recognition of ESR's wider role with other justice sector players, the organisation has established ongoing relationships and has regular meetings with Crown solicitors and other judicial representatives. ESR also has agreements with the Department of Corrections for the provision of prisoner drug testing, and with New Zealand Customs Service for work related to illicit drugs associated with border control operations.

## Knowledge transfer – Justice Sector

ESR transfers forensic knowledge through agreed training programmes with New Zealand Police and New Zealand Customs Service. These training programmes have been so successful that new training manuals and packages will be developed for wider justice sector partners. In keeping with ESR's role as an independent provider of high-quality forensic science services, we provide lectures, presentations and training to the wider justice sector, including the legal profession and the judiciary

Measured by:

- The number of training programmes delivered, number of officers trained.

## Research collaborations

To continually innovate our service delivery to the justice sector, ESR undertakes research that underpins our operational and service activities. ESR participates in international forensic research and benefits greatly from collaborations with overseas forensic organisations. We adopt and adapt new technologies and techniques developed overseas for use in New Zealand. This rational and cost-effective approach is a result of our strong international relationships with forensic scientists and their organisations. Alongside our forensic science research capabilities, this innovation pathway has given ESR a reputation as a world leader in the adoption and delivery of forensic services, giving the New Zealand justice system access to one of the most modern and up-to-date forensic science providers in the world.

ESR will continue to collaborate with the University of Auckland to train the next generation of forensic scientists through our joint forensic science academic programme and by hosting postgraduate student research projects.

Measured by:

- The number of research collaborations with CRIs, universities and international organisations
- The number of joint research projects
- Development of a new collaborative partnership with the United States Department of Homeland Security (counterterrorism)
- Development of a new collaborative partnership with the United States National Institute of Justice.

## Outcome 3: Enhance protection of New Zealand's food-based economy through the management of food safety risks associated with traded goods

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### Operating environment

Traded goods, particularly exported foodstuffs, are critical to New Zealand's economy. When sanitary and phytosanitary barriers to trade are raised against New Zealand exports, market access is denied or threatened. New Zealand must continue to meet and exceed standards set by importers of New Zealand products. To achieve this goal, New Zealand must remain ahead of the game scientifically and be recognised internationally as having cutting-edge, robust food safety science. ESR's major client, the Ministry of Agriculture and Forestry, relies on ESR's science to inform and assist the implementation of its internationally respected risk management framework.

The food industry is seeking to move from commodity supply to high-value foods, and with researchers it is investing in the development of novel foods. There is a particular focus on enhancing the beneficial and health-giving properties of foods. Having learned lessons from consumers' reluctance to eat genetically modified foods, ESR social scientists are participating with industry in a research project that engages consumers in dialogue to inform the industry's investment in future foods.

### Rationale for activities

From the domestic food supply perspective, the continued need to advise on, monitor and respond to chemical and microbiological hazards in foods remains a priority. The economic cost of foodborne illness annually in New Zealand has been estimated at \$162 million (MAF, 2011). This figure was derived for the most common foodborne pathogens only and does not consider those less frequently reported or undiagnosed, nor illnesses caused by chemical contaminants, in which some of the adverse effects can take many years to be observed.

A healthy diet and good nutrition make an important contribution to good health. ESR provides information to clients on levels of essential nutrients, trace elements and contaminants in the food supply. This information is generated through research and operational work, including the New Zealand Total Diet Survey which ESR has been responsible for undertaking at regular intervals for nearly two decades.

ESR works closely with the regulator and industry to advise on, respond to and, where possible, provide mitigation strategies for foodborne hazards. Food and beverages account for approximately half of New Zealand's export-related revenue and delivered \$21.8 billion to the country in 2008. Continued market access is vital to ensure food and beverage exports continue uninterrupted, and adherence to international legislation regarding allowable limits for contaminants is required. Recent (2011) proposals by the US to change export beef microbiological requirements demonstrate the risks to the New Zealand economy of any issue that cannot be countered or contained.

ESR is leading a collaborative research programme designed to provide the meat industry with solutions to safeguard exports, and is investing core funding in research that anticipates the need for New Zealand to demonstrate that the pathogens on an expanded list are not present in the meat we export to the US.

ESR's activities contribute to a healthy and safe food supply through the provision of advisory, monitoring and diagnostic services, and through research aimed at developing approaches and

interventions to avoid and/or remediate foodborne hazards. ESR will continue to maintain and develop the microbiological and chemical capabilities required to contribute to the delivery of this outcome, including:

- taking risk-based approaches to the identification, assessment and modelling of microbial and chemical hazards in the food chain
- using internationally agreed methods for the detection of foodborne pathogens and chemical hazards present in foods and from patient samples
- characterising pathogens isolated using specialist sub-typing methods necessary for outbreak investigation and epidemiological studies
- undertaking research to provide new interventions aimed at reducing/eliminating pathogenic *Escherichia coli* 0157 (*E. coli*) in export and domestic meat
- providing dietary and nutritional expertise and advice.

### Key outcome/impact indicators (sector impact)

1. Improve the safety and quality of food in New Zealand, and assure market access for exported foods, in partnership with the national regulatory authority and private sector industry clients as appropriate, by providing high-quality, critical scientific advice and services.

Measured by:

- Client satisfaction surveys.

2. Provide a rapid response to key government clients managing acute foodborne threats from microbiological and chemical hazards.

Measured by:

- Number of incidents responded to and turnaround times
- Client satisfaction surveys.

3. Undertake novel research that aims to improve the safety, quality and/or nutrition of foods for domestic and export markets. Invest core funding in new molecular typing tools to rapidly identify outbreaks of foodborne illnesses and the sources.

Measured by:

- MSI programme reporting
- Publications
- Success in securing competitive grants or tenders.

## Outcome 4: Improve the safety of freshwater and groundwater resources for human use and the safer use of biowastes

### Operating environment

Environmental health is the responsibility of numerous organisations in New Zealand, and while a 'clean and green' image is portrayed overseas, the evidence required to justify this claim is not always to hand. ESR's major clients, the Ministries of Health and Science and Innovation, expect ESR to provide robust surveillance and underpinning research to inform policies on a range of critical environmental health issues.

ESR also has a role to play in constantly refreshing relationships among relevant agencies to assist the national overview. ESR connects research and information across the fields of environment and health, which have historically been funded and managed separately. ESR assists multiple agencies mandated under different legislation (the Resource Management Act 1991 and the Health Act 1956) to fulfil their functions. ESR is a lead organisation in groundwater research in collaboration with other CRIs and universities and is an active participant in the moves to integrate freshwater research fully in New Zealand in partnership with iwi Māori.

