

# SRDC

## ANNUAL REPORT 2010-2011



*Investing in Sugarcane Industry Innovation*



**Australian Government**

**Sugar Research and Development Corporation**



### Sugar Research and Development Corporation

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#### SRDC Annual Report 2010–2011

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University of Queensland Researcher Dr Andrew Fletcher inspects fertilizer trial with sugarcane varieties grown in a UQ glasshouse facility in Brisbane. (Photo courtesy of Sacron Innovation)

30 September 2011

Senator the Hon. Joe Ludwig  
Minister for Agriculture, Fisheries and Forestry  
Senator for Queensland  
PO Box 6022  
Parliament House  
Canberra ACT 2600

Dear Minister

In accordance with the requirements of the *Primary Industries and Energy Research and Development Act 1989*, I submit the Annual Report of the Sugar Research and Development Corporation (SRDC) for 2010–2011.

The activities of the Corporation are reported against the objectives, strategies, outputs and outcomes of the SRDC Research and Development Plan 2007–2012 and are consistent with the 2010–2011 Annual Operational Plan and Portfolio Budget Statement.

The report of operations included in the Annual Report has been made in accordance with a resolution of the Directors of SRDC on 24 August 2011. SRDC Directors are responsible under Section 9 of the *Commonwealth Authorities and Companies Act 1997* for the preparation and content of the report of operations in accordance with the Finance Minister's Orders.

The SRDC is confident that its performance in 2010–2011 contributed to achieving the Corporation's vision for a profitable and internationally competitive Australian sugar industry providing economic, environmental and social benefits for rural and regional communities.

I commend this report to you.

Yours sincerely,

**Ian Causley**  
Chairman  
Sugar Research and Development Corporation



# SRDC

ANNUAL REPORT  
2010-2011



Australian Government

Sugar Research and Development Corporation

*Investing in Sugarcane Industry Innovation*



*SRDC Senior Investment Manager Blanca Cairns manages SRDC funded projects for the Southern district between Proserpine in QLD and Harwood in Northern NSW.*

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## Section 1

Report from Chairman  
& Executive Director

Impact to SRDC investment  
in R&D outcomes

Industry Profile  
– factors, trends and events

Industry Facts & Statistics

*BSES Limited Research Scientist George Piperidis led a tour group of industry and Government stakeholders through a BSES Limited trial site in Mackay in August 2011.*

# REPORT FROM CHAIRMAN & EXECUTIVE DIRECTOR

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2011 marks the 20th anniversary of the establishment of the Sugar Research and Development Corporation (SRDC). Research and Development (R&D) projects funded by SRDC over the past 20 years has been the cornerstone for continuous improvement and innovation and the industry has reaped some significant rewards from this investment.

This annual report covers the penultimate year of the five-year SRDC Research and Development Plan 2007–2012. The plan outlines a vision for the future of the industry: a vision that has proven perceptive and intuitive. But few during the development of the five-year plan would have foreseen the scope of change and the test of skill and endurance the industry would face within those five years.

2010–2011 is to be remembered as the ‘summer of natural disasters’, the resilience of the sugarcane industry was severely tested with widespread flooding and the devastation left by Cyclone Yasi in the heartland of cane production, the second major cyclone in five years.

The result has been a reduction in sugarcane production and therefore the SRDC’s levy-based income, and the conduct of many research projects, which have been delayed by flooding, cyclone damage, lack of crop replacement or technical difficulties.

The Minister for Agriculture, Fisheries and Forestry and the Minister for Finance and Deregulation gave approval for the SRDC to draw down from financial reserves to address reduced levy income and stimulate new research in areas targeted for immediate attention by industry as a result of the climatic extremes.

More research will be needed to provide solutions to increase yield per hectare, which has already been supported by SRDC’s increased investments in farming systems research led by BSES Limited.

In 2007 we noted a likely reduction in the number of mills in future and this has certainly eventuated, but the investment by large international commercial players in milling was not as closely predicted. While signalling confidence for the future, from a research point of view, these investments will be observed with interest as part of an increased offshore focus and international influence.

The past year saw two major reviews of the R&D sector. The first, led by the Australian Government’s Productivity Commission, examined and reported on the operations of the 15 R&D Corporations. The second, and most significant for the future of this organisation, was conducted by Port Jackson Partners on behalf of the Australian Sugarcane Alliance and proposed an investigation of an amalgamation of the SRDC, Sugar Research Limited and the BSES Limited.

During these reviews SRDC continued to improve its operating performance, it looked inward during the external reviews and looked outward through its interaction with stakeholders and industry partners. Although the time involved in preparing submissions and responding to reviews was time consuming, it resulted in greater collaboration with other R&D Corporations and industry groups.

As we enter the final year of the SRDC Research and Development Plan 2007–2012 we embark on the first year of the National Sugar Industry Research, Development and Extension Strategy, a comprehensive strategy to define targeted research priorities with full industry and government cooperation and involvement.

Soon SRDC will start preparing the next Research, Development and Extension Plan 2012–2017. This plan will be a subset of the National Sugar Industry Research, Development and Extension Strategy and will involve extensive industry and government consultation. In addition, we will implement findings of our evaluation review and expand our research dissemination and industry engagement activities.

Feedback from our 2010–2011 project investment process has been adopted and included in the process for selecting and managing research projects in 2012. Changes includes inviting industry experts to join peer review panels to provide feedback on project applications prior to short listing.

## REPORT FROM CHAIRMAN & EXECUTIVE DIRECTOR

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Despite the climate related setbacks that inundated the industry during the year, the SRDC has performed well and achieved strongly against its expected program and financial outcomes. The 2011 investment in projects was targeted in accordance with industry and government priorities while being responsive to emerging issues and all projects met their key performance criteria.

The term of the SRDC Board Directors, except the current Chairman, ended in April 2011. The Board and previous Chairman, Ian Knop, put a great deal of their own time into developing a better understanding of the industry and keeping the organisation 'in the black and in front'. It is through the support of the Board that SRDC has continued to strengthen its programs and develop new and innovative projects to improve research and maximise its investment. Our new Board members will continue this work and bring new ideas and enthusiasm to the task.

The SRDC's success is due to the professionalism and cooperation of the Board and staff, and their commitment to developing relationships with growers, industry, research partners and the government. We extend our thanks to everyone and look forward to the next twelve months.



A handwritten signature in black ink that reads "I R Causley".

**IAN CAUSLEY**  
SRDC Chairman



A handwritten signature in black ink that reads "A Sugden".

**ANNETTE SUGDEN**  
Executive Director



## IMPACT OF SRDC INVESTMENT ON R&D OUTCOMES

To remain competitive in world markets, industries must strive to world's best practice and SRDC is pivotal in ensuring that the Australian sugar industry remains efficient and sustainable while producing quality products demanded by the market.

SRDC's 20 year investment in sugarcane research and development (R&D) has provided Australia the ability to compete with emerging sugarcane industries and low production cost competitors such as Brazil.

In mature industries such as cane sugar, quantum leaps in research innovation are comparatively rare. Nevertheless, there has been a considerable breakthrough in sugarcane production from R&D funded by SRDC over 20 years.

Cane yields declined noticeably through the 1980s as a result of long term cropping of the same land to sugarcane – a comprehensive R&D program demonstrated the role of declining soil health under cane monoculture (physical and chemical deterioration of the soil; loss of beneficial soil organisms and increase in pests and diseases of cane).

**A new farming system** was developed that integrated minimum tillage, controlled traffic and legume break crops with retention of all crop residues as surface cover. The better farming system has resulted in considerable cost savings, increased yields, improved pest and disease control, and improved environmental outcomes.

Adoption of research outcomes across the Australian industry is rapid. In 2008, 2009 and 2010, Acil Tasman completed an independent benefit cost analysis (BCA) of randomly selected project outcomes funded by Rural Research and Development Corporations (RDCs). Results suggested the return on R&D investment was 8:1 over the longer-term, which equates to increased returns for the whole industry in the order of \$200m.

**Genetic improvement of the sugarcane** plant is supported by SRDC through R&D investment to produce more cane varieties. Over the past decade, new cane varieties with high early Commercial Cane Sugar (CCS) content generated high returns and the net present value of the

industry. For the past 20 years, SRDC funding of cane variety improvement projects has supported sugarcane yield growth, pest disease resistant varieties, and enabled the time taken to development of new cane varieties to be shortened to around three years.

An SRDC funded project produced the world's first transgenic sugarcane plants in 1991–1992 and there is ongoing R&D investment on gene technology to ensure our industry remains at the forefront of this new arena. Further R&D investigation of high CCS varieties with high biomass and disease and pest resistant species is aimed at significant increases in sugar yield with concomitant reductions in costs of crop protection.

SRDC frequently provides R&D funding for **solutions to emerging challenges** including declining CCS in far north Queensland, sugarcane smut, orange rust, and outbreaks of cane grubs, weevil borers and cane-field rats. This R&D is essential to maintain productivity – without this R&D investment the industry would decline and even cease to exist in some areas. Current R&D will better position the industry for climate change.

SRDC has always balanced its responses to existing problems with funding to explore and develop new opportunities. **Precision agriculture** is an R&D investment where significant economic and environmental gains are likely, through increased efficiencies and reduced inputs.

SRDC recognises that industries that fail to respond to changing customer markets are likely to fail. To this end, several R&D projects focussed on Australian milling processes were successful to allow production of high pol raw sugar to compete with Brazilian sugar products. R&D has also helped mill areas supply and process sugarcane fibre for generating electricity for export and for production of other products such as furfural.

**Mechanical harvesting of green cane** provided significant challenges, particularly the separation of trash from cane without losing too much cane and juice. Losses of up to 20 percent of sucrose in the field were common in the 1990s when cutting unburnt cane. Many SRDC projects have helped reduce sucrose losses and extraneous matter in the cane supply without reducing field efficiencies for harvesting. More research on cane harvesting and cane transportation to the mill, aims to reduce sucrose losses in cane even further.

With the **adoption of an improved farming system** that involved controlled traffic, R&D was necessary to adapt farming and harvesting machinery to suit the new cane production systems. Funding by SRDC provided cost-effective solutions including one farmer-led example where a \$100,000 modification to a new harvester to handle 2m wide crop beds was recouped within one season through cost savings of about \$1 per tonne of cane harvested.

The **cane transport and milling sectors** have similarly benefitted from SRDCs policy of seeking continuous improvements as well as innovations. Many R&D projects across all aspects of raw sugar production have kept the Australian industry competitive despite the efficiencies conveyed by new factories across Brazil and some other countries. Such projects include development and implementation of scheduling tools for cane supply, longer-life mill rolls, increased throughput in clarifiers and improved flocculants, clarification of syrup for increased removal of impurities, improved design and operation of vacuum pans and filter stations, better processes for removing scale from evaporator vessels, and improved boiler efficiencies.

SRDC funded research led to the successful identification and measurement process for galactoglucomannans (GGM) in raw sugars – the presence of GGM polysaccharide causes floc in acid beverages and these raw sugars create problems for refiners who sell large volumes to soft drink manufacturers. It is believed that Australian exporters have a significant marketing advantage over our world competitors through being able to measure and manage high GGM sugars and sell these in floc insensitive markets. Note Australian research about GGM and floc is strictly confidential as this knowledge provides Australia with a valuable marketing tool for raw sugar. Ongoing R&D is developing the use of syrup clarification and new flocculants in raw sugar factories to remove significant quantities of GGM.

**Innovation in the milling sector** is being supported by SRDC through strategic research with higher risk of failure but with potentially high rates of return should the projects be successful. These projects currently include direct precipitation of sucrose from mixed juice using gas anti-solvent technology, and microwave preparation of cane. If successful, the former project would significantly reduce the cost of plant in raw sugar factories and the latter would reduce the cost of operating shredders and roll mills.

Research on **membrane technology** to replace clarifiers and to remove more impurities is also being funded by SRDC. Considerable R&D has and is being undertaken to scope new products from bagasse and field trash, for value adding and diversification of the product range within the sugar industry.

SRDC fostered the greater use of economic tools such as *gross margin analysis* by cane harvesters and growers operators in decision-making with a focus on profitability and not just productivity. This aspect until now has been under developed because key industry organisations generally did not provide economic advice with extension programs as it was assumed that high productivity was best for all sectors of the industry.

*SRDC support for extension* of economic information was essential for the rapid adoption of improved cane farming systems and was achieved in part by funding a wider range of R&D providers not traditionally used in the sugar industry. SRDC has long recognised that people are the key to a prosperous and competitive sugar industry. Traditionally, development of skills and knowledge was through scholarships and travel grants but more recently specific funding for grower group R&D projects is returning greater benefits because growers have much greater ownership of the results and are more like to adopt new and improved practices.

*Integration of an extension component* within projects is gaining momentum and is encouraged as this speeds adoption. Several extension and promotion projects have been funded by SRDC to identify and test new ways of increasing the rate of adoption of improved technologies and best management practices on farm.

Many projects are providing *significant returns for a relatively small investment* – growers are increasingly taking control of their own R&D projects and working more closely with industry researchers, rather than relying on other people to solve on farm issues. Examples of such successful projects include:

- harvest payment arrangements that provide incentives for quality product,
- improved harvester design, efficiency and operation,
- harvesting and transport of crop to supply additional fibre for cogeneration,
- grower-monitoring and management of the quality of water emanating from farms,
- integration of grain legume and other cash crops to improve cane farming systems, and
- adaption of improved farming systems to suit local conditions.

SRDC pursues a policy of supporting projects where economic, environmental and social impacts are all considered when planning and evaluating research and development projects. This means that projects are more likely to provide outcomes that can be readily accessed and adopted by industry people.

## Section 1

# INDUSTRY PROFILE

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Factors, trends and events that influenced SRDC's performance in 2010–2011 or that may influence its performance in the future.

### Factors

The key industry drivers for the Australian sugarcane industry include:

- globalisation
- competition
- climate change
- environmental sustainability
- social sustainability
- biosecurity
- process and product health and safety
- enhancement of human capital
- availability of new science and technology.

### Trends

#### *World markets*

Increases in sugarcane production are forecast for most major producing countries, but are likely to be particularly large in Brazil depending on how much is diverted to ethanol production. Lower world oil prices cause weaker demand for Brazilian ethanol in domestic and export markets. International market and production fluctuations give the Australian industry opportunities to regain any lost market share.

#### *Government Policy*

The industry is operating in an environment of changing government policy with the introduction of the *Great Barrier Reef Protection Act 2009* and changes to the *Queensland Environmental Protection Act 1994* and Chemical Usage (Agricultural and Veterinary) Control Regulation 1999 that seek to reduce the risk of sediment, nutrients and herbicides leaving coastal farms and affecting the health of the Great Barrier Reef. In addition, the renewable energy target announced by the Australian Government has seen a renewed interest in sugarcane co-generation operations.

#### *Diversification*

Raw and refined sugars, ethanol, furfural, molasses, liquid fertiliser, compost, fodder, and landscape mulch, and co-generating electricity are already being produced from the sugarcane crop. While on the horizon SRDC is investing in more cane value adding research to produce paper products, bioplastics, biofuel, nutraceutical compounds, value-added foods, industrial proteins and high fibre varieties for biomass production.

#### *Other challenges and opportunities*

The industry will also be subjected to other trends that may create opportunities and overcome challenges for research-based solutions:

- restructuring of mills and mill operations;
- reassurance on transport systems from mill closures;
- genetically modified varieties;
- urban development pressure on sugarcane land in popular coastal regions;
- declining terms of trade and sugar price volatility;
- margin pressure leading to larger farms, corporate farming and increased sugarcane farming by mill owners;
- need for productivity increases to improve cost competitiveness with Brazil and to maintain viability;
- environmental pressures and climate change.

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## Events

### *New Chairman*

Fourth generation Clarence Valley sugarcane farmer and long-serving state and federal politician, Mr Ian Causley was appointed Chairman of the SRDC Board on 1 October 2010. Mr Causley replaced Mr Ian Knop AOM, who served as Chairman for three years.

### *New Board appointments*

On 30 April 2010, eight non-executive directors of the Corporation completed their term as members of the SRDC Board. On 27 May 2011, six new non-executive directors were appointed to the SRDC Board for a three year term.

### *Board selection committee report*

Six new members were appointed to the SRDC Board in May 2011 after a joint industry and government panel completed a comprehensive selection process. The appointments are for a three year term ending on 30 April 2014. New members appointed include: Dr Paul Donnelly, Ms Lindy Hyam, Mr Julian (Jay) Venning, Dr Kleanthes (Anthos) Yannakou, Dr Tracy Henderson, and Mr Stephen (Steve) Guazzo who was successful in being reappointed as Deputy Chairman.

### *SRDC regional expos*

Seven regional expos were held throughout key sugarcane growing areas in March and April 2011. Themed 'Your Investment at Work' industry stakeholders were shown how and where their levy and matching Australian Government funds are invested and the importance of SRDC's contribution to the longevity and competitiveness of the Australian sugar industry.

The expos included a range of research presenters chosen to ensure relevancy to particular regions. A total of 345 people attended from a variety of fields including growing, milling, research and government. General feedback was very positive with attendees indicating they are satisfied that their R&D levy is being appropriately invested.

### *SRDC seminars*

Five seminars hosted by the SRDC and held in Brisbane were designed by researchers for researchers and attracted industry representatives, scientists, technologists, and potential funding providers.

