SCION
Next generation biomaterials

THE SCIENCE OF LIVING IN A CHANGING WORLD

Annual Report 2007

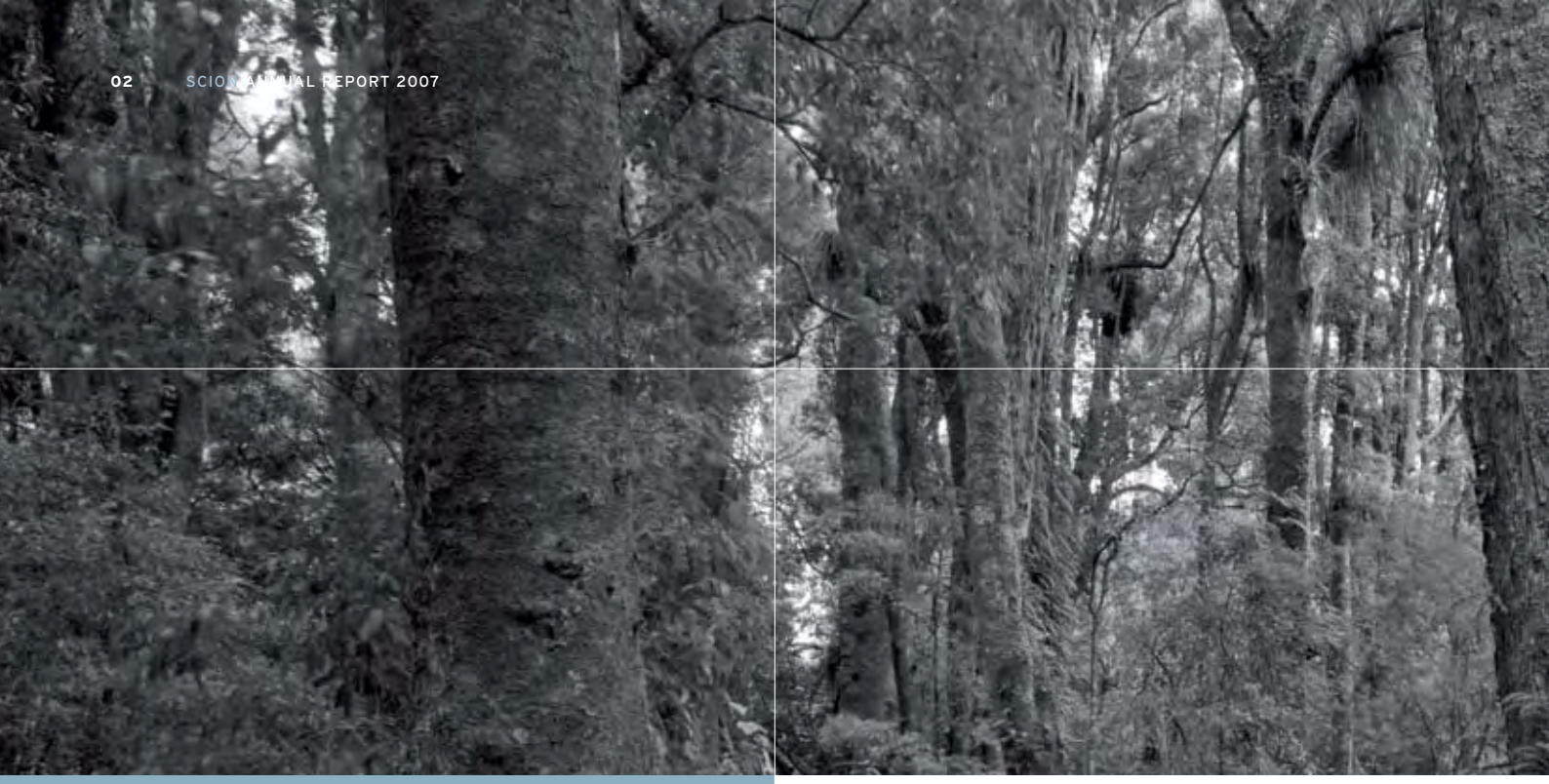
Contents

COVER PHOTO:
ATLAS systems architect Joel Gordon riding a harakeke (NZ flax) surfboard (see page 16).

A new level of public consciousness has dawned

The challenges presented by climate change, sustainable land use, and waste management are now top-of-mind for citizens around the globe. Nowhere more so than New Zealand where our economy – in fact our national identity – is driven by our natural environment. Agriculture, forestry, horticulture and tourism account for over 17% of New Zealand's Gross Domestic Product (GDP) and all depend on sustainable use of our natural resources.

Scion's role is to develop new innovations that will enable New Zealand to meet current and future consumer needs, based on renewable resources. Through this, we will enhance New Zealanders' quality of life in a changing world.



VISION

Biomaterial Futures: advancing the wide-spread utilisation of renewable materials and products from plants for economic, environmental and social returns.

ASPIRATIONS 2025

Scion provides the science, technology and leadership that will help to create an industrial biotechnology sector in New Zealand. Scion aspires to make a significant contribution to transforming the forestry sector into a vibrant industry that is a stronger contributor to New Zealand's economic wealth and sustainable development.

Scion's strategy

In 2003 Scion embarked on its "Biomaterial Futures" strategy to create sustainable options for meeting everyday consumer needs. Scion's progress in implementing the strategy is highlighted in this annual report.

Over the past year, Scion has focused on refining key aspects of the Biomaterial Futures strategy to form a clearer vision of how the organisation will drive future gains for New Zealand.

PAST EXPERIENCE – FUTURE SUCCESS

The Biomaterial Futures strategy encompasses the development of new materials, energy sources and manufacturing processes – all based on renewable resources. While this strategy looks into the future, it has its roots deep in Scion's past. In 1947 the Forest Research Institute was established in Rotorua to fulfil a purpose that was based on similar concerns. Specialised research was required to maximise the use of a renewable resource based on fast-growing exotic tree species, and thereby prevent the steady depletion of indigenous forests.

Equally, Scion's current strategy looks ahead to utilise renewable plant resources using manufacturing systems that are beneficial to the environment, to replace products and processes that deplete resources and create harmful waste. Just as Scion

helped the forest industry meet its sustainability objectives in the past, research, science and technology will enable New Zealand to meet its future material and energy needs using renewable natural resources.

EVOLVING THE STRATEGY

In 2007, three key pillars of the Biomaterial Futures strategy provide strength to Scion's future research activities - sustainability, industrial biotechnology and partnerships. These pillars are grounded in Scion's core expertise in forestry research, which provides a wealth of opportunity for deriving new value from New Zealand's natural resources.

SUSTAINABILITY

The first pillar, sustainability, focuses on reducing New Zealand's ecological footprint in a way that creates economic and social benefit. Scion drives the application of science-based sustainability measures from which improvement can be monitored. Scion's assessment frameworks specifically consider Maori values which are seen as a source of wisdom and experience for meeting inter-generational needs.

INDUSTRIAL BIOTECHNOLOGY

The second pillar is developing a range of new bio-based materials and energy systems through industrial biotechnology, which is seen as a sustainable and eco-efficient system for industrial production. Scion will assist in the establishment of an industrial biotechnology sector in New Zealand by leveraging off the forest industry, an abundant producer of renewable cellulose, lignin and tannin. These chemicals, collectively known as lignocellulosics, are important feedstocks for second-generation biofuels and new industrial chemicals and materials, such as bioplastics.

PARTNERSHIPS

The third pillar recognises the power of global partnerships to drive local benefits. Scion is utilising research partnerships to augment science capabilities, and working with commercial businesses to bring new technologies to market. The local implementation of this global partnership strategy includes working with Maori as perpetual land owners and sustainable land managers.

A FRAMEWORK FOR STRENGTH

Built on these pillars, Scion's strategy draws strength from new innovation, the talents of multi-disciplinary teams and the wisdom of those who have gone before, to ensure a prosperous future for those who are yet to come.

Chairman's report

RESULTS

The 2006/07 year has seen mixed results for Scion. We have achieved some good science outcomes and developed promising new strategic partnerships. The strength of our capability has been recognised in capability reviews undertaken by the Foundation for Research Science and Technology and Australia's CSIRO. In particular, the international science review of Ensis undertaken by CSIRO gave us a report of high sector impacts, truly innovative research and the opportunity for greater thought leadership.

In terms of financial returns, our traditional forestry research areas, represented by Ensis, the 50% unincorporated joint venture with Australia's CSIRO, had a disappointing year with its contribution being some $3 million below budget, and lower than the 2005/06 result. On the positive side, the rest of Scion had a good year, achieving above budget and improved returns on 2006. The net effect, which is not acceptable to the Board or our owners, was a net loss after tax of $0.484 million.

OPERATING ENVIRONMENT

The financial difficulties Scion has faced in the 2006/07 financial year can be linked to three problem areas: the downturn in the forestry sector; the Government's declining real term investment in research and development; and the administrative difficulties and costs involved with running our joint venture operation, Ensis.

THE DOWNTURN IN THE NEW ZEALAND FORESTRY SECTOR

New Zealand planting rates are the lowest in several decades and investment in processing capability has virtually ceased. Despite the importance of forestry in climate change and the current high international prices for forest products, there has been a reduced investment in forestry. This is largely because of the uncertainty around incentives for forestry in climate change policy, changing forestry ownership patterns in New Zealand, and high freight and exchange rates. In this sort of environment, the commercial sector is giving limited thought to its long-term position and investment in research and development. Commercial revenue for Ensis was almost $3 million down on last year, a decline of over 11%. Initiatives are underway in the sector to address its investment in research and development – see **Outlook** opposite.

DECLINING REAL TERM GOVERNMENT INVESTMENT IN R&D

Government investment in research and development is declining steadily in real terms. In 1998, the Government was putting 0.57% of GDP into research; however, in the last year, it is investing just 0.50% of GDP. That difference is equivalent to $109 million in today's terms. Not only is Government investing less into research and development as a percentage of GDP, it is also spending less in its own sector.

At the same time, costs associated with multi-layered science administrative structures and processes continue to grow. This increase in Government department, funding organisation and research consortia costs is reducing the proportion of funds available for actual scientific effort. This level of disaggregation in the New Zealand Government science sector was commented on in the recent OECD report on New Zealand's innovation policy. It has also become noticeable that some Government funds directed through consortia are being focused on very short-term technical service and consulting areas, further reducing the level of investment in mid- to long-term research which New Zealand sorely needs to create a prosperous future. With commercial players now having tax incentives to encourage investment in research and development, Government investment should be focused entirely on mid- to longer-term research efforts.

ADMINISTRATIVE DIFFICULTIES AND COSTS IN RUNNING THE ENSIS UJV

While the science collaboration with CSIRO has been successful, attempts to integrate administrative systems – and cultures – from both sides of the Tasman have been difficult and time consuming, resulting in a less than desirable control of costs and a distraction from the core science business.

Dr Russ Ballard, Chairman

PEOPLE

In what has been a challenging year for our people, I want to particularly recognise the efforts of Scion's Chief Executive Officer, Dr Tom Richardson, who has performed a dual role in 2006/07 as the Ensis CEO. This has been a demanding and challenging role and the Board appreciates and values Tom's leadership of both organisations in the past year. In addition, the executive management team and team leaders in both our science and support units have made an enormous effort, under difficult operating conditions, to achieve the growth in areas that we have, and to prevent it from being substantially worse in others.

We welcomed three new Board members in 2006 – Dr Kathy Garden, Peter Berg and John Palmer – each contributing a variety of skills and expertise which have brought a good balance to the board table. In the same period, Temuera Hall, Bronwyn Monopoli and I were all re-appointed to the Scion Board. Both the new directors and the re-appointments made have given some stability to the Board as it faces the strategic challenges ahead.

The passing of Scion's kaumatua, Ben Hona, earlier this year was a sad loss to the organisation. Ben played a valuable role in helping Scion to bridge the gap between science and Maori interests.

Scion has made considerable effort over the past 12 months to integrate with its local community. I was privileged to attend Scion's Open Day in March and was able to observe first hand the vibrant relationship between the local Rotorua community and our research institute. Scion is also extremely focused on growing its relationships with iwi, many of which are now starting to expand into commercial relationships.

OUTLOOK

The year ahead will bring more change and challenge for Scion as it seeks to improve on its results this year. First up is the review of Ensis. Structural and governance changes are being made with the aim of retaining the benefits of the trans-Tasman science collaboration, while reducing the costs of structural integration, and refining capability towards where the future emphasis needs to be.

At the same time we will be focusing on our own overheads and working with Government to find ways to decrease our administration costs, while retaining a strategic focus to research. The new negotiation process established by the Foundation for Research Science and Technology is a useful approach to reducing costs and ensuring that contestability of ideas is retained. There is a need to improve our economies of scale and position science capabilities in areas where New Zealand's needs and opportunities are greatest. This will be a primary focus for the year ahead.

The commercial forest management sector in New Zealand has recently formed a single research investment vehicle, Future Forests Research, which should be beneficial in building a common view of research priorities and building a level of investment in research and development by the sector. We will be working closely with the forestry sector to bring this initiative to fruition.

Chief Executive Officer's report

THE FUTURE HAS ARRIVED.

The 2006/07 year has been a global tipping point for Government policy, commercial response and public awareness regarding sustainability, climate change and renewable energy supplies. In 2003 we repositioned Scion's strategy and direction in anticipation of future needs in all of these areas. The past financial year has seen significant progress towards achieving this strategy.

When Prime Minister Helen Clark made her statement to Parliament in February 2007, she articulated bold aspirations for New Zealand to become carbon neutral and to strive for sustainability in the economy, society, environment and nationhood. Science-based innovation and technology are necessary to achieve these aspirations, to find out what they mean in practical terms and to make the solutions real.

New Zealand's economic and social prosperity will continue to be driven by the intelligent and sustainable use of our natural resources. This report highlights what Scion is doing to support this movement to build an environmentally, socially and economically sustainable nation.

MITIGATING CLIMATE CHANGE

Scion is delivering relevant science to underpin effective policy decisions. The Government is using results from our carbon monitoring and modelling research to benchmark where we are as a nation in terms of carbon sequestration, and how climate change can be mitigated in the short to medium term (see page 12). As the New Zealand Government strives to develop workable carbon trading systems, a detailed understanding of carbon flows and storage is vital.

SUSTAINABLE DEVELOPMENT

Companies increasingly recognise that improved sustainability and waste management make for sound business practice. Scion is driving new ways of utilising industrial waste as a renewable resource through a new "Waste 2 Gold" initiative involving Bay of Plenty horticulturalists (see page 19). Scion is also advancing the use of Life Cycle Assessment to inform product design and manufacturing processes (see page 22). Tools arising from this research will help to define environmental impacts and support sustainable management programmes that reduce demand on global resources.

NEW PARTNERSHIPS IN BIOTECHNOLOGY

On the global stage, Scion has formed international relationships to accelerate New Zealand's bio-based economy. Our strategic partnership with ArborGen will drive faster advances in gene discovery and molecular breeding of trees to meet intensive and growing demand for renewable wood products and energy sources such as biofuels (see page 18).

In January, Scion formed an exciting new partnership with AgResearch, Carter Holt Harvey and Verenium (formerly Diversa Corporation and Celunol) to explore the feasibility of a transportation biofuel industry in New Zealand using bio-based feedstocks such as trees and grasses. This partnership combines the broad range of skills required to develop a "second generation" biofuel industry to replace current biofuel production methods and make cellulosic biofuels a commercial reality (see page 20).

Scion has carried the New Zealand flag in the International Energy Agency (IEA) for many years, and our investment in developing these relationships is now paying dividends. This year, Scion collaborated with NIWA, CRL Energy, GNS and IRL to support research into new bioenergy options for New Zealand (see page 20). Another achievement this year was the launch of the Scion-developed Bioenergy Knowledge Centre in association with EECA and SysDoc, providing information and support for potential users and producers of bioenergy from wood (see page 21).

Dr Tom Richardson, Chief Executive Officer

GLOBAL OUTREACH

Building on the strength of our current networks, Scion is laying the groundwork for future partnerships through a more aggressive and focused global outreach programme. Over the past year, our Group Manager of Biomaterials Research, Dr Elspeth MacRae, participated in the Minister for Research, Science and Technology Hon. Steve Maharey's science mission to Europe and is now exploring partnership opportunities arising from new contacts in Finland. In addition, Scion hosted a Finnish Presidential delegation in Rotorua to jointly explore developing bio-economies based on forestry.

Scion's ability to collaborate and achieve improved international connectivity was significantly boosted by the launch of the Advanced Network, KAREN, in 2006. This network links the Crown Research Institutes and universities together through high speed connections and enables the New Zealand science community to link with equivalent science communities in other countries. Scion has been part of this initiative since the proof-of-concept phase and we now make extensive use of the networking capability, especially in our relationship with CSIRO in Australia.

COMMUNITY ENGAGEMENT

As global environmental issues and climate change enter mainstream public awareness, the role of science and innovation in advancing our social and economic well-being is increasingly recognised. Scion is helping to raise this awareness among New Zealanders through community engagement activities that demonstrate the value of research, science and technology to today's society and for the future.