### Rationale for activities

Freshwater is New Zealand's key strategic and productive asset and we are water rich (ranked in the top 10 nations of the world [UNESCO Report, 2003; 2008 World Environmental Report Card]), with water providing more than \$5 billion per year to the economy (Minister for the Environment, 2011). However, there are water shortages in some areas and increased pressure from land intensification is having an impact on the quality of water bodies. Water quality issues can adversely affect our international reputation for food production, environmental practices, health impacts and stock productivity. Water management that takes account of competing demands on the resource (drinking water, energy generation, primary production, recreation, tourism etc) is the single biggest environmental problem for New Zealand to solve. ESR is uniquely placed to contribute to the solution through our understanding of the impacts of the environment on human health.

Groundwater aquifers hold around 60% of New Zealand's total freshwater and are used to supply about 40% of our drinking water, but many aquifers are at or near their sustainability limits for water allocation by quantity and quality. Surveys show that more than 60% of groundwater sampling sites have *E. coli* present, indicating faecal contamination, and in 5% of samples elevated nitrate levels make the water unsafe to drink. Groundwater research lags behind surface water by 15 years given the high cost of investigation, hence little is known about the ability of groundwater systems to sustain contaminant loads or the aquifer processes that affect the mitigation of those contaminants.

ESR research on pesticides and heavy metals has led to a national pesticide survey of groundwater and informs the abstraction of groundwater for drinking-water use. Our new research programme is investigating groundwater recharge to surface-water systems to sustain both their ecosystem values and baseline river and spring flows and lake levels. The research work includes future water allocation scenarios that take account of Vision Mātauranga and Māori social and economic development.

ESR maintains the Water Information New Zealand database for the Ministry of Health and various registers required by legislation to assist in the management of New Zealand's drinking-water resources and management systems. ESR collaborates with other researchers to provide

solutions to land-use intensification impacts on groundwater and surface-water quality and the understanding of the aquifer systems in consultation with water managers. The prevention of waterborne disease outbreaks is assisted by ESR co-ordinating information on the performance of drinking-water treatment systems and advising water managers on water safety and risk. This information also underpins decisions on infrastructure investment.

Climate change has the potential to affect water resources significantly. In recent years cyanobacteria blooms, a result of warm, stable temperatures and high nutrients in water bodies, have led to an acute risk of biotoxins to stock, pets and humans and are leading to limits on the recreational use of water. ESR provides advice in such circumstances to mitigate the acute health risks, as it does with emergency situations.

The National Institute of Water and Atmospheric Research (NIWA) predicts that by 2080 mean river flows in the west will increase and in the east reduce by the same amount, and flood and droughts will increase, with water-associated health impacts and the potential for new organisms to flourish in New Zealand's warming climate. Increased populations and seasonal influxes are responsible for water shortages in areas such as the Kapiti Coast. This is leading local authorities to explore options around water reuse, including greywater. ESR is investing core funding in leading research to explore water reuse options, particularly greywater, for local and regional councils to pick up and use for operational decisions and policy-making.

ESR responded quickly to the recent earthquakes in Christchurch and assisted health agencies to assess the health risks from liquefaction silt contaminated with sewage, and with advice to ensure water could be made safe to drink to reduce the risks of epidemic illness. ESR's expertise in the microbial contamination of water and sediments will inform decisions that recreational activities are safe to commence after substantial and long-term untreated sewage contamination.

Historically, biowastes have been disposed of, taking up valuable landfill space. As the price of fertilisers escalates, the nutritional value of biowastes and how they can be best used has come to the fore. ESR research will make the nutritional benefits of biowastes available to the primary production sector, while managing contaminant loadings in soil beyond acceptable environmental limits.

To deliver this outcome ESR will continue to maintain and develop the required microbiological and chemical capabilities, including:

- The characterisation of waterborne pathogens using specialist sub-typing methods necessary for outbreak investigation and epidemiological studies
- Expertise and information to support drinking-water and wastewater management systems to underpin the operation of national programmes (e.g. Water Information New Zealand and monitoring for compliance with drinking-water standards)
- The use of internationally agreed methods for the detection of human pathogens and chemical hazards in water, sediment, soil, biowastes and wastewater
- Research to characterise contaminant pathways from land into water systems, including an understanding of the vadose (unsaturated) zone below the soil, aquifers themselves, and the connection between groundwater and surface-water systems
- Research to inform strategies and methodologies to reduce or eliminate waterborne hazards or mitigate the environmental impacts of contaminants
- Research to manage the safe use of biowastes and investment of core funding in research to use greywater resources safely
- Risk-based approaches to the identification, assessment and modelling of microbial and chemical hazards in the environment

- Expertise relevant to the recovery and rebuilding of Christchurch following the earthquakes, with a focus on water resources, waste treatment infrastructure and community involvement in decision-making on the future shape of the city
- Research to provide water resource managers with the information they require to mitigate the impacts of climate change.

## Key outcome/impact indicators (sector impact)

1. Increase knowledge to minimise the adverse impacts of the environment on human health, including groundwater and fresh- and drinking-water quality and safe biowaste use.

Measured by:

- Publications and client reports, health statistics.

2. Manage New Zealand's drinking-water management systems, including Water Information New Zealand, on behalf of the Ministry of Health and the New Zealand drinking-water industry sector.

Measured by:

- Ministry of Health reporting mechanisms and client reports.

3. Improve the safety and quality of water resources.

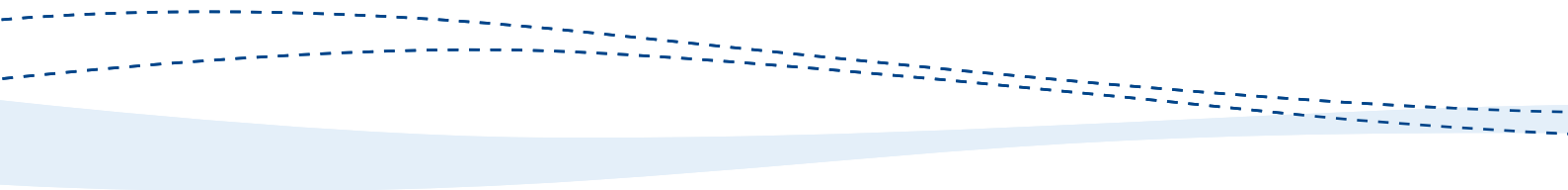
Measured by:

- The publication of research results
- State-of-the-environment reports.