- Dr Robert Magarey presented his valuable research findings on smut epidemiology;
- Dr Fouad Haghseresht and Lars Neilson spoke about industrial biotechnology opportunities for the Australia Sugar Industry;
- Dr Stevens Brumley explained how organic material derived from renewable sugarcane provides an effective base for bio-plastic production;
- Amanda Vickers shared her experience and knowledge gained from attending the 2010 Training Rural Australians in Leadership course; and
- Sue Middleton presented her views on the imperative role women play in maintaining the high calibre of the Australian agricultural industry and discussed how the sugarcane industry can support women in agriculture long-term.

### *Productivity Commission review*

The Productivity Commission released its findings from an inquiry into rural research and development (R&D) in June 2011. The Commission recognised the uniqueness of the RDC model worldwide and its important strengths including delivering substantial benefits to rural industries and the community. However, Minister Joe Ludwig in his statement to Parliament rejected the Commission's recommendation to halve the cap on matching contributions from government to the RDCs and reaffirmed how research and development is vital to the productivity and competitiveness of Australia's rural industries and the health and resilience of its rural and regional communities.

### ***Sucrogen sale***

The sale of Sucrogen to Wilmar International Limited, one of Asia's leading agribusiness groups, was finalised in early December 2010.

### ***Industry Research Forum***

On 30 March 2011, SRDC hosted an Industry Research Forum at the Queensland University of Technology in Brisbane with more than 55 attendees. The forum provided a research update from the milling, growing and harvesting sectors and presentations by presentations by Annette Sugden from SRDC, Mark Dowling from Sugar Research Limited, Dr Frikkie Botha from BSES Limited and Joe Muscat from Grower Group Services.

### ***Award winners***

#### ***National Sustainability Award***

Nominated by SRDC, third generation cane growers John, Bryan and Terry Granshaw were presented with the National Sustainability Award during the 2010 National Farmers Federation's Innovation in Agriculture Awards at the national congress held in Melbourne in September 2010.

#### ***Young Science and Innovation Award***

Sugarcane researcher Dr Thomas Rainey received the SRDC Award at the 2011 Science and Innovation Awards for Young People in Agriculture, Fisheries and Forestry at the ABARES Outlook conference in March 2011.

### ***Australian Farmer of the Year Awards 2010***

NSW sugarcane grower Angus Stainlay was a finalist in the Young Farmer of the Year category for his ingenuity, passion and commitment to take Australian farming into the future and Duranbah sugarcane grower Robert Quirk was a worthy finalist of the Farm Industry Leader Award for his outstanding contribution to agriculture beyond the farm gate.

### ***Review of People Development Arena***

The SRDC commissioned a review to assess the effectiveness and impact of projects funded under the People Development Arena (PDA). The review found it contributed strongly to the relevant key deliverables of the R&D plan and that PDA projects have targeted key areas including: participation of women; younger farmer development: research and extension staff skills; leadership, business and management skills; accredited technical training; social and adoption research; and improving regional structures and cooperation. No clear gaps were identified in topic areas.

The review found some evidence of improved capacity and capability in the individuals engaged by the projects resulting in a combination of social, productivity, economic and environmental impacts. In addition, improved networking between regions, groups and sectors and improvements in regional arrangements has led to beneficial changes in the operation of the industry (SRD027).



*Cane growers from the Burdekin region Bryan and Terry Granshaw. Granshaw Farming won the National Sustainability Award presented during the 2010 National Farmers Federation Congress.*

# Section 1

## INDUSTRY FACTS AND STATISTICS

### Value of sugarcane production

<b>Cane crushed</b>	27.4 million tonnes
<b>Raw sugar</b>	3.5 million tonnes
<b>Cane farm businesses</b>	4243
<b>Sugarcane grown</b>	Queensland and New South Wales
<b>Average yield of cane crop</b>	98.9 t/ha (88.3 t/ha in QLD and 118.65 t/ha in NSW)
<b>Sugar mills in Australia</b>	24
<b>Bulk sugar storage ports</b>	6
<b>Average annual production</b>	4.5 million tonnes raw sugar, 1 million tonnes molasses and 10 million tonnes bagasse
<b>Exports</b>	Up to 80% of raw sugar produced is exported and 20% sold on the domestic market
<b>Export value of sugarcane crop production</b>	\$1.5 billion annually

### Sugarcane regions

Cane growing and sugar production underpins the economic stability of many coastal communities. Most of Australia's sugarcane is grown in high-rainfall areas along the coastal plains and river valleys on 2100 km of the eastern coastline between Mossman in Far North Queensland and Grafton in New NSW. Cane growing and sugar production is one of the most important agricultural industries in Queensland and accounts for about 95 per cent of Australia's raw sugar production. Around five per cent is produced in northern NSW.

#### Production estimates by region

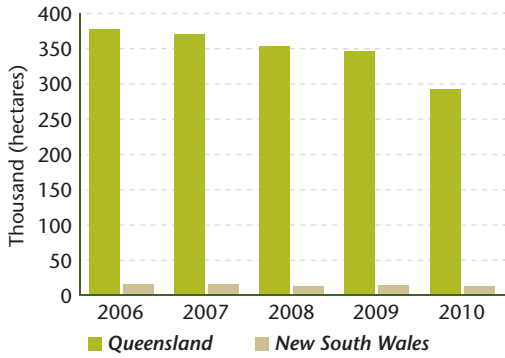
<b>Northern region</b>	6 million tonnes
<b>Herbert and Burdekin region</b>	9.7 million tonnes
<b>Central region</b>	6.5 million tonnes
<b>Southern region</b>	3.5 million tonnes
<b>NSW region</b>	1.6 million tonnes
<b>Total</b>	27.4 million tonnes



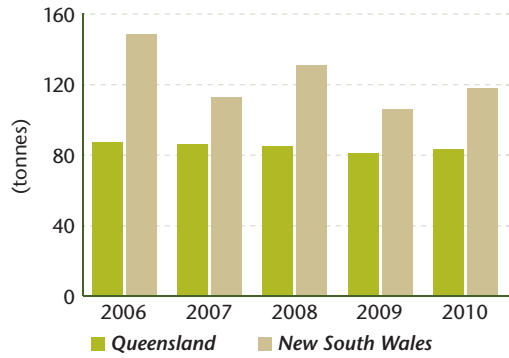
Map and statistics courtesy of CANEGROWERS and ASMC



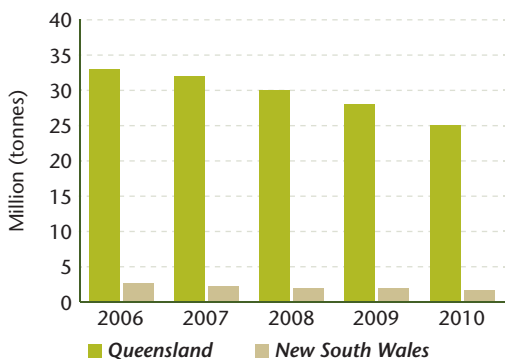
**Figure 1.1**  
Area harvested for milling (hectares)



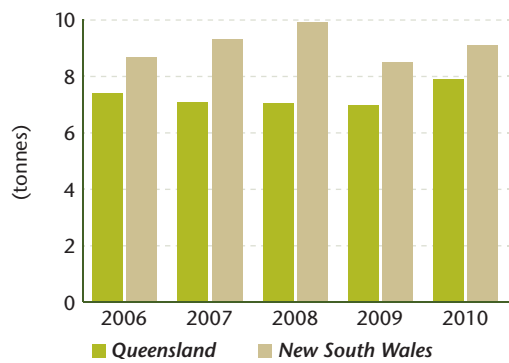
**Figure 1.4**  
Tonnes of cane/ha harvested



**Figure 1.2**  
Cane crushed (tonnes)



**Figure 1.5**  
Tonnes cane/t IPS sugar



**Figure 1.3**  
Sugar produced (tonnes IPS)



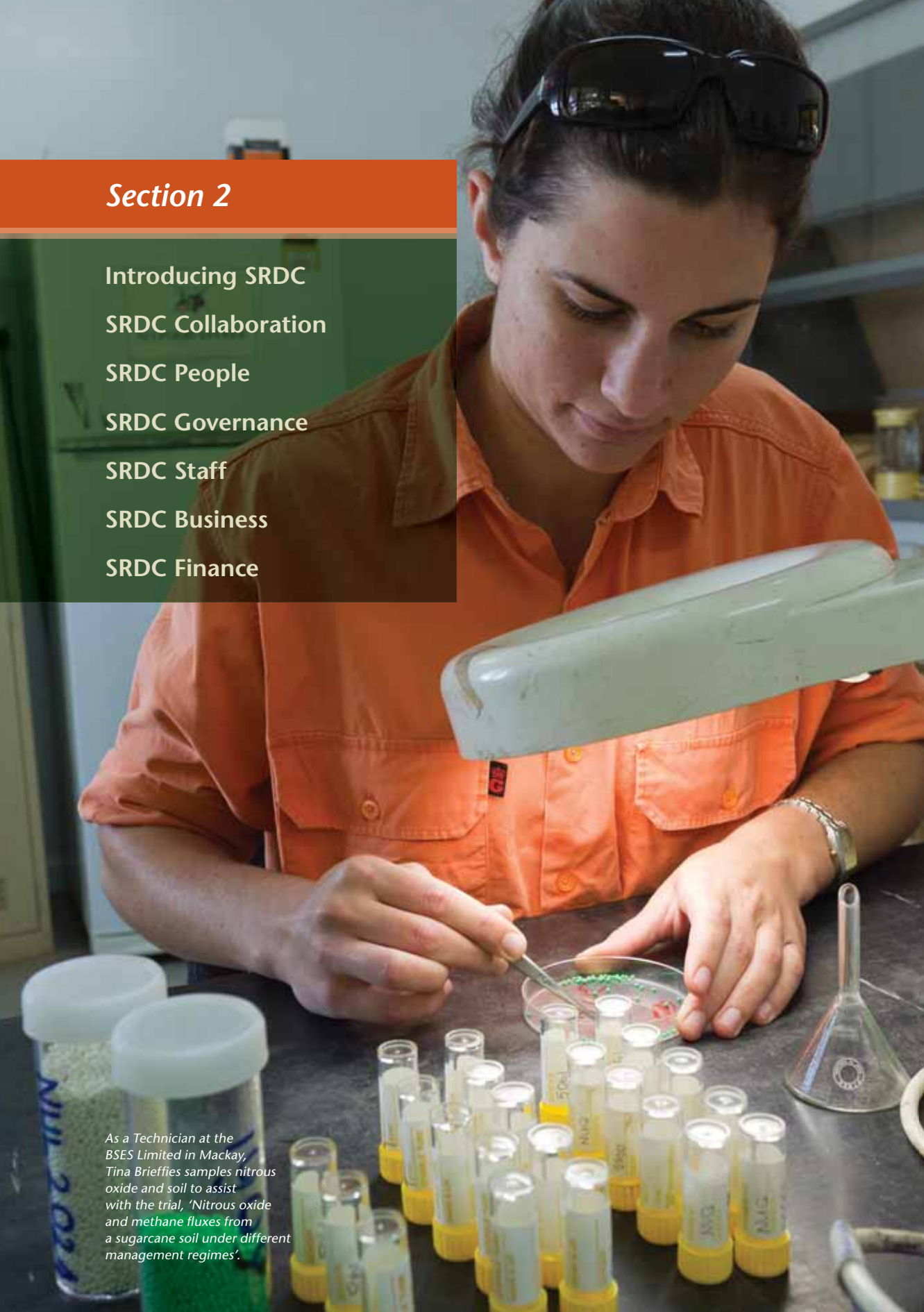
**Figure 1.6**  
Tonnes IPS sugar/ha harvested



Source: Australian Sugar Year Book 2011

## Section 2

Introducing SRDC  
SRDC Collaboration  
SRDC People  
SRDC Governance  
SRDC Staff  
SRDC Business  
SRDC Finance



*As a Technician at the BSES Limited in Mackay, Tina Brieffies samples nitrous oxide and soil to assist with the trial, 'Nitrous oxide and methane fluxes from a sugarcane soil under different management regimes'.*

## Section 2

# INTRODUCING SRDC

The SRDC takes a targeted and disciplined approach to R&D investment to underpin the achievement of its vision to provide economic, environmental and social benefits for the sugarcane industry and the people of Australia.

This involves managing research investment funds from levies and government funding; coordinating research activities; monitoring, evaluating and reporting on their impact; and facilitating the dissemination, adoption and commercialisation of their results.

It enters into cooperative partnerships with sugarcane industry participants across its sectors, R&D agencies, universities, other Rural Research and Development Corporations (RDCs), and the general community in the quest for a profitable, internationally competitive and sustainable Australian sugarcane industry.

The SRDC strives to deliver high rates of return on its R&D investment by managing technical and market risk and applying significant resources to translate research outputs into practical outcomes.

### **Corporate outcome**

To support a profitable and internationally competitive and sustainable Australian sugarcane industry providing economic, environmental and social benefits for rural and regional communities through targeted investment in research and development.

### **Mission**

To foster an innovative and sustainable Australian sugarcane industry through targeted investment in research and development

### **Vision**

The SRDC is committed to setting the right targets for R&D investments; to making sound investment decisions that address those targets using rigorous transparent processes; to managing investments so that they succeed; and to ensure that R&D delivers outcomes for its stakeholders and builds capacity for change, learning and innovation across the industry.

### **Accountability to stakeholders**

The SRDC is accountable to both the Australian Government and industry representative organisations. The *Primary Industries and Energy Research and Development Act 1989* (PIERD Act) defines these representative organisations as:

- Australian Cane Growers Council Limited (ACGC) represented by Queensland Cane Growers Organisation Limited
- Australian Cane Farmers Association Limited (ACFA).
- Australian Sugar Milling Council Proprietary Limited (ASMC).

As required by the PIERD Act, the Executive Director and the Chairman, representing the SRDC, held formal consultations with the representative organisations on three occasions in 2010–2011. No payments were made to the representative organisations for these or any other consultations in 2010–2011.

The major issues discussed at the meetings with the representative organisations included the Corporation's strategic direction and research priorities and investments, the AOP and the National Sugar Industry Research, Development and Extension Strategy. Directors interacted frequently with the industry representative organisations at events in 2010–2011.

### **Responsible minister**

The SRDC is accountable to the Federal Parliament through the Minister for Agriculture, Fisheries and Forestry, Senator the Honourable Joe Ludwig.

The Minister:

- approves the five-year R&D Plan
- approves the Annual Operational Plan
- appoints Directors, other than the Chair and Executive Director, on the recommendation of the SRDC Selection Committee
- appoints the Chair of SRDC.

### Enabling legislation

The SRDC was established under the PIERD Act on 1 October 1990. As an Australian Government statutory authority, it is also subject to the *Commonwealth Authorities and Companies Act 1997* (CAC Act).

The objects of the PIERD Act are to make provision for the funding and administration of R&D relating to primary industries with a view to:

- increasing the economic, environmental or social benefits to members of primary industries and to the community in general by improving the production, processing, storage, transport or marketing of the products of primary industries;
- achieving the sustainable use and sustainable management of natural resources;
- making more effective use of the resources and skills available in the community in general, and in the scientific community in particular;
- improving accountability for expenditure upon research and development activities in relation to primary industries.

The SRDC contributes to the objects of the PIERD Act by employing an investment approach that incorporates each legislative object and sets key performance criteria to provide a framework for reporting and accountability.

The PIERD Act establishes the functions of the SRDC:

- to investigate and evaluate the requirements of the sugar industry for R&D, and on the basis of that investigation and evaluation, to prepare an R&D Plan, and to review and revise the plan;
- to prepare an annual operational plan for each financial year;
- to coordinate or fund the carrying out of R&D activities that are consistent with the annual operational plan prepared by the corporation and in force at the time;
- to monitor, evaluate and report to the Parliament, the Minister and its representative organisations on R&D activities that are coordinated or funded, wholly or partly, by the Corporation;
- to facilitate the dissemination, adoption and commercialisation of the results of research and development for the sugar industry;
- such other functions as are conferred on the Corporation by this Act or any other Act.

### General policies of the Government

- Under Section 28 of the CAC Act, the Minister may notify the SRDC Board of Directors of any general Australian Government policies requiring implementation. No new notifications were received by SRDC during 2010–2011.

## Rural Research and Development Corporation Model

The features of the RDC model are:

- the RDCs take a leading national role to plan, investigate and manage R&D for their respective industries;
- RDCs are not research 'grant' agencies. Their enabling legislation requires them to treat R&D as an investment in economic, environmental and social benefits to their industries and to the people of Australia;
- RDCs strive to deliver high rates of return on R&D investment by influencing the full range of interactions along the innovation chain, rather than focussing mainly on generating new knowledge for its own sake;
- striving for high returns on investment also leads RDCs to apply significant resources to translating research outputs into practical outcomes;
- RDCs are required to conduct their activities in accordance with strategic R&D Plans and Annual Operational Plans that take account of the R&D needs of end-users and other stakeholders. The plans are approved at ministerial level;
- although RDCs fund basic research, a high proportion of activity is applied to collaborative R&D projects with both short-term and long-term benefits;
- RDCs are fully accountable to their major stakeholders and to the wider community.