Scion's Open Day, "Science in the Park", attracted more than 3,000 Rotorua and Bay of Plenty people and provided an extraordinary opportunity for scientists to share their knowledge and passion on topics that frequently excite public concern. Such topics ranged from molecular technologies and biosecurity, to bioenergy and waste management. The feedback received during and after this event was overwhelmingly positive, with the public clearly excited by what they experienced. The success of this event has prompted us to make the Open Day a regular fixture on Rotorua's community calendar.

Scion is achieving further community outreach through educational programmes for schools, including Forests of Life. Building on the success of this programme, the Ministry of Research, Science and Techonology is funding development of a broader inquiry-based science programme for secondary schools. Scion has also led an initiative in converting coal-fired boilers in schools to burn wood pellets. Three schools in the Bay of Plenty have been converted thus far, with more under way. While improving the schools' carbon footprint, this scheme also provides an opportunity to raise awareness of renewable energy more broadly.

FINANCIAL

The 2006/07 year has been a period of mixed success. While there are still challenges within Ensis, the 50:50 unincorporated joint venture between Scion and CSIRO, our commitment to this trans-Tasman science

From the Chief Executive Officer
(continued)

collaboration remains strong. Meanwhile, Scion's strategy to diversify into biomaterials and sustainable consumer products is now paying dividends. This growth is particularly pleasing given the tightened spending in the forestry sector and declining Government funding in real terms.

In 2006/07, Scion showed a net group deficit of $0.484 million on total revenue of $21.547 million. The net deficit showed an unfavourable variance of $0.907 million when compared to budget of $0.423 million profit. The deficit results from lower than budgeted profits in Ensis. However, good revenue growth across the rest of the business, combined with strong fiscal management, saw Scion's net deficit (excluding Scion's share of Ensis) improve year-on-year by $2.130 million. With the inclusion of Scion's share of Ensis, Scion still showed an improvement in net deficit over 2006/07 of $1.160 million, an improvement of 71% over the previous year.

Scion's total revenue was $21.547 million. This is an unfavourable variance of $3.254 million compared to a budget of $24.801 million. Total Government revenue remained essentially flat year-on-year, while growth in Scion's commercial revenue was offset by a reduction in Ensis gross margin, resulting in a small overall improvement year-on-year in total Scion revenue.

Equity accounting for Ensis results in Scion's revenue reflecting our 50% share of the Ensis gross margin contribution of $7.474 million (Scion's share was $3.799 million), from a total Ensis revenue of $57.196 million.

The group operating result included committed organisational investment in Beacon Pathway Limited of $0.200 million. Additional investment undertaken in WQI, Frontline Biosecurity Ltd and Radiata Pine Breeding Company Ltd was processed through Ensis.

Scion has made a considerable investment in its people in 2006/07, contributing $0.761 million to supporting scientists and staff in postdoctorates, sabbaticals, student stipends and tertiary training. Even in difficult financial years, Scion is committed to developing our future capability in order to ensure the long-term performance of the organisation.

Net cashflows from operating activities were $3.212 million, compared to $1.054 million in the previous financial year. The improved operating cash flow is a result of tight fiscal management, including improved debtor collections and lower discretionary spending. The improved operating cashflow, along with reduced capital expenditure, has allowed Scion to reduce its bank debt from $3.555 million last year to $1.370 million at 30 June 2007. The low bank debt puts Scion in a stronger position to make effective investment over the coming year.

An ongoing focus on revenue accruals and debt collection resulted in significant improvements this year, with Scion's low revenue accruals from last year effectively being maintained, and revenue accruals within Ensis dropping by $0.664 million. At the same time, there has been a continued improvement in the debtors' days, with long-standing Scion debtors dropping to only 0.7% of total debtors.

Te Papa Tipu Properties, the subsidiary company established by Scion in 2004 to manage its site, incurred expenses during the year in relation to the development of the North Drive Estate. Te Papa Tipu Properties finished the year with one contracted cornerstone tenant for the North Drive Estate, and another nearing contract. Building work on the new sites began and the official opening for the first tenant is scheduled for the second quarter of 2008.

CONCLUSION

I wish to extend an enormous vote of thanks to the executive team and staff. The past year has seen much progress in both science and support and we look forward to 2008.

"As global environmental issues and climate change enter mainstream public awareness, the role of science and innovation in protecting our social and economic well-being is increasingly recognised."

Dr Tom Richardson - Scion CEO

Cathy Hargreaves, Scientist.

Corporate Governance

Scion's Board of Directors is appointed by its Shareholding Ministers, the Minister of Crown Research Institutes and the Minister of Finance. All members of the Board are independent. The responsibility of the Board is to guide and monitor the business of Scion and its subsidiaries and includes:

- adopting policies of corporate conduct (including Risk Management and Delegations of Authority) and ensuring that systems and procedures are in place to carry out those policies;
- reviewing and approving Scion's Statement of Corporate Intent and Strategic Business Plan;
- adopting annual operating and capital budgets;
- monitoring performance against key objectives and budgets on a monthly basis;
- evaluating the performance of the Chief Executive Officer, and;
- evaluating the effectiveness of the Board.

The Board operates in accordance with Scion's Constitution. It has seven directors who meet 11 times over the year. The Chief Executive Officer (CEO), Chief Financial Officer and Company Secretary attend all meetings. The Board may retain independent advisors including independent legal counsel, or other experts, as it deems appropriate.

The Board has two standing committees, the Audit and Risk Committee and the Remuneration and Organisation Committee.

The function of the Audit and Risk Committee is to assist the Board in discharging its responsibilities regarding financial reporting, regulatory conformance and matters of risk management. The Committee is the liaison point with internal and external auditors, assesses the performance of financial management, reviews audit findings, the annual financial statements and interim financial information, and has oversight of compliance with statutory responsibilities.

The Committee is composed of no less than three directors appointed by the Board on the recommendation of the Chairman. While the Chairman of the Board is a member of the Committee, he is not Chairman of the Audit and Risk Committee.

The objective of the Remuneration and Organisation Committee is to assist the Board in the establishment of remuneration and organisation policies and practices, and to assist the Board in discharging its responsibilities relating to the appointment, remuneration setting and review of Scion's Chief Executive Officer and other senior executives. The Committee also reviews and recommends to the Board on development and succession planning, training and development plans and incentive plans.

The Committee is composed of no less than three members of the Board, appointed by the Board from time to time. The Chairman of the Board is an *ex officio* member of the committee and has full voting rights.

The Chief Executive Officer and Company Secretary attend all committee meetings and all directors are entitled to attend all committee meetings. Each committee establishes annual work plans and undertakes an annual review of its objectives and responsibilities and its terms of reference.

The Board's risk management policy and procedures involve formal reporting by management of the most significant risks Scion is exposed to, and the Board regularly monitors management of those risks. There is also regular monitoring and reporting on recommendations made by external auditors.

ENSIS GOVERNANCE

Ensis is an unincorporated joint venture between Australia's CSIRO FFP Pty Ltd and Scion Australasia Ltd. Ensis is the primary vehicle through which Scion delivers research and development to the forestry and forest product sectors.

The Ensis Liaison Board oversees the overall governance of the unincorporated joint venture. The Liaison Board comprises six members: two CSIRO corporate executives, two Scion board members, and the Director Ensis Investment of CSIRO, and the Scion CEO. While the Scion CEO is also the CEO of Ensis, the Scion CEO position on the Liaison Board is left vacant. The Liaison Board currently meets bi-monthly.

Ensis is managed by a lead team comprising the CEO and senior executives. The Ensis CEO reports to the Ensis Liaison Board.

Summer student Kerry Hitchcock.

Walking the talk

Progress on developing and implementing organisational sustainability

Sustainability principles require resources to be used in a way that ensures the prosperity of communities in a healthy environment. Scion makes this concept a reality by creating new bio-based systems and technologies for the future of New Zealand.

At the same time, Scion is a community in its own right - using resources, generating waste and creating an impact on the social and physical environment in which it operates. Over the past year Scion has made major progress in developing and implementing an Environmental and Sustainability Policy to ensure the principles that guide its science vision also guide its organisational conduct.

Sustainability for Scion is a prime example of progress driven simultaneously from the top-down and from the bottom-up. As the management team has formulated policy, many practical initiatives have been implemented by staff with the support of their colleagues, who genuinely care about reducing their impact on the environment.

An environmental footprint was calculated for Scion by staff specialised in using Life Cycle Assessment. The report includes the energy, water, transport, consumables and waste usage of Scion, particularly at the Rotorua campus. This information will provide a benchmark for future monitoring and enable the establishment of measurable improvement targets.

Scion held a Sustainability Week in April to make staff more aware of Scion's current environmental impact. The aim of this awareness campaign, which was run largely by staff for staff, was to encourage behaviour that will reduce Scion's overall environmental footprint.

In addition to these initiatives, staff have been diligent in taking practical steps to reduce waste. Scion's recycling programme collects batteries, glass, bottles, cans and paper. A recovery programme for photocopy paper has also been implemented to enable paper to be reused as notepads or for printing drafts.

Scion participated in an on-site interview and assessment process for the Sustainable Business Network (SBN): Get Sustainable Challenge. The assessment process is a key part of Scion's ongoing commitment to sustainability and is a framework for demonstrating progress. The assessment developed this year will provide a benchmark for triple bottom line reporting in the future.

Forests – our past and future

As the world looks for solutions to unsustainable resource use, a global view has emerged that highlights the interdependence between people and forests. History shows a society that depletes its forest resources will diminish its future prospects. Scion provides the scientific understanding that enables New Zealand to manage its various natural, plantation and urban forests in a way that provides real solutions to pressing environmental issues, while generating wealth for the nation.

Well-managed forests have been, and will remain, a major source of wood and fibre. Increasingly they are also recognised as a renewable source of carbon-neutral biofuels and bio-chemicals. Forests play an important role in mitigating CO_2 emissions and offer vital protection for soil and water, while providing habitat for a diverse range of flora and fauna. A sound knowledge of natural and planted forest ecosystems is required to underpin effective policy and responsible management strategies that maximise these benefits. Such knowledge is also required to predict possible impacts and mitigate risks associated with climate change.

Scion continues to be a leading provider of this knowledge to Government agencies, local authorities, Maori land owners and forest growers. Much of this activity is conducted within Ensis, the unincorporated joint venture between Scion and CSIRO in Australia.

The quality and impact of Ensis science programmes underwent an independent review this year through CSIRO's divisional review process. Results show that Ensis provides innovative research with high sector impact. Ensis research in environmental management, biosecurity and bushfires, wood quality and product development was rated as particularly high by international standards for the outcomes delivered to end users.

Scion is expanding the delivery of relevant science to the forest growing sector through a new partnership known as Future Forests Research (FFR). This collaboration between Scion and forest growers will drive research on radiata pine management, diversified species, environmental management and harvesting.

MEASURES OF SUSTAINABILITY FOR FOREST MANAGEMENT

Scion provides the New Zealand forest industry with scientific knowledge to underpin sustainable management of the plantation forestry estate. Over the past year Ensis researchers have used geostatistics, analysis of soil influence and spatial analysis of the complex environmental factors that drive forest growth, to construct productivity surfaces across the country. The resulting maps illustrate spatial patterns in productivity, representing a key departure from the traditional sample-based approach. This information has enabled Kaingaroa forest managers to modify their silvicultural regimes to suit specific sites and soil types, and allowed them to demonstrate the sustainability of this forest. A similar approach is being used for Ngati Porou Whanui Forests Ltd to relate wood quality to environmental variables.

CARBON FOR KYOTO

The Ministry for the Environment (MfE) requires detailed inventory and modelling information to assist with its national carbon accounting and reporting activities in relation to the Kyoto Protocol, and for the United Nations Framework Convention on Climate Change. Scion provides support for these commitments in both the indigenous and exotic plantation estates.

1. Indigenous forest monitoring - A major achievement of the past year was completing the installation of a carbon monitoring system for New Zealand's indigenous forests. This MfE funded project, which was carried out in collaboration with Landcare Research and Wildland Consultants Ltd, involved the installation of around 1400 plots in natural forests across New Zealand. Measurements taken above and below ground at each plot provide baseline data for carbon stocks and biodiversity throughout the indigenous forest estate.

2. Understanding carbon flux – Decay studies have been installed nationally by Ensis to provide a basis for determining decay rates of radiata pine woody debris (including root systems) following thinning and harvesting. Additional projects investigating woody debris decay rates of native trees will enable prediction of native forest carbon emissions as part of New Zealand's reporting obligations. The aim is to determine the amount of carbon that is released when trees die and decay.

3. Modelling carbon stocks - Ensis' knowledge of tree growth and change in forest biomass underpins the measurement of carbon stocks in New Zealand's forests. The MfE has recently signed an agreement with the Plantation Management Co-operative to licence the 300 Index growth model. This model was developed by Ensis staff to allow improved yield prediction of radiata pine. The 300 Index model has been linked with a stand carbon model, C_Change, which has also been licensed by MfE to assess the national impact of carbon sequestration in New Zealand's radiata pine resource. This is an excellent example of how research and development are simultaneously benefiting the forest industry and contributing knowledge and tools to address national and global demands.

4. Eyes in the sky - Ensis staff have developed exciting new methods for predicting carbon stocks from measurements taken using LiDAR (Light Detection and Ranging). This airborne technology can measure the size and shape of trees, which can be used to predict carbon stocks when the data are combined with ground-based plot information. Ensis scientists found a strong relationship between LiDAR

images and tree biomass. This innovative application of existing technology offers a cost-effective way of conducting national surveys of planted forests.

DEFINING THE IMPACTS OF ILLEGAL LOGGING

Illegal logging carried out overseas has important implications for the New Zealand wood products sector. Scion completed a report for the Ministry of Agriculture and Forestry (MAF) that evaluates the impact of illegal logging on both the price and the competitiveness of New Zealand wood products in domestic and foreign markets. The study used economic models to view the New Zealand forest sector in its full international context, recognising the complex interactions among countries and industries in the global forest sector. Information from this study will be used to develop robust and targeted policy on illegal logging.

BIODIVERSITY AND CLEARFELLING

As a signatory to the United Nations Convention on Biological Diversity (United Nations 1992), New Zealand is developing national biodiversity strategies. To provide realistic targets these must be underpinned by scientific data. A PhD thesis completed by Ensis scientist, Steve Pawson, contributes significantly to this body of knowledge within the context of plantation forestry. His thesis studied the impact of forest management, especially clearfelling, on

Forests – our past and future (continued)

beetle species composition. Results indicate that clearfelling causes a temporary change in beetle community composition, but not a loss of biodiversity, as harvested areas support increased beetle diversity. Regenerating stands slowly revert back to similar beetle communities as the new rotation matures.

A SUSTAINABLE APPROACH TO WEED CONTROL

After 10 years of scientific research, Ensis released a Chinese weevil *(Cleopus japonicus)* last September to help control buddleia *(Buddleja davidii)*, a serious forest weed in the North Island. If it is successful, cleopus will help to reduce the need for herbicides and also provide some control in natural areas where access is difficult. The first release of cleopus was marked by an official event in the Whakarewarewa Forest in Rotorua. Since then, the weevil has been released onto buddleia at four other forest sites: Kinleith, Lake Taupo Forests, the Esk Forest in Hawke's Bay and Rawhiti Forest Farm near Ohope. Early signs are that cleopus is doing well at all sites with several generations recorded, which means the insect is breeding successfully in the New Zealand environment.

Ensis scientists Nod Kay and Dr Darren Kriticos with Rotorua MP Steve Chadwick at the official release ceremony of cleopus.

NGATI POROU SEEK ALTERNATIVES

Ensis staff worked closely with Ngati Porou Whanui Forests Ltd (NPWF) to meet their vision of using diverse species to ensure long-term landuse sustainability. The aim is to match different plant species to appropriate sites for the best environmental, social and economic outcomes. Ensis made recommendations to NPWF based on site inspections and remeasurement of research trials, many of which were established during the 1980s for the purpose of testing different species in new areas. NPWF's approach particularly highlights the contributions that forestry makes in managing erosion-prone hill-country. This approach will yield benefits not only to local iwi, but also to the wider landscape as steps are taken to protect water quality and reduce soil loss.

PROTECTING HIGH COUNTRY LANDSCAPES

Ensis has developed a project under the Sustainable Farming Fund to study the prevention, management and control of wilding conifers in the South Island. To provide a foundation for this project, Ensis has formed the South Island Wilding Conifer Management Group including forest owners, regional councils, Landcorp Farming, High Country Federated Farmers, Department of Conservation, Land Information NZ and Landcare Research. This group will direct research and awareness programmes to drive management solutions for the widespread wilding issue.

JOINING FORCES WITH PROJECT CRIMSON

Project Crimson and Ensis jointly produced a publication on the history, ecology and habitat of pohutukawa. The Pohutukawa Bulletin is the fourth in the indigenous tree bulletin series produced by Ensis with support from Tane's Tree Trust. The first two bulletins covered totara and kauri, while the third presents general guidelines for establishing and managing native trees. This series of books is written for anyone interested in the planting, management, conservation and sustainable production of native trees, including councils, farmers, foresters and iwi.