4. Increased use of biowastes as a resource not a waste.

Measured by:

- The number of communities adopting biowaste reuse initiatives.



## Activities supporting the delivery of ESR's core purpose and strategic initiatives, science and services

### Strategic growth initiatives

To ensure that ESR can deliver its core purpose, we will employ excellent people and support their activities with efficient information management and communication technologies and robust business systems and processes. ESR will be financially sustainable by continuing to grow and diversify revenue.

There are growth initiatives planned in four main areas:

- Enhancement and expansion of our government service business by investing in and acquiring new scientific capabilities, technologies and enterprises
- Expanding our international scientific and consultancy services and research collaborations to access new technologies and research revenue. We will focus on Australia, Europe and the United States
- Making use of online and digital technologies to deliver smart, new, effective, efficient and essential services to clients in New Zealand and overseas
- Engagement with industry. Working with sector partners and commercialisation entities, ESR will utilise and transfer its intellectual property (IP), intellectual knowledge and professional expertise to benefit New Zealand

The new revenue from these strategic initiatives, coupled with the revenue derived from the delivery of our core purpose science activities to existing clients, will secure steady growth in our financial performance.

### Human Resources

ESR's most important asset is its staff. To continue to be successful we need to be an employer of choice and provide a work environment that attracts, develops and retains high-calibre staff. Guiding principles and organisational values have been developed to align with our Statement of Core Purpose, providing clarity and direction for our staff.

We will continue to build an adaptable, high-performance culture supported by well aligned, effective and efficient human resource systems and processes with a specific emphasis on:

- Performance management
- Learning and development
- Reward and recognition
- Workforce planning and talent management.

We will use the good employer criteria of the Human Rights Commission to measure the following key aspects of our organisational health:

- Our culture is adaptive, client focused and performance oriented
- We attract and retain staff using fair and effective processes
- We invest in staff development and promotion
- Our voluntary turnover is kept at moderate levels
- Staff can balance their work and life commitments
- We offer a positive, safe and healthy working environment.

## Workforce Measures of Organisational Health

ESR's measures of organisational health for 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
Leadership, Accountability and Culture	ESR's culture is adaptive, client focused and performance oriented	Positive trend for overall staff engagement Positive behaviours defined within competency framework Customer satisfaction levels are high (as measured by the State Services Commission Common Measurement Tool)
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 Turnover of staff with less than 6 months' service is <5%
Employee Development, Promotion and Exit	ESR invests in staff development and promotion with voluntary turnover at moderate levels	Promotion rate of 20% or better Learning and development spend as a % of total personnel costs is 3% or more 95%+ staff have objectives and development plans Staff turnover at 10% or less
Flexibility and Work Design	ESR enables people to balance their work and life commitments	% staff working <full time % of parental leave returnees % staff with teleworking arrangements
Remuneration, Recognition and Conditions	ESR's working conditions and pay are fair and competitive	ESR progress towards pay at the appropriate median market line ESR Excellence Awards made Staff satisfaction levels with conditions of employment
Harassment and Bullying Prevention / EEO	ESR offers a positive working environment for all staff	Number of harassment and bullying complaints Demographic trends for age, gender, race etc
Safe and Healthy Environment	The working environment at ESR is safe and healthy	Number of work-related ACC claims over \$500 Working days lost due to sickness Zero serious harm accidents

## Information management and communication technologies

Information management and communication technologies and systems underpin the delivery of ESR's scientific services. Major investments have been made with the recent replacement of our laboratory information management systems, which have positioned ESR for the next 10 years of operations, and the implementation of a business intelligence reporting platform.

We are continuing to focus on improving our systems to deliver timely information to clients and improve business efficiency.

To achieve this, information will be managed as an asset across the organisation. Our information technology systems will:

- be cost effective and reduce the administration load on staff
- support commercial opportunities and international sales through the creation of new products
- enable new ways of mining and using data through the integration of multiple databases onto one platform.

## Performance measures and targets

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### Financial performance

ESR is committed to achieving the level of return required by the ESR Board on behalf of Shareholding Ministers. The return on equity target for 2011/12 of 8% allows ESR to invest in the key capabilities required to deliver the outcomes in the SCP. The return will be achieved within an appropriate capital structure that includes a prudent level of gearing. The capital structure takes account of the organisation's free cash flows, reliance on key contracts and ability to resource suitable investment.

Following several years of rapid growth, core revenue from government clients has plateaued and is expected to stay flat until 2012, with only minimal growth from existing business streams projected in the medium term. For ESR to continue to invest in its business and people, new revenue streams must be secured and this is driving the new strategic growth initiatives. The current economic climate will continue to have a dampening effect on core business. ESR will counter this by improving enabling infrastructure and business processes through targeted capital investment to drive operational efficiencies. ESR will continue to explore shared back-office functions across CRIs, building on the savings made through combined approaches to procurement and purchasing insurance and travel providers. For example, ESR and Plant and Food Research are collaborating closely at the Mount Albert Science Centre site on property developments, including planning for new shared facilities and infrastructure.

ESR is committed to investment in opportunities that leverage existing core business into new strategic initiatives that will increase the value of the enterprise. We expect growth from revenue diversification through acquisitions and the delivery of new products and services by establishing online, real-time resources and information for clients.

During 2011-2016 ESR will achieve the 8% return-on-equity target and maintain its capital structure within its 0%-10% targeted gearing level. Revenue targets have been set to increase from \$52m in 2010/11 to \$77m in 2015/16.

Investments of core funding and retained earnings will be made in existing and new business initiatives and will provide \$17m of new revenue, accounting for 22% of ESR's total revenue by 2015/16.

The proportion of total revenue attributed to existing core business will reduce to 78% by 2015/16, however core service client and research investor contracts are expected to increase by 15% in five years, with the majority of the growth in the later years.