## Rural Research and Development Corporations

Australia's productivity growth puts the nation in a strong position to meet the growing global demand for primary industry products. This growth is driven by investment supporting innovation in research, development and extension (RD&E) and generated by the RDCs.

There are 15 RDCs represented by the Council of Rural Research and Development Corporations (CRRDC) that prioritise, coordinate and integrate the demands of industry and government with the capabilities of research providers.

The RDCs currently invest around \$500 million per year in RD&E to improve the profitability and sustainability of rural industries and communities.

RDCs are funded primarily by industry levies, and Australian Government contributions on a matching basis up to a limit of 0.5 per cent of industry Gross Value of Production (GVP).

They promote effective research, development, innovation and extension of research findings in priority areas such as climate change and natural resource management. The ability to tackle projects jointly increases efficiency and results in more effective communication and uptake of the outcomes contributing directly to the growth in productivity in Australian agriculture.

The RDCs embrace the Australian Government's National and Rural R&D Priorities in their investment, evaluation and reporting frameworks. Alignment with these priorities is a key consideration when setting strategic directions and making key investment decisions.

## Section 2

### SRDC COLLABORATION

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The SRDC is part of a network of sugarcane industry agencies that support research through partnerships between government and industry. Ongoing, collaborative and cooperative communication with stakeholders ensures the right research is targeted at the right time.

Some of the joint issues addressed in 2010–2011 include: reef management, irrigation, soil management, farm health and safety, gene technology, climate variability and people development.

Research partnerships are also being fostered with international and non-sugarcane industry companies willing to contribute to projects to enhance the Australian and international knowledge base.

The SRDC works closely with other RDCs to address cross-sectoral research needs to address urgent issues and contribute to the health and wellbeing of the Australian rural community.

*In 2010–2011, collaborative research initiatives included:*

#### **The Sugarcane Gene Technology Group**

A sub-committee of the Australian Sugarcane Industry Alliance was established to discuss and investigate some of the pre-commercial issues and activities the industry faces as it approaches the commercial launch of genetically modified (GM) sugarcane.

#### **Managing Climate Variability Program**

The SRDC is a partner in the Managing Climate Variability Program, which has been helping Australian farmers to manage climate risk on-farm for over a decade by providing practical tools to incorporate climate information into farm business decisions. Information about their current projects and progress is available at [www.managingclimate.gov.au](http://www.managingclimate.gov.au)

#### **National Program for Sustainable Irrigation**

The National Program for Sustainable Irrigation (NPSI) is a collaborative project funded by irrigation-dependent Rural RDCs (Horticulture Australia, Cotton RDC, Grains RDC, and SRDC), water companies/authorities, and government agencies such as the South Australian Research and Development Institute.

The NPSI collaborates with government and primary producer organisations and has been responsible for improved irrigation scheduling and application techniques resulting in a reduction of 40 per cent or more in water use without loss of production. Updated NPSI project information is available at [www.npsi.gov.au](http://www.npsi.gov.au)

#### **Climate Change Research Strategy for Primary Industries**

The Climate Change Research Strategy for Primary Industries (CCRSPI) is a collaborative response to the opportunities and challenges posed by climate change for Australia's primary industries.

The CCRSPI operates under a mandate from the Primary Industries Ministerial Council and Primary Industry Standing Committee. Its partners are the Australian, state and territory governments, the rural RDCs and the CSIRO.

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## **Collaborative Partnership for Farming and Fishing Health and Safety**

The SRDC will continue to participate in the Collaborative Partnership for Farming and Fishing Health and Safety managed by the RIRDC.

## **RIRDC Rural Women's Award**

The RIRDC Rural Women's Award is Australia's pre-eminent award to recognise and encourage rural women's contribution to primary industries, resource development and rural Australia.

While the award acknowledges past achievements, it is focused on the future and provides rural women with financial and practical support to implement their visions for primary industries and rural Australia, and to enhance their leadership and representative capacities. SRDC will continue to encourage women from the sugarcane industry to nominate for the award.

## **The Australian Rural Leadership Foundation – Training Rural Australians in Leadership course sponsorship**

The Australian Rural Leadership Foundation was established in 1992 to respond to emerging challenges for rural, regional and remote Australia. It creates a network of leaders with compassion and commitment, strategic thinking and negotiating skills, and the foresight to influence communities, industries, businesses and policy makers.

The SRDC provides a scholarship for an emerging leader from the sugarcane sugar industry to attend the Training Rural Australians In Leadership course – an eight-day residential leadership program.

## **Management solutions to optimise performance of new farming systems in southern cane lands**

This project led by the University of Queensland's Alliance for Agriculture & Food Innovation is jointly funded with the GRDC and focuses on the integration of grain legumes, particularly soybeans and peanuts, into the sugarcane farming system of southern cane lands.



## Section 2

### SRDC PEOPLE

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#### SRDC Board

The SRDC Board of Directors is responsible for the stewardship of the Corporation and oversees corporate governance.

Its functions include: establishing goals, setting strategic direction, approving the annual budget, developing and approving a five-year R&D plan and ensuring that resources are allocated to address priority issues effectively.

#### *New Chairman*

Fourth generation Clarence Valley sugarcane farmer and long-serving state and federal politician, Mr Ian Causley was appointed Chairman of the SRDC Board on 1 October 2010. Mr Causley replaced Mr Ian Knop AM, who served as Chairman for three years.

#### *New Board appointments*

On 30 April 2010, eight non-executive directors of the Corporation completed their term as members of the SRDC Board. On 27 May 2011, six new non-executive directors were appointed to the SRDC Board for a three year term.

#### *Board selection committee report*

A joint industry and government panel completed a comprehensive selection process to appoint six new members to the SRDC Board in May 2011. The appointments are for a three year term ending on 30 April 2014. New members appointed include: Dr Paul Donnelly, Ms Lindy Hyam, Mr Julian (Jay) Venning, Dr Kleantes (Anthos) Yannakou, Dr Tracy Henderson, and Mr Stephen (Steve) Guazzo who was successful in being reappointed as Deputy Chairman.

Directors, other than the Executive Director, serve on the Board for a term not exceeding three years and must have experience in one or more of the following fields of expertise: commodity production; commodity processing; commodity marketing; conservation of natural resources; management of natural resources; science; technology and technology transfer; environmental and ecological matters; economics; administration of research and development; finance; business management; sociology; or public administration.

New Board members attend a formal induction at the commencement of their term. With the Chair's approval, Directors may obtain independent professional advice, at the SRDC's expense, on matters arising in the course of their Board and Committee duties.



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The roles and responsibilities of members of the Board, their code of conduct and SRDC policies and procedures are detailed in the SRDC's Business Process Management System (BPMS). This system is available via an internal intranet site and all SRDC employees and directors are required to view the BPMS at the commencement of employment during induction.

### ***Board activities and industry involvement***

During 2010–2011, the Board commissioned two reviews: an annual review of investment clusters that was incorporated into the RDCs review of research investment; and an analysis of potential areas for future investment.

Throughout the year, members took a keen interest in activities of the Corporation and participated in a number of in-house and regional seminars and workshops. They visited the Burdekin growing area and Townsville research establishments and represented the SRDC during industry events and as members on selection panels for capacity building projects and SRDC scholarships.

*The SRDC Board of Directors from left to right: Paul Donnelly, Dr Tracy Henderson, Stephen (Steve) Guazzo, Christine Ipson (Board Secretary), Dr Kleanthes (Anthos) Yannakou, Lindy Hyam, Ian Causley, Annette Sugden and Julian (Jay) Venning.*



## SRDC Directors 1 July 2010 – 30 April 2011

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**Ian RG Knop AM** *BBus CPA*

**Chair (non-executive) 1 October 2007 – 30 September 2010**  
**SRDC Chairman**

Ian Knop is Chairman of Profile Management Consultants/Odgers Berndtson, an executive search and consulting business with offices in Sydney and Canberra. He was Chair of the Sullivans Cove Waterfront Authority (Tasmanian Government) and has Chaired or been a senior representative on a wide range of Boards and authorities including the Export Finance & Insurance Corporation, Aurora Energy, Austrade, Soccer Australia and Sydney Ports Corporation.

Mr Knop was awarded a Member of the Order of Australia in 2007 for his services to industry and his contribution to Sport and Indigenous Affairs in Australia.

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**Stephen Guazzo**

**Deputy Chair (non-executive) 8 May 2008 – 30 April 2011**  
**SRDC Deputy Chairman**  
**Member of SRDC Audit Committee**

Stephen Guazzo is a third generation canegrower from the Herbert River region with more than 35 years experience in the industry. He has a reputation for innovative sugarcane production and harvesting practices.

He has served on the Herbert Regional Advisory Group and other industry bodies and is a Director of Canegrowers Herbert River, Canegrowers Queensland and Sugar Terminals Limited.

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**Ian Sampson** *B Comm., LLB, GAICD, FAIM*

**Director (non-executive) 8 May 2008 – 30 April 2011**  
**Convener of SRDC Audit Committee**

Director of Lysaght Peoplecare Limited and Executive Consultant for Audrey Page and Associates, during his 35 year career, Ian has worked as an Executive and Strategic Advisor in the steel, mining and sugar industries as well as consulting in the mining, manufacturing, aviation, petroleum and services industries in Australia, New Zealand, South Africa, Papua-New Guinea and Fiji. Ian has been a Director or senior representative of Refined Sugar Services Pty Ltd., CSR Sugar Pty Ltd., Kopperrn Machinery Pty Ltd., BHP Superannuation (NZ), the Auckland Employers' Federation and the South Australian Institute of Technology.

He is a Graduate Member of the Australian Institute of Company Directors and a Fellow of the Australian Institute of Management.

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**David Campbell** *B Agr Sc (Hons), M Bus Mktg, AFAIM, GAICD*  
**Director (non-executive) 8 May 2008 – 30 April 2011**  
**Member of SRDC Audit Committee**

David has more than 25 years experience in product and business development; commercialisation of technologies; marketing; logistics and general management. His experience spans the life sciences, biotechnology, agribusiness and chemical industries domestically and internationally. He has wide experience with the research sector and with government interaction. He has held senior positions at Stem Cell Sciences PLC Monash Commercial Pty Ltd, Monsanto Australia Limited, Linfox Group, and Pivot Ltd (now Incitec Pivot Ltd). He has run a successful consultancy in strategy and policy development, and commercialisation for the life sciences and agribusiness industries, government and rural RDCs. He has held positions as Executive Director, Office of Knowledge Capital in Melbourne and was a member of the Animal Health Australia Board.



**Michael Braude** *BBus, ASCPA, SF Fin, MBus*  
**Director (non-executive) 8 May 2008 – 30 April 2011**

Michael has 25 years of commercial experience in management, economics, finance and treasury across three major corporations. He led risk management, insurance and corporate treasury functions, and has acted as a company-appointed alternate director and trustee.

He has been actively involved with professional associations and tertiary educational bodies, as a lecturer, course convenor and presenter. He is a senior fellow of the Financial Services Institute of Australia and a fellow of the Finance & Treasury Association.



**Angela Williams** *B Agr Sc*  
**Director (non-executive) 8 May 2008 – 30 April 2011**  
**Member of the SRDC Scholarship Committee**

Angela has skills in agricultural extension, and community development and engagement processes across a range of rural industries and communities throughout Queensland. She runs a successful consultancy business specialising in training and facilitation support, and project managing short-term contracts, specifically those relating to organisational change management, strategic management and business planning.

She managed and delivered the Sugar Executive Officer contract as part of the Sugar Industry Reform Program in the Bundaberg-Isis sugar region.

SRDC DIRECTORS 1 JULY 2010 – 30 APRIL 2011

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**Caroline Coppo** *BSc, PgDip EnvEd, BEd, GAICD*  
**Director (non-executive) 8 May 2008 – 30 April 2011**  
**Member of the SRDC Scholarship Committee**

Caroline has been involved in a sugarcane farming business in the Herbert region for ten years. She has actively contributed to community development, sugar industry innovation and management of environmental issues in the region. Her background is as a marine biologist, teacher and catchment coordinator and she has extensive knowledge of water quality, environmental and natural resource management issues.

Caroline was Sugar Executive Officer in the Herbert sugar region as part of the Sugar Industry Reform Program.



**Dr Anthony Pressland** *PSM, B Agric Sci, MSc, PhD*  
**Director (non-executive) 7 July 2008 – 30 April 2011**

Anthony is a consultant with extensive experience in research and development and natural resource management. He has worked in the pastoral and agricultural lands of Queensland and has had responsibility for state government programs in weed and pest management, catchment management, and natural resource planning and management, including some that were community based. He has undertaken various reviews related to agriculture and has developed and delivered tertiary post graduate courses.

He is a member of a faculty advisory committee on science and technology for a tertiary institution.

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**SRDC Directors May 2011**


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**Mr Ian Causley**

**Chair**

**Appointed 1 October 2010 – 30 September 2013**

Mr Ian Causley was appointed SRDC Chairman on 1 October 2010 for a three year term. He has a distinguished career in politics and grassroots knowledge of the sugarcane growing and milling industry. Mr Causley's political career began in 1984 when he was elected to the NSW State Parliament to serve seven years in coalition ministries. In 1996 he entered Federal Parliament to lead several committees before taking on the role of Deputy Speaker until he retired in 2007. Mr Causley has a long history of representing the interests of sugarcane growers and millers. At age 26 years, he was appointed to the Clarence River Canegrowers Executive and became president ten years later. He was a director of the NSW Sugar Milling Co-operative in 1978 and later appointed Chairman in 2009.



**Mr Stephen Guazzo**

**Deputy Chair (non-executive)**

**Appointed 27 May 2011 for a three-year term.**

Mr Stephen Guazzo is a canegrower from the Herbert River region with more than 35 years experience in the industry. He has held various industry positions since 1982 and is currently a Director of Sugar Terminals Ltd, Canegrowers Herbert River, and CANEGROWERS Queensland. He is also a Director of a cane farming and harvesting business. In 1988 Mr Guazzo was awarded the Incitec Bicentennial Award for Agriculture. In 1996 he graduated from the Australian Rural Leadership Programme.

Mr Guazzo was first appointed to SRDC as a non-executive Director on 28 April 2006 and appointed Deputy Chair on 15 June 2011.



**Dr Kleanthes (Anthos) Yannakou**

**Director (non-executive)**

**Appointed 27 May 2011 for a three-year term.**

Dr Yannakou is a consultant for private and government sector organisations in innovation, research and development, strategy and sustainability issues. Dr Yannakou has held senior positions including CEO of Food Science Australia, Chair of the CSIRO International Council and the Chief Scientist (Food Manufacturing) for the Department of Primary Industries, Victoria.

On 15 June 2011 Dr Yannakou was appointed Convenor of the SRDC Audit Committee.

SRDC DIRECTORS MAY 2011

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**Mr Paul Donnelly**

**Director (non-executive)**

**Appointed 27 May 2011 for a three-year term.**

Dr Donnelly has a career history in rural research, development and extension in the fields of dairy, horticulture, and grape and wine.

With a special interest in farming systems, biotechnology, use of fibrous residues and the environment and sustainability, Mr Donnelly is keen to contribute to making the process of research to commercialisation more efficient.

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**Ms Lindy Hyam** MBA, B Ed and Dip Teach FAICD

**Director (non-executive)**

**Appointed 27 May 2011 for a three-year term.**

Ms Hyam brings skills in business management and research and development leadership gained through roles such as the General Manager of the City of Newcastle, Chief Executive Officer of Plant Health Australia, and the Executive Director of the Horticulture Research and Development Corporation. Lindy was previously a non-executive Director of the Rural Industries Research and Development Corporation and of the Crown Research Institute for Horticulture and Food, New Zealand.

Ms Hyam is currently a non-executive Director of C. Management Services, wholly owned by Central Queensland University.

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**Mr Julian (Jay) Venning** BE (Chem)

**Director (non-executive)**

**Appointed 27 May 2011 for a three-year term.**

Mr Venning is the Group Production Engineering Manager for Sucrogen Limited.

He has more than 30 years in the sugar industry, in milling operations, operations management, project development and technical management and support.

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**Dr Tracy Henderson** *B App Sc, GDip (Econ), PhD*

**Director (non-executive)**

**Appointed 27 May 2011 for a three-year term.**

Dr Tracy Henderson has extensive experience in research strategy, management and evaluation and is a former consultant, academic and research manager. Tracy was awarded a PhD in Agricultural Research and Development Evaluation from the University of Queensland in which she developed a strategic evaluation framework to manage and improve the performance of sugar research.

Tracy was formerly a Federal Councillor of the Australian Agricultural and Resource Economics Society and currently works with CSIRO Performance & Evaluation.



**Annette Sugden** *B App Sci (App Geo); Grad Dip App Sci (Res Man); Master Sust Man; ALIA*

**Executive Director Appointed on 28 May 2010**

Ms Sugden joined the SRDC in 2008 as a Senior Investment Manager responsible for strategic R&D investment planning.

Tertiary qualified in natural resource management, highlights of her successful career in the primary industry sector include the management of the deer, pasture seed, fodder crop, and organics research and development programs within the Rural Industries Research and Development Corporation, and management of the Australian Government's Farm Innovation Program, the Rural Financial Counselling Service and the Southern NSW Regional Forest Agreement Social Assessment process.