"Sustainability and climate change have become the compelling issues of our times, dominating international forums and agendas."

Rt Hon Helen Clark - Prime Minister of New Zealand

Materials and manufacturing for the future

The twenty-first century is a time of converging technologies and scientific know-how across different disciplines. The quest for solutions to environmental issues is leading to new opportunities for biologically-based economies, manufacturing systems and changing global trade dynamics.

These challenges are being met through specialised, multi-disciplinary approaches, involving a range of physical, industrial and environmental sciences. Scion has entered key strategic partnerships that pool the capabilities needed to create new bio-based products and manufacturing systems.

Opportunities of particular relevance for New Zealand include industrial biotechnology where lignocellulosics derived from trees (i.e. cellulose, lignin and tannin) are a prime feedstock for producing new materials, bio-chemicals and fuels. Scion is driving aspects of industrial biotechnology that offer new ways of meeting consumer needs using renewable plant resources and sustainable, environmentally-friendly manufacturing systems.

BIOPOLYMER NETWORK

The Biopolymer Network (BPN) has emerged as a highly successful collaborative research programme creating innovation in new material development. Scion and its BPN partners, AgResearch and Crop & Food Research, have achieved a number of important milestones in the past year. Scion science capability was intimately involved in the filing of two BPN patent applications for new biofoam and harakeke (New Zealand flax) biocomposite technologies.

BIOFOAMS

A move towards "green plastics" has inspired a push to develop biofoams as a replacement for petroleum-based polymers used in applications such as polystyrene packaging. One of the most promising biologically-derived alternatives is polylactic acid (PLA), which can be used for a range of commodity plastics. Scion scientists were inventors in a BPN patent application for a new method of producing "green" biofoams of PLA using a novel CO_2 foaming technology for commodity applications. This technology can be used to produce moulded shapes and products, such as insulation, packaging and specialty components. A recent production trial has tested the technology at an industrial scale.

HARAKEKE SURFBOARD

To demonstrate the high-performance characteristics of new biomaterial technologies, and the potential use of these technologies in everyday life, BPN has used Scion science capability to create a surfboard using harakeke fibre biocomposite as a sustainable replacement for fibreglass. This 100% glass-free board has been made using a water-resistant biocomposite. Unlike synthetic fibres, pulped harakeke fibre can be treated to create a unique decorative effect on the board, as well as providing strength and stiffness.

ATLAS systems architect Joel Gordon with a harakeke surfboard.

Materials and manufacturing for the future (continued)

FOCUS ON FORESTS

Scion and US-based ArborGen LLC have signed a multi-million dollar research and development agreement to focus on gene discovery and molecular breeding for forest trees. The research will allow faster identification of genes that will improve tree growth and quality for applications in both forestry and natural material engineering. This partnership brings together two leaders in forestry biotechnology, creating exciting synergies for breakthrough discoveries and product development.

UNLOCKING THE MYSTERIES OF LIGNIN

Scion's in-depth knowledge of plant cell walls and the chemical building blocks they are composed of is creating new opportunities to modify industrial feedstocks. A major highlight for Scion this year was achieved by scientist Dr Armin Wagner through his investigations into lignin, a key component of cell walls in wood and a valuable precursor for new industrial biochemicals. Lignin, the second most abundant terrestrial biopolymer after cellulose, is a

Dr Armin Wagner

major structural component of cell walls in wood-forming tissues.

By using a new method for testing the function of genes in conifers (tracheary element development in tissue culture), Dr Wagner and his colleagues identified a gene that is critical for the biosynthesis of lignin. This important breakthrough enhances scientific understanding of lignin production in conifers. Researchers showed that reducing the expression of this gene also reduced lignin content by 42%. The new genetic knowledge could be beneficial in selecting trees as biomass for pulping or biorefinery use. Scion has filed a patent on the utilisation of this gene for lignin modification.

STUDYING CELLULOSE AT NANO-SCALE

Ensis and Scion scientists contributed to a major publication on wood cell wall nanostructure involving collaborations with the University of Colorado, USA. Using electron tomography, this research showed for the first time the three-dimensional organisation of cellulose microfibrils in the "S2" layer of the secondary cell walls of wood samples. This research will assist in modelling of cell wall structure-properties for prediction of timber behaviour and biomaterial applications.

MAORI PERSPECTIVES ON BIOTECHNOLOGY

Te Aroturuki is the national Maori advisory group for Scion's biotechnology research programme. The group was formed in association with Mana Whenua (landowners) in 2002 to ensure that areas of concern to Maori around gene technologies are addressed as part of the science programme. During the past year this group formulated a Tikanga (values)-based framework model, which is providing the tools and process for Maori and practitioners of western science to engage in more effective dialogue when discussing research proposals. Te Aroturuki and Scion representatives were invited by the Environmental Risk Management Authority (ERMA) to present the "Te Aroturuki values-based framework for cross-cultural dialogue" at a workshop on genetically modified organisms in Wellington.

TRANSGENIC TREES – TACKLING A WORLDWIDE ISSUE

At the request of the Secretariat of the Convention on Biological Diversity (CBD), Scion completed a survey on the "Assessment of genetically modified trees for their potential environmental, cultural and socio-economic impacts on the conservation and sustainable use of forest biological diversity". Scion's response to the questionnaire included a description of New Zealand's only field trial of genetically modified trees, the outcomes of the Royal Commission on Genetic Modification and the regulatory frameworks administered by ERMA and MAF.

WASTE 2 GOLD

A regional focus on waste in the Bay of Plenty looks to use industrial organic wastes as potential feedstocks for new materials, such as bioplastics. The research programme has received Government funding to provide added-value bioproduction from under-utilised industrial wastes and residues, to improve the economic and environmental sustainability of the waste producers. Scion has conducted a survey to assess fruit and vegetable processing activities within the region and to identify current waste production and disposal patterns. This has led to the formation of a partnership between Scion, Environment Bay of Plenty, PriorityOne, Zespri International and other horticultural producers/processors in the Bay of Plenty to explore opportunities for developing new products from these waste streams. This regional initiative may be a model for extension into other sectors in New Zealand. The aim is to turn negatives, such as disposal costs, into value-added benefits.

Energy for the future

The worldwide push for alternative fuels and renewable energy supplies is now on. In New Zealand, the Government's recent commitment to carbon neutrality has stimulated focus on producing biofuels from plant resources. With woody biomass recognised as a primary source of liquid fuels, heat and power, Scion's expertise in forestry, biomass production and bioenergy is coming to the fore.

ENERGY ALLIANCE

This year Scion was successful in winning a FRST contract to undertake research into Bioenergy Options for New Zealand. The project includes a comprehensive assessment of bioenergy opportunities covering heat, power and liquid biofuels, and the research required to realise these opportunities. One of the key outcomes will be input into the New Zealand Energy Strategy, which indicates viable bioenergy solutions for a resilient energy supply.

The objectives of this integrated research project will be achieved through a newly formed "Energy Alliance" working in close collaboration to provide impact-focused energy research capability. Members of the alliance are Scion, the National Institute of Water and Atmospheric Research (NIWA), CRL Energy, the Institute of Geological and Nuclear Sciences (GNS) and Industrial Research Limited (IRL).

SECOND GENERATION BIOFUELS

Another highlight of the year was the launching of a new partnership between Scion, AgResearch, Carter Holt Harvey and Verenium (formerly Diversa Corporation and Celunol) in the United States. The joint research programme is exploring the potential of a transportation biofuels industry in New Zealand using bio-based feedstocks such as trees and grasses. This partnership combines the broad range of skills required to develop a "second generation" biofuel industry, based on bioethanol, to replace current biofuel production methods (e.g. corn). These skills include Verenium's expertise in developing high-performance specialty enzymes to

convert cellulosic biomass into ethanol, and Scion's knowledge of feedstock logistics and modifications of cellulose and lignin to make ethanol production more efficient. Carter Holt Harvey and AgResearch are modelling the economic and infrastructural aspects of this opportunity.

This biofuel project offers an excellent example of industrial biotechnology in action for the benefit of New Zealand. In November, Scion and Verenium completed a technical scoping study to determine the performance characteristics of existing enzyme cocktails and pulping processes. The scoping study demonstrated good potential for high efficiency conversion of New Zealand-grown radiata pine and eucalypt pulp to ethanol.

During the follow-up feasibility phase of the project, alternative methods for fibre preparation from radiata pine, not limited by pulp and paper needs, have been developed. This project has been a significant step in assessing the viability of modifying a pulp and paper mill to become a biorefinery, producing both bioethanol and other by-products.

ENERGY FROM BIOMASS

Scion worked in collaboration with East Harbour Management Services Ltd to determine renewable energy targets for the use of biomass for heat

in New Zealand to 2020 and 2030. A prediction of forest biomass availability for producing heat was developed, based on scientific data, to deliver meaningful targets for specific sectors. The study emphasises the key role for the wood processing industry in the New Zealand bioenergy environment and the importance of linkages between wood pellets, wood processing residues and forest residues.

The study also demonstrates the critical role of a carbon tax (or equivalent priced-based measures) for bioenergy to be economically competitive with fossil alternatives such as coal. The targets devised in this study provide important input into the new Energy Efficiency and Conservation Strategy. The work was commissioned by the Energy Efficiency and Conservation Authority (EECA).

BIOMASS FROM FOREST RESIDUES

Scion completed a study for EECA on systems and costs for recovering usable forest residues from landings. The study concluded that New Zealand has substantial potential for producing biomass fuels from forest harvest residues. However the study showed that with current transport, handling and compaction technology and practices, the transporting of unprocessed residues is uneconomic over distances greater than 65 km. The report highlighted where engineering solutions would provide efficiency gains in the forest residue supply chain and concluded that payment for residues should be by energy content, not weight as is currently the case. This project was part of the Forest Industry Development Agenda (FIDA) bioenergy programme.

BIOENERGY KNOWLEDGE CENTRE

The Bioenergy Knowledge Centre provides tools and information to those who want to use woody biomass as a renewable energy source. The aim of the Bioenergy Knowledge Centre is to reduce technical, financial and operational risks associated with investment in bioenergy projects. Scion is managing the Knowledge Centre in conjunction with Sysdoc Ltd, and the Energy Library. The initiative is funded by the FIDA, Biomass Initiative which is administered and run by EECA.

The Bioenergy Knowledge Centre comprises two parts – a web-based information portal (www.bioenergy-gateway.org.nz) and a call centre (0800 BIOENERGY). The website provides calculators that have been developed by Scion for sawmillers and wood processors to estimate residue quantity and value for a variety of uses.

WOOD PELLETS CATCHING ON

Converting wood waste and residues into wood pellets, which can be used to fuel domestic heaters, commercial boilers and industrial heating plants, markedly expands the way biomass can be used for energy. This year Scion completed an assessment of air emissions from solid fuel (wood or coal) and wood pellets in Rotorua that demonstrates the potential benefits of pellet fuels. Scion also completed the conversion of coal-fired boilers to wood pellets at three Rotorua schools – a first for New Zealand.

Building for the future

As New Zealand strives for more responsible use of finite resources, increased attention has been turned on the building sector. Each year around 40% of raw material globally is used for building and construction activities. In New Zealand, construction and demolition activities produce up to 50% of all waste generated. Over the past year Scion has further developed the capabilities needed to help address these important issues of sustainability in the built environment.

To improve the sustainability of buildings it is necessary to understand the environmental impacts of all components in the system. These impacts must be assessed over the full life cycle of the structure including manufacture of materials and products, construction, service-life and demolition. Life Cycle Assessment (LCA) is a developing scientific approach to measure these factors.

A Scion review of existing LCA work shows that a growing number of stakeholders in the New Zealand building sector have engaged in the application of LCA. To demonstrate the role and benefits of LCA, Scion has developed databases and models to assess different housing configurations and quantify the environmental impact of materials and services, such as energy. Scion has also evaluated the impact of material selections for different regions of New Zealand and assisted manufacturers to improve the sustainability of their products and processes.

Scion has recently relocated its LCA team to Wellington, so this specialised capability is more readily available to policy advisors and key business planners. This team is working closely with clients such as the Ministry for the Environment, Department of Building and Housing (DBH) and energy companies.

CARBON FOOTPRINTS FOR RESIDENTIAL HOUSING

This year Scion has provided assistance to the DBH relating to LCA of housing systems and development of carbon footprints for houses. Policy makers are evaluating the possibility of incorporating LCA into the Building Code, using greenhouse gas emissions as an indicator for environmental performance. Scion has completed a report that reviews the suitability of these indicators and the underlying methodologies for their calculation.

WORKSHOPS FOR THE BUILDING INDUSTRY

Scion provided three LCA workshops for Beacon Pathway Ltd in conjunction with the New Zealand Green Building Council. Beacon Pathway is a collaborative research consortium of organisations with a considerable stake in the quality of the residential sector including: Building Research, Scion, Waitakere City, Fletcher Building and New Zealand Steel. Around 185 stakeholders from the building industry attended this educational programme including architects, building product manufacturers and policy makers.

The workshops introduced the concept of Environmental LCA and demonstrated applications of LCA for the building industry.

COMPASS OFFERS DIRECTION FOR DESIGN INDUSTRY

Scion completed a major product-focused consumer research project known as "Compass" in collaboration with Locus Research. The Compass research programme provides an in-depth understanding about the use of finger-jointed products in the exterior cladding market within the United States. The purpose

"If business is not sustainable, our economy cannot be sustainable, our way of life cannot be sustainable, and our nation cannot be sustainable."

Jeanette Fitzsimons MP

of the project was to identify options for adding value to finger-jointed material and enabling new product development strategies to be formed based on principles of sustainability. Results of this project will be made available to New Zealand companies this year.

REMOVING TRADE BARRIERS

Scion has undertaken research aimed at understanding potential changes in New Zealand's export market environment, the technical barriers and opportunities likely to arise, and the responses required to enable growth of forest product exports. This project identified the importance of market development as a recurring theme, suggesting that greater effort and Government assistance in this area would increase the dividends from removing technical barriers – such as engineering certificates for prefabricated house exports to Japan. Domestic issues such as instability of exchange rates and cost of business also emerged as significant impediments to trade.

NZWOOD

NZWood is a promotional programme designed to improve perceptions of plantation forests and wood, and to boost domestic consumption of wood products. The three-year project is jointly funded by the New Zealand Forest Owners' Association, the Wood Processors Association, the Pine Manufacturers' Association and the Forest Industry Development Agenda (FIDA). Scion is contributing through the provision of support and information arising from research projects.

NOW HOME® OPENS IN ROTORUA

Scion recognises the need for all New Zealanders to have homes that are not only sustainable, but are also affordable, healthy and comfortable to live in. This need provided inspiration for the NOW Home® projects, constructed by Beacon Pathway, to trial the design of homes that meet these criteria. Beacon's second NOW Home®, opened last year, has brought these innovations to Scion's home region, being located in Fordlands, Rotorua. The NOW Home® synergises Housing New Zealand design requirements and Maori whanau (family) values. The NOW Home® also supports Housing New Zealand's Community Renewal Objective for Fordlands as Rotorua's largest urban Maori locality.

Taking innovation to market

Partnering with business to transform great science into commercial products

CLARIANT TAKES ON BIOPLASTICS DEVELOPMENT WITH SCION

Scion works to create bioplastic materials that offer controlled degradability in the environment. As a result of this research, Scion has acquired extensive experience in testing and formulating biodegradable plastics and has established a database on biofunctional additives and bioplastic formulations.

To facilitate the development of new products, Scion has signed a licensing agreement with the New Zealand branch of Clariant, a global chemical company. Clariant is a key partner who now has exclusive use of Scion's bioplastics database in New Zealand and Australia to produce formulated compounds for plastics manufacturers, such as injection moulders, to make biodegradable products.

ENVIRONMENTALLY INTELLIGENT BIOPLASTICS TAKE SHAPE

A research project is under way to develop bioplastic formulations for pegs and washers to hold erosion control matting. The pegs and washers are injection moulded parts which are designed to degrade, benignly, at different rates. These pegs must have a certain mechanical integrity (for example, to withstand hammering into hard ground), while retaining their function as long as required to hold the matting in place. Scion is working with New Zealand company, Ludowici Mulford Engineering Plastics Ltd, to develop and test these products. The current European market for a successful product of this nature is measured in the millions of components. The ultimate aim of this project is to develop intellectual property and materials from New Zealand waste streams to be transferred to that market place.

ATLAS programmer Wayne Schou with Glenis Boulanger from Timberlands Limited.

STIFFNESS TESTER FOR CORRUGATED BOARD

The Dynamic Stiffness Tester (DST) was developed by Ensis as a tool to help manufacturers improve the quality and performance of corrugated board for packaging. Ensis had previously manufactured DSTs, which are currently being used by industry in Australia and New Zealand. Rather than continue to manufacture the DST, Ensis made a formal call for proposals from industry for worldwide rights to its intellectual property related to DST.

Korutest Limited of Rotorua has now purchased the intellectual property in the DST, including patents filed in New Zealand, Australia, United States and Europe. As the successful bidder, Korutest Limited provides benefit to New Zealand by keeping manufacturing within the country. The principal of this company is Ian Chalmers, a current Scion employee, who was the inventor and responsible for the development of the DST. Ian is moving to a part-time employment arrangement with Scion to allow him to actively operate the Korutest business.