## Financial Performance Indicators 2011-2016

	Forecast 10/11	Budget 11/12	Plan 12/13	Plan 13/14	Plan 14/15	Plan 15/16
<b>Revenue</b> (\$000s)	51,843	60,124	62,387	66,749	72,929	77,089
<b>Revenue Growth</b> (%)	-	16.0	3.8	7.0	9.3	5.7
<b>Operating results</b> (\$000s)						
Operating expenses	43,667	50,425	52,184	55,604	61,183	65,035
EBITDAF	8,175	9,699	10,203	11,145	11,745	12,053
Depreciation & Amortisation	4,603	5,737	5,595	5,999	6,179	5,985
EBIT	3,572	3,963	4,608	5,146	5,567	6,068
Net Profit after Tax	2,684	2,919	3,162	3,424	3,709	4,213
Total Assets	46,378	48,118	56,168	62,176	65,678	66,513
Closing Shareholders' Funds	34,943	37,862	41,025	44,448	48,158	52,370
Capital Expenditure	8,666	8,953	12,680	6,480	4,690	5,680
Capital Expenditure % to Revenue	16.7	14.9	20.3	9.7	6.4	7.4
<b>Liquidity</b>						
Current Ratio	1.6	1.4	1.0	1.0	1.0	1.0
Quick ratio (Acid test)	1.5	1.3	0.8	0.8	0.9	0.9
<b>Profitability</b>						
Return on Equity (%)	8.0	8.0	8.0	8.0	8.0	8.4
Return on Total Assets (%)	7.3	8.4	8.8	8.7	8.7	9.2
Operating Margin (%)	15.8	16.1	16.4	16.7	16.1	15.6
Operating Margin per FTE (\$)	24,160	25,547	26,595	28,310	28,532	28,653
<b>Operational risk</b> (%)						
Profit Volatility	-	12.1	11.3	12.7	13.6	13.8
Forecasting Risk	-9.2	-	-	-	-	-
<b>Coverage</b>						
Interest Cover	N/A	N/A	21.3	13.2	13.4	28.0
<b>Growth/Investment</b>						
Capital Renewal	1.9	1.6	2.3	1.1	0.8	0.9
Dividend	-	-	-	-	-	-
<b>Financial strength</b>						
Gearing (Debt/Debt Equity) %	N/A	N/A	9.9	13.9	12.8	6.8
Equity Ratio (Equity/Total Assets) %	68.20	77.0	75.6	72.2	72.4	76.0
Cash & Short-Term Deposits (\$m)	4.8	2.3	0.2	0.1	0.2	0.2
Debt (\$m)	-	-	4.5	7.2	7.1	3.8

**Key:** Statement of Corporate Intent indicators

## Non-financial performance indicators

### 1. End-user collaboration

CRI are expected to develop strong, long-term partnerships with industry, government and Māori, and to work with them to set research priorities that are well linked to the needs and potential of their end-users (generic operating principle in SCP).

Measured by:

- Percentage and number of relevant funding partners and other end-users that have a high level of confidence in ESR's ability to set research priorities, and the effectiveness of the collaboration or partnership (survey data). Annually.
- The total dollar value of revenue (in cash and in kind), and dollar value subcontracted out to other organisations from each 'source category' per annum from rolling five years (administrative data). Quarterly.

### 2. Research Collaboration

CRI are expected to develop collaborative relationships with other CRIs, universities and other research institutions within New Zealand and internationally to form the best teams to deliver the CRIs' core purposes (generic operating principle in SCP).

Measured by:

- Percentage of relevant national and international research providers that have a high level of confidence in ESR's ability to form the best teams to deliver on ESR's outcomes (survey data). Annually.
- Number and percentage of joint scientific peer-reviewed publications and IP outputs with other New Zealand or international research institutions per annum (administrative data). Quarterly.

### 3. Technology and Knowledge Transfer (Science Relevance)

CRI are expected to transfer technology and knowledge from domestic and international sources to New Zealand industry, government and Māori (generic operating principle in SCP).

- The total number and percentage of licensing deals of ESR-derived IP (including technologies, products and services) with New Zealand and international partners per annum (administrative data). Quarterly.
- Percentage of relevant end-users who have adopted knowledge and/or technology from ESR (survey data). Annually.
- Percentage change in the number of requests for and enquiries about ESR's publicly available collections (administrative data). Quarterly.

### 4. Science Quality

CRI are expected to pursue excellence in all their activities (Crown Research Institutes Act 1992).

- The total number of international awards, invitations to participate on international committees, and editorial boards for ESR's published papers, per annum. Annually.
- Average number of citations per ESR published paper. Annually.
- The proportion of published papers in the top 25 journals of international quality relevant to the scope of ESR (as outlined in the SCP) per annum. Annually.

## Business Policies

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### General and Statutory Business Policies

ESR operates in accordance with the purpose and principles stated in the Crown Research Institutes Act 1992 and has statutory obligations under other Acts, including the Companies Act 1993 and Crown Entities Act 2004. Significant services are performed for New Zealand Police under the Land Transport Act 1998 and the Misuse of Drugs Act 1975.

Policies and procedures are in place to ensure that all of our statutory obligations are met, including policies on:

- Risk management
- Shareholder consent for significant transactions
- Intellectual property
- Databases and collections
- Dividends
- Information to be disclosed
- Accounting.

# Appendix 1

## Statement of Significant Accounting Policies

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### a) Reporting Entity

The financial statements of the Institute of Environmental Science and Research Limited (ESR) have been prepared in accordance with the requirements of the Public Finance Act 1989, the Crown Research Institutes Act 1992, the Companies Act 1993 and the Financial Reporting Act 1993.

ESR provides specialist scientific solutions, including working with the New Zealand justice and health sectors to promote the protection of people and their environment.

ESR is a Crown Entity incorporated and domiciled in New Zealand. The address of its registered office is 34 Kenepuru Drive, Porirua 5240.

### b) Basis of Preparation

The financial statements are prepared on the basis of historical cost. These policies have been consistently applied to all the periods presented, unless otherwise stated.

The financial statements are Parent 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.

### c) Statement of Compliance

These financial statements have been prepared in accordance with New Zealand Generally Accepted Accounting Practice. They comply with New Zealand equivalents to International Financial Reporting Standards (NZIFRS) and other applicable financial reporting standards, as appropriate for profit-oriented entities. These consolidated financial statements comply with International Financial Reporting Standards.

### d) Accounting Estimates and Judgements

The preparation of financial statements in conformity with NZIFRS requires judgements, estimates and assumptions that affect the application of policies and reported amounts of assets and liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances.

Actual results may differ from these estimates.

Management's judgements, which have the most significant effect on amounts recognised in the financial statements, are found in Revenue and in Employee Benefits.