In addition to providing secretariat services to three multi-state Ministerial Committees (SLWRMC, SCARM and ARMCANZ), and working on the Commonwealth component of the Murray-Darling Basin Initiative, including the Commonwealth input to the Murray-Darling Basin Ministerial Council and Commission meetings, Ms Sugden was the Commonwealth representative at the Cape York Peninsula Land Use Strategy (CYPLUS), and was the Murray-Darling Basin program specialist on the Natural Heritage Trust's South Australian grants program.

## Section 2

# SRDC GOVERNANCE

### Meetings of the Corporation

During the year ended 30 June 2011 the SRDC Board of Directors met four times. Attendance of Directors at Board meetings is listed in the table. Under Section 54 of the PIERD Act, a Director must disclose the nature of any pecuniary or conflict of interest in any matter being considered. Directorships held by Directors were also recorded in the Register of Declared Interest by Directors.

#### *Directors' attendance at Board, Audit and Scholarship Committee meetings in 2010–2011*

	Board meetings attended	Meetings held during membership	Out of Session – Teleconference Board meeting held during membership	Out of Session – Teleconference Board meeting attended	Audit committee meetings attended	Audit committee meetings held during membership	Scholarship committee meetings attended	Scholarship committee meetings held during membership
<b>Ian Knop</b> Chairman ( <i>appointment 1 October 2007 – 30 September 2010</i> )	1	1	1	1				
<b>Ian Causley</b> Chairman ( <i>appointment 1 October 2010 – 30 September 2013</i> )	3	3	0	0				
<b>Annette Sugden</b> Appointed Executive Director ( <i>28 May 2010</i> )	4	4	1	1				
<b>Steve Guazzo</b> Re-appointed Director ( <i>27 May 2011</i> ) Re-appointed Deputy Chairman ( <i>15 June 2011</i> ) Appointed member of SRDC Audit Committee ( <i>6 June 2008 – 30 April 2011</i> )	4	4	1	1	2	2		
<b>Michael Braude</b> Appointed Director ( <i>8 May 2008 – 30 April 2011</i> ) <i>*Attempted to participate in out of session meeting, however due to fault with teleconference link up was unable to attend.</i>	3	3	1	*				
<b>David Campbell</b> Appointed Director ( <i>8 May 2008 – 30 April 2011</i> ) Appointed Member of SRDC Audit Committee ( <i>6 June 2008 – 30 April 2011</i> )	3	3	1	1	2	2		
<b>Caroline Coppo</b> Appointed Director ( <i>8 May 2008 – 30 April 2011</i> ) Appointed Member of SRDC Scholarship Committee	3	3	1	1			1	2



	Board meetings attended	Meetings held during membership	Out of Session – Teleconference Board meeting held during membership	Out of Session – Teleconference Board meeting attended	Audit committee meetings attended	Audit committee meetings held during membership	Scholarship committee meetings attended	Scholarship committee meetings held during membership
<b>Ian Sampson</b> Appointed Director (8 May 2008 – 30 April 2011) Appointed Convenor of SRDC Audit Committee (6 June 2008 – 30 April 2011)	3	3	1	1	2	2		
<b>Angela Williams</b> Appointed Director (8 May 2008 – 30 April 2011) Appointed Member of SRDC Scholarship Committee (6 June 2008 – 30 April 2011)	2	3	1	0			2	2
<b>Anthony Pressland</b> Appointed Director (7 July 2008 – 30 April 2011)	3	3	1	1				
<b>Paul Donnelly</b> Appointed Director (27 May 2011) Appointed Member of SRDC Scholarship Committee (15 June 2011)	1	1						
<b>Tracy Henderson</b> Appointed Director (27 May 2011) Appointed Member of SRDC Scholarship Committee (15 June 2011)	1	1						
<b>Lindy Hyam</b> Appointed Director (27 May 2011) Appointed Member of SRDC Audit Committee (15 June 2011)	1	1						
<b>Jay Venning</b> Appointed Director (27 May 2011) Appointed Member of SRDC Audit Committee (15 June 2011)	1	1						
<b>Anthos Yannakou</b> Appointed Director (27 May 2011) Appointed Convenor of SRDC Audit Committee (15 June 2011)	1	1						

On occasions the Chair of the SRDC Board of Directors granted permission for Board Directors to join a meeting via teleconference.

The Board's effectiveness is increased through the establishment of an Audit Committee and Scholarship committee that operate under policies and procedures approved by the Board and SRDC.

## Audit Committee

The Audit Committee provides advice to the Board to assist it to fulfil its responsibilities relating to the accounting, reporting and compliance practices of the Corporation.

The Committee: reviews audits by the Corporation's external auditors; maintains communication between the Board and the Corporation's accountants; reviews the financial information presented by management; and reviews the adequacy of the Corporation's administrative, operating and accounting controls.

It also oversees the management of risk including: the development of a risk profile for the Corporation; fraud control; corporate governance practice; and environmental issues. It is the Corporation's practice to exclude the Chair and Executive Director from membership of the Audit Committee.

### *Members of the Audit Committee in 2010–2011 were:*

- Mr Ian Sampson, a non-executive Director of the SRDC Board was appointed Convenor of the Audit Committee from 6 June 2008 to 30 April 2011.
- Mr David Campbell, a non-executive Director of the SRDC Board was a member of the Audit Committee from 6 June 2008 to 30 April 2011.
- Mr Steve Guazzo, a non-executive Director of the SRDC Board was a member of the Audit Committee from 6 June 2008 to 30 April 2011.
- Dr Anthos Yannakou, a non-executive Director of the SRDC Board was appointed Convenor of the Audit Committee from 15 June 2011.
- Ms Lindy Hyam, a non-executive Director of the SRDC Board was appointed a member of the Audit Committee from 15 June 2011.
- Mr Jay Venning, a non-executive Director of the SRDC Board was appointed a member of the Audit Committee from 15 June 2011.

The SRDC Executive Director or Finance Manager represents the organisation at these meetings.

The Audit Committee met on two occasions during 2010–2011. Attendance by members is listed in Table 2.0. The meetings were also attended by the Executive Director and the Corporation's Senior Investment Manager. The corporation's external accountant and a representative of the external auditor will attend the July 2011 meeting to comment on and respond to queries on the 2010–2011 annual accounts.

## Scholarship Committee

### *Members of the Scholarship Committee in 2010–2011 were:*

The Scholarships Committee oversees the SRDC Scholarship Program and at least half the membership must comprise SRDC Directors. Members of the Committee in 2010–2011 were:

- Ms Angela Williams, a non-executive Director of the SRDC Board was appointed a member of the Scholarship Committee from 6 June 2008 to 30 April 2011.
- Ms Caroline Coppo, a non-executive Director of the SRDC Board was appointed a member of the Scholarship Committee from 6 June 2008 to 30 April 2011.
- Dr Paul Donnelly, a non-executive Director of the SRDC Board was appointed a member of the Scholarship Committee 15 June 2011.
- Dr Tracy Henderson, a non-executive Director of the SRDC Board was appointed Convenor of the SRDC Scholarship Committee 15 June 2011.

The SRDC Executive Director or Senior Investment Manager represents the organisation at these meetings.

The Committee met on 23 September 2010 and 22 October 2010 to assess scholarship applications, and interview and select successful candidates. Attendance by Directors is listed in Table 2.0.

## Section 2

### SRDC STAFF

The SRDC staff members are employed under Section 87 of the PIERD Act. At 30 June 2011 the Corporation employed five full-time and three part-time staff members in addition to the Executive Director. All are located at the SRDC office in the T&G Building, Level 16, 141 Queen Street, Brisbane, Queensland.

<b>Executive Director</b>	Annette Sugden
<b>Senior Investment Manager</b>	Bianca Cairns
<b>Senior Investment Manager</b>	Dr Diana Saunders <i>(on maternity leave from May 2011)</i>
<b>Investment Manager</b>	Ben Baldwin <i>(Acting Senior Investment Manager while Dr Saunders on leave)</i>
<b>Senior Investment Manager (special projects)</b>	Dr Peter Twine <i>(part-time)</i>

<b>Communications Manager</b>	Carolyn Martin
<b>Communications and Project Officer</b>	Kara Billsborough
<b>Executive Assistant/ Board Secretary</b>	Christine Ipson
<b>Office Manager</b>	Kathy Mitchell <i>(part-time)</i>
<b>Finance Manager</b>	Karen Rowen <i>(part-time)</i>

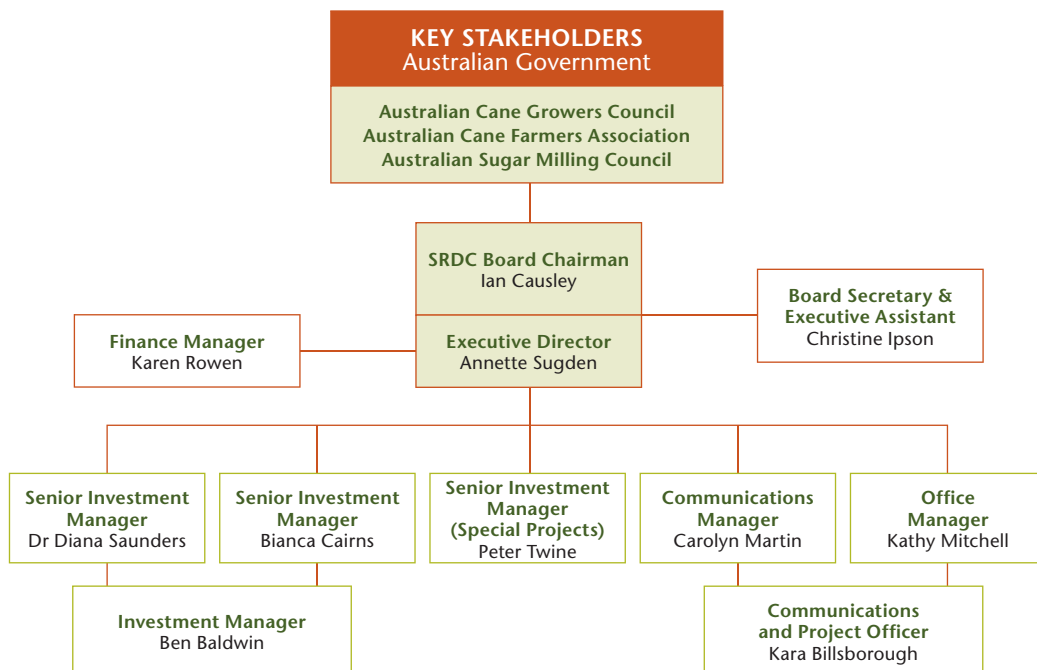
Staff profiles can be viewed at [www.srdc.gov.au](http://www.srdc.gov.au)

*The SRDC team (left to right) Carolyn Martin, Kara Billsborough, Bianca Cairns, Diana Saunders, Annette Sugden and Ben Baldwin (Absent: Kathy Mitchell, Christine Ipson, Peter Twine and Karen Rowen).*



Responsibilities for each staff member are indicated in SRDC’s Organisational Structure.

### SRDC Organisational Structure as at 30 June 2011



## Indemnities and Insurance Premiums

The Corporation has taken the necessary steps to ensure professional indemnity cover is in place for all Directors and officers. However, the Comcover insurance contract prohibits public disclosure of the nature or limit of the liability covered or the amount of premium paid.

## Commonwealth Disability Strategy Report

The SRDC is a small organisation. The Corporation rents office space in the Brisbane CBD and is limited by the current building specifications and requirements in terms of access. Lift access and disabled toilets are provided in the building.

In its role as a research investment manager, the Corporation has a focus on the outcome of externally contracted research initiatives and is not responsible for the day to day management of the people engaged in that research.

As an employer, the Corporation complies with the policies, procedures and practices required by the *Disability Discrimination Act 1992*, as amended by the *Disability Discrimination and Other Human Rights Legislation Amendment Act 2009*.

In 2010–2011 the Corporation:

- Did not review or revise any policy with an impact on people with disabilities.
- Published all documents and compliance reports in accessible electronic and hard copy formats.
- Ensured all events were conducted with due consideration for accessibility.
- Did not engage in any purchasing or contractual arrangements that required compliance with the *Disability Discrimination Act 1992*.

## Equal employment opportunity

Staff are employed under terms and conditions consistent with the *Equal Employment Opportunity (Commonwealth Authorities) Act 1987* and the Corporation's equal employment policy.

## SRDC Gender Profile 2010–2011

	Male	Female
Board of Directors	5	2
Staff*	2	8

\*Staff count includes the Executive Director, part-time staff and one staff member on maternity leave.

## Occupational Health & Safety

The SRDC's is committed to achieving and maintaining a safe, healthy and productive work environment for all staff, Board members, panel members, contractors and visitors to its workplace. The SRDC actively encourages a teamwork approach, cooperation and good communication as the tools to build a safe working environment. It complies with the *Occupational Health and Safety Act 1991* and takes all reasonably practicable steps to ensure a safe working environment.

## Section 2

# SRDC BUSINESS

### Research Priorities

The SRDC uses its five-year *Research and Development Plan 2007–2012* to guide its program investments. The Plan was developed with extensive industry, government and stakeholder consultation and is evaluated annually as part of the production of the AOP.

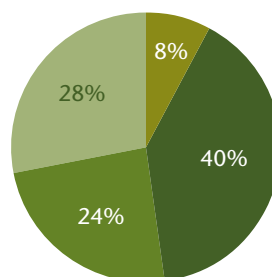
The Corporation's investments address the National Research Priorities and the Rural R&D Priorities of the Australian Government.

### National Research Priorities

SRDC considers the four National Research Priorities in its selection of projects:

- an environmentally sustainable Australia
- promoting and maintaining good health
- frontier technologies for building and transforming Australian industries
- safeguarding Australia.

*Percentage of SRDC funded R&D projects by National Research Priority (%)*



#### Legend

- Safeguarding Australia 8%
- Frontier Technologies 40%
- Promoting and Maintaining Good Health 24%
- Environmentally Sustainable 28%

The proportion of investment against each National Research Priority attributed to each program in 2010–2011 (\$'000) can be viewed in Appendix A.

## Rural Research and Development Priorities

Complementing the National Research Priorities are the Rural Research and Development Priorities that focus on issues relevant to rural industries.

**Productivity and adding value** – Improve the productivity and profitability of existing industries and support the development of viable new industries.

**Supply chain and markets** – Better understand and respond to domestic and international market and consumer requirements and improve the flow of such information through the supply chain, including to consumers.

**Natural resource management** – Support effective management of Australia's natural resources to ensure primary industries are both economically and environmentally sustainable.

**Climate variability and climate change**  
Build resilience to climate variability and adapt to and mitigate the effects of climate change.

### Biosecurity

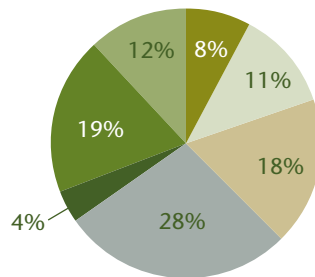
Protect Australia's community, primary industries and environment from biosecurity threats.

### *Supporting priorities include:*

**Innovation skills** – Improve the skills to undertake research and apply its findings

**Technology** – Promote the development of new and existing technologies

*Allocation of SRDC funded R&D projects by Rural R&D Priority*



### Legend

- Biosecurity 8%
- Technology (supporting priority) 11%
- Innovation skills (supporting priority) 18%
- Productivity and adding value 28%
- Supply chain and markets 4%
- Natural Resource Management 19%
- Climate variability and climate change 12%

The investments against the Rural Research and Development Priorities and attributed to each program (\$'000 and % values) in 2010–2011 can be viewed in Appendix B.

## Industry Priorities and direction from the Minister for Agriculture, Fisheries and Forestry

In addition to the National and Rural R&D priorities, the SRDC is also guided by industry priorities.

Throughout 2010–2011 the SRDC held regular meetings with its representative organisations, and participated in industry-wide workshops. It also received advice from the Minister for Agriculture, Fisheries and Forestry defining annual research priorities for the Australian Government.

Priority was given to projects that contribute to step changes in sustainable productivity in sugarcane, growing, harvesting and milling in the following areas:

- innovation in energy, biomass utilisation and product diversification.
- reduction in production costs and/or improving the utilisation of capital.
- new and improved sugarcane varieties.
- improvement in the uptake of new technologies and decision-making tools by industry participants.
- reduction in exotic biosecurity threats, and improvements in managing endemic pests and weeds, including risks enhanced by climate change.
- sustainable improvement in productivity in the face of climate variability.

## Investment Arenas and Resource Allocation

The SRDC's research and development portfolio is based on three major investment arenas:

**Regional Futures** – Implementation of innovative farming, harvesting, transport, milling and marketing systems tailored to the needs and opportunities of each region.

**Emerging Technologies** – Rapid translation of relevant emerging technologies that will enhance the industry's competitive edge in the global marketplace.

**People Development** – Development of individuals and networks across the sugarcane industry that enhance the capacity for continuous improvement.

Table 2.1 illustrates the relationships between the SRDC's corporate outcome, arena outcomes, outputs and inputs.