The sale process was underpinned by a robust testing of the market place, to ensure the best sale price for the DST and the maximum benefit to New Zealand.

IMPROVING LAKE QUALITY

Scion has entered into a collaboration agreement with Blue Pacific Minerals for the development and commercialisation of modified zeolite technology. Scion's technology relates to the application of zeolite, a volcanic mineral, modified with a polymer for treatment of lakes polluted with phosphate nutrients.

Over the past year, Scion and Blue Pacific Minerals have refined the process of producing modified zeolite to work at a commercial manufacturing scale. This process enables production of a large enough volume to undertake a whole lake trial. Scion and Blue Pacific Minerals have signed a Material Transfer Agreement with Environment Bay of Plenty to begin production for the lake trial, which will be conducted in 2007/08.

This trial will be undertaken with NIWA and the University of Waikato, who will provide the monitoring and modelling skills needed to assess the performance of the modified zeolite and impacts on lake health.

STRONG YEAR FOR ATLAS TECHNOLOGY

ATLAS Technology is Scion's software development unit, producing management tools for the forestry sector. The past year has seen strong business growth in ATLAS Technology with a major new Australian client, the Forest Products Commission Western Australia.

The international profile of ATLAS Cruiser, a leading ATLAS product, has also expanded, with the adoption of this software by major forestry schools overseas. ATLAS Cruiser enables forest managers to reliably estimate yields using forest inventory assessments. This highly reputable product is now being used at Oregon State University in the United States, Napier University in Edinburgh, and the University of Wales, Bangor.

The software development team has launched a number of new products and upgrades over the past year. ATLAS Yield Table Manager is a new product to assist forest managers in preparing forest yield information for valuation and strategic planning purposes. This software has been fully integrated with other ATLAS products.

Another new product known as ATLAS Harvest Scheduler was completed for Hikurangi Forest Farms. This crew scheduling simulation software estimates production of volume by log type and calculates depleted net stocked area in the short and medium term.

In addition, ATLAS presented the latest iteration of Roading Manager during a user group meeting for GeoMaster. This is the first release that members of the development group can install and experiment with. ATLAS Roading Manager provides a centralised system for managing road information and making it available to the whole organisation.

ATLAS has also completed development of a lumber sawing simulator in conjunction with Ensis. The software, known as Breakdown Simulator, models different saw techniques and determines the resulting value of the lumber. This product has been built for the purposes of research services.

Capability fund

Scion's capability fund has focused on three key areas:

1. Sustaining the foundations of a viable forestry and plant fibre sector (38% of the allocated fund).
2. Building a vibrant and competitive forest product industry (21%).
3. Building a knowledge intensive bio-based materials economy (34%).

A specific sum of $225,000, or 7% of Scion's capability fund, was invested into a seed project focused directly on Maori and their special role in the emerging bio-economy in New Zealand.

These objectives reinforce Scion's strategy in creating capability, knowledge and technical outcomes to expand growth in a high value bio-based economy. Scion's outcomes will focus specifically on utilising plant fibres and also exploiting the special characteristics of plants to enhance environmental, social and cultural values. Some of the capability fund projects were delivered by the New Zealand part of Ensis.

SUSTAINING THE FOUNDATIONS OF A VIABLE FORESTRY AND PLANT FIBRE SECTOR

The Government has identified human productivity as a key area for enhancement if New Zealand is to improve its international competitiveness. This is a critical area for the forestry sector where employers seek to improve human productivity and safety in many hazardous activities such as pruning and harvesting. Scion's specialised research group in ergonomics and human factors (COHFE), works closely with the forestry and agricultural industries and a range of Government departments.

The capability fund has assisted two ergonomists toward PhD qualifications. In addition, the fund has enabled the COHFE team to work in conjunction with ATLAS Technology to develop a prototype for a portable inventory measuring device, which will be field tested in late 2007.

Timber or log sales from forests are the most visible contribution that forestry makes to New Zealand. However, the potential value created by non-timber outcomes such as soil protection, recreational opportunities, and soil and water enhancement, may make an even greater contribution to New Zealand's economy and sustainability. Through the capability fund Scion has built new knowledge and capability in measurement of the multiple services that forests provide. These new capabilities can help at a local level to inform the quality of land use decision-making and implementation of sustainable forest management. This research will continue to underpin New Zealand's input into the Montreal Process review and national state of the forest reporting in 2008/09.

Following the FRST Plant Biotechnology Domain Review, Scion has accelerated its work in functional gene discovery for cell wall improvement. This is supporting the development of a world class research programme that exploits and contributes to the international scientific community in the areas of wood, fibre and industrial bio-processing. Specifically, the funding supported expansion of its scientific activities into proteomics and high-throughput genomics and comparative mapping. These protein tools and skills are new capabilities for Scion which lead to deeper understanding of cell wall protein expression relative to compression wood formation.

The comparative mapping work was a successful capability-building effort, with training for Dr Emily

Telfer in population genetics and Quantitative Trait Loci (QTL) evaluation. In addition, dozens of new wood quality QTLs have been placed on the radiata pine linkage maps, which increases Scion's association genetics platform.

Capability funding has also enabled the development of a bio-informatics protocol for discovering novel wood-related genes. These new capabilities enable Scion to investigate wood and fibre development, and their physical properties, within a whole plant system. The development and use of an *Arabidopsis* wood model will accelerate studies in the molecular wood/forestry programme, by facilitating both gene discovery and functional gene testing.

Although radiata pine is the dominant commercial species in New Zealand, Scion is active in promoting the commercial, environmental and heritage value of other species. These include developing media formulations for *Agathis australis* (New Zealand kauri) and tissue culture work in *Cupressus* clonal material *(C. macrocarpa* and *C. lusitanica)* and eucalypt species *(E. grandis, E. globulus* and *E. nitens)*. This work is assisting in further development of Scion's larger programme in diverse species.

BUILDING A VIBRANT AND COMPETITIVE FOREST PRODUCT INDUSTRY

The capability fund supported a substantial realignment of the wood processing group in Ensis. This has seen new capabilities developed in mechanical and control engineering, including seed funding into a potentially significant disruptive technology for timber drying. This technology will be supported by FRST from late 2007 onward and will be the subject of a special focus for Scion over the next year.

Scion's strengths in wood processing and end-use performance of products, combined with knowledge of wood property variation within trees have seen the development of new software. This technology enables a stem or log to be described in terms of both surface geometry and internal property

distributions. The software can also arbitrarily render the log into products (boards) while mapping the internal property distributions from the original stem to the product.

Wood stability, processing and material science research depend on the ability to measure moisture content and its distribution within wood. Funding support has enabled Ensis to strengthen its capability in moisture measurement determination. This ability underpins fundamental work in timber drying, improved material measurement and enhancement of two tools in development for industry – one focusing on stiffness measurement and the other on rapid feedback systems for drying operations.

Scion's vision includes a focus on greening the biomaterial supply chain. Through this activity Scion has created new capabilities in environmental life cycle assessment of the built environment, extended producer responsibility with special regard to waste timber, and the understanding of sustainability motivators in the supply chain. Advancing capability in these areas helps in working with stakeholders across the whole supply chain and in forming strategic relationships with the timber industry and other material suppliers.

Capability fund
(continued)

BUILDING A KNOWLEDGE INTENSIVE BIO-BASED MATERIALS ECONOMY

The third component to the Scion Biomaterial Futures vision is to create a new range of high value products from plant fibre. The resources for such products arise from targeted by-products of fibre processing and also from biomass in waste streams.

Scion has enhanced its ability to characterise biomass sources (including forest, fruit and crop residues) and assess their potential as feed-stocks for new polymers and plastics. Scion has also expanded capabilities in lignin chemistry and developed opportunities to produce new chemicals and polymers derived from lignin. This has led to an award-winning presentation by Daniel van de Pas (Best Young Speaker Award 2007) at a recent APPITA conference.

The Waste 2 Gold initiative is a critical component of the industrial biotechnology focus for Scion. It brings together research, Government and industry partnerships focused on enhanced waste utilisation. Options include waste processing into materials, chemicals, or energy sources of value via transformation processes.

The capability funding enabled Scion to strengthen core skills in Sustainability Footprinting through the appointment of Dr Chris Glover. A review of Sustainability Performance Indicators has been prepared which will guide future research in assessing the impact of improved waste utilisation.

In the area of metaproteomics, studying functional gene expression in microbial ecosystems, the capability funding led to the development of a successful FRST Postdoctoral Fellowship application.

The capability fund has also enabled Scion to enter into a special relationship with Carter Holt Harvey, Verenium (formerly Diversa Corporation and Celunol) and AgResearch to produce ethanol from woody biomass. This partnership has seen growth in Scion's industrial biotechnology skills, specifically in evaluating preparation of woody fibres for digestion by enzymes and the feedstock supply and infrastructural impacts of potential ethanol production processes.

MAORI BIO-ECONOMY

Three capability fund projects were undertaken in 2006/07 that aligned to the Maori Bio-Economy strategic direction in Scion's strategic plan. One project in cell wall biotechnology provided improved understanding of five properties of harakeke. Scientist Catherine Rickard used microscopy techniques to collate fibre yields from 50 cultivars.

The second project examined the sensitivities of indigenous aquatic species to industrial discharges. Focusing on koura, an important food source for Maori, the project enabled Scion to establish a process with Te Arawa Lakes Trust for lake access approval. The capability developed in this project provides a pathway for Te Arawa Lakes Trust to further research in the area of lake interventions.

The third project saw development of improved totara germplasm. This project had special relevance to Maori by providing stewardship over genetic material from indigenous flora.

A: Capabilities aligned to sustaining the foundations of a viable forestry and plant fibre sector

Capability focus	Current investment and activities	2006/07 forecast	2006/07 actual
1. Protecting New Zealand's forestry assets from natural and introduced hazards.	Minimising pest incursion. Minimising impacts of weeds and pests. Minimising impacts of fire upon forest and rural environments.	Sustain Forest Biosecurity Research Council programme. Sustain and grow Better Border Biosecurity Outcome Based Investments. Sustain and grow Fire Research Council programme.	No Capability Fund assigned for 2006/07.
2. Enhancing the infrastructure for healthy forests.	Soil science. Forest diversity. Enhancing non-production forestry to improve environmental returns.	Strengthen national programme in soil science relating to forestry. Integrate programme with national soil science capability and strengthen industry interactions. **Expand activities in developing new species for New Zealand's forestry sector.**	Completed in full.
3. Expand non-timber values from forestry.	Forestry's contribution to air and water quality, and social and cultural values.	Forests as carbon sinks. Build amenity values programme in "Future Forests Research" initiative.	Completed in full.
4. Human productivity and safety.	Improved harvesting-systems and safety and human productivity.	**Expand harvesting science.** Expand focus on human productivity	Completed in full.

B: Capabilities aligned to building a vibrant and competitive forest product industry

Capability focus	Current investment and activities	2006/07 forecast	2006/07 actual
1. Building an internationally competitive forestry industry.	Improved tree germplasm. Improved establishment, silviculture and inventory processes.	Sustain alignment to Radiata Pine Breeding Company programme. Sustain strong relationship to WQI Ltd. Build "Future Forests Research" initiative into national forestry science programme – a public, private and research partnership.	Completed in full.
2. Building an internationally competitive wood processing industry.	Enhance processing efficiency. Improve product diversification. Enhance integration of wood products and end user segments. Enhance trade and reduce technical trade barriers.	Expand focus on fibre production and solid wood production processes to improve industry competitiveness. **Predictive technologies to assess material properties.** **Expand solid wood and fibre product range.** **Expand building science capability.** Technical Trade action group expansion.	Completed In full. Not addressed in 2006/07 via Capability Fund.

C: Capabilities aligned to building a knowledge intensive bio-based materials economy

Capability focus	Current investment and activities	2006/07 forecast	2006/07 actual
1. Building a strong New Zealand niche in industrial biotechnology and material science.	Genetic transformation. Non-forest resources for future materials opportunities. Bioconversion processes to create high value products. Materials technologies.	**Expansion of molecular capability.** **Build a larger platform in non-tree industrial crops.** **Advance industrial bioconversion processes.** **Build nano-technology platform aligned to Biopolymer Network.**	Completed in full.
2. Building a Maori dimension in the new bio-economy.	Build a science platform based on utilisation of indigenous New Zealand resources to secure an opportunity for Maori to build a key role in the new bio-economy.	**New material opportunities based on raupo and other indigenous resources.**	Completed in full.
3. Enhancing the knowledge and soft values of wood and biomaterials.	Quantified functional deployment (QFD) – designing sustainability into products. New product development.	**Build tools to enhance the sustainability and consumer acceptance of new products.** **Develop new biomaterials.**	Completed in full.

Note: Components in bold are where Scion have committed to invest or supplement current Government investment in capability growth via the capability fund.

Our people - our strength

Throughout its history, Scion's contribution to this country has been achieved through the work of talented people who have dedicated their expertise to making a difference in New Zealand through innovation. The prosperous future of Scion and New Zealand depends on developing this capability.

DEVELOPING FUTURE LEADERS

Growing people professionally and personally is central to Scion's core values. Scion recognises that its future success relies heavily on developing and preparing its future leaders. Last year Scion launched a Leadership Excellence Programme for 25 staff to develop their leadership potential and aspirations. Designed in conjunction with the University of Auckland Business School, this programme empowers individuals to make a greater difference in their work. This year the participants completed an introductory workshop and two residential courses, creating opportunities for learning from experiences in the group and outside the organisation. Participants are already demonstrating an expanded view of the organisation and its responsibilities, providing them with a greater understanding of the environment in which effective leadership must operate.

James Carpenter, Scientist.

ENCOURAGING TOMORROW'S SENIOR SCIENTISTS

This year was another hugely successful year for Scion's mentoring programme. The programme is designed to facilitate the sharing of Scion's senior scientists' knowledge and experience with younger Scion staff. Each protégé is assigned a mentor and is invited to the monthly mentoring hub where speakers tell the story of their science career. The programme has been extended further this year with a mentoring group also established at Scion's Christchurch site. In total, more than 10% of Scion's scientific staff are involved in the mentoring hub.

PROFESSIONAL DEVELOPMENT OPPORTUNITIES

Scion supports professional development by offering paid sabbaticals, granting study leave and encouraging attendance at relevant local and overseas conferences. Through the Achievement and Career Enhancement (ACE) process for staff performance planning and review, Scion creates individual development plans for all staff based on their personal, professional and cultural aspirations. The process identifies professional training as appropriate to meet these goals. In the past year, courses were provided on science writing, influencing with integrity, Excel, communication and presentation skills, project management, confidence with clients, and health and safety.

BUILDING STRONGER TEAMS

Because multi-disciplinary work is becoming the norm in research and development, there is a strong commitment at Scion to building stronger teams. In addition to understanding the scientific opportunities, this is achieved through helping individuals understand their impact on others, improve their communicating styles and enhance working relationships in increasingly diverse groups.

To take this team building work a step further, Scion has introduced the Belbin process, which looks at the team as a whole and identifies its key strengths and weaknesses. In the past 12 months, 132 staff have completed the Belbin team roles process. Participants rate themselves and each other to produce a profile that can assist with defining learning objectives or making recruitment decisions. Staff report that the Belbin team roles process has assisted them to utilise the strengths of their team members and to be aware of the pitfalls associated with any gaps.

SAFETY FIRST

Health and safety is a key focus for management and staff across the organisation, with major progress in this area in 2006/07. Health and safety across Scion is managed by a committee consisting of Human Resources and staff representatives who meet regularly to identify and resolve potential issues. Scion has created a dedicated Health and Safety coordinator role to provide a greater focus in this area by meeting regularly with staff representatives to identify and resolve potential issues.

In December Scion engaged an external, independent consultant to undertake a review of its health and safety management systems. A number of recommendations from this review have already been implemented, including establishing health and safety as a firm part of staff inductions and having all groups update and submit health and safety plans.

As a result of this review, an independent Hazardous Substances and New Organisms (HSNO) specialist was engaged in May to establish Scion's current compliance situation, and provide recommendations to achieve full compliance. This report included an assessment of Scion's processes, laboratories, workshops, pilot plant and nursery. Some key recommendations have been implemented, including a decision taken to manage Scion's laboratory areas as HSNO Exempt areas and the appointment of laboratory managers to be in charge of hazardous substances. Further recommendations will be implemented in the months ahead.

PROMOTING WORK-LIFE BALANCE

Scion recognises the importance of recreational values as a key part of its organisational culture and frequently supports the sporting and cultural achievements of staff. Mycologist Katrin Walbert was one of many staff sponsored by Scion over the past year to compete in a sporting event.

Our people – our strength (continued)

Another area of focus this year has been the appointment of a full time manager in the Timber Engineering Workshop. A strong focus of this role is to improve the health and safety of workshop facilities to benefit the many units in Scion that use this service.

Scion has renewed its ACC Workplace Safety Management Practices accreditation at secondary level.