#### • Revenue

The Group uses the percentage of completion method in accounting for its fixed price contracts to deliver scientific services. The use of the percentage of completion method requires the Group to estimate the services performed to date as a proportion of the total services to be performed. Stages of completion are calculated and reviewed monthly, and significant variances are investigated to ensure that the percentage of completion estimate is reasonable in line with the overall project plan, estimated completion date and prior measurements of progress.

## • Employee Benefits

In determining the future entitlements of employees, management is required to make judgements on anticipated length of service, future salary levels and discount rates. Reference is made to historical data in determining appropriate factors to apply.

Key assumptions:

- Anticipated length of service: Management opinion is that the current length of service and the staff turnover rate provide an accurate basis for determining future lengths of service and staff turnover rates.
- Future salary levels: Management considers the rate of inflation and the current employment market over a three- to five-year horizon in arriving at a suitable rate for wage increases.
- Discount rates: Management uses the five-year government bond interest rate as a discount factor.

## e) Principles of Consolidation

### Subsidiaries

The consolidated financial statements incorporate the assets and liabilities of all subsidiaries of ESR and the results of the operations of all subsidiaries. ESR and its subsidiaries together are referred to in these financial statements as the Group.

Subsidiaries are all those entities over which the Group has the power to govern financial and operating policies, generally accompanying a shareholding of more than one-half of the voting rights. The existence and effect of potential voting rights that are currently exercisable or convertible are considered when assessing whether ESR controls another entity.

Subsidiaries that form part of the Group are consolidated from the date on which control is transferred to ESR. They are de-consolidated from the date that control ceases.

The purchase method of accounting is used to account for the acquisition of subsidiaries by the Group. The cost of an acquisition is measured as the fair value of the assets given, equity instruments issued and liabilities incurred or assumed at the date of exchange. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition dates, irrespective of the extent of any non-controlling interest. The excess of the cost over the fair value of the Group's share of the identifiable net assets acquired is recorded as goodwill. If the cost of acquisition is less than the Group's share of the fair value of the identifiable net assets of the subsidiary acquired, the difference is recognised directly in the Statement of Comprehensive Income.

Intercompany transactions, balances and unrealised gains on transactions between subsidiary companies are eliminated. Unrealised losses are also eliminated unless a transaction provides evidence of the impairment of the asset transferred. Accounting policies of subsidiaries are consistent with those policies adopted by the Group.

## f) Property, Plant and Equipment

Items of property, plant and equipment are initially recorded at cost, and subsequently at cost less accumulated depreciation and impairment. The cost of property, plant and equipment includes the value of consideration given to acquire the assets and the value of other directly attributable costs that have been incurred in bringing the assets to the location and condition necessary for their intended use.

The carrying amounts of plant, property and equipment are reviewed at least annually to determine if there is any indication of impairment. Where an asset's recoverable amount is less than its carrying amount, it will be reported at its recoverable amount and an impairment loss will be recognised. Losses resulting from impairment are reported in the Statement of Comprehensive Income.

Realised gains and losses arising from the disposal of property, plant and equipment are recognised in the Statement of Comprehensive Income in the periods in which the transactions occur.

Depreciation is charged on a straight-line basis at rates calculated to allocate the cost of an item of property, plant and equipment, less any estimated residual value, over its estimated useful life. The estimated useful lives of different classes of property, plant and equipment are as follows:

Freehold buildings	25-50 years
Leasehold improvements	10 years
Plant, equipment and vehicles	3-10 years
IT equipment and integral software	3 years

## g) Intangible Assets

### • Computer Software

Items of computer software that do not comprise an integral part of the related hardware are treated as intangible assets with finite lives. Intangible assets with finite lives are recorded at cost, and subsequently recorded at cost less any accumulated amortisation and impairment losses. Amortisation is charged to the Statement of Comprehensive Income on a straight-line basis over the useful life of the asset. Typically, the estimated useful life of computer software is three years.

### • Development Costs – Internally Generated Intangible Assets

The cost of an internally generated intangible asset represents expenditure incurred in the development phase of the asset only. The development phase occurs after the following can be demonstrated: technical feasibility; ability to complete the asset; intention and ability to sell or use the asset; ability to generate probable future economic benefits; and development expenditure can be reliably measured. Expenditure incurred on research of an internally generated intangible asset is expensed when it is incurred. Where the research phase cannot be distinguished from the development phase, the expenditure is expensed when it is incurred.

Development costs have been assessed to have an indefinite life. An intangible asset with an indefinite life is tested for impairment annually, and where there is an indication of impairment. Where an intangible asset's recoverable amount is less than its carrying amount, it will be reported at its recoverable amount and an impairment loss will be recognised in the Statement of Comprehensive Income.

## h) Impairment of Non-financial Assets

Assets that have indefinite useful lives are not subject to amortisation and are tested annually for impairment. Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amounts may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units).

## i) Taxation

The income tax expense for the period is the tax payable on the current period's taxable income based on the national income tax rate for each jurisdiction. This is then adjusted by changes in deferred tax assets and liabilities attributable to temporary differences between the tax bases of assets and liabilities and their carrying amounts in the financial statements, and unused tax losses.

Deferred tax assets and liabilities are recognised for temporary differences at the tax rates expected to apply when the assets are recovered or liabilities settle. The relevant tax rates are applied to the cumulative amount of deductible and taxable temporary differences to measure the deferred tax asset or liability. An exception is made for certain temporary differences arising from the initial recognition of an asset or a liability. No deferred tax asset or liability is recognised in relation to temporary differences if they arose in a transaction, other than a business combination, and at the time of the transaction did not affect either accounting profit or taxable profit or loss.

Deferred tax assets are recognised for deductible temporary differences and unused tax losses only if it is probable that future taxable amounts will be available to utilise those temporary differences and losses .

Deferred tax liabilities and assets are not recognised for temporary differences between the carrying amounts and the tax bases of investments in controlled entities where the Parent entity is able to control the timing of the reversal of the temporary differences and it is probable that the differences will not reverse in the foreseeable future.

Deferred income tax assets are recognised to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised.

## j) Cash and Cash Equivalents

Cash means coins and notes, demand deposits and other highly liquid investments in which ESR has invested as part of its day-to-day cash management. The following definitions are used in the Statement of Cash Flows:

- Investing activities are those activities relating to the acquisition, holding and disposal of fixed assets and investments
- Financing activities are those activities that result in changes in the size and composition of the capital structure of ESR. This includes both equity and debt not falling within the definition of cash. Dividends paid in relation to the capital structure are included in financing activities
- Operating activities are the principal revenue-producing activities and other activities that are not investing or financing activities.