**Table 2.1**  
*Outcomes, outputs and inputs*

<b>Corporate outcome</b>	A profitable and internationally competitive Australian sugar industry providing economic, environmental and social benefits for rural and regional communities.		
<b>Investment arenas</b>	<b>Regional futures</b>	<b>Emerging technologies</b>	<b>People development</b>
<b>Arena outcomes</b>	<i>Implementation of innovative farming, harvesting, transport, milling and marketing systems tailored to the needs and opportunities of each region.</i>	<i>Rapid translation of relevant emerging technologies that will enhance the industry's competitive edge in the global marketplace.</i>	<i>Development of individuals and networks across the sugarcane industry that enhance the capacity for continuous improvement.</i>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>■ Value chain integration</li> <li>■ Farming and harvesting systems</li> <li>■ Transport, milling and marketing systems</li> </ul>	<ul style="list-style-type: none"> <li>■ Genetics and breeding systems</li> <li>■ Farming, harvesting, transport, milling, and marketing systems</li> </ul>	<ul style="list-style-type: none"> <li>■ Individual capacity</li> <li>■ Social capacity</li> </ul>
<b>Inputs</b>	65%	20–25%	15–20%

## Project investments

The SRDC supports a competitive approach to the commissioning of R&D to ensure a high return on investment. Each project proposal is assessed using an attractiveness and feasibility framework and scored from zero to five on each criterion. Emphasis is placed on partnerships between industry sectors and regions.

In 2010–2011 there were four categories of projects:

- research
- scholarships
- capacity building
- grower group innovation.

SRDC also commissions research and contributes to a range of joint RDC investment projects.

## Snapshot of project and reporting statistics

*Number of SRDC project types funded*

Project types	No. of Projects 2009–2010	No. of Projects 2010–2011	No. of Projects 2010–2011 by %
Research	70	79	65.85%
Scholarships	15	12	10%
Grower Group Innovation	31	19	15.85%
Capacity Building	12	10	8.30%
<b>TOTAL number of projects</b>	<b>137</b>	<b>120</b>	<b>100%</b>

*Funding allocated across SRDC project types at 30 June 2011*

Project types at 30 June 2011	Projects funded by \$	Projects funded by%
Research	\$7.578	92
Scholarship	\$0.248	3
Grower Group Innovation	\$0.068	4
Capacity Building	\$0.287	1
<b>TOTAL funding of projects</b>	<b>\$8.181</b>	<b>100%</b>

### Number of SRDC project reports received by SRDC

Report types	2009–2010	2010–2011
Milestone reports	203	113
Final reports	30	37
<b>TOTAL number of milestone and final reports</b>	<b>233</b>	<b>150</b>

### Percentage of SRDC projects funded across SRDC Arenas

Distribution of project funding by arena	2009–2010 actual	2010–2011 actual
Regional Futures	59%	56.6%
Emerging Technologies	29%	31.5%
People Development	12%	11.9%
<b>TOTAL percentage of projects funded</b>	<b>100%</b>	<b>100%</b>

## Investment portfolio management

Following SRDC's annual call for project proposals between June – August 2010, all applications were sent to multiple technical experts in Australia and overseas for review. Proposals were scored using an attractiveness/feasibility framework:

**Attractiveness:** expected economic, environmental and social benefits arising from adoption of outputs; potential return on investment and other inputs; communication plans and industry and/or community participation.

**Feasibility:** research risk (the likelihood, with high quality research, of reaching the project objectives and delivering the outputs and outcomes) and research quality (the objectives, research plan, and the skills and knowledge of the investigators).

Based on the averaged scores of assessors and the SRDC Directors, highly ranked applicants were invited to present in person to a panel representing key stakeholders. Presentations and responses to questioning were scored by the panel using the attractiveness/feasibility framework and highly ranked projects were invited to prepare a final application addressing the feedback. This final application forms part of a contract with the SRDC.

R&D investment managers were allocated a portfolio of project investments to manage that deliver outcomes consistent with the SRDC objectives and key performance indicators.

## Corporate governance practices

The SRDC maintains a comprehensive Business Process Management System (BPMS) via an internal intranet site. This system outlines the roles and responsibilities of all employees, the code of conduct and defines business and governance practices. The suite of policies includes topics relating to leadership; planning and reporting; accountability; management; financial control; risk management and monitoring.

In 2010, the SRDC reviewed and audited its policies relating to procurement, asset management, staff management and BPMS system maintenance. There were also changes to the policy on project variation.

Risk management, fraud control and business continuity plans, health and safety management arrangements and the protective security policy were reviewed and a consultant was engaged to provide policy advice on occupational health and safety in fieldwork.

## SRDC monitoring and reporting

### *Research and Development Plan 2007–2012*

The five-year SRDC Research and Development Plan (2007–2012) outlines the strategies and performance measures to provide a monitoring and measuring framework for corporate performance. Reviewed annually, it defines core business, indicates broad priorities for R&D and defines the strategy to achieve outputs and outcome.

In 2010–2011, following an internal review of outcomes to date, the Board chose to continue investment directions defined within the R&D Plan and to support more investment in people development activities, particularly scholarships. In addition, a one-off integrated project to address on-ground farming systems activities and extension was commissioned as a response to industry requests and will be managed by BSES Limited.

### *Annual Operational Plan*

This plan specifies the broad groupings of R&D activities that the SRDC proposes to fund during the nominated financial year together with an estimate of income and expenditure. The AOP is approved by the responsible Minister and is distributed to all government stakeholders and industry representative bodies. There were no revisions made to the AOP in 2010–2011.

### *Portfolio Budget Statement*

The Portfolio Budget Statement provides a summary of the SRDC's outcomes, outputs, performance and financial position each year. The statement is consistent with the SRDC Research and Development Plan (2007–2012) and the AOP and is tabled in Parliament.

### *Annual Report*

The Annual Report is the principal formal accountability document. It reports on the achievement of the performance targets; details actual performance; and forecasts future needs and expectations. It is also a key reference document and forms part of an historical record for the Corporation.

### *Measuring economic, environmental and social returns from R&D investment*

The SRDC is collaborating with other RDCs to undertake a review of the current economic impact evaluation process of R&D investment and methodology to include the assessment of social and environmental returns through the use of triple bottom line reporting, which captures any significant public-good components that benefit the community.

The evaluation will enable the RDCs to make better investment decisions, report outcomes to industry and government stakeholders and improve the performance of RD&E projects. It is expected that a revised methodology will be released in late 2011 for use in the 2012 evaluation process.



*Mackay Sugar Factory Manager for Racecourse Mill, Paul Stuart, examines the by-product of sugarcane, molasses.*

## Section 2

### SRDC FINANCE

#### Industry levy rates

The SRDC is funded by levies from industry, with matching Australian Government contributions up to 0.5 per cent of the GVP. Levies are imposed under Schedule 24 of the *Primary Industries (Excise) Levies Act 1999* and collected under the *Primary Industries Levies and Charges Collection Act 1991*.

In 2010–2011 the levy was \$0.14 per tonne of sugarcane crushed, divided equally between growers and millers.

#### Sugar R&D levy rates since 1990

From	To	Levy rate (\$/tonne)
1 August 1990	31 May 1992	0.06
1 June 1992	30 September 1992	0.10
1 October 1992	31 August 1995	0.14
1 September 1995	30 April 2001	0.15
1 May 2001	31 March 2002	0.12
1 April 2002	Present	0.14

#### Income and expenditure

The SRDC's actual income and expenditure for 2010–2011, compared with that forecast in the AOP 2010–2011, is set out in Table 2.2.

**Table 2.2**  
*Forecast and actual income and expenditure for 2010–2011*

	Forecast \$m	Actual \$m
	AOP	Annual Report
<b>Income</b>		
Australian Government contribution (PIERD Act Contribution)	5.468	5.867
Industry contribution	4.410	3.823
Other	0.420	0.701
<b>Total Income</b>	<b>10.298</b>	<b>10.391</b>
	Forecast \$m	Actual \$m
<b>Expenditure:</b>	AOP	Annual Report
Projects funded by SRDC	9.464	8.182
Operation of the SRDC	2.112	2.044
<b>Total Expenditure</b>	<b>11.576</b>	<b>10.226</b>

\*Please note: Operation of SRDC expenditure includes R&D workshops, R&D seminars, R&D regional expos, R&D reviews, industry sponsorships, R&D project communication etc).

### Income explanation

Income in 2010–2011 was higher than forecast because of the contributions from the Australian Government equivalent to 0.5 per cent of the GVP for the sugarcane industry, averaged over three years. The amount was higher due to the increase in cane price for tonnes of cane produced particularly in 2010–2011.

Expenditure in R&D projects was slightly lower than forecast due to delays in some milestones to 2010–2011, and early conclusion of some projects.

Operational expenditure remained within in levels forecast. The SRDC's cash reserve at 30 June 2011 was \$9.153 million.

Table 2.3 summarises the actual income and expenditure over the past five years, showing a fairly stable budget.

**Table 2.3**  
*Five year budget at a glance (\$m)*

Budget	2010–2011	2009–2010	2008–2009	2007–2008	2006–2007
Revenue	10.391	10.444	11.093	12.158	11.134
Expenditure	10.226	9.785	10.252	11.093	10.724
Operating surplus (deficit)	0.165	0.659	0.841	1.065	0.411
Total assets	11.776	11.516	11.097	11.273	9.236
Total equity	11.272	11.108	10.449	9.608	8.557
Industry contributions	3.823	4.136	4.317	5.028	4.887
Australian Government contributions	5.867	5.817	6.110	6.283	5.522
R&D expenses*	8.182	7.764	8.292	9.139	9.025

\* R&D expenses only include amount associated with payment of contracted milestones.

### Financial management and auditing

The SRDC maintains accounts and records of transactions in accordance with accepted accounting principles. Financial statements are prepared in accordance with Schedule 1 of the CAC Act and Australian Equivalents to International Financial Reporting Standards.

Financial statements and cash flow forecasts are prepared monthly and discussed at each Board meeting. Following the annual external

audit of the Corporation's financial accounts, the Executive Director presents a management representation memorandum to the Board for final adoption of the Annual Financial Statements. The Board approves Annual Financial Statements at its August meeting.

## Section 3

Spread of research across investment areas

Highlights of research portfolio

Research project summaries

Capacity Building Projects

Grower Group Innovation Projects

Scholarship Projects

SRDC Innovation Awards 2011



*Grower Group Services Director Joe Muscat oversees the development and progression of SRDC funded Grower Group Projects.*



## SPREAD OF RESEARCH INVESTMENTS ACROSS INVESTMENT AREAS

## Outcomes, Arenas and Targets

<b>Corporate outcome</b>	A profitable and internationally competitive Australian sugar industry providing economic, environmental and social benefits for rural and regional communities.			
<b>Investment arenas</b>	<b>Regional futures</b>	<b>Emerging technologies</b>	<b>People development</b>	
<b>Project targets</b>	Identified in the SRDC Annual Operational Plan 2010–2011 as proportion of resources funded across projects			
<b>Investment arenas</b>	<b>Regional futures</b>	<b>Emerging technologies</b>	<b>People development</b>	<b>Total</b>
<b>Forecast</b> (AOP July 2010)	60–65%	20–25%	15–20%	100% \$8.035 million
<b>Actual</b> (Annual Report June 2011)	56.6%	31.5%	11.9%	100% \$8.182 million
<b>Continuing projects</b>				
<b>Forecast</b> (AOP July 2010)	46	11	9	66
<b>Actual</b> (Annual Report June 2011)	37	11	10	58
<b>New projects</b>				
<b>Forecast</b> (AOP July 2010)	9	3	1	13
<b>Actual</b> (Annual Report June 2011)	9	3	1	13
<b>New scholarships</b>				
<b>Forecast</b> (AOP July 2010)	–	–	12	13
<b>Actual</b> (Annual Report June 2011)	–	–	13	13
<b>Total projects by arena</b>				
<b>Forecast</b> (AOP July 2010)	55	14	22	91
<b>Actual</b> (Annual Report June 2011)	46	14	24	84

## Section 3

# HIGHLIGHTS OF RESEARCH PORTFOLIO

The SRDC investment portfolio produced some very strong outcomes in 2010–2011 with research results being diverse and positive.

### Industry Overview – Southern Region

This year was an exciting time for R&D projects in the south as several projects generated from the southern region with industry-wide impact were completed.

The most significant was *'Accelerating the adoption of best practice nutrient management in the Australian Sugar Industry'*, which developed and validated the SIX EASY STEPS nutrient management package.

The project provided an opportunity to promote and accelerate the adoption of best-practice nutrient management across the Australian sugarcane industry—of paramount importance since the introduction of the Queensland Government's reef protection regulations.

Another project offering industry-wide benefit was *'Establishing the second crop cycle into permanent beds'* that assisted growers to establish the second cane-cropping cycle onto permanent beds with appropriate bed maintenance and retention of undisturbed crop residues to maintain soil structure and biology. The project assessed a variety of tillage practices to establish a second crop cycle and showed that all treatments produced good yields in the right conditions and demonstrated that minimum tillage systems could offer significant cost savings.

Nutgrass is a particular weed problem in the cane growing areas of northern NSW causing poor germination and reduced growth of young plants and ratoon crops. Previous attempts to control outbreaks were ad hoc with no satisfactory structured control package available. Research project *'Integrated nutgrass control in NSW'* showed a substantial economic benefit for growers by who control nutgrass in cane by adopting a long-term integrated approach to reduce the number of viable tubers. A publication, *'Managing Nutgrass in Cane'*, was produced for growers.

Research and development is synonymous with unpredictability. Some projects, while unable to produce the desired output this year did, however, advance the information base for future research.

*'Better frost tolerant varieties for NSW'* led by the NSW Farming Systems Group is a good example. Frost damage to sugarcane crops affects about one third of the NSW cane growing lands reducing production and costing the industry up to \$2.5 million in about one in three years. This research tested whether artificial freeze testing of cane seedlings could identify varieties that would perform well under field frosting conditions. The trials showed that it is difficult to clearly correlate ratings derived by artificial freeze testing of seedlings with known field reaction of more mature cane plants. The degree of differentiation between the good, average and poor categories was very small and the majority of individual trials failed to show any statistical significance. Further work may be able to refine the techniques, but at this stage it's not reliable enough to use in recommendations to farmers on frost tolerance.

A project with particular application to the south this year was *'Restoring Efficiency to Harvested Cane Transport in New South Wales'*. At the beginning of the 2007 harvesting season no operator in NSW could consistently load 23.5 tonnes of whole of crop material into the new bins. This necessitated more trips to the mill, which significantly lowered transport efficiency and increased the cost of fuel to the cogeneration plants. Researchers investigated ways to compact, rather than compress, material into the bins and increase bulk density during loading. The project developed a pronged rake aligner and achieved an impressive load of 23.26 tonnes net. However evaluation found the system was labour intensive and slow for a commercial harvesting operation on a medium to high daily quota.

Next year, projects assessing variety performance on different row spacing, the use of near infra-red (NIR) to rate variety resistance to smut and Fiji Leaf Gall diseases, and a streamlined life cycle assessment tool will be completed.

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## Industry Overview – Northern Region

The northern region was severely impacted by flooding and cyclonic weather that caused damage to crops and delays in harvesting and planting in late 2010 and early 2011. Many projects were delayed and there was a substantial increase in researchers requesting extensions in time to complete projects.

Notwithstanding the adverse climatic conditions in the region, growers attended several industry functions throughout the year including the SRDC Regional Expos and valuable feedback was obtained to guide future investment in the area.

There were several outstanding projects with practical outcomes for the industry that finished this year.

The MAFIA Grower Group in the Burdekin has been working on a project for five years with significant application to the northern region. *Evaluation Alternative Irrigation for a Greener Future (MAF002)* is drawing to a close and the final report will reveal the benefits and drawbacks of using alternative methods of irrigation in the Burdekin region. This research investigated low-pressure overhead irrigation and drip irrigation by trickle tape as potential solutions to reduce the volume of water applied and allow green cane harvesting to be adopted without shortening row lengths. An economic comparison will be made against an established trickle (drip) irrigation system. This group hopes to demonstrate that alternative irrigation systems are viable options within the Burdekin while improving water use efficiencies and stopping the rise in ground-water levels in the long-term.

Researchers at the James Cook University School of Engineering have completed a project (JCU030) where the economic benefit for mill operation could go far beyond the northern region. Historically, cane is prepared for milling by shredding – an energy-intensive process with high maintenance costs because of wear on the shredder-hammers. This highly innovative project tested the use of microwave energy to soften the cane prior to milling without loss of sugar quality. The energy saving results were extremely encouraging; estimated at ca. 40 per cent for a 500 tonne of cane/hour mill using a 500 kW microwave system. Overall energy savings for the whole mill operation were about 18 per cent. While the technology needs to be commercially proven, such energy savings would translate to significant economic benefits.

This year a new grower group, the United Soybean Growers Group, started a project to build on research already conducted in the development of a robust soybean industry in central and northern Queensland (GGP060). Legume break cropping is accepted as a vital component of the new sugarcane farming system and this grower group is continuing the search for soybean varieties to meet local markets and climate requirements, while developing and improving soybean agronomy in their district.

An upcoming project that could provide significant benefits to the northern region is collaboration between SRDC, GRDC, CSIRO, BSES Limited and the Queensland Department of Employment Economic Development and Innovation. *Cropping solutions for the sugarcane farming systems of the Burdekin (DPI022)* will investigate that break crops are conducive to improved sugarcane productivity and offer options to increase reliability and profitability in northern cropping systems.