MEASURING THE ORGANISATION'S CLIMATE

A major part of Scion's culture management programme is a regular climate survey. Scion conducts this staff survey to monitor organisational health and look for opportunities to improve the climate of its people and place. Results from previous surveys have been used to develop new initiatives in the past 18 months such as the Leadership Excellence, the Employee Assistance and mentoring programmes. The previous staff survey prompted the introduction of the Chairman's awards to recognise outstanding performance and the establishment of an orientation programme for new employees. Meeting places were also revitalised, including the refurbishment of the cafeteria which was officially opened in January this year. A new staff climate survey was conducted in 2007 from which similar initiatives are expected to arise.

PERSONAL SUPPORT

In 2006/07 Scion extended support to staff dealing with personal and work issues by introducing Employee Assistance Programmes (EAP) to complement the existing Workplace Support scheme.

FOCUS ON FAMILIES

The 2006/07 year saw a baby boom for Scion with 18 babies born to staff members. Recognising the need to provide family support, Scion now offers two subsidised school holiday programmes (Lynmore Primary School, as well as Glenholme Primary School) for staff who elect to use childcare while working during school holidays.

Scion's primary aim with its family-friendly policies is to retain staff, as the skills and capabilities required in a science organisation are a rare commodity on the recruitment market. Following the baby boom, the majority of staff who took Parental Leave returned to work part time and are making valuable contributions to their areas of work.

THE CHANGING FACE OF SCION

Scion is distinguished from many other workplaces by the sheer number of different nationalities on staff. There are currently 28 different nationalities across Scion's 340 staff. Given that many science skills are in short supply within New Zealand, Scion continues to recruit overseas staff and support them to settle in this country. To help streamline the recruitment process, Scion has become an accredited employer under the Immigration Service Policy. As an accredited employer, the CRI is part of a small group of New Zealand companies who are able to recruit globally and offer priority processing for Talent Work Visa applications.

In recent years Scion has turned its attention to the encouragement and recruitment of Maori and women in science, both of whom are traditionally under-represented in research organisations. Over the past 12 months, Scion has recruited three new staff of Maori descent. The number of women on permanent staff has also increased by 4% in the past year, now forming 45% of total permanent staff.

Group Manager Maori Strategy, Tupara Morrison greets President of the Philippines, Gloria Macapagal-Arroyo.

Staff achievements

AWARDS

SARAH ADDISON was awarded an Enterprise Scholarship to support her Scion-sponsored MSc, and won a conference scholarship to present her early results at the 2006 New Zealand Microbiology Society conference.

NATALIE BLEACKLEY was awarded an Enterprise Scholarship to undertake her MSc.

RUSSELL BURTON received the Skellerup Award from the Institution of Professional Engineers NZ (IPENZ) for his services to chemical engineering and to the wood processing industry.

MARGARET DICK and **TOD RAMSFIELD** were each awarded a "Co-op Halo Award" from the University of Waikato to recognise excellence in supervision and mentoring of cooperative education students.

APPOINTMENTS

ECKEHARD BROCKERHOFF was elected as President of the New Zealand Entomological Society.

LLOYD DONALDSON was elected as President of Microscopy New Zealand. He was also elected to the editorial board of the International Association of Wood Anatomists (IAWA) Journal, and the IAWA Council.

TOM RICHARDSON was appointed to the Boards of the Foundation for Research Science and Technology and Australia's National Association of Forest Industries.

QUALIFICATIONS

ANNA HOPKINS – PhD (Fungal ecology) University of Tasmania.

BERNADETTE NANAYAKKARA - PhD (Lignin analysis) University of Waikato.

STEVE PAWSON – PhD (Zoology) University of Canterbury.

DAVE MOORE – PhD (Management systems and ergonomics) Massey University.

SHEREE CATO - PhD (Molecular biology) University of Auckland.

GRANT MATHIESON – PhD (Chemistry and materials science) University of Waikato.

KAREN BAYNE – Master of Commerce (Marketing Management) University of Otago.

GARRICK THORN – Master of Environmental Engineering, University of Canterbury.

GRAHAM COKER - Master of Forestry Science, University of Canterbury.

DOUGLAS MACREDIE - Post-graduate diploma in Marketing, Massey University.

PAULINE SIEGFRIED - Bachelors Degree in Library and Information Studies, Open Polytechnic.

EDITORIAL APPOINTMENTS

DAVE COWN joined the editorial board of the Southern Hemisphere Forestry Journal.

BARBARA NEBEL joined the editorial board of the International Journal of Life Cycle Assessment. She was accredited as a "certified environmental practitioner" through EIANZ (Environmental Institute of Australia and New Zealand).

CHRISTIAN WALTER became Associate Editor for the "The Open Biotechnology Journal" and joined the Editorial Review Board of the journal "Tree Physiology".

HAILONG WANG joined the editorial board for "Environmental Science and Pollution Research". He was also made adjunct professor at Hainan University, China.

ACADEMIC APPOINTMENTS

MICHAEL LANDMAN received an honorary lectureship at the University of Waikato.

NICK LEDGARD was appointed as an Adjunct Senior Fellow in the School of Forestry, College of Engineering, University of Canterbury.

PhD graduates Sheree Cato, Steve Pawson, Dave Moore and Anna Hopkins.

TRAVEL AWARDS

CHRISTINE TODOROKI received a prestigious Fulbright Travel Award which she used to attend a conference on forest growth and timber quality in Portland, Oregon, USA.

MARIE DENNIS won a QE II Technician Study Award to visit La Trobe University's Biotechnology Research Centre to work on gene visualisation technology.

NICOLA DOOLEY was awarded an International Science and Technology (ISAT) Fellowship to work at Helsinki University of Technology on the Super Masscolloider project.

ROBERT FRANICH received an ISAT award for travel to Canada.

WARREN GRIGSBY received two years of ISAT linkage funding to undertake work in conjunction with the University of British Columbia on development of "Functional Tannin-Polyester Composites".

EVAN SIM was awarded a QE II Technician's scholarship to work with staff from the University of Manitoba in the field of antimicrobial coatings, particularly looking at systems based on lactoperoxidase.

TRIPTI SINGH was awarded the "Young Scientist Grant" from the Federation of European Microbiological Societies to attend the international conference on "Biodeterioration of Wood and Wood Products" in Latvia.

Taking science to the community

As a Crown Research Institute, Scion embraces its responsibility to engage with its local communities and New Zealanders as a whole. Scion has introduced a wide range of activities to enhance community engagement and increase public awareness of how science and technology are fundamental to the social and economic well-being of New Zealanders.

OPEN DAY

A major highlight of the past year was Scion's Open Day, "Science in the Park", which attracted more than 3,000 people from the Rotorua community and beyond. Science in the Park provided an extraordinary opportunity for scientists to share their knowledge and passion on topics of interest to the public.

As a result of this key event, Scion is hosting a greater number of schools who wish to involve their students in relevant science. These visits feature presentations from young scientists involved in a wide variety of Scion's research areas.

HOSTING VISITORS

Scion hosts many visitors every year, from school and industry groups to international delegations. A highlight for the year was a visit by President of the Philippines, Gloria Macapagal-Arroyo. This presidential visit signified the extent to which governments throughout the world are acknowledging the importance of maintaining healthy forests to sustain a healthy planet.

FUTURE SCIENTISTS

EDUCATION

Scion continues its strong commitment to the development of New Zealand's future scientists through the Forests of Life programme, which brings ecological science alive for school children. In the past year, one new school was added to the programme, which includes three schools from the Bay of Plenty region, and one from Australia. Scion is now extending its commitment to educating New Zealand's future scientists through a new programme which has received funding from MORST. The new programme will involve students directly interacting with scientists on real research projects.

In the past year Scion hosted four science students from local high schools as part of the Gateway Programme. This programme, provided by the Tertiary Education Commission, offers high school students an opportunity to experience work

Scion's Open Day.

Elaine Kannan (right) from the New Zealand Science Teacher Fellowship programme participating at Scion's Open Day.

placements. This can contribute to NCEA and industry-specific qualifications, while fostering greater interest in following a science career path.

Scion will expand its vermicomposting programme in schools in the year ahead. Funding received for a portable trailer unit will enable scientists to visit schools and demonstrate the relevance of this science in everyday life.

SCHOLARSHIPS

Local high school student Sujeetha Jayaprakash was the recipient of the 2006 Scion Suffrage Scholarship. The scholarship included a $1,500 cash grant towards her tertiary studies at the University of Waikato, as well as summer vacation work at Scion for the duration of her undergraduate study.

TEACHING FELLOWSHIP

Scion participated again this year in the New Zealand Sciences, Mathematics and Technology Teacher Fellowship programme. The fellowships offer primary and secondary teachers the opportunity to improve their teaching through experience in technological or scientific practice. Elaine Kannan from John Paul College joined Ensis in February and has focused her research on the contribution of pollen to the nitrogen levels in streams leading to Lake Rotorua.

Scientist Gerty Gielen at Scion's Open Day.

Schools in the Enviroschools programme, which is facilitated and funded by Environment Bay of Plenty, visited Scion to learn about worm farming. Their visit to Scion's Vermicomposting Research Centre gave students and teachers an opportunity to experience vermicomposting, or the use of worms to break down waste. The Enviroschools programme encourages a commitment to integrating sustainability into every aspect of school life. Waste management is high on the agenda for many of these schools.

Financial Statements

Directors' Report

PRINCIPAL ACTIVITIES

Scion is a company registered under the Companies Act 1993 and our principal activity is to conduct research in accordance with the purpose and principles specified in Sections 4 and 5 of the Crown Research Institutes Act 1992 (the Act). Scion has met all the obligations under the Act in the year ended 30 June 2007.

Scion is a commercially focused science and technology company, delivering solutions to both commercial and Crown clients. The principal research facility is located in Rotorua.

Scion, at balance date, has six wholly-owned subsidiaries, Liro Limited, Forest Research (Australasia) Pty Limited, ATLAS Technology Limited, Te Papa Tipu Properties Limited, Scion Australasia Limited, Future Forests Research Limited and three associates – 25% ownership of Frontline Biosecurity Limited, 20% ownership of Beacon Pathway Limited, and 33.33% ownership of Biopolymer Network Limited. Scion is also a member of two consortia, WQI Limited with an 11.36% shareholding, and Radiata Pine Breeding Co Limited with a 16.92% shareholding.

Forest Research (Australasia) Pty Limited was the Australian trading vehicle but has now ceased trading. The company is a New Zealand registered company.

Te Papa Tipu Properties Limited owns the Group's land assets.

ATLAS Technology Limited is a shelf company.

Scion Australasia Limited is a special purpose company for an unincorporated joint venture with Australia's national science agency, CSIRO.

Frontline Biosecurity Limited is an incorporated joint venture, the purpose of which is to collaborate in the research and development and commercialisation of the heat disinfestation process and other biosecurity processes.

Beacon Pathway Limited carries out research in the area of sustainability in the built environment.

Biopolymer Network Limited is an incorporated joint venture whose purpose is to create technologies for advancing the utilisation of renewable bio-based materials in industrial applications.

WQI Limited (Wood Quality Initiative) is a consortium with 16 other shareholders.

Radiata Pine Breeding Co Limited is a consortium with 17 other shareholders.

SUMMARY OF GROUP FINANCIAL RESULTS TO 30 JUNE 2007

	2007 $000	2006 $000
Operating revenue	21,547	21,345
Surplus before taxation	(547)	(1,297)
Taxation expense	(63)	347
Net surplus attributable to the Shareholders	**(484)**	**(1,644)**
Equity		
Issued and paid up capital	15,716	15,716
Retained earnings	6,844	7,392
Total equity	**22,560**	**23,108**

The business of Scion involves science and innovation in sustainable forestry, wood and fibre product technologies. Core activities comprise research and economics, consumer market knowledge, built environment, environmental impacts of processing and production, pulp and paper, materials science, engineered wood products, wood processing, logging and transport, tree nutrition and physiology, forest health and biosecurity, management decision support and harvesting systems, silviculture, propagation, molecular biology and genetics.

In response to a comprehensive planning exercise that built off strategic market intelligence, Scion is broadening its scope of business to embrace the plant-based (non-food) biomaterials value chain.

REMUNERATION AND COMPENSATION

Remuneration and compensation included performance awards, superannuation benefits, pay-outs of equity leave provisions and redundancy payments. Some other benefits were not quantified and were therefore excluded, including staff parking, home telephone and fax costs, and membership of relevant professional societies.

Bands			Number in Each Band
$310,000	–	$319,999*	1
$210,000	–	$219,999	1
$200,000	–	$209,999	1
$180,000	–	$189,999	0
$170,000	–	$179,999	2
$160,000	–	$169,999	1
$150,000	–	$159,999	0
$140,000	–	$149,999	4
$130,000	–	$139,999	2
$120,000	–	$129,999	1
$110,000	–	$119,999	8
$100,000	–	$109,999	9

* Denotes Salary of Chief Executive

During this financial year compensation totalling $60,000 was paid to one person who ceased to be an employee in 2005/06.

DIVIDEND

No dividend payment is recommended (2006: $58,692).

DIRECTORS' PROFILES

Dr Russell Ballard, CNZM, (Chairman) – is an independent, non-executive Director. Dr Ballard is Deputy Chairman of the New Zealand Correspondence School, a Director of TeamTalk Ltd, a member of the Council of Massey University, the independent Chair of the Inland Revenue Department Risk and Assurance Committee, and an external director on the Audit Committee of the Ministry of Social Development. Previously Dr Ballard held several Chief Executive positions in the public service including the Ministry of Forestry, Department of Education, Ministry of Agriculture and Fisheries and Land Information New Zealand. Dr Ballard holds a MAgrSc and PhD (forest soils), a Diploma in Company Direction from the Institute of Directors (UK), and a Certificate in Company Direction from the Institute of Directors (NZ). He is a member of the New Zealand Institute of Forestry and the New Zealand Institute of Directors, and a Fellow of the New Zealand Institute of Management.

Ms Margaret Emerre (Director) – is Relationship Manager with the Leadership Development Centre. She was formerly the Manager RS&T of the NZ Forest Industries Council, CEO of the Queensland Science and Technology Council, Director of the Queensland Innovation Centre, Director of the Electronic and Electricity Industry Training Organisation, and is a Director of some small commercial companies. Ms Emerre has also managed the Master of Management Programme in the Graduate School of Business at Victoria University. She holds an MSc, a Post-graduate Diploma in Administration, a BSc in Biological Sciences and a Diploma in Physical Education. Ms Emerre also holds a Certificate in Company Direction from the Institute of Directors.

Mr Temuera Hall (Te Arawa, Ngati Tuwharetoa) (Director) – is Managing Director of LTF Limited, a funds management company. LTF Limited is a subsidiary of the Lake Taupo Group which also has a merchant banking company named Lake Taupo Capital (LTC) and direct invest company named Lake Taupo Forest Trust Investment Limited (LTFTI). Mr Hall is a Director on the Lake Taupo Group Board, LTC and LTFTI. He is also Chairman of Te Papa Tipu Properties Limited a subsidiary of Scion, holds directorships on Tuwharetoa 3000 Charitable Trust and Tuwharetoa Ltd, and is an executive member on the Federation of Maori Authorities. Mr Hall holds a BSocSci majoring in Geography.

Directors' Report
(continued)

Ms Bronwyn Monopoli MBE (Director) – is a qualified accountant with her own practice based in Nelson. She currently serves on the boards of Port Nelson Limited, Sentinel Limited, the Cawthron Institute, the Visitor Information Network, the WearableArt Development Trust, the Nelson Millennium Centre Trust, and the New Zealand International Arts Festival Trust. She has previously served as a Director of a wide range of companies and Government bodies including the Rural Bank, Housing New Zealand, Landcorp, the New Zealand Wool Board, the New Zealand Merino Company, Trade New Zealand, Tourism New Zealand and the HumanWare Group. Ms Monopoli has a BAgrSc and a BBS. She is a Fellow of the New Zealand Institute of Chartered Accountants.

Dr Kathy Garden (Director) – is Pro Vice Chancellor and Dean of the Faculty of Design and Creative Technologies at AUT University. She has held senior positions in the public and private sectors including Director of Strategic Development at Manukau City Council, Executive Director of the New Zealand Business Council for Sustainable Development, Sustainable Development Coordinator for Fletcher Challenge, and Chief Policy Adviser, Ministry of Research, Science and Technology. Dr Garden holds BE, ME and PhD degrees in Electrical and Electronic Engineering, and is a Fellow of IPENZ.

Mr Peter Berg ONZM (Director) – is President of the NZ Forest Owners' Assn, Deputy Chairman of Tane's Tree Trust, a Board member of FITEC the New Zealand forest industry training organisation, member of the Auckland Conservation Board, Chairman of Pentarch Forest Products Limited, Chairman of NZ Forestry Limited, Chairman of Berg Forests Limited and a member of the NZIF Registration Board. Previously Mr Berg held various Chief Executive and other senior positions in the forestry sector and public service both in New Zealand and offshore. Mr Berg holds a BSc and BForSc (Aberdeen) and is a Member of the NZ Farm Forestry Association and Fellow of the New Zealand Institute of Forestry, by whom he was recognised as Forester of the Year 2006.