## k) Trade and Other Receivables

Trade receivables are stated at their estimated realisable value after providing against debts where collection is doubtful. An estimate of the value of doubtful debts is made based on a review of debts at year end. Bad debts are written off in the period in which they are identified.

## l) Inventories

Stocks of consumables and work in progress are stated at the lower of cost and net realisable value. Cost is determined on a first in, first out basis.

### m) Trade and Other Payables

These amounts represent the best estimate of the expenditure required to settle an obligation arising from goods or services provided to ESR prior to period end. These amounts are unsecured and are usually paid within 30 days of recognition. Liabilities and provisions to be settled beyond 12 months are recorded at their present value.

### n) Employee Benefits

#### • Wages, Salaries and Annual Leave

Liabilities for wages and salaries, including annual leave that are expected to be settled within 12 months of the reporting date, are recognised in respect of employees' services up to the reporting date and are measured at the amounts expected to be paid when the liabilities are settled.

Obligations for contributions to defined contribution retirement plans are recognised in the Statement of Comprehensive Income as they fall due.

#### • Long Service Leave, Retirement Leave and Development Leave

The liability for long service leave, retirement leave and development leave is recognised as an employee benefit liability and measured as the present value of expected future payments to be made in respect of services provided by employees up to the reporting date. Consideration is given to the expected future salary levels, and experience of employee departures and periods of service. Expected future payments are discounted using market yields at the reporting date for Government Bonds with terms to maturity and currency that match, as closely as possible, the estimated future cash outflows.

## 32

### o) Leases

Finance leases transfer to ESR, as lessee, substantially all the risks and rewards incidental to ownership of a leased asset. The initial recognition of a finance lease results in an asset and a liability being recognised at amounts equal to the lower of the fair value of the leased asset or the present value of the minimum lease payments. Each lease payment is allocated between the liability and finance charges so as to achieve a constant rate on the finance balance outstanding. The property, plant and equipment acquired under a finance lease are depreciated over the shorter of the assets' useful lives and lease terms.

Leases in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are charged to the Statement of Comprehensive Income on a straight-line basis over the period of the lease.

### p) Borrowings

Borrowings are initially recognised at fair value, net of costs incurred. Borrowings are subsequently measured at amortised cost. Any differences between the proceeds (net of transaction costs) and the redemption amount is recognised in the Statement of Comprehensive Income over the period of the borrowing using the effective interest method.

Borrowings are classified as current liabilities unless ESR has an unconditional right to defer the settlement of a liability for at least 12 months after the balance date.

### q) Share Capital

Ordinary shares are classified as equity.

Incremental costs directly attributable to the issue of new shares or options are shown as appropriate in equity as a deduction, net of tax, from the proceeds.

## r) Revenue

### • Sales of Goods and Services

Revenue is earned by ESR in exchange for the provision of outputs (services) to third parties. Revenue from the supply of services is measured at the fair value of consideration received. Revenue from the supply of services is recognised in the accounting period in which the services are rendered, by reference to the percentage of completion of the specific transaction assessed on the basis of the actual service provided as a proportion of the total services to be provided. Any revenue for which services have not been supplied as at reporting date but for which payment has been received is deferred within the Statement of Financial Position as revenue in advance.

### • Interest Income

Interest income is recognised in the Statement of Comprehensive Income on a time proportion basis, using the effective interest rate method.

## s) Foreign Currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates. The Group financial statements are presented in New Zealand dollars, which is ESR's functional and presentation currency.

Transactions in foreign currencies are initially translated at the foreign exchange rates at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions, and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies, are recognised in the Statement of Comprehensive Income.

Non-monetary assets and liabilities measured at historical cost in a foreign currency are translated using the exchange rates at the dates of the transactions.

## t) Goods and Services Tax

Items in the Statement of Comprehensive Income and Statement of Cash Flows are disclosed net of Goods and Services Tax ('GST'). All items in the Statement of Financial Position are stated net of GST with the exception of receivables and payables, which include GST invoiced.

## u) Dividends

A provision is made for the amount of any dividend declared on or before the end of the financial year but not distributed at balance date.

## v) Financial Instruments

The designation of financial assets and financial liabilities by ESR into instrument categories is determined by the business purposes of the financial instruments, policies and practices of management, the relationship with other instruments and the reporting costs and benefits associated with each designation. The designations applied by ESR are reflected in the financial statements.

### • Financial Assets

#### Classification

The Group classifies its financial assets as loans and receivables. Management determines the classification of its financial assets at initial recognition.

#### – Loans and Receivables

Loan and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. They are included in current assets, except for maturities greater than 12 months after the reporting date. These are classified as non-current assets. ESR's loans and receivables comprise 'trade and other receivables' and 'cash and cash equivalents' in the Statement of Financial Position.

#### – Recognition and Measurement

Regular purchases and sales of financial assets are recognised on the trade-dates – the dates on which the Group commits to purchase or sell the assets. Investments are initially recognised at fair value plus transaction costs for all financial assets not carried at fair value through profit or loss. Financial assets are derecognised when the rights to receive cash flows from the investments have expired or have been transferred and the Group has transferred substantially all risks and rewards of ownership. Loans and receivables are carried at amortised cost using the effective interest method.

The Group assesses at each reporting date whether there is objective evidence that a financial asset or a group of financial assets is impaired.

### • Financial Liabilities

Financial liabilities held by ESR include trade and other payables.

Such financial liabilities are recognised initially at fair value less transaction costs and subsequently measured at amortised cost using the effective interest rate method. Financial liabilities entered into with durations less than 12 months are recognised at their nominal values. Amortisation and, in the case of monetary items, foreign exchange gains and losses are recognised in the Statement of Comprehensive Income as is any gain or loss when the liability is derecognised.

### • Derivatives

Derivative financial instruments are recognised both initially and subsequently at fair value. They are reported as either assets or liabilities depending on whether the derivatives are in net gain or net loss positions respectively. ESR does not use hedge accounting, and as such derivatives are classified as held-for-trading financial instruments with fair value gains or losses recognised in the Statement of Comprehensive Income. Such derivatives may be entered into for risk management purposes.

### w) Provisions

Provisions are recognised when: ESR has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount has been reliably estimated. Restructuring provisions comprise employee termination payments. Provisions are not recognised for future operating losses.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligations using pre-tax rates that reflect current market assessments of the time value of money and the risks specific to the obligations. Any increase in the provision owing to the passage of time is recognised as an interest expense.