As one grower group project commences another completes and growers in the north dealing with run-off into the Great Barrier Reef catchments will benefit from the Silkwood Drainage Board's work to evaluate sustainable farm drainage systems.

## HIGHLIGHTS OF RESEARCH PORTFOLIO

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A booklet, *'Sediment Trapping Field Guide, Ideas towards sustainable farm drainage system'*, was produced by the group with simple diagrams and an easy-to-read format that details best practice guidelines for farmers and other organisations interested in options for sediment run-off controls as part of an overall drainage system.

Despite the best intentions, some projects fail for a variety of reasons. One promising grower group's project, *'Winter soybean for biodiesel and nitrogen fixation'* (GGP042) was to trial growing soybeans in winter and investigate biodiesel production.

Unfortunately, only one grower could plant a winter soybean crop and the group could not sustain their project, which led to its termination. However, from this project, the SRDC, working with Grower Group Services has improved the 'Rise and Shine' workshop content that inducts and prepares grower groups for involvement in the GGIP program. During the workshop, the lifecycle of projects are discussed as well as solutions offered when a group is faced with problems that arise during the project such as dispute resolution.

*SRDC Board members met with Mackay Racecourse Mill representatives and local cane growers following a regional Board meeting held in August 2011.*



RESEARCH PROJECT SUMMARIES

The section below summarises the projects completed in 2010–2011. Some projects have been excluded due to their commercial-in-confidence status.

Regional futures

Key Performance Indicator	Enhanced structure and functions of regional sugarcane industry value chains
Measure	Demonstration of improved integration of the industry value chain within regions delivering increased profitability and more efficient use of capital based on environmentally responsible and safe business practices.

*Harvest planning management tools*

The Tully Sugar Limited milling district has large geographical, varietal, and seasonal differences in sugar yield. Growers were looking to increase profitability by capitalising on these differences, but had to consider variety, crop class, crop age, CCS, cane yield, and soil type simultaneously when planning the harvest. Adding to the complexity is the influence of large harvesting groups, high mill crushing rates, and a wet tropical environment.

‘Harvest Plan’, developed by the growers in the SRDC funded ‘Working Together for Our Future’ Action Group, indicated key drivers for growers planning a harvest schedule.

Typically, growers vary this plan to take into account the weather and transport logistics. This complex decision making process can be simplified if growers are able to produce a number of management scenarios using decision support tools.

This project reviewed all the harvest planning decision support tools available and revealed that there were no ‘off the shelf’ solutions available. However, it did find that the CSIRO SugarMax models could be adapted for use in harvest planning for the Tully district. The SugarMax tool was developed by previous SRDC projects to provide increased capacity for growers to learn from and adopt improved time-of-harvest schedules (CGT001).

*Increasing in-mill Near Infra Red (NIR) effectiveness and communicating data*

Advancement in precision agriculture (PA) techniques offered an opportunity to improve the productivity, profitability and environmental performance of the growing and harvesting sector through the use of NIR generated data to measure nutrient levels in prepared cane.

Field trials on two sites in the Burdekin region and two sites in the Mackay region were soil tested before varying rates of nutrients were applied to each strip. Results of leaf tests were used to establish any relationship between in-field management practices and the NIR cane analysis after harvesting. A customised Geographic Information System (GIS) application established the link between analysis results and the cane source. However, the trials failed to establish a definitive link between in-field nutrient practices and NIR results.

The legacy of this project is the improved ability to analyse data at a more refined spatial level than previously possible. With this new level of in-field data recording, at least one new project has been established that will analyse the relationship between NIR derived nutrient data and in field management practices with particular emphasis on mill mud application rates (CSR038).

*Regional futures*

<b>Key Performance Indicator</b>	<b>Enhanced resource utilisation in the farming and harvesting sectors</b>
<b>Measure</b>	Implementation of improved farming and harvesting systems that increase revenue and reduce input costs, and concurrently are environmentally and socially sustainable.

*Accelerating the adoption of best practice nutrient management in the Australian Sugar Industry*

The SIX EASY STEPS nutrient management package facilitates the adoption of appropriate on-farm nutrient management practices by encouraging growers to make informed decisions about their nutrient inputs.

This project enabled further development and validation of the SIX EASY STEPS package resulting in a number of important outputs and outcomes consistent with the philosophy of sustainable sugarcane production. It also provided an opportunity to promote and accelerate the adoption of best-practice nutrient management across the Australian sugarcane industry.

The strategic importance of the SIX EASY STEPS package increased substantially with the introduction of the Queensland Government’s reef regulations and the requirements of the Reef Rescue Program. Importantly, further enhancements to SIX EASY STEPS will continue through initiatives led by BSES Limited in association with others (BSS268).

*Sugarcane smut extension*

Sugarcane smut occurs in every commercial sugarcane-producing country around the world except Papua New Guinea and Fiji. Its most significant facet is its systemic mode of infection and the effect on crop growth, commercial yields and profitability.

This project used the opportunity afforded by the large number of infested crops in Australia to quantify the effect of the disease on commercial crop yields and optimize industry transition to resistant commercial varieties.

The results of the project showed growers how to choose varieties to minimise crop losses and terminate appropriate crops to maximize profitability. It assisted the breeding and selection program by providing knowledge of the level of resistance needed to minimise productivity loss and maximise the use of high yielding germplasm, and improved the accuracy of predicting the impact of smut across the industry.

Over 90 seminars were presented by project staff on the findings of this epidemiology research during the 3.5-year project period and the project results were widely published (BSS302).

*Sugarcane Biosecurity Integrated Plan*

This project developed updated old Incursion Management Plans for key exotic pests and diseases to enhance sugarcane biosecurity measurements for the Australian sugarcane industry.

The Biosecurity Plan was revised and updated to align with PLANTPLAN in light of the lessons learnt from the smut emergency response experience, while a Brief Action Plan and a Borer Response Plan were compiled to serve as a quick source of information in case of a pest incursion.

Several workshops and local grower meetings were held to emphasise the biosecurity message and deliver the findings. Biosecurity is now a regular feature in the BSES Bulletin. All Incursion Management Plans are now available at [www.bses.org.au](http://www.bses.org.au) (BSS303).

*Establishing the second crop cycle into permanent beds*

The project assisted growers to develop practical solutions to establish break crops and the second cane-cropping cycle onto permanent beds with appropriate bed maintenance and retention of undisturbed crop residues, therefore maintaining soil structure and biology.

Four pieces of farming equipment were developed: a bed renovator, zonal ripper, wave disc cultivator and zonal rotary hoe. Grower groups were formed and 36 extension activities were held along with published material and Reef Rescue promotion to encourage grower participation.

The total area planted using zonal tillage increased from 30 ha in 2007 to 2500 ha in 2009 and the number of growers adopting the practice increased from five in 2007 to 100 in 2009.

Trial data showed that all cultivation treatment produced good yields in the right conditions with similar yields being attained with all treatments over a range of trial sites and a saving of \$400/ha made.

The economic benefit of the system comes through maintaining cane yields while reducing input costs (BSS306).

#### ***SmutBuster: Accelerated breeding of smut-resistant sugarcane varieties***

The SmutBuster project uses high breeding value parental germplasm with susceptible reaction to smut to provide a wider choice of more productive smut-resistant cane varieties.

More productive varieties require less resource inputs and plough-out resulting in positive environmental and social benefits.

#### ***SmutBuster should also improve the rate of genetic gain for tonnes sugar/ha/year***

The shorter parent generation interval practised in SmutBuster will dramatically increase the frequency of smut resistant genes in the parent populations.

The SmutBuster selection program is only mid-way to completion and no commercial sugarcane varieties have been released within the time-frame of this project. The first commercial varieties from SmutBuster are expected to be released to the industry in 2016 (BSS325).

#### ***Integrated nutgrass control in NSW***

Nutgrass is a particular problem in the cane growing areas of northern NSW causing poor germination and reduced growth of young plants and ratoon crops. Previous attempts to control outbreaks were ad hoc with no structured package available for satisfactory control.

The trial work and economic analysis of this project showed a substantial economic benefit for growers was achievable from controlling nutgrass in cane by adopting a long-term integrated approach to reduce the number of viable tubers.

A publication, 'Managing Nutgrass in Cane', was produced for growers (NFS002).

#### ***Harnessing soil biology to improve the productivity of the new sugarcane farming system***

This project addressed how management affects soil biological processes. The first project phase assessed how the 'new sugarcane farming system' (reduced tillage, legume break crop, trash blanketing, and reduced nitrogen (N) fertiliser application), impacts on N cycling and soil biological processes.

Sugarcane soils in north and southern Queensland, including the Yield Decline Joint Venture site in Ingham and two commercial farms with contrasting management practices in Bundaberg, were used for this research. A special focus was the development and application of novel molecular techniques to monitor soil microbial function for analysis of soil processes.

Outcomes of the technical advances are that comprehensive analysis of microbial function is possible for unprecedented insight into soil biological processes. The results show that management affects soil microbial biomass as well as composition and function of the microbial community. However, the identified differences between farming systems were mostly short-lived and had little or no effect on the overall availability of N, N cycling, N losses and sugarcane yield. The findings support the notion that lower N input is not detrimental to sugarcane yield but may reduce environmental impacts. The results also show that additional improvements of the new farming system are necessary to synchronise N availability and crop N demand. Production of mobile forms of N, especially nitrate, but also the generation of greenhouse gases, have to be improved.

Additionally, this project has opened new fields in soil ecological research in sugarcane agro-ecosystems. The development of novel approaches for monitoring soil microbial gene expression, enabled with cutting-edge gene sequencing technologies and microcosm-based research, will provide insights into the complexity of microbial responses to management options and environmental conditions, and facilitate more detailed understanding of microbe-nutrient relations and other soil biological interactions that are needed to improve future environmental sustainability and soil health (UQ043).

**Regional futures**

<b>Key Performance Indicator</b>	<b>Enhanced processes and product range in the transport, milling and marketing sectors</b>
<b>Measure</b>	Implementation of more productive and cost-effective transport, milling and marketing systems in harmony with the environment and societal expectations.

**Restoring Efficiency to Harvested Cane Transport in New South Wales**

At the beginning of the 2007 harvesting season no harvester operator in New South Wales could consistently load 23.5 tonnes of low and varying bulk density whole of crop material into the new, low weight aluminium multilift 90m<sup>3</sup> bins. This necessitated more trips to the mill, which significantly lowered transport efficiency and increased the cost of fuel to the cogeneration plant.

The researchers investigated ways to compact, rather than compress, the whole of crop material into the bins and increase the bulk density of the material during loading

The pronged rake aligner achieved 23.26 tonnes net, but was too labour intensive and slow for a commercial harvesting operation on a medium to high daily quota. A frame levelling attachment

achieved a net average of 19.87 tonnes. The lugged roller particle aligner, and vacuum compression trials were cut short when whole of crop harvesting stopped and did not produce sufficient data for a meaningful conclusion.

However, this project did produce knowledge to assist further research; constructed a machine to increase the bulk density of whole of cane in bulk bins; built capacity within the Richmond River cane industry to develop processes and technology, and established baseline figures to assess the success of this and other projects to restore transport efficiencies at Broadwater (LEV001).

**Scale formation and removal at Tully Mill**

Improving the understanding and management of scale formation and removal in the Tully evaporator station will result in an improved factory effective crushing rates by a reduction in lost crushing time and the identification of effective chemical cleaning and clarification procedures.

A Heat Transfer Coefficient monitoring system has been developed specific to Tully Mill together with the development of alternative clarification practices. Trials with a one-step chemical cleaning formulation for scale removal at Tully Mill have been inconclusive (TSL001).



## Emerging technologies

Key Performance Indicator	Enhanced approaches for sugarcane genetic improvement
Measure	Technologies developed that accelerate the delivery of improved varieties for sugar production and value-added products.

### More Crop per Drop

This project was initiated to determine the potential of Australian sugarcane germplasm to develop water use-efficient and drought tolerant commercial cultivars.

Water stress is the major constraint to productivity in the Australian sugar industry costing an estimated \$260 million per annum.

About 40 per cent of the Australian sugarcane production is rain-fed with or without supplementary irrigation. Because of erratic rainfall and the increasing cost and restrictions on water use, efficient use of available water is an important priority in irrigated production systems.

Field experiments were conducted for three years under rain fed, fully irrigated and managed drought conditions at three locations in northern Queensland. The agronomic and cane yield characteristics, fibre, sugar and sugar quality characteristics and physiological traits related to drought tolerance were collected during the crop growth period and at harvest.

Analysis of the data showed complex interactions between type of stress, response of traits to stress, trait effects on growth and yield and other environmental parameters.

These traits are proving useful to characterise clone behaviour under different stress environments to identify desirable trait combinations and genotypes (ideotypes) suitable for different production conditions, which is the focus of the second phase of this research (BSS305).

### Extending SugarBooster™

SugarBooster™ technology is a recent breakthrough with the potential to generate sugarcane lines producing the sugar isomaltulose as well as higher yields of sucrose and other fermentable sugars.

If able to replicate this success in the field, these genetically modified varieties will yield more sugar, making farms more profitable and efficient, as well produce another value-adding product.

The major output of the project is the first knowledge of the performance under field conditions of SI-transformed sugarcane lines. Additional outputs are: methods developed for efficient gene transfer into diverse, smut-resistant Australian sugarcane cultivars (submitted for publication); first development of trial designs for effective early-stage selection of improved transgenic sugarcane lines (in collaboration with BSES); evidence that a workable proportion of transgenic lines from current protocols can match the recipient cultivar for cane yield after several field propagations to obtain quality planting material. The technology has been licensed for commercial use by CSR (Sucrogen) (UQ040).

*Emerging technologies*

<b>Key Performance Indicator</b>	<b>Enhanced technological innovation across the sugarcane industry</b>
<b>Measure</b>	Technologies developed that improve business performance across different sectors of the sugarcane industry.

*Automating harvester and haul-out forward progression during harvest utilizing a differential global positioning system (DGPS)*

Investigating the use of cutting edge technology to maximise the efficiency of the harvesting hauling operation was the purpose of this project.

The research demonstrated that it is feasible to acquire and transmit DGPS data between harvester and haul-out during forward progression, process the data and display the relative vehicle positions for the operators.

The automation of the harvester haul-out coordination will result in less damage to the paddock, less cane left in the field and lower operator fatigue. Improvement to the harvesting practice will achieve a lower cost higher value cane sample for milling and increase revenue across the value chain (GRF001).

*Producing furfural and fuel from bagasse*

Furfural, which can be made from the sugarcane by-product, bagasse, has several potential industrial uses and has exciting implications for mill diversification.

In this project furfural process residues were characterised and evaluated to determine whether they would provide a suitable feedstock for further value adding processes.

A new pyrolysis based process was optimised for furfural production using sugarcane bagasse as a feedstock and benchmarked against current technology.

The optimisation was carried out using a pilot scale facility developed by researchers at the University of Melbourne. In the interests of providing further markets for furfural, TimTech® evaluated its use in timber treatment formulations and submitted a report with the University of Melbourne identifying three furfural resins that exhibit fungicidal properties worthy of further study (QUT015).

## People development

Capacity Building Projects (CBP) provide support for individuals or groups to extend their experience and try something new that is of considerable value to the sugarcane industry. Funding of up to \$5,000 for an individual or \$10,000 for a group is available. There are no set definitions for projects providing they demonstrate an ability to assist people to learn, change, or enhance their leadership skills.

During 2010–2011, 14 CBPs were completed, eight individual projects and six group projects.

### People development

Key Performance Indicator	Enhanced effectiveness of individuals contributing to the sugarcane industry.
Measure	Demonstration of improved capability and capacity of sugarcane industry participants to learn change, collaborate, lead and innovate to advance the sugarcane industry.

### *Participation at the Soil and Water Conservation Society Conference, Colorado USA – Peter Wulf, University of Queensland*

In July 2010, Peter Wulf attended the 61st Soil and Water Conservation Society International Resource Conservation and Environmental Management Conference in Colorado, USA. The Conference hosted approximately 1200 delegates predominantly from the United States and Canada with a broad range of topics including minimum soil tillage, forestry, water quality issues and environmental management systems in agriculture.

The only Australian representative, Peter presented two papers relating to his PhD research, including the institutional arrangements concerning diffuse land based pollution from agriculture into the Great Barrier Reef, and a second paper on incentives to achieve improved water quality in the Douglas Shire in Far North Queensland. The first presentation has been published in a leading environmental law journal and the second paper is being finalised for publication (UQ041).

*SRDC Executive Director Annette Sugden visited cane growing regions across Queensland and New South Wales throughout the year to heed the issues of growers and stakeholders across the industry.*



*Individual Capacity Building Projects (CBPs) completed during 2010–2011*

Project number	Researcher and Organisation	Project objective
UQ046	Kimberley Tilbrook, UQ	To attend the meeting of the International Symposium on BioPolymers in Stuttgart, Germany and present PhD research.
BSS340	Nader Sallam, BSES Limited	To participate in the 8th Entomology Workshop of the International Society of Sugar Cane Technologists in Mauritius and visit research sugarcane centres and industry establishments in Mauritius and Reunion.
SRD032	Mark Whitten and Amanda Vickers	Scholarship for two people to attend the Training Rural Australians in Leadership 2010 course.
BSS337	Dr Priya Joyce, BSES Limited	To visit two leading sugarcane research institutes in China and to present two talks at the Gaungzhou Sugarcane Industry Research Institute and three talks at Fujian Sugarcane Genetics and Breeding Laboratories in Fujian.