Mr John Palmer (Director) – has extensive experience in the forestry and construction industries. He was the Chief Executive Officer of start-up Silva Forest Products, an Auckland-based joint venture company by New Zealand's two largest foresters to export logs to Asia. Mr Palmer previously worked for construction chemicals company, Fosroc, where over a period of 18 years he held roles such as regional director for Europe, Chief Executive for China/Hong Kong, and Chief Executive for New Zealand.

DIRECTORS' INTERESTS

Any business the company has transacted with organisations in which a Director has an association has been carried out on a commercial "arms-length" basis.

DIRECTORS' REMUNERATION

	Scion 30 June 2007	Ensis 30 June 2007	Te Papa Tipu Properties 30 June 2007	Total 30 June 2006
Russell Ballard	41,750	24,000		57,750
Temuera Hall	25,063		8,000	29,250
Bronwyn Monopoli	23,250	16,000		22,750
Margaret Emerre	22,000			21,250
Kathy Garden	19,000			0
Peter Berg	20,500			0
John Palmer	21,250			0
Jane Taylor (term completed 30 October 2005)	0			7,833
Bryce Whitcher (term completed 30 June 2006)	0			39,750
Giff Davidson (term completed 30 June 2006)	0			22,750
External Director				
John Kahukiwa			4,000	1,000
Dooley Kahukiwa (deceased 6 August 2005)				250
Total	**172,813**	**40,000**	**12,000**	**$202,583**

CHANGES IN DIRECTORS

Dr Kathy Garden, Mr Peter Berg and Mr John Palmer were appointed to the Scion Board on 1 July 2006.

USE OF COMPANY INFORMATION

During the year no notices were received from members of the Board requesting to use Scion information received in their capacity as Directors which would not otherwise have been available to them. There have been no additions to the Interests Register.

THE STATE OF THE COMPANY'S AFFAIRS

A commentary on the year's performance is outlined in the Chairman's and CEO's reports and in the opinion of the Directors, the state of the Group's affairs continues to be satisfactory and the outlook bright.

AUDITOR

In accordance with Section 21 of the Crown Research Institutes Act 1992, the Office of the Auditor General is Auditor for the Company and pursuant to Section 32 of the Public Audit Act 2001 has appointed Simon Brotherton of Ernst & Young to undertake the audit on its behalf.

DIRECTORS' INDEMNITY AND INSURANCE

Scion has insured and indemnified, to the extent permitted by law, all Directors and the Directors of its subsidiaries against liabilities to other parties (except to Scion or a related party of Scion) that may arise from their position as Directors. The insurance and indemnities do not cover liabilities that may arise from criminal actions.

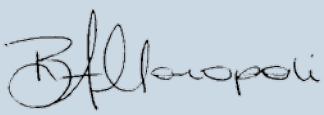
For and on behalf of the Board
R Ballard
Chairman
23 August 2007

STATEMENT OF RESPONSIBILITY

The following statement from the Board is made in accordance with Section 155 of the Crown Entities Act 2004:

1. The Board is responsible for the preparation of the annual financial statements and the judgements used in these;
2. The Board is responsible for establishing and maintaining a system of internal control designed to provide reasonable assurance as to the integrity and reliability of the financial reporting and;
3. In the opinion of the Board, the annual financial statements for the year ended 30 June 2007 fairly reflect the financial position and operations of New Zealand Forest Research Institute Limited.

R Ballard
Chairman
23 August 2007



B Monopoli
Director

Performance Targets

Scion's performance against the targets contained in the 2006 - 2009 Statement of Corporate Intent was[1]:

	Actual 2006	Actual 2007	Budget 2007
Group Revenue ($000) [2]	21,345	21,547	24,801
EBIT Margin (EBIT % of Revenue)	-5.1%	-1.9%	3.3%
Return on average equity	-6.9%	-2.1%	1.7%
Return on average total assets [3 4]	-4.2%	-1.1%	1.6%
Equity ratio	69.4%	72.2%	72.8%
Quick ratio:1	0.81	0.90	0.96
Gearing	13.3%	5.7%	7.7%
Interest coverage	-5.4	-3.1	7.0
Free cashflow to average total assets	3.1%	10.2%	10.6%
NON FINANCIAL PERFORMANCE MEASURES [5]			
Staff Composition (FTE's)			
Research	268	265	265
Research Support	10	10	10
Other (Management and Corporate Services)	66	75	75
Total FTE's	**344**	**350**	**350**
Revenue per FTE ($)[6]	**133,000**	**144,267**	**150,359**
Research Application Metrics			
Commissioned reports to users	279	350	360
Presentations on technical information and research results	353[1]	380[1]	30
Publications on technical information and research results	172[1]	232[1]	160
Peer reviewed articles	100	152	140
Key note and plenary presentations	9	23	20
Requests for information from databases and collections	N\A [1]	3,500	300
Patents Granted			
– In New Zealand	1	4	3
– Overseas	1	1	2
Number of licensing arrangements	1	1	3
Joint Ventures or formal associations	0	0	3
Spin-out companies formed	0	0	0
Spin-off companies formed	0	0	0
Social Responsibility/Community	Report	Report	Report
Environment Responsibility	Report	Report	Report
Maori Relationships			
Consultation with Maori	Report	Report	Report
Learning and development	Report	Report	Report
Maori scholarships	0	0	2
R&D proposals involving Maori	3	6	10
Benefit to NZ	Report	Report	Report
Good Employer			
Policies to meet provisions of CRI Act	Report	Report	Report
% time in training	3%	1%	3%
Number of Post Grad Students supported	27	33	30
Work days lost in work related accidents	7.5	0	0
Human Capital Protection	Stats & report	Stats & report	Stats & report

1. Certain numbers have been reclassified to conform with current year presentation.
2. Group Revenue includes gross revenues from non-Ensis components of the Scion Group, plus Scion's 50% share of Ensis gross margin contribution. The Ensis UJV is equity accounted.
3. Note return on average total assets is calculated using a post-tax return.
4. The Board notes that Scion's return on assets is impacted by reinvestment into the science capability of the business and the existence of surplus assets.
5. Non Financial Performance includes outputs from the Scion component of the UJV.
6. Revenue per FTE assumes the Scion Group revenue plus 50% of Ensis revenue, less the Ensis gross margin contribution to the Scion Group. FTE numbers comprise Scion employees including those seconded to Ensis.

ERNST & YOUNG Chartered Accountants

AUDIT REPORT TO THE READERS OF NEW ZEALAND FOREST RESEARCH INSTITUTE LIMITED AND GROUP'S FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2007

The Auditor-General is the auditor of New Zealand Forest Research Institute Limited (the company) and group. The Auditor-General has appointed me, Simon Brotherton, using the staff and resources of Ernst & Young, to carry out the audit of the financial statements of the company and group, on his behalf, for the year ended 30 June 2007.

Unqualified Opinion

In our opinion:

- The financial statements of the company and group on pages 47 to 64:
  - comply with generally accepted accounting practice in New Zealand; and
  - give a true and fair view of:
    - the company and group's financial position as at 30 June 2007; and
    - the results of operations and cash flows for the year ended on that date.
- Based on our examination the company and group kept proper accounting records.

The audit was completed on 23 August 2007, and is the date at which our opinion is expressed.

The basis of our opinion is explained below. In addition, we outline the responsibilities of the Board of Directors and the Auditor, and explain our independence.

Basis of Opinion

We carried out the audit in accordance with the Auditor-General's Auditing Standards, which incorporate the New Zealand Auditing Standards.

We planned and performed the audit to obtain all the information and explanations we considered necessary in order to obtain reasonable assurance that the financial statements did not have material misstatements, whether caused by fraud or error.

Material misstatements are differences or omissions of amounts and disclosures that would affect a reader's overall understanding of the financial statements. If we had found material misstatements that were not corrected, we would have referred to them in our opinion.

The audit involved performing procedures to test the information presented in the financial statements. We assessed the results of those procedures in forming our opinion.

Audit procedures generally include:

- determining whether significant financial and management controls are working and can be relied on to produce complete and accurate data;
- verifying samples of transactions and account balances;
- performing analyses to identify anomalies in the reported data;
- reviewing significant estimates and judgements made by the Board of Directors;
- confirming year-end balances;
- determining whether accounting policies are appropriate and consistently applied; and
- determining whether all financial statement disclosures are adequate.

We did not examine every transaction, nor do we guarantee complete accuracy of the financial statements.

We evaluated the overall adequacy of the presentation of information in the financial statements. We obtained all the information and explanations we required to support our opinion above.

ERNST & YOUNG Chartered Accountants

Responsibilities of the Board of Directors and the Auditor

The Board of Directors is responsible for preparing financial statements in accordance with generally accepted accounting practice in New Zealand. Those financial statements must give a true and fair view of the financial position of the company and group as at 30 June 2007. They must also give a true and fair view of the results of operations and cash flows for the year ended on that date. The Board of Directors' responsibilities arise from the Crown Research Institutes Act 1992 and the Financial Reporting Act 1993.

We are responsible for expressing an independent opinion on the financial statements and reporting that opinion to you. This responsibility arises from section 15 of the Public Audit Act 2001 and the Crown Research Institutes Act 1992.

Independence

When carrying out the audit we followed the independence requirements of the Auditor-General, which incorporate the independence requirements of the Institute of Chartered Accountants of New Zealand.

In addition to the audit we have carried out assignments in the area of IFRS advice, which is compatible with those independence requirements. Other than the audit and these assignments, we have no relationship with or interests in the company or any of its subsidiaries.

Simon Brotherton
Ernst & Young
On behalf of the Auditor-General
Auckland, New Zealand

CONSOLIDATED STATEMENT OF FINANCIAL PERFORMANCE

For the Year Ended 30 June 2007

$000	Note	**GROUP ACTUAL 2007**	GROUP BUDGET (unaudited) 2007	GROUP ACTUAL 2006	**PARENT ACTUAL 2007**	PARENT ACTUAL 2006
OPERATING REVENUE	2	**21,547**	24,801	21,345	**17,742**	16,503
Operating Surplus/(Deficit) Before Subvention Payment and Taxation	3	**(547)**	706	(1,297)	**(4,445)**	(2,098)
Subvention payment		**-**	-	-	**-**	238
Surplus/(deficit) before taxation		**(547)**	706	(1,297)	**(4,445)**	(2,336)
Taxation expense/(credit)	5	**(63)**	283	347	**(76)**	271
Net Surplus/(Deficit) Attributable to the Shareholders of the Parent Company	20	**(484)**	423	(1,644)	**(4,369)**	(2,607)

CONSOLIDATED STATEMENT OF MOVEMENTS IN EQUITY

For the Year Ended 30 June 2007

$000	Note	**GROUP ACTUAL 2007**	GROUP BUDGET (unaudited) 2007	GROUP ACTUAL 2006	**PARENT ACTUAL 2007**	PARENT ACTUAL 2006
EQUITY AT 1 JULY 2006		**23,108**	24,755	24,833	**21,376**	23,983
Net surplus attributable to parent entity shareholders		**(484)**	423	(1,644)	**(4,369)**	(2,607)
Movement in foreign currency translation reserve	6	**(5)**	-	(81)	-	-
Total Recognised Revenues and Expenses for the Year		**(489)**	423	(1,725)	**(4,369)**	(2,607)
Dividend paid to shareholders		**(59)**	(109)	-	**(59)**	-
Equity at 30 June 2007		**22,560**	25,069	23,108	**16,948**	21,376

The accompanying notes form part of these financial statements.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

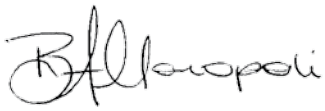
As at 30 June 2007

$000	Note	**GROUP ACTUAL 2007**	GROUP BUDGET (unaudited) 2007	GROUP ACTUAL 2006	**PARENT ACTUAL 2007**	PARENT ACTUAL 2006
EQUITY						
Share capital	7	**15,716**	15,716	15,716	**15,716**	15,716
Retained earnings		**6,919**	9,353	7,461	**1,232**	5,660
Foreign currency translation reserve	6	**(75)**	-	(69)	**-**	-
		22,560	25,069	23,108	**16,948**	21,376
NON CURRENT LIABILITIES						
Employee provisions		**1,183**	1,190	1,226	**1,183**	1,226
		1,183	1,190	1,226	**1,183**	1,226
CURRENT LIABILITIES						
Creditors and accruals	9	**6,008**	5,234	4,231	**10,001**	5,526
Tax payable	5	**-**	-	-	**15**	-
Bank debt	8	**1,370**	2,085	3,555	**1,370**	3,555
		7,378	7,319	7,786	**11,386**	9,081
		31,121	33,578	32,120	**29,517**	31,683
NON CURRENT ASSETS						
Property, plant and equipment	10	**23,511**	25,167	24,729	**22,184**	23,572
Deferred tax benefit	11	**818**	1,113	755	**818**	741
Investments in subsidiaries	13	**-**	-	-	**52**	52
Investments in associates	13	**35**	35	35	**35**	35
Loan	16	**-**	60	182	**-**	169
Intangible assets	12	**-**	-	-	**-**	-
		24,364	26,375	25,701	**23,089**	24,569
CURRENT ASSETS						
Cash and short term deposits	14	**315**	110	129	**312**	(24)
Debtors and prepayments	15	**3,288**	3,012	2,814	**5,684**	6,289
Investment in Ensis	13	**2,228**	3,795	2,549	**-**	-
Inventories	17	**99**	150	101	**99**	101
Tax receivable	5	**449**	-	485	**-**	448
Current portion of loan	16	**180**	60	113	**135**	72
Advance to Associate	24	**76**	76	76	**76**	76
Equipment for resale		**122**	-	152	**122**	152
		6,757	7,203	6,419	**6,428**	7,114
		31,121	33,578	32,120	**29,517**	31,683

The accompanying notes form part of these financial statements.

For and on behalf of the Board, who authorised the issue of these accounts on 23 August 2007.

CHAIRMAN



DIRECTOR

CONSOLIDATED STATEMENT OF CASHFLOWS

For the Year Ended 30 June 2007

$000	Note	**GROUP ACTUAL 2007**	GROUP BUDGET (unaudited) 2007	GROUP ACTUAL 2006	**PARENT ACTUAL 2007**	PARENT ACTUAL 2006
CASH FLOWS FROM OPERATING ACTIVITIES						
Cash was provided from:						
Receipts from customers		**17,657**	19,220	19,878	**17,645**	19,255
Joint venture distributions		**4,120**	7,650	5,612	**-**	-
Interest received		**17**	18	30	**13**	21
Dividend received		**-**	-	-	**16**	-
Income tax received		**-**	**-**	**-**	**-**	**-**
		21,794	26,888	25,520	**17,674**	19,276
Cash was applied to:						
Payments to employees		**10,950**	12,074	12,106	**10,949**	11,490
Payments to suppliers		**7,485**	10,784	11,483	**7,698**	7,389
Interest paid		**143**	136	196	**119**	196
Income tax paid		**4**	283	681	**0**	556
Subvention payment		**-**	**-**	**-**	**-**	238
		18,582	23,277	24,466	**18,766**	19,869
Net cash flows from operating activities	20	**3,212**	3,611	1,054	**(1,092)**	(593)
CASH FLOWS FROM INVESTING ACTIVITIES						
Cash was provided from:						
Proceeds from sale of property, plant and equipment		**-**	-	161	**-**	151
Proceeds from loan repayments		**114**	114	111	**82**	66
Other advances repaid		**-**	-	16	**-**	16
		114	114	288	**82**	233
Cash was applied to:						
Purchase of property, plant and equipment		**896**	2,480	2,480	**707**	2,470
Purchase of investments		**-**	-	15	-	15
		896	**2,480**	**2,495**	**707**	**2,485**
Net cash flows used in investing activities		**(782)**	(2,366)	(2,207)	**(625)**	(2,252)
CASH FLOWS FROM FINANCING ACTIVITIES						
Cash was provided from:						
Increase in debt		**-**	-	1,280	-	1,280
Net advances from subsidiaries		**-**	**-**	**-**	**4,297**	1,650
		-	-	1,280	**4,297**	2,930
Cash was applied to:						
Decrease in debt		**2,185**	1,230	-	**2,185**	-
Payment of dividend		**59**	109	-	**59**	-
		2,244	1,339	-	**2,244**	-
Net cash flows from financing activities		**(2,244)**	(1,339)	1,280	**2,053**	2,930
Net Increase (Decrease) in Cash Held		**186**	(94)	127	**336**	85
Add opening cash brought forward		**129**	204	(1)	**(24)**	(109)
Less effect of exchange rate change on foreign currency balance		**-**	-	3	**-**	-
Ending Cash Carried Forward	14	**315**	110	129	**312**	(24)

The accompanying notes form part of these financial statements.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007

1. STATEMENT OF ACCOUNTING POLICIES

REPORTING ENTITY

New Zealand Forest Research Institute Limited is a Crown Research Institute registered under the Companies Act 1993. The group consists of New Zealand Forest Research Institute Limited, its subsidiaries, associates, and joint venture interests.

New Zealand Forest Research Institute Limited is a reporting entity for the purposes of the Financial Reporting Act 1993.