### x) Financial Risk Management

ESR's activities are exposed to a variety of financial risks: market risk, credit risk, liquidity risk, cash flow risk and fair value interest-rate risk. ESR's overall risk management programme focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on ESR's financial performance.

## Market Risk

In accordance with its treasury management policy, ESR uses derivative financial instruments to hedge economically its exposure to foreign exchange risks from its operational, financing and investment activities. These derivatives are classified at fair value through profit or loss, and gains and losses are recognised in the Statement of Comprehensive Income.

## Credit Risk

Credit risk exposure arises from trade debtors, and transactions with financial institutions. ESR's credit policy is monitored regularly. In some circumstances, collateral of security over assets is obtained from trade debtors to mitigate the risk of default. Security over assets is not required from financial institutions owing to the quality of the institutions with which ESR deals. There are no significant concentrations of credit risk

## Liquidity Risk

Liquidity risk is the risk that ESR will not be able to meet its financial obligations as they fall due. Prudent liquidity risk management means maintaining the availability of sufficient cash and funding via an adequate amount of committed credit facilities. Owing to the nature of the underlying business, ESR aims to maintain funding flexibility through committed credit lines.

## Interest Rate Risk

ESR's operating cash flows are substantially independent of changes in market interest rates

## Appendix 2

# General Business Policies

### Business Policies

ESR operates in accordance with the purpose and principles stated in the Crown Research Institutes Act 1992 and has statutory obligations under other Acts, including the Companies Act 1993 and Crown Entities Act 2004. Significant services are performed for New Zealand Police under the Land Transport Act 1998 and the Misuse of Drugs Act 1975.

ESR organises its operations and policies to maintain its competitive advantage in the areas of business it undertakes, which includes the identification and use of advanced technologies.

### Risk Management Policies

ESR seeks to minimise business risk by developing stable, long-term, profitable revenue streams in core business areas with a sound client base, and building new profitable revenue from core and new markets. Human resources policies are designed to recruit, retain and develop staff with critical skills and expertise.

ESR has a well established risk management framework, with supporting policies and procedures and the related management accountabilities and responsibilities. Arrangements for risk and risk assurance reporting to the Board, Board Audit and Risk Committee, Chief Executive Officer and Strategic Leadership Team are subject to continual review and are upgraded to meet legal and other requirements when necessary.

ESR has put in place comprehensive risk management policies and has a significant range of controls in place, including:

- an Audit and Risk Committee of the Board
- an internal audit plan
- financial reporting systems that provide timely and accurate information
- well defined expenditure and contract authority policies and processes
- health and safety systems
- accreditation to national/international laboratory standards.

### Shareholder Consent for Significant Transactions

The Board will obtain the prior written consent of Shareholding Ministers for any transaction or series of transactions involving the full or partial acquisition, disposal or modification of property (buildings, land and capital equipment) and other assets with a value equivalent to or greater than \$10m or 20% of ESR's total assets (prior to the transaction), whichever is the lesser.

The Board will also obtain the prior written consent of Shareholding Ministers for any transaction or series of transactions with a value equivalent to or greater than \$5m or 30% of ESR's total assets (prior to the transaction) involving:

- the acquisition, disposal or modification of an interest in a joint venture or partnership, or similar association
- the acquisition or disposal, in full or in part, of shares or interests in a subsidiary, external company or business unit
- transactions that affect ESR's ownership of a subsidiary or a subsidiary's ownership of another entity

- other transactions that fall outside the scope of the definition of ESR's core business or that may have a material effect on ESR's science capabilities.

## Intellectual Property Policies

ESR has policies and procedures in place relating to the access, use, maintenance, enhancement, exploitation and transfer of intellectual property and knowhow. These ensure the effective management of intellectual property and maximise the application of the results of research and technological developments, including transfers to end-users and other third parties for the benefit of New Zealand.

General principles and procedures relating to the intellectual property, research and benefits of research held by ESR (other than national databases and reference collections) meet the requirements of the Transfer Agreement between ESR and the Crown. Particular regard is paid to ESR's statutory requirement to promote and facilitate the application of the results of its research and technological developments, while remaining financially viable.

## Database and Collection Policies

On behalf of the Ministry of Health, ESR is responsible for managing the national microbiological reference collections, the New Zealand Reference Culture Collection, Medical Section. ESR assists other Crown Research Institutes (CRIs), universities and laboratories to perform their functions by providing access to the cultures in the collection on a cost-recovery basis.

The collection is held at the Kenepuru Science Centre. Access to the reference collection will be as outlined below.

### Policy for Access to National Reference Collections

ESR will provide access to the above reference collection except where access is clearly not to the benefit of New Zealand.

In providing this access:

- The costs of collection, archiving and maintenance will be recovered only to the extent that they have not been paid for from public good funding
- The costs of the actual retrieval of information from databases and reference collections will be recovered
- In situations where a third party wishes to obtain large portions of information from a database or reference collection for direct commercial use, ESR reserves the right to negotiate a copyright, royalty or licence fee.

ESR will not encumber or dispose of any national database or reference collection without the prior written consent of the Shareholding Ministers, and will immediately notify the Shareholding Ministers if, in the Board's view, it cannot reasonably maintain the integrity, security and quality of any national database or reference collection. ESR will remain responsible for the reference collection until after Shareholding Ministers have notified the Board of their determination regarding the future maintenance of, or access to, the database or reference collection.

ESR will ensure that Shareholding Ministers are advised in a timely manner of any disputes over access to, or the use of, the reference collection held by ESR. Under the terms of the Transfer Agreement, Shareholding Ministers can appoint a person with relevant expertise to decide the matter. Any such decision will be binding on ESR.

## Policy for Treatment of Items with Covenants

ESR has covenants on the disposal of identified databases and reference collections. These will be managed in accordance with statutory requirements and obligations under the Transfer Agreement with the Crown.

## Dividend Policy

The Crown Research Institutes Act 1992 provides for Shareholding Ministers to direct, if necessary, that CRIs pay financial dividends to the Crown as owner. Correspondingly, ESR's policy is that all funds surplus to ESR's investment and operating requirements will be distributed to the Shareholding Ministers through special dividends.