*People development*

<b>Key Performance Indicator</b>	<b>Enhanced effectiveness of partnerships and networks contributing to the sugarcane industry</b>
<b>Measure</b>	Demonstration of improved capability and capacity of regional groups, networks, and industry sectors and researchers to collaborate and innovate to beneficially change the operation of the industry.

Microwave treatment significantly reduced the compressive strength of sugar cane making it easier to crush and as result around 60 per cent of energy can be saved during the crushing process.

The students were successful in showing that there could be considerable savings in energetic cost of extracting juice by pre-treating sugarcane using microwave energy, compared to the conventional shredding and milling processes.

The new technology will assist to reduce the amount of electricity needed for processing and thereby maximise the available bagasse for energy co-generation. This will have a significant impact on the sugarcane industry and sugarcane growers as the burning of bagasse as a fuel is a green house positive process (JCU030).

*Pre-treatment of sugarcane*

This project was conducted primarily by three James Cook University Bachelor of Engineering students as their fourth-year projects.

Of the total energy expended in a typical sugar mill, about 30 per cent is used to prepare cane for crushing using high-speed shredders that release the juice from cells. Shredders require considerable maintenance because of their high-wear environment. This project examined microwave energy to open the sugarcane cells rather than relying on shredders.

*Group Capacity Building Projects (CBPs) completed during 2010–2011*

Project number	Researcher and Organisation	Project
WS015	NRM facilitators & strategists in association with AGEconPlus Consulting	A workshop of senior members of the sugarcane industry held in Brisbane on 25 June 2010 to further identify research, development and extension priorities.
BSS038	BSES: Joanne Stringer, Emily Deomano, Barry Croft, Robert Magarey, Shamsul Bhuiyan Peter Samson, Nader Sallam, Keith Chandler, Xiangming Xu, East Malling Research, Kent, UK	To discuss statistical issues and develop recommendations for improved analyses in the pest, weed management and disease selection programs with Dr Xiangming Xu, a world expert in epidemiology and biometrics from East Malling Research in Kent.
QUT042	Geoff Kent and Floren Plaza, Queensland University of Technology and materials expert Jeff Gates, University of Queensland (organisers)	Materials workshop for Australian sugar factory engineers held in Mackay.
PAA001	SPAA Precision Agriculture Association	Provided the opportunity for seven cane growers to attend the 14th Precision Agriculture Symposium.
CBP007		Attended the National Farmers Federation 2010 Congress in Melbourne as young grower representatives.
CPB009	Phillip Jackson, Prakash Lakshmanan, Geoff Inman-Bamber, Fengduo Hu	To travel to China to develop mutually beneficial collaborations between sugarcane research institutes in China and Australia in the area of breeding sugarcane for water stress.

## Section 3

# GROWER GROUP INNOVATION PROJECTS

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As part of SRDC's commitment towards improving collaboration and innovation, it invests in Grower Group Innovation Projects (GGIPs) that enable growers to build capability to conduct their own research and development in their own region. SRDC calls for contracts and assesses the projects, however the Grower Group Network is managed by Grower Group Services (GGN001), a project led by three part-time officers that oversee the conduct and reporting of projects, group training and program coordination. This section highlights GGIPs completed in 2010–2011.

### *Developing a sediment trapping system in the Silkwood drainage area – Silkwood Drainage Board*

Soil erosion by water is a research priority, especially for farms within the Great Barrier Reef Catchment area. In the North Queensland Wet Tropics catchment area it is essential to have an efficient and effective drainage system to enable crops to be free of water logging and excessive flooding.

Sediment trapping systems are considered an effective farm management solution to mitigate the effects of paddock cultivation, high rainfall and slope erosion that results in sediment loss.

The Silkwood Drainage Board members took on this project to develop ideas for best practice in sediment flow control within a Wet Tropics sugarcane farm drainage system and to encourage farmers to include sediment trapping in their farm drainage system.

They observed that: sediment traps work better with higher concentrations of sediment that are poorly dissolved because the initial heavy rain impacts on the ground quickly created dissolved sediment; and that sump traps are ideal for coarse sediment capture, which is bottom-flowing or poorly suspended and are especially useful when the farm drain flows directly into a main stream.

The group created a field booklet that documents the field work and results from the project that can be used to incorporate drainage system design in farm management plans (GGP027).

### *Improving Billet Planter Efficiency – North Clarence Innovative Planting Group*

The North Clarence Innovative Planting Group project built and trialled a self-propelled, compact, single operator dual row billet planter.

When tested alongside a conventional planter the self-propelled unit proved more user friendly as it was shorter and therefore had a smaller turning circle, which was beneficial within the trial site headlands, and enabled easier inspection and monitoring of the machine.

The machine carried more cane billets in the holding bin, which provided longer planting times and less refilling saving time and fuel consumption.

Planting rates, eye count, set placement and billet feeding/metering/delivery were similar between the two machines and there was no vast difference in strike rate and/or set placement.

The new planter reduced labour cost, fuel consumption, maintenance and increased safety for the operator who did not have to ride on a moving machine and be exposed to the elements (GGP038).

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### ***Better frost tolerant varieties for NSW – NSW Farming Systems Group***

Frost damage to sugarcane crops affects about one third of the NSW cane growing lands reducing production by 10 – 30% and costing the industry up to \$2.5 million in about one in three years. This project tested whether artificial freeze testing of cane seedlings could be used to identify cane varieties that would perform well under field frosting conditions.

Trials ascertained whether subjecting seedlings to cold room freezing would produce a similar level of damage to that in the field and determine an appropriate testing regime of temperature and duration.

There was some differentiation between varieties, however the degree of differentiation between the good, average and poor categories was very small and the majority of individual trials failed to show any statistical significance. The trials have shown that it is difficult to clearly correlate ratings derived by artificial freeze testing of seedlings with known field reaction of more mature cane plants. Further work may be able to refine the techniques but at this stage it's not reliable enough to use in recommendations to farmers on frost tolerance (GGP041).

### ***The next step for Precision Agriculture – Homebush Innovative Grower Group***

The Homebush Innovative Farmers group, working with Queensland Government farming systems agronomist, John Hughes, conducted a long-term replicated trial to identify agronomic issues influencing yield variability and the subsequent development of zonal management techniques for spatially defined soil groups.

The aim was to determine the yield potential of cane on paddock geo-referenced soil groups with known characteristics and to identify ways to maximise productivity from those soils with the best mix of water and nutrient management and Precision Agriculture (PA).

The trial compared soil bulk density values, soil penetration resistance, water infiltration and yield across defined soil groups in a conventionally grown, traffic-free crop, and bare soil environment.

Particle size and chemical analysis results confirmed the ability of electrical conductivity (EC) soil mapping to spatially differentiate zones of contrasting soil properties and ground-truthing validated the ability of EC soil mapping to accurately define variability within-paddocks and across the farming enterprise. The study revealed the inadequacy of 1:100,000 coarse scale soil surveys to support PA where the farm is mapped as one soil unit.

There was no significant difference in yield and stalk counts across the soil groups in the plant cane phase. Unfortunately cyclonic conditions severely impacted on the integrity of the yield data in the ratoon phase.

However, subsequent ground-truthing of yield patterns from processed satellite imagery provided invaluable information that clearly demonstrated the relationships and interaction between soil properties, elevation/ topography and within-paddock yield variability. A number of possible PA management practices emerged from this component of the project that will provide a potential pathway to manage within-paddock yield variability and the geographic information system layers that will underpin PA in the future (GGP052).

## Section 3

# SCHOLARSHIP PROJECTS

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The SRDC's investment in higher education through its Scholarship Program ensures the future of the sugar industry by fostering scientific skills and knowledge. Two scholarship projects finished in 2010–2011:

### **Anna Satje**

#### ***Improving the cation retention capacity of tropical soils using high activity clays.***

Research was conducted at James Cook University to investigate whether bentonite treatments could be used to improve the fertility of low cation exchange capacities (CEC) sugar producing soils and enhance commercial cane yield.

Two field trials conducted in the Innisfail region in the Wet Tropics of Far North Queensland and a series of glasshouse pot trials conclusively showed that at rates of 10 – 30 t/ha banded additions of natural sodium bentonite improved soil properties to significantly raise sugarcane yields at final harvest.

A subsequent economic analysis suggested that bentonite treatment could be an economically feasible option to increase sugarcane production and profitability in the long term in permanent bed systems under PA.

However, due to the high product cost of bentonite, the technique was found to be economically unfeasible in the short term and in conventional farming systems where the ground is reworked after three to four seasons.

While the research concluded that bentonite treatments are not an economically feasible option for enhancing productivity for the average farmer in today's industry, it is expected that as more growers move to permanent bed farming systems the use of bentonite to enhance soil fertility, reduce nutrient run-off and raise cane yields on low CEC soils will become common practice (STU059).

### **Ian O'Hara**

#### ***Cellulosic ethanol from sugarcane bagasse in Australia: exploring industry feasibility through systems analysis, techno-economic assessment and pilot plant development.***

Overcoming many of the constraints to early stage investment in biofuels production from sugarcane

bagasse in Australia requires an understanding of the complex technical, economic and systemic challenges associated with the transition of established sugar industry structures from single product agribusinesses to new diversified multi-product biorefineries.

While investment decisions in new infrastructure require technically feasible solutions and the attainment of project economic investment thresholds, many other systemic factors influence the investment decision. These factors include the interrelationships between feedstock availability and energy use, competing product alternatives, technology acceptance and perceptions of project uncertainty and risk.

This thesis explored the issues surrounding the development of a cellulosic ethanol industry in Australia from sugarcane bagasse. The project developed a critical understanding of key drivers, risks and uncertainties that impact industry development. In doing so, the research identified key factors that will lead to a profitable and sustainable cellulosic biofuels industry in Australia (STU063).

### ***New postgraduate scholarships awarded***

Three postgraduate students were offered a SRDC scholarship to complete PhD research.

Scholarships were awarded to:

**Anthony Brinin** – who will investigate ways to decrease water content of sugarcane at harvest, which could lead to increased sugar content for mill processing.

**William Gilfillan** – who will research biodegradable polymer nanocomposites derived from natural fibre and starch.

**Danielle Skocaj** – who will analyse the latest climate forecasting data to recommend the best farm management techniques to improve sugarcane nitrogen management in the Wet Tropics.



## SRDC INNOVATION AWARDS 2011

Each year SRDC acknowledges excellence in research and science through its Innovation Awards. On 5 May 2011 the winners of the five award categories were announced dinner the Australian Society of Sugar Cane Technologists Conference dinner held in Mackay.

During the awards presentation an SRDC booklet publication was distributed to highlight all project nominations. The award winners were profiled via a high quality video presentation broadcast during the award ceremony and presented by ABC TV Landline Senior Reporter Pip Courtney.

#### ***SRDC Research Group Innovation Award***

BSES Limited's Six Easy Steps team won this award for the development of a program that encourages adoption of best-practice nutrient management in sugarcane production. The SIX EASY STEPS program is an innovative concept that enables the adoption of best-practice nutrient management on-farm. It is the result of a collaborative approach involving BSES Limited, Sucrogen and the Queensland Department of Environment and Resource Management. The concept was developed to replace traditional generalised fertiliser recommendations (that were aimed at maximising productivity and minimising the risk of yield loss) with sustainable and soil-specific nutrient management guidelines.

#### ***SRDC Research Scientist Award***

Program Leader and Research Scientist in Biotechnology at BSES Dr Prakash Lakshmanan took out this award. With 26 years experience in plant science, Dr Lakshmanan is well renowned in the sugarcane industry — his work with the enhancement of crop improvement and leaf tissues in particular, has been highly praised. Prakash was the Chief Investigator involved with the production of the SmartSett system that enables the production of up to 2000 sugarcane plants from a single shoot top within four months, through the use of leaf tissues.

#### ***SRDC Research Technician Award***

This new award was won by BSES Limited Research Technician Phil Lethbridge. Phil's main achievement was to help design and develop the SPIDNet information system to monitor web-based management of plantings, plots and observations, pedigree management, cross pollination and plant movement traceability.

His interests in information technology led to him go on to study an IT Masters degree. Phil has made a significant contribution to influential developments in web-based information systems that have been crucial for the data collection and monitoring of significant research for the sugar industry.

#### ***SRDC Long Service Award***

Robert Quirk was the worthy recipient of this award for his dedication to research and long-term commitment to the industry.

Robert is recognised for championing research projects and implementing innovative research and development on-farm. His extension of research activities and promotion of research has also been highly commended. He has been actively involved in more than 16 industry-relevant committees, and has been the recipient of over seven industry-specific awards for influential research and sustained leadership, dedicating his downtime to improving the sugar industry through forward-thinking innovation and persistence.

#### ***SRDC Grower Group Award***

Established in 2002, the winner of this award, the Mackay Fibre Producers group, intended to evaluate the validity of rotation crops and study the benefits of using non-traditional rotation crops to break the cycle of growing sugarcane in the Mackay area.

The group conducted an economic and agronomic assessment of three unconventional fibre crops produced in rotation with sugarcane across seven sites within the Mackay region. Results were significant and showed a considerable positive economic impact on cane production. The group has now established an export market for Kenaf seed in Malaysia, Vietnam, Kenya, Guatemala and Israel and has started a compacted and bulk premium garden mulch supply.



## Section 4

### Statutory Reporting

- Due diligence
- Management
- CAC Act compliance
- Risk management
- Intellectual property management
- Environment Protection and Biodiversity Conservation Act
- Privacy Commission
- Freedom of Information
- Australian Bargaining Framework
- Occupational Health and Safety
- Publications

*Dr Xianming Wei of BSES Mackay leads a team of plant breeders and statisticians in the development of complex software to guide the selection of parents for sugarcane breeding.*

## Due diligence

At every meeting in 2010–2011, the Board confirmed that all decisions had complied with the requirements of the due diligence checklist.

## Management

The Corporation's Business Process Management System (BPMS) is an essential tool to manage risk and control fraud and provides quality assurance of the daily management of the SRDC. Its annual audit is overseen by the Audit Committee.

## CAC Act compliance

A report indicating CAC Act compliance and financial sustainability for the 2010–2011 financial year was approved by the Board on 24 August 2011 and forwarded to the Department of Finance and Administration and the Department of Agriculture, Fisheries and Forestry shortly after the Board meeting and approval granted.

## Risk management

The SRDC is committed to managing risk to continue to protect its:

- stakeholders
- employees and their skills
- environment
- quality of service
- assets and intellectual property
- contractual and statutory obligations
- corporate image and reputation.

The Board reviews the Fraud Control Plan, Risk Management Plan and Business Continuity Plan via the Audit Committee annually. The SRDC complies with the policies of the Protective Security Manual.

## Intellectual property management

SRDC incorporates an Intellectual property management (IPM) plan developed in consultation with major R&D providers into its application and project management system to ensure that intellectual property issues are considered fully during the development of project proposals and the management of approved projects.

Although formal ownership of intellectual property developed in most SRDC-funded R&D projects is vested in the research organisations, the Corporation retains an interest in capitalising on it and is a party to several patents and provisional patent applications.

## Environment Protection and Biodiversity Conservation Act

The SRDC's obligations under section 516A of the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) require consideration of the environmental impacts of proposals and projects. Research project proponents are required to outline potential risks relating to the project, and appropriate management strategies.

These are considered during assessment of proposals. Potential and/or actual impacts of existing projects are also considered during the assessment of milestone reports and in project reviews. No proposals or projects with adverse environmental consequences were identified in 2010–2011. In accordance with the requirements of the EPBC Act SRDC has reported to the Australian Government on how SRDC's actions accord with the principles of ecologically sustainable development.

## Privacy Commission

The SRDC complied with all obligations to the Privacy Commission in 2010–2011.

## Freedom of Information

The SRDC received one enquiry under the Freedom of Information (FOI) Act in 2010–2011, which was withdrawn.

## Australian Bargaining Framework

The SRDC is currently developing an Enterprise Agreement and in doing so, has complied with the Australian Government Bargaining Framework requirements.

## Occupational Health and Safety

The SRDC's policy is to provide an environment that protects the health, safety and welfare of staff and visitors and actively encourages safe working practices.

The Corporation's OH&S Management System sets out the policies and establishes procedures for planning, implementation, monitoring and review of OH&S matters. No health and safety issues required external reporting during 2010–2011.

## Publications

The SRDC produced the following publications during the year:

- **Recognising Sugar Research Innovation**  
Success stories from the Australian sugarcane industry. This booklet highlighted all projects or researchers nominated for the 2011 SRDC Innovation Awards.
- **National Sugarcane Industry RD&E Strategy**  
This Strategy was developed by SRDC and DEEDI in consultation with the sugarcane industry. The Strategy was approved by the Primary Industries Ministerial Council in September 2010.
- **Annual Report 2009–2010**  
This Statutory publication presents outcomes from R&D projects completed during the year and reports on SRDC's operations and finances.
- **Annual Operational Plan 2010–2011**  
This Statutory publication outlines successful R&D projects approved (as of 30 June 2010) to commence from 1 July 2011.
- **General SRDC brochure**  
This brochure provides a brief overview of SRDC's role and responsibilities for funding and managing RD&E projects using industry and government funding.
- **Grower Group Innovation Projects**  
This booklet provides trial results for grower group innovation projects completed between 2009 and 2011.