The financial statements and group financial statements of New Zealand Forest Research Institute Limited have been prepared in accordance with the Financial Reporting Act 1993, following New Zealand Generally Accepted Accounting Practices.

MEASUREMENT BASE

The group follows the accounting principles recognised as appropriate for the measurement and reporting of financial performance and financial position on a historical cost basis, with the exception that the forest asset has been revalued and FHS Limited, a wholly owned subsidiary of New Zealand Forest Research Institute Limited, was reported on a liquidation basis.

On 25 August 2005 it was resolved that FHS Limited would cease to trade. Under FRS5, Events After Balance Date, if such a decision is made after balance date but prior to the signing of the accounts, the financial statements cannot be prepared under the going concern basis. Accordingly in the 2005 financial year adjustments were made to reflect the liquidation value of the assets and liabilities of the subsidiary. FHS Limited was struck off the Companies Register on 27 July 2007.

INTERNATIONAL FINANCIAL REPORTING STANDARDS

For the 2007 financial year, and for the 2006 comparatives, the financial statements of New Zealand Forest Research Institute Limited and subsidiaries are prepared following New Zealand Generally Accepted Accounting Practices.

For all future periods financial statements will be prepared in accordance with New Zealand Equivalents to International Financial Reporting Standards (NZ IFRS). As part of the transition to reporting under NZ IFRS, steps have already been taken to start the process. 1 July 2006 opening balances have been reviewed and restated for the impact of this change. During the 2008 financial year, the 2007 financial year results will be restated to provide comparative information for the 2008 financial year results. Also during the 2008 financial year, additional disclosure requirements of NZ IFRS will be considered.

Our work to date indicates the financial impact of the new standards on New Zealand Forest Research Institute Limited to be minimal, with the main change being the requirement to revalue forestry assets annually. The revaluation will increase the value of forestry assets under NZ IFRS by $70,089 at 30 June 2006 and then by a further $24,341 at 30 June 2007. The actual impact of adopting NZ IFRS may vary from the information presented and this variation may be material.

SPECIFIC ACCOUNTING POLICIES

The following accounting policies, which materially affect the measurement of financial performance and the financial position, have been applied:

a) Principles of Consolidation – Purchase Method

The consolidated financial statements include the parent company and its subsidiaries. The group financial statements are prepared using the purchase method of consolidation. All intercompany transactions and unrealised profits and losses between the group of companies are eliminated from the financial statements on consolidation. In the parent company financial statements, investments in subsidiaries are stated at cost.

b) Associate Companies

These are companies in which the group holds substantial shareholdings and whose commercial and financial policy decisions it participates in but does not control.

Associate companies have been reflected in the consolidated financial statements on an equity accounting basis which shows the group's share of surpluses in the Consolidated Statement of Financial Performance and its share of post acquisition increases or decreases in net assets, in the Consolidated Statement of Financial Position.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

1. STATEMENT OF ACCOUNTING POLICIES (continued)

SPECIFIC ACCOUNTING POLICIES (continued)

c) Joint Ventures

The interest in the "unincorporated joint venture" is akin to a partnership in accounting terms and is therefore equity accounted.

d) Goodwill

Goodwill represents the excess of the purchase consideration over the fair value of the net tangible and identifiable intangible assets, acquired at the time of acquisition of a business or an equity interest in a subsidiary, or associate company. Goodwill is amortised by the straight line method over the period during which benefits are expected to be received. This is a maximum of five years.

e) Property, Plant and Equipment

All items of property, plant and equipment are valued at the cost of purchase from the Crown as at 1 July 1992 adjusted for subsequent additions at cost, disposals and depreciation. Property, plant and equipment other than land, forest assets and capital work in progress are recorded at cost less accumulated depreciation. Land and capital work in progress are recorded at cost. Forest assets were revalued by using the net present value of the after tax cash flow for each individual crop as at 30 June 2003. Forest assets are revalued every five years.

Expenditure incurred on property, plant and equipment is capitalised where such expenditure will increase or enhance the future benefits provided by the asset. Expenditure incurred to maintain future benefits is classified as repairs and maintenance.

When an item of property, plant and equipment is disposed of the difference between the net disposal proceeds and the carrying amount is recognised as a gain, or loss, in the Statement of Financial Performance.

Depreciation is provided for using the straight-line method to allocate the historical cost, less an estimated residual value, over the estimated useful life of the asset.

The useful lives of the major classes of assets have been calculated as follows:

Buildings and Land Improvements	40–60 years
Plant and Equipment	4–15 years
Furniture and Fittings	10 years
Motor Vehicles	3–7 years

The database within the books and periodicals was depreciated over five years. Other assets within the books and periodicals are not depreciated as the value is not considered to decrease over time.

f) Debtors

Debtors have been valued at estimated net realisable value, which is considered to be fair value. Provision has been made for potential bad debts.

g) Inventories

Consumable stores are valued at the lower of cost, on a weighted average price of stock on hand, and net realisable value.

h) Research and Development Costs

Research costs are expensed in the period incurred. Development costs are expensed in the period incurred unless certain criteria for asset recognition are met. Capitalised development costs are amortised over future periods in relation to expected future revenue. Unamortised costs are reviewed at the end of each balance date to determine the amount (if any) that no longer meets the criteria. Any amount so identified is written off.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

1. STATEMENT OF ACCOUNTING POLICIES (continued)

SPECIFIC ACCOUNTING POLICIES (continued)

i) Employee Entitlements

Provision has been made for benefits accruing to employees for annual leave in accordance with the provisions of employment contracts in place at balance date. Long service leave and retirement leave provisions are based on an actuarial valuation.

j) Leases

Operating lease payments, where the lessors effectively retain substantially all the risks and benefits associated with ownership of the leased items, are included as an expense in the Statement of Financial Performance in equal instalments over the lease term.

k) Goods and Services Tax (GST)

The financial statements are prepared on a GST exclusive basis.

l) Foreign Currencies

Transactions in foreign currencies are converted at the New Zealand rate of exchange ruling on the date of the transaction. Monetary assets and liabilities at year-end are converted to New Zealand dollars at the exchange rate ruling at balance date and exchange variations arising from these translations are recognised in the Statement of Financial Performance.

m) Revenue Recognition

Revenue from both Government and commercial sources is recorded when earned based on the percentage of work completed or other contractual commitments. Work completed but not invoiced is recorded as accrued revenue while work invoiced but not completed is recorded as revenue in advance.

n) Taxation

The income tax expense charged to the Statement of Financial Performance includes both the current year's provision and the income tax effects of timing differences calculated using the liability method.

Tax effect accounting is applied on a comprehensive basis to all timing differences. A debit balance in the deferred tax account, arising from timing differences or income tax benefits from income tax losses, is only recognised if there is virtual certainty of realisation.

Subsequent realisation of the tax benefit is subject to the requirements of income tax legislation being met.

o) Financial Instruments

The group is from time to time party to financial instruments with off balance sheet risk to meet financing needs. Revenues and expenses in relation to all financial instruments are recognised in the Statement of Financial Performance.

p) Prior Year Comparatives

Certain prior year comparatives have been reclassified to conform with current year presentation.

CHANGES IN ACCOUNTING POLICIES

There have been no changes in accounting policies during the year under review and all policies have been applied on a basis consistent with the previous year.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

	GROUP 2007 $000	GROUP 2006 $000	PARENT 2007 $000	PARENT 2006 $000
2. OPERATING REVENUE				
Government revenue	**7,796**	8,108	**7,796**	8,108
Commercial revenue	**9,935**	8,419	**9,917**	8,356
50% share Ensis	**3,799**	4,398	**-**	-
Sale of IP through Ensis	**-**	371	**-**	-
Gain on disposal of fixed assets	**-**	19	**-**	18
FHS Dividend	**-**	-	**16**	-
Interest revenue	**17**	30	**13**	21
	21,547	21,345	**17,742**	16,503
3. OPERATING SURPLUS BEFORE TAXATION				
After charging:				
Depreciation				
– Improvements and buildings	**431**	378	**426**	373
– Plant and equipment	**1,756**	1,905	**1,756**	1,905
– Furniture and fittings	**38**	43	**38**	43
– Vehicles	**14**	18	**14**	18
Directors' fees	**225**	203	**213**	193
Interest expense	**132**	202	**108**	202
Lease and rental costs	**397**	580	**706**	916
Personnel remuneration and expenses	**11,103**	11,194	**11,101**	11,080
Change in doubtful debts provision	**(77)**	(99)	**(77)**	(79)
Bad debts expensed	**147**	11	**147**	11
Loss on sale of fixed assets	**4**	-	**4**	-
Realised exchange fluctuations	**(103)**	(69)	**(1)**	(3)
Unrealised exchange fluctuations	**-**	(105)	**-**	(3)
Change in provision for impairment of assets	**42**	(38)	**42**	(38)
Restructuring costs	**59**	231	**59**	231
Corporate support costs recharged for Ensis	**-**	-	**-**	4,150

In 2006 New Zealand Forest Research Institute Limited charged Scion Australasia Limited $4,150,000 for Corporate Support relating to Ensis. This charge largely offset Scion's share of Ensis profits, recognised within Scion Australasia. While Corporate Support continued in 2007, it was not recharged. As a result of not recharging Corporate Support in 2007, costs within the parent are higher and there has been a large increase in the intercompany payable with Scion Australasia (refer notes 9 and 24). The 2006 recharge was eliminated on Group consolidation.

4. AUDITOR'S REMUNERATION				
Amounts paid or due and payable to the auditors for:				
Auditing financial statements				
Parent entity auditor	**93**	88	**93**	87
IFRS consultation costs	**30**	-	**30**	-

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

		GROUP 2007 $000	GROUP 2006 $000	PARENT 2007 $000	PARENT 2006 $000
5.	**TAXATION EXPENSE**				
	Operating surplus/(deficit) before taxation	**(547)**	(1,297)	**(4,445)**	(2,336)
	Prima facie tax at 33%	**(181)**	(428)	**(1,467)**	(771)
	Taxation effect of permanent differences	**188**	152	**86**	229
	Under provision from prior year	**8**	-	**7**	-
	Tax losses not recognised	**-**	623	**-**	623
	Utilisation of prior year tax losses written off	**(50)**	-	**(50)**	-
	Tax effect of loss offsets	**-**	-	**1,376**	190
	Deferred tax adjustment for tax rate change	**(28)**	-	**(28)**	-
	Taxation expense	**(63)**	347	**(76)**	271
	Represented by:				
	Current taxation	**49**	(605)	**(1,325)**	(795)
	Tax effect of loss offsets	**-**	-	**1,376**	190
	Tax losses not recognised	**-**	623	**-**	623
	Utilisation of prior year tax losses written off	**(50)**	-	**(50)**	-
	Deferred taxation	**(62)**	329	**(77)**	253
		(63)	347	**(76)**	271
	Opening taxation (receivable)/payable	**(485)**	188	**(448)**	93
	Tax transfer	**-**	-	**454**	-
	Other tax movements	**37**	-	**6**	-
	Over provision from prior year	**4**	(3)	**2**	-
	Transfer from deferred tax benefit	**-**	11	**-**	5
		(444)	196	**14**	98
	Current taxation	**49**	(605)	**(1,325)**	(795)
	Provisional tax paid	**(4)**	(699)	**-**	(564)
	Tax losses not recognised	**-**	623	**-**	623
	Utilisation of prior year tax losses written off	**(50)**	-	**(50)**	-
	Tax effect of loss offsets	**-**	-	**1,376**	190
	Closing taxation (receivable)/payable	**(449)**	(485)	**15**	(448)
6.	**FOREIGN CURRENCY TRANSLATION RESERVE**				
	Balance at 1 July	**(69)**	12	**-**	-
	Movement during year	**(6)**	(81)	**-**	-
	Balance at 30 June	**(75)**	(69)	**-**	-

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

		GROUP & PARENT	
		2007	2006
		$000	$000
7.	**SHARE CAPITAL**		
	Issued and paid up capital		
	15,716,000 ordinary shares	**15,716**	15,716
	All shares have equal rights with respect to voting, dividends and distribution on winding up.		
8.	**BANK DEBT**	**1,370**	3,555

The interest rate on the bank debt is 8.30% reviewable daily (2006: 7.60%).

The bank debt is unsecured, but subject to financial covenants being maintained.

During the previous year Scion informed the Bank that they were not going to meet the bank interest cover covenants. The bank agreed to suspend the interest cover covenant until October 2006. In October 2006 the interest cover covenants returned to compliance and the facility was renewed. The total facility available to the group is $7,000,000 (2006: $7,000,000). The bank facility maturity date is 31 October 2007. The Board is comfortable that the facility will be renewed.

	GROUP	GROUP	**PARENT**	PARENT
	2007	2006	**2007**	2006
	$000	$000	**$000**	$000
9. CREDITORS AND ACCRUALS				
Trade creditors	**617**	501	**617**	499
Accounts payable	**1,324**	869	**1,135**	841
Intercompany payable	**-**	-	**4,187**	1,341
Ensis payable	**860**	187	**860**	187
Payable to directors	**48**	31	**44**	30
Revenue in advance	**806**	530	**805**	530
Provision for employee retirement, long service leave and service recognition leave	**212**	125	**212**	125
Provision for other employee entitlements	**2,141**	1,973	**2,141**	1,973
Provision for closure	**-**	15	**-**	-
	6,008	4,231	**10,001**	5,526

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

	GROUP 2007 $000	GROUP 2006 $000	PARENT 2007 $000	PARENT 2006 $000
10. PROPERTY, PLANT AND EQUIPMENT				
Land and Improvements				
At cost	**1,476**	1,571	**441**	436
Less accumulated depreciation (improvements)	**93**	72	**84**	67
Net book value land and improvements	**1,383**	1,499	**357**	369
Forest Assets				
At valuation	**164**	164	**164**	164
Buildings				
At cost	**19,162**	18,474	**19,162**	18,474
Less accumulated depreciation	**3,679**	3,272	**3,679**	3,272
Less impairment	**48**	-	**48**	-
Net book value of buildings	**15,435**	15,202	**15,435**	15,202
Plant and Equipment				
At cost	**31,677**	31,587	**31,677**	31,587
Less accumulated depreciation	**25,961**	24,337	**25,961**	24,337
Less impairment	**2**	-	**2**	-
Net book value of plant and equipment	**5,714**	7,250	**5,714**	7,250
Furniture and Fittings				
At cost	**1,519**	1,486	**1,519**	1,486
Less accumulated depreciation	**1,373**	1,332	**1,373**	1,332
Less impairment	**-**	-	**-**	-
Net book value of furniture and fittings	**146**	154	**146**	154
Motor Vehicles				
At cost	**239**	225	**239**	225
Less accumulated depreciation	**143**	129	**143**	129
Net book value of motor vehicles	**96**	96	**96**	96
Books and Periodicals				
At cost	**169**	199	**169**	169
Less accumulated depreciation	**-**	30	**-**	-
Net book value of books and periodicals	**169**	169	**169**	169
Capital Work in Progress				
At cost	**404**	195	**103**	167
Total Property, Plant & Equipment				
At cost	**54,810**	53,901	**53,474**	52,708
Less accumulated depreciation	**31,249**	29,172	**31,240**	29,136
Less impairment	**50**	-	**50**	-
Net book value of property, plant & equipment	**23,511**	24,729	**22,184**	23,572

The fair value of land and buildings as per Rating Valuation as at 30 June 2007 is $36,720,000 (2006: $36,140,000).

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

		GROUP 2007 $000	GROUP 2006 $000	PARENT 2007 $000	PARENT 2006 $000
11.	**DEFERRED TAX BENEFIT**				
	Balance at 1 July	**755**	1,074	**741**	989
	Current year movement	**62**	(329)	**77**	(253)
	Over provision from previous year	**1**	10	**-**	5
	Balance at 30 June	**818**	755	**818**	741

		GROUP & PARENT 2007 $000	GROUP & PARENT 2006 $000
12.	**INTANGIBLE ASSETS**		
	Patents		
	At cost	**25**	25
	Accumulated amortisation	**(25)**	(25)
	Balance at 30 June	**-**	-

		PARENT 2007 $000	PARENT 2006 $000
13.	**INVESTMENTS**		
	Investments in Subsidiaries		
	Shares in subsidiaries 30 June 2006	**52**	52
	Acquired in current year	**-**	-
	Disposed of in current year	**-**	-
	Shares in subsidiaries at 30 June 2007	**52**	52

	Shares	Percentage Held	Balance Date
Subsidiaries			
Liro Limited	1,000	100%	30 June
Forest Research (Australasia) Pty Limited	100	100%	30 June
Te Papa Tipu Properties Limited	100	100%	30 June
ATLAS Technology Limited	100	100%	30 June
Future Forests Research Limited	1	100%	30 June
Scion Australasia Limited	100	100%	30 June

Liro Limited does not trade. It earns interest from a loan arising from the sale of an investment.

Forest Research (Australasia) Pty Ltd previously operated a branch in Australia providing software support services. The company has now ceased trading.

Te Papa Tipu Properties Limited was incorporated on 25 March 2004. The company owns the Group's land assets.

ATLAS Technology Limited does not trade.