In determining surplus funds, consideration will be given to:

- providing for capital investment requirements without recourse to the Crown for equity injections
- ESR's working capital requirements
- ESR's requirements for efficient infrastructure, both technological and physical
- the ongoing financial viability of ESR
- the obligations of the directors under the Companies Act 1993 and other statutory requirements.

The policy takes into account the statutory requirement to remain financially viable and a going concern, and the need to fulfil the principles of operation contained in Section 5 of the Crown Research Institutes Act 1992.

38

The Board will detail in a submission to Shareholding Ministers, within two months of the end of the financial year:

- the amount of the dividend (if any) recommended to be distributed to the shareholders
- the percentage of tax-paid profits that the dividend represents
- the rationale and analysis used to determine the amount of the dividend.

ESR notes that surplus funds will be applied initially to investment and capital projects in the planned period and beyond that to meet the required rate of return, with any remainder being provided as a dividend.

## Accounting Policies

The general accounting principles recognised as appropriate for the measurement and reporting of results, cash flows and financial position under the historical cost method are followed in the preparation of financial statements. Accrual accounting is used to match expenses and revenue. Reliance is placed on the fact that ESR is a going concern. The organisation has implemented appropriate measures to ensure timely compliance with the requirements of New Zealand equivalents to International Financial Reporting Standards.

Detailed accounting policies are included as Appendix 3.

## Statutory Disclosures

Reporting requirements to the Shareholding Ministers are set out in Sections 16 to 18 of the Crown Research Institutes Act 1992. ESR is also a Crown Entity within the meaning of the Crown Entities Act 2004.

ESR will provide Shareholding Ministers with its Statement of Corporate Intent (SCI) prior to the start of each financial year.

### Quarterly Reports

The Quarterly Reports will report on financial performance for the quarter and year to date against budgets in the SCI, provide updated end-of-year forecasts, and provide a commentary on performance for the period. The commentary will focus on any material variances and how these will be addressed. Quarterly Reports will comment on major achievements for the period and the outlook for the next period. Quarterly Reports will continue to be submitted as long as they are required by Shareholding Ministers.

### Half-Yearly Report

The Half-Yearly Report will include:

- commentary on performance for the period
- description of scientific and technological highlights for the period
- an unaudited Statement of Financial Performance, Statement of Financial Position, Statement of Cash Flows, and notes to the accounts (including accounting policies)
- a certificate by the Board that ESR has operated in accordance with the principles of the Crown Research Institutes Act 1992 and the Companies Act 1993 during the period.

### Annual Report

The Annual Report will be delivered to Shareholding Ministers within three months of the end of each financial year. It will report on the operations of the consolidated company and, separately, its subsidiaries (if any) during that financial year. It will comply with the reporting provisions of the Public Finance Act 1989 and its subsequent amendments, and the Crown Research Institutes Act 1992 (as amended).

The report will include:

- stated performance against targets as presented in the SCI for the annual period, and comparative performance figures against respective SCI targets for the previous year
- commentary on the performance for the period
- description of scientific and technological highlights for the period
- description of other highlights for the period
- audited Statement of Financial Performance, Statement of Financial Position, Statement of Cash Flows, and notes to the accounts (including accounting policies)
- the auditor's report on those financial statements
- a statement of responsibility by the Board and management that ESR has operated in accordance with the principles of the Crown Research Institutes Act 1992 and the Companies Act 1993 during the period, and acknowledging obligations under the Crown Entities Act 2004
- confirmation that ESR has complied with all statutory environmental obligations.

Any other information required by the Shareholding Ministers pursuant to Section 20 of the Crown Research Institutes Act 1992 shall be supplied.

### Commercial Value and Valuation Methodology

Shareholders' funds include shares, reserves and retained earnings. Total assets include all tangible assets. The estimated value of the Crown's investment is projected to increase from \$35m in 2011 to \$52m in 2016.

The Board assesses that the best estimate of enterprise value is a net liquidation value in the vicinity of shareholders' funds.

### **Procedures for Investments by Means of Share Subscriptions or Purchases**

Subscriptions for shares in any company or for an interest in any other organisation will be subject to consultation with the Shareholding Ministers. The procedures for the establishment of subsidiary companies and the sales of substantial assets in the company or any of its subsidiaries are detailed below.

The term 'subsidiary' has the same meaning as in Section 158 of the Companies Act 1993 and Section 2 of the Crown Research Institutes Act 1992.

1. ESR will ensure that:
  - Control of the affairs of every subsidiary of ESR is exercised by a majority of the directors of ESR
  - A majority of the directors of every subsidiary of ESR are persons who are also directors or senior managers of ESR.
2. Without the prior consent of the Shareholding Ministers, neither ESR nor any subsidiary of ESR shall sell or otherwise dispose of, whether by single transaction or any series of transactions, and whether by sale of assets or shares, the whole or any substantial part of the business or undertaking of ESR and its subsidiaries (taken as a whole).
3. Where ESR or its subsidiaries holds 20% or more of the shares in any company or other body corporate (not being a subsidiary of ESR), it will not sell or otherwise dispose of any shares in that company without first giving notice of the disposition to the Shareholding Ministers.

### **Compensation Sought**

Where the Government wishes ESR to undertake activities or assume obligations that will result in a reduction of ESR's profit or net worth in terms of its investment in research, the Board will seek compensation sufficient to allow ESR's position to be restored.

No requests for compensation are currently under consideration.

## Directory

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### Directors

Dr Susan Macken - Chair  
Ross Peat - Deputy Chair  
Dr Judith Johnston  
Elizabeth Hickey  
Patricia Schnauer  
Professor Bill Denny  
Tahu Potiki

### Chief Executive Officer

Dr Fiona Thomson-Carter (Acting)

### Senior Managers

Dr Keith Bedford, General Manager, Forensic  
Dr Virginia Hope, General Manager, Environmental Health (Acting)  
Terry McCaul, Strategic Manager, Human Resources  
Leo Morta, Chief Information Officer  
Peter O'Shea, General Manager, Finance  
Dr Val Orchard, Strategic Manager, Science and Research  
David Talbot, General Manager, Business Development and Marketing

### Registered Office

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34 Kenepuru Drive  
Porirua 5022  
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Porirua 5240  
New Zealand  
Tel: +64 4 914 0700  
Fax: +64 4 914 0769  
[www.esr.cri.nz](http://www.esr.cri.nz)

### Auditor

Chris Barber of PricewaterhouseCoopers  
on behalf of the Auditor-General

### Banker

National Bank of New Zealand

### Solicitor

Buddle Findlay