Future Forests Research Limited was incorporated on 9 May 2006 to combine and extend the activities of New Zealand based industry research cooperatives. The company will commence trading in 2007/08.

Scion Australasia Limited, a special purpose company for the Ensis 50/50 unincorporated joint venture, was incorporated on 14 June 2004.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

13. INVESTMENTS (continued)

FHS Limited which provided a range of services to industry, government, local and regional authorities aimed at the early detection of pests and diseases, ceased trading on 1 October 2005, and was struck off the Companies Office Register on 27 July 2007.

During the year two non-trading subsidiaries – Scion Group Limited and SignaGen Limited were struck off the Companies Office Register.

Investment in Ensis

The joint venture, Ensis, commenced operations on 1 July 2004. The parent company, New Zealand Forest Research Institute Limited transferred approximately one third of its operations into the joint venture on commencement and a further one third of its operations on 1 July 2005.

The group's 50% share of Ensis operating profit before interest for the year ended 30 June 2007 was $3,737,397 (2006: $4,397,809). Net surplus is comprised as follows:

	2007	2006
	$000	$000
Operating revenue	**57,196**	57,708
Direct costs	**49,722**	48,541
Gross margin	**7,474**	9,167
Sale of IP through Ensis	**-**	(371)
	7,474	8,796
Scion Australasia's 50% share	**3,737**	4,398
Scion Australasia's 50% share of interest revenue	**62**	-
	3,799	4,398

The investment in Ensis is recorded as a current asset as the joint venture agreement requires all profits to be distributed in the year following that in which they are earned.

	GROUP 2007	GROUP 2006	**PARENT 2007**	PARENT 2006
	$000	$000	**$000**	$000
Opening share of gross margin	**2,549**	3,392	**-**	-
Sale of IP through Ensis	**-**	371	**-**	-
Current year share of gross margin	**3,799**	4,398	**-**	-
Distributions received	**(4,120)**	(5,612)	**-**	-
Closing share of gross margin	**2,228**	2,549	-	-
Investments in Associates				
Opening share of decrease in net assets	**(10)**	(10)	**(10)**	-
Current year share of decrease in net assets of Frontline Biosecurity	**-**	-	**-**	(10)
Closing share of decrease in net assets	**(10)**	(10)	**(10)**	(10)
Cost of investments 30 June 2006	**45**	30	**45**	30
Acquired during the period	**-**	15	**-**	15
Cost of investments to 30 June 2007	**35**	35	**35**	35

New Zealand Forest Research Institute Limited has a 25% shareholding in a joint venture company, Frontline Biosecurity Limited. The company carries out research, development and commercialisation of biosecurity processes. The company has a balance date of 31 March.

On 28 June 2004 New Zealand Forest Research Institute Limited purchased a 20% share of Beacon Pathway Limited. The company carries out research in the area of sustainability in the built environment.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

13. INVESTMENTS (continued)

On 1 September 2005 New Zealand Forest Research Institute Limited purchased a 33.33% share of Biopolymer Network Limited, an incorporated joint venture carrying out research, development and commercialisation of biopolymers.

The parent entity undertakes research projects with the Forest and Forest Products Research Organisation (FAFPRO) through five cooperatives. Expenditure incurred on research and recoveries from the cooperatives has been included in the financial statements.

	GROUP 2007 $000	GROUP 2006 $000	**PARENT 2007 $000**	PARENT 2006 $000
14. CASH AND SHORT TERM DEPOSITS				
Cash on hand	**1**	2	**1**	2
Bank (bank overdraft/unsecured)	**308**	119	**305**	(34)
Foreign currency account	**-**	2	**-**	2
On call account	**6**	6	**6**	6
	315	129	**312**	(24)
15. DEBTORS AND PREPAYMENTS				
Trade debtors	**2,539**	2,298	**2,539**	2,298
Provision for doubtful debts	**(60)**	(137)	**(60)**	(137)
Intercompany receivable	**-**	-	**2,404**	3,476
Other debtors	**5**	61	**4**	60
Accrued revenue	**390**	197	**383**	197
Prepayments	**414**	395	**414**	395
	3,288	2,814	**5,684**	6,289
16. LOAN TO POCKET SOLUTIONS LIMITED				
Balance 1 July 2006	**295**	399	**241**	307
Repayments	**(115)**	(104)	**(106)**	(66)
Balance 30 June 2007	**180**	295	**135**	241
Term portion of loan	**-**	182	**-**	169
Current portion of loan	**180**	113	**135**	72
Total	**180**	295	**135**	241

The loan is secured by a Deed of Mortgage over the shares of IFR Technologies Limited (68.8%) and all the shares of the purchasing company.

17. INVENTORIES				
Consumable stores	**99**	101	**99**	101
	99	101	**99**	101

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

	GROUP 2007 $000	GROUP 2006 $000	**PARENT 2007 $000**	PARENT 2006 $000

18. FINANCIAL INSTRUMENTS

Credit Risk

Financial instruments that potentially subject the group to credit risk consist of bank balances and accounts receivable. The group generally does not require any security.

Maximum exposures to credit risk as at balance date are:

Foreign currency account	**-**	2	**-**	2
Current account	**308**	119	**305**	-
On call account	**6**	6	**6**	6
Receivables	**2,874**	2,418	**2,866**	2,418
Intercompany receivable	**-**	-	**2,404**	3,476
Loans/Advances	**256**	371	**211**	317

The group is not exposed to any significant concentrations of credit risk.

The above maximum exposures are net of any provision for losses on these financial instruments.

Interest Rate Risk

The group has a debt facility with the National Bank of New Zealand Limited.

Amount $000	**Rate**	**2006**
$1,370	8.30%	7.60%

Interest rate on bank debt is reviewable daily.

The interest rate on the bank overdraft facility of $100,000 is currently 12.30% (2006: 11.85%). The bank overdraft interest rate is based on a floating rate set by the bank.

Fair Values

Financial Instruments include:

Bank Overdraft, Foreign Currency Account, On Call Account, Short Term Deposits, Trade Debtors, Other Debtors, Accounts Payable and Term Loan.

For each class of financial instruments the carrying amount is the fair value.

At balance date the group had no interest rate swap agreements (2005: Nil).

	GROUP 2007 $000	GROUP 2006 $000	**PARENT 2007 $000**	PARENT 2006 $000

19. UNHEDGED FOREIGN CURRENCY DENOMINATED ASSETS AND LIABILITIES

Unhedged assets	**NZD**	NZD	**NZD**	NZD
AUD – Current	**243**	359	**243**	359
USD – Current	**64**	41	**64**	41
EURO – Current	**17**	-	**17**	-
Unhedged liabilities				
AUD – Current	**10**	12	**10**	12
USD – Current	**123**	-	**123**	-

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

	GROUP 2007 $000	GROUP 2006 $000	PARENT 2007 $000	PARENT 2006 $000
20. RECONCILIATION OF OPERATING SURPLUS AFTER TAXATION WITH CASH FLOWS FROM OPERATING ACTIVITIES				
Reported surplus after taxation and before including share of retained surplus of associates	**(484)**	(1,644)	**(4,369)**	(2,607)
Add (less) non cash items:				
Depreciation	**2,239**	2,344	**2,234**	2,339
Impairment provision	**42**	-	**42**	-
Bad/Doubtful debts	**70**	(88)	**70**	(68)
Movement in deferred tax benefit	**(63)**	319	**(77)**	248
Unrealised loss on foreign currency account	**-**	(3)	**-**	-
	2,288	2,572	**2,269**	2,519
Add (less) items classified as investing activity:				
(Gain) loss on disposal of property, plant and equipment	**4**	(19)	**4**	(18)
Capital related items in creditors	**(134)**	263	**(77)**	331
	(130)	244	**(73)**	313
Add (less) items classified as financing activity:				
Increase/(Decrease) in intercompany debtors	**-**	-	**(1,072)**	(1,605)
(Increase)/Decrease in intercompany creditors	**-**	-	**(3,300)**	(45)
	-	-	**(4,372)**	(1,650)
Associate company (profit)/loss	**-**	-	**-**	10
Movements in working capital items:				
(Increase)/Decrease in debtors and prepayments	**(193)**	4,715	**565**	5,053
(Increase)/Decrease in inventories	**1**	41	**1**	70
Increase/(Decrease) in creditors and accruals	**1,734**	(4,220)	**4,432**	(3,768)
Increase/(Decrease) in taxation payable	**(4)**	(654)	**455**	(533)
	1,538	(118)	**5,453**	822
Net cash flows from operating activities	**3,212**	1,054	**(1,092)**	(593)

21. CONTINGENT LIABILITIES

Treaty of Waitangi Issues

Two verified land claims affecting the group currently exist:

(i) Ngati Whakaue – covering the whole Rotorua Campus

(ii) Ngati Wahiao – covering the southern end of the Rotorua Campus

No reliable estimates can be made of these potential liabilities.

22. CONTINGENT ASSETS

Heritage Assets

The company has identified its herbarium collection as a heritage asset in accordance with Financial Reporting Standard No.3, Accounting for Property, Plant and Equipment. The Directors believe that there is no practical basis upon which to reliably value this collection. Therefore in accordance with Financial Reporting Standard No.15, Provisions, Contingent Liabilities and Contingent Assets, the herbarium collection meets the definition of a contingent asset.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

	GROUP 2007 $000	GROUP 2006 $000	PARENT 2007 $000	PARENT 2006 $000
23. COMMITMENTS				
Capital Commitments:				
Estimated capital expenditure contracted for at balance date but not provided for	**222**	4	**186**	4
Operating Lease Commitments:				
Lease commitments under non-cancellable operating leases:				
Within one year	**410**	327	**410**	327
One to two years	**197**	181	**197**	181
Two to five years	**31**	12	**31**	12
	638	520	**638**	520

24. TRANSACTIONS WITH RELATED PARTIES

New Zealand Forest Research Institute Limited is wholly owned by the Crown. All transactions with State-owned enterprises and Government departments and agencies are at arm's length, and are not considered to fall within the intended scope of related party transactions.

During the year New Zealand Forest Research Institute Limited entered into the following transactions:

	PARENT 2007 $000	PARENT 2006 $000
Subsidiary Companies		
Liro Limited		
Net advances	**(11)**	(45)
Supply of services	**-**	-
Amount (payable)/receivable at balance date		
– Intercompany account	**(1,352)**	(1,341)
Forest Research (Australasia) Pty Ltd		
Net cash advanced/paid on behalf of	**(85)**	(11)
Supply of goods and services	**-**	-
Amount (payable)/receivable at balance date		
– Intercompany account	**1,353**	1,438
Scion Australasia Ltd		
Net cash advanced/paid on behalf of	**(3,603)**	5,537
Supply of goods and services	**-**	4,151
Amount (payable)/receivable at balance date		
– Intercompany account	**(2,835)**	767
Te Papa Tipu Properties Ltd		
Receipt of Rent	**(309)**	(319)
Paid on behalf	**386**	401
Transfer of improvements	**(100)**	-
Amount (payable)/receivable at balance date		
– Intercompany account	**1,051**	1,074

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

	PARENT	
	2007	2006
	$000	$000

24. TRANSACTIONS WITH RELATED PARTIES (continued)

Associates

Beacon Pathway Ltd		
Contribution to research outputs	**(200)**	(200)
Supplied goods and services	**133**	303
Receivable/(Payable) at 30 June 2007	**27**	71
Outstanding unsecured shareholders advance from New Zealand Forest Research Institute Limited to Beacon Pathway Limited	**76**	76
Biopolymer Network Ltd		
Supplied goods and services	**1,390**	1,205
Received goods and services	**-**	(206)
Receivable/(Payable) at 30 June 2007	**169**	149
WQI Ltd		
Contribution to research outputs	**-**	-
Supplied goods and services	**2**	266
Receivable/(Payable) at 30 June 2007	**-**	-
Frontline Biosecurity Ltd		
Subcontract Government funded contracts	**-**	-
Supplied goods and services	**-**	-
Receivable/(Payable) at 30 June 2007	**-**	-
Radiata Pine Breeding Co Ltd		
Contributed research levies	**-**	-
Supplied goods and services	**9**	164
Receivable/(Payable) at 30 June 2007	**-**	-

Ensis

On 1 July 2004, New Zealand Forest Research Institute Limited transferred four business units, which approximated one third of its operations, into Ensis a 50/50 Unincorporated Jointed Venture with CSIRO, Australia's national science agency. On 1 July 2005 a further one third of its operations were transferred into the joint venture.

Ensis was funded $15,222,949 (2006: $14,467,005) by New Zealand Forest Research Institute Limited to perform an equivalent amount of New Zealand Forest Research Institute Limited's Government contracts.

Certain staff were seconded by New Zealand Forest Research Institute Limited into the joint venture. New Zealand Forest Research Institute Limited charged $11,167,198 (2006: $10,559,860) for those personnel.

During the year New Zealand Forest Research Institute Limited provided other goods and services to Ensis totalling $3,313,917 (2006: $3,063,092).

During the year New Zealand Forest Research Institute Limited received goods and services from Ensis totalling $409,422 (2006: $349,934).

At 30 June 2007 New Zealand Forest Research Institute Limited owed Ensis $859,876 (2006: $187,068).

Other

During the year the group provided services to FITEC totalling $48,390 and New Zealand Forestry Limited totalling $3,599. The group also received services totalling $11,425 from the New Zealand Forest Owners Association Inc. Mr Peter Berg, a director of New Zealand Forest Research Institute Limited, is also a director of the aforementioned entities. The services were provided and/or received on normal trading terms.

Amounts outstanding at year-end are receivable and payable on normal trading terms.

No related party debts were written off or forgiven during the year (2006: Nil).

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the Year Ended 30 June 2007 (continued)

25. PROVISIONS FOR CLOSURE

	Employee Entitlements	Onerous Leases	Other	Total
	$000	$000	$000	$000
Opening Balance 1 July 2006	-	-	15	15
Expenditure incurred	-	-	(3)	(3)
Provision released	-	-	(12)	(12)
Closing Balance 30 June 2007	-	-	-	-

These provisions relate to the change in the basis of accounting in the 2005 financial year as detailed in the Statement of Accounting Policies Measurement Base (Page 5). The amounts represented the directors' best estimate of the costs that would be incurred in winding up the company. These amounts did not include anticipated operating losses incurred after balance date and up to date of closure.

26. SEGMENT INFORMATION

The group operates principally in New Zealand providing scientific research and technology to Government and commercial clients.

Company Directory

BOARD OF DIRECTORS

Dr Russ Ballard (Chairman)
Temuera Hall (Deputy Chairman)
Margaret Emerre
Bronwyn Monopoli
John Palmer
Peter Berg
Kathy Garden

EXECUTIVE MANAGEMENT

Dr Tom Richardson
Chief Executive Officer - Scion
Chief Executive Officer - Ensis

Lionel Jeyaraj
Chief Financial Officer and Group Manager – Corporate Services

Dr Elspeth MacRae
Group Manager – Biomaterials Research

John Gifford
Group Manager – Sustainable Consumer Products

Dr Russell Burton
Group Manager – Incubators and Investments

Tupara Morrison
Group Manager – Maori Strategy

Alyson Howell
Acting Group Manager – Human Resources

Jacky James
Group Manager – Marketing & Communications

AUDITORS

Simon Brotherton
Ernst & Young, Auckland, on behalf of the Auditor-General

BANKERS

National Bank of New Zealand

SOLICITORS

Bell Gully, Auckland

REGISTERED OFFICE

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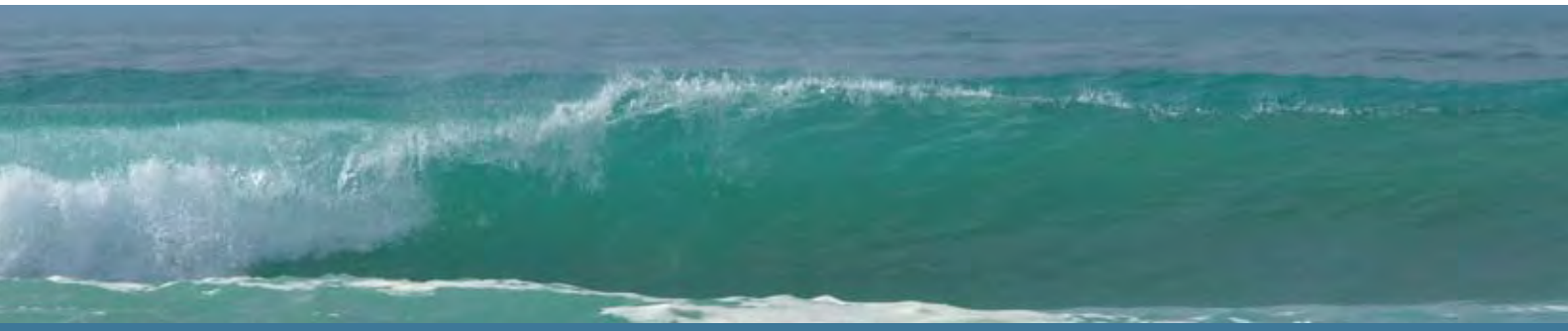
SCION
Next generation biomaterials



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