*QUT Senior Research Fellow, Dr Ian O'Hara works within the Centre for Tropical Crops and Biocommodities. Dr O'Hara is involved with a number of SRDC funded research projects, investigating opportunities for biofuel production from ethanol. Photo courtesy of QUT – Erika Fish.*

A photograph of a man, Sam Deguara, standing on the steps of a red tractor. He is wearing a blue long-sleeved shirt, blue jeans, a brown cap, and brown boots. He is smiling and looking towards the camera. The tractor is red with black accents and has 'SE III' visible on its side. The background is a clear blue sky.

## Section 5

Auditor's Report

Financial Statements

Notes of the  
Financial Statements

*Cane grower Sam Deguara works in partnership with his brother and father on a cane farm outside Mackay, Queensland. The Deguaras were involved with 'the Grower Group Innovation Project, 'Optimising Benefits of GPS Integration into Controlled Traffic Farming System'.*

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## **INDEPENDENT AUDITOR'S REPORT**

### **To the Minister for Agriculture, Fisheries and Forestry**

I have audited the accompanying financial statements of the Sugar Research and Development Corporation for the year ended 30 June 2011, which comprise: a Statement by the Chairman, Executive Director and Finance Manager; the Statement of Comprehensive Income; Balance Sheet; Statement of Changes in Equity; Cash Flow Statement; Schedule of Commitments; Schedule of Contingencies; Schedule of Asset Additions; and Notes comprising a Summary of Significant Accounting Policies and other explanatory information.

### ***Directors' Responsibility for the Financial Statements***

The directors of the Sugar Research and Development Corporation are responsible for the preparation of the financial statements that give a true and fair view in accordance with the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997*, including the Australian Accounting Standards, and for such internal control as the directors determine is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

### ***Auditor's Responsibility***

My responsibility is to express an opinion on the financial statements based on my audit. I have conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. These auditing standards require that I comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Authority's preparation of the financial statements that give a true and fair view in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial statements.



I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

***Independence***

In conducting my audit, I have followed the independence requirements of the Australian National Audit Office, which incorporate the requirements of the Australian accounting profession.

***Opinion***

In my opinion, the financial statements of the Sugar Research and Development Corporation:

- (a) have been prepared in accordance with the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997*, including the Australian Accounting Standards; and
- (b) give a true and fair view of the matters required by the Finance Minister's Orders including the Sugar Research and Development Corporation's financial position as at 30 June 2011 and of its financial performance and cash flows for the year then ended.

Australian National Audit Office



Linda Gorrell  
Senior Director  
Delegate of the Auditor-General  
Canberra  
12 October 2011

*Sugar Research and Development Corporation*

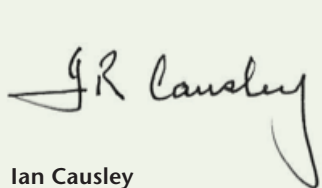
STATEMENT BY THE CHAIRMAN, EXECUTIVE DIRECTOR AND FINANCE MANAGER

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In our opinion, the attached financial statements for the year ended 30 June 2011 are based on properly maintained financial records and give a true and fair view of the matters required by the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997*, as amended.

In our opinion, at the date of this statement, there are reasonable grounds to believe that the Corporation will be able to pay its debts as and when they become due and payable.

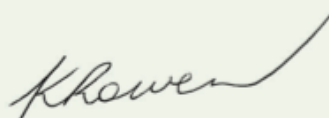
This statement is made in accordance with a resolution of the directors.



**Ian Causley**  
Chairman



**Annette Sugden**  
Executive Director



**Karen Rowen**  
Finance Manager



*BSES Limited Researcher Dr Prakash Lakshmanan was awarded the 2011 SRDC Individual Research Award for his outstanding contribution to research and development over the past five years. Dr Lakshmanan leads the BSES and CSIRO joint venture for molecular breeding. (Photo courtesy of BSES Limited)*

*Sugar Research and Development Corporation*  
**STATEMENT OF COMPREHENSIVE INCOME**  
*For the period ended 30 June 2011*

	<i>Notes</i>	<b>2011 \$'000</b>	<b>2010 \$'000</b>
<b>EXPENSES</b>			
Employee benefits	3A	<b>1,002</b>	1,046
Supplier	3B	<b>999</b>	898
Grants	3C	<b>8,182</b>	7,764
Depreciation and amortisation	3D	<b>42</b>	69
Write-down and impairment of assets	3E	<b>1</b>	8
<b>Total expenses</b>		<b>10,226</b>	<b>9,785</b>
<i>LESS:</i>			
<b>OWN-SOURCE INCOME</b>			
<b>Own-source revenue</b>			
Industry contributions (sugar levies)		<b>3,823</b>	4,136
Interest	4A	<b>664</b>	457
Rental income	4B	<b>29</b>	14
Other	4C	<b>8</b>	20
<b>Total own-source revenue</b>		<b>4,524</b>	4,627
<b>Net cost of services</b>		<b>5,702</b>	5,158
Revenue from Government	4D	<b>5,867</b>	5,817
<b>Surplus attributable to the Australian Government</b>		<b>165</b>	659
<b>Total comprehensive income attributable to the Australian Government</b>		<b>165</b>	659

*The above statement should be read in conjunction with the accompanying notes.*

	<i>Notes</i>	<b>2011 \$'000</b>	<b>2010 \$'000</b>
<b>ASSETS</b>			
Financial Assets			
Cash and cash equivalents		9,153	9,990
Trade and other receivables	5B	2,543	1,428
Total financial assets		11,696	11,418
Non-Financial Assets			
Leasehold improvements	6A	48	81
Plant and equipment	6B, C	12	16
Other	6D	20	1
Total non-financial assets		80	98
Total assets		11,776	11,516
<b>LIABILITIES</b>			
Payables			
Suppliers	7A	(63)	(36)
Grants	7B	(47)	(18)
Other	7C	(33)	(33)
Total payables		(143)	(87)
Provisions			
Employee provisions	8A	(302)	(263)
Other	8B	(58)	(58)
Total provisions		(360)	(321)
Total liabilities		(503)	(408)
Net assets		11,273	11,108
<b>EQUITY</b>			
Retained surplus		11,273	11,108
<b>Total equity</b>		<b>11,273</b>	<b>11,108</b>

The above statement should be read in conjunction with the accompanying notes.

*Sugar Research and Development Corporation*

STATEMENT OF CHANGES IN EQUITY

for the period ended 30 June 2011

	Retained earnings		Asset revaluation reserve		Total equity	
	2011 \$'000	2010 \$'000	2011 \$'000	2010 \$'000	2011 \$'000	2010 \$'000
<b>Opening balance</b>						
Balance carried forward from previous period	11,108	10,447	-	2	11,108	10,449
Adjustment for errors	-	2	-	(2)	-	-
<b>Adjusted opening balance</b>	<b>11,108</b>	<b>10,449</b>	<b>-</b>	<b>-</b>	<b>11,108</b>	<b>10,449</b>
<b>Comprehensive income</b>						
Surplus for the period	165	659	-	-	165	659
<b>Total comprehensive income</b>	<b>165</b>	<b>659</b>	<b>-</b>	<b>-</b>	<b>165</b>	<b>659</b>
<b>Closing balance as at 30 June</b>	<b>11,273</b>	<b>11,108</b>	<b>-</b>	<b>-</b>	<b>11,273</b>	<b>11,108</b>

*The above statement should be read in conjunction with the accompanying notes.*

*Sugar Research and Development Corporation*  
**CASH FLOW STATEMENT**  
*for the period ended 30 June 2011*

<i>Notes</i>	<b>2011 \$'000</b>	<b>2010 \$'000</b>
<b>OPERATING ACTIVITIES</b>		
Cash received		
	<b>3,854</b>	4,146
	<b>4,798</b>	5,845
	<b>619</b>	410
	<b>649</b>	703
	<b>89</b>	77
	<b>10,009</b>	11,181
Cash used		
	<b>(811)</b>	(880)
	<b>(1,041)</b>	(996)
	<b>(8,987)</b>	(8,944)
	<b>(10,839)</b>	(10,820)
9	<b>(830)</b>	361
<b>INVESTING ACTIVITIES</b>		
Cash used		
	<b>(7)</b>	(4)
	<b>(7)</b>	(4)
	<b>(7)</b>	(4)
	<b>(837)</b>	357
	<b>9,990</b>	9,633
5A	<b>9,153</b>	9,990

*The above statement should be read in conjunction with the accompanying notes.*

*Sugar Research and Development Corporation*

**SCHEDULE OF COMMITMENTS**

as at 30 June 2011

	<b>2011</b>	<b>2010</b>
	<b>\$'000</b>	<b>\$'000</b>
<b>BY TYPE</b>		
Commitments receivable		
Net GST recoverable on commitments	1,900	2,027
Total commitments receivable	1,900	2,027
Commitments payable		
Other commitments		
Operating leases <sup>1</sup>	(261)	(475)
Research and development grants – PIERD	(20,648)	(21,830)
Total other commitments	(20,909)	(22,305)
Net commitments by type	(19,009)	(20,278)
<b>BY MATURITY</b>		
Commitments receivable		
Other commitments receivable		
One year or less	878	824
From one to five years	1,022	1,203
Total other commitments receivable	1,900	2,027
Commitments payable		
Operating lease commitments		
One year or less	(214)	(214)
From one to five years	(47)	(261)
Total operating lease commitments	(261)	(475)
Other Commitments		
One year or less	(9,447)	(8,858)
From one to five years	(11,201)	(12,972)
Total other commitments	(20,648)	(21,830)
Net commitments by maturity	(19,009)	(20,278)

*The above statement should be read in conjunction with the accompanying notes.*

Note: Commitments are GST inclusive where relevant.

<sup>1</sup> Operating leases included are effectively non-cancellable and comprise:

**Lease for office accommodation**

Lease payments are subject to an annual increase of 5%. The initial periods of office accommodation leases are still current.



*Sugar Research and Development Corporation*  
**SCHEDULE OF CONTINGENCIES**  
*as at 30 June 2011*

	<b>2011</b> <b>\$'000</b>	<b>2010</b> <b>\$'000</b>
<b>Contingent assets</b>		
<b>Total contingent assets</b>	–	–
<b>Contingent liabilities</b>	–	–
<b>Total contingent liabilities</b>	–	–
<b>Net contingent assets (liabilities)</b>	–	–

*The above statement should be read in conjunction with the accompanying notes.*

The Corporation did not have any contingent assets or contingent liabilities as at balance date.

During 2010–2011, Sugar Research and Development Corporation gave a financial guarantee over the lease of the head office premises at Level 16, 141 Queen Street, Brisbane. Details are provided in Note 15: Financial Instruments.

**SCHEDULE OF ASSET ADDITIONS**  
*as at 30 June 2011*

*The following non-financial non-current assets were added in 2010–2011:*

	<b>Leasehold improvements</b> <b>\$'000</b>	<b>Plant &amp; equipment</b> <b>\$'000</b>	<b>Total</b> <b>\$'000</b>
By purchase – other	–	6	6
<b>Total additions</b>	–	6	6

*The following non-financial non-current assets were added in 2009–2010:*

	<b>Leasehold improvements</b> <b>\$'000</b>	<b>Plant &amp; equipment</b> <b>\$'000</b>	<b>Total</b> <b>\$'000</b>
By purchase – other	57	4	61
<b>Total additions</b>	57	4	61

## **Note 1: Summary of Significant Accounting Policies**

### **1. Objectives of Sugar Research and Development Corporation**

The Corporation is an Australian Government controlled entity. The objective of Sugar Research and Development Corporation (the Corporation) is to foster an innovative and sustainable Australian sugar industry through targeted investment in research and development.

The Corporation's corporate outcomes expresses the overall goal of profitable and internationally competitive and sustainable Australian sugar industry providing economic, environmental and social benefits for rural and regional communities through targeted investment in research and development.

The continued existence of the Corporation in its present form and with its present programs is dependent on Government policy and on continuing funding by Parliament for the Corporation's administration and programs.

### **1.2 Basis of Preparation of the Financial Statements**

The financial statements and notes are required by clause 1(b) of Schedule 1 of the *Commonwealth Authorities and Companies Act 1997* and are general purpose financial statements.

The financial statements have been prepared in accordance with:

- a) Finance Minister's Orders (FMOs) for reporting periods ending on or after 1 July 2010; and
- b) Australian Accounting Standards and Interpretations issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

The financial statements have been prepared on an accrual basis and in accordance with the historical cost convention, except for certain assets and liabilities at fair value. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position.

The financial statements are presented in Australian dollars and values are rounded to the nearest thousand dollars unless otherwise specified.

Unless an alternative treatment is specifically required by an accounting standard or the FMOs, assets and liabilities are recognised in the balance sheet when and only when it is probable that future economic benefits will flow to the Corporation or a future sacrifice of economic benefits will be required and the amounts of the assets or liabilities can be reliably measured. However, assets and liabilities arising under executor contracts are not recognised unless required by an accounting standard. Liabilities and assets that are unrecognised are reported in the schedule of commitments or the schedule of contingencies.

Unless alternative treatment is specifically required by an accounting standard, income and expenses are recognised in the Statement of Comprehensive Income when and only when the flow, consumption or loss of economic benefits has occurred and can be reliably measured.

### **1.3 Significant Accounting Judgements and Estimates**

Estimates and judgments are continually evaluated and are based on historical experience and other factors, including expectations of future events that may have a financial impact on the Corporation and that are believed to be reasonable under the circumstances.

#### **Make good provision on office lease**

A condition of the lease over the office premises is that the space occupied by the Corporation will be returned to its original condition at the end of the lease period. The lease agreement specifies the conditions that must be met. The Corporation has engaged an independent third party to make an assessment of the costs which are likely to be incurred in this regard.

### **1.4 New Australian Accounting Standards**

#### **Adoption of New Australian Accounting Standard Requirements**

No accounting standard has been adopted earlier than the application date as stated in the standard.

Other new standards/revised standards/interpretations/amending standards that were issued prior to the signing of statement by the Director, Executive Director and Finance Manager and are applicable to the current reporting period did not have a financial impact, and are not expected to have a future financial impact on the Corporation.

AASB 7 Financial Instruments: Disclosures – June 2010 (Compilation)

AASB 118 Revenue – May 2009 (Compilation)

AASB 128 Investments in Associates – June 2010 (Compilation)

AASB 132 Financial Instruments: Presentation – June 2010 (Compilation)

AASB 139 Financial Instruments: Recognition and Measurement – December 2009 (Compilation)

#### **Future Australian Accounting Standard Requirements**

The following new standards/revised standards/interpretations/amending standards were issued by the Australian Accounting Standards Board prior to the signing of the statement by the Directors and Executive Director, which are expected to have a financial impact on the Corporation for future reporting periods:

AASB 9 Financial Instruments (December 2010) (applicable for annual reporting periods commencing on or after 1 January 2013).

This Standard is applicable retrospectively and includes revised requirements for the classification and measurement of financial instruments, as well as recognition and derecognition requirements for financial instruments. The Corporation has not yet determined any potential impact on the financial statements.

The key changes made to accounting requirements include:

- simplifying the classifications of financial assets into those carried at amortised cost and those carried at fair value;
- simplifying the requirements for embedded derivatives;
- removing the tainting rules associated with held-to-maturity assets;
- removing the requirements to separate and fair value embedded derivatives for financial assets carried at amortised cost;
- allowing an irrevocable election on initial recognition to present gains and losses on investments in equity instruments that are not held for trading in other comprehensive income. Dividends in respect of these investments that are a return on investment can be recognised in profit or loss and there is no impairment or recycling on disposal of the instrument;
- requiring financial assets to be reclassified where there is a change in an entity's business model as they are initially classified based on: (a) the objective of the entity's business model for managing the financial assets; and (b) the characteristics of the contractual cash flows; and
- requiring an entity that chooses to measure a financial liability at fair value to present the portion of the change in its fair value due to changes in the entity's own credit risk in other comprehensive income, except when that would create an accounting mismatch. If such a mismatch would be created or enlarged, the entity is required to present all changes in fair value (including the effects of changes in the credit risk of the liability) in profit or loss.

AASB 2010–7: Amendments to Australian Accounting Standards arising from AASB 9 (December 2010) [AASB 1, 3, 4, 5, 7, 101, 102, 108, 112, 118, 120, 121, 127, 128, 131, 132, 136, 137, 139, 1023 & 1038 and Interpretations 2, 5, 10, 12, 19 & 127] (applies to periods beginning on or after 1 January 2013).

This Standard makes amendments to a range of Australian Accounting Standards and Interpretations as a consequence of the issuance of AASB 9: Financial Instruments in December 2010. Accordingly, these amendments will only apply when the entity adopts AASB 9.

The Corporation has not yet determined any potential impact on the financial statements from adopting AASB 9.

Other new standards/revised standards/interpretations/amending standards that were issued prior to the signing of the statement by the Directors and Executive Director and are applicable to the future reporting period are not expected to have a future financial impact on the Corporation.

### **1.5 Revenue**

#### **Revenue from Government**

Revenue is predominantly derived from levies collected from the sugar industry with matching Commonwealth Contributions in accordance with the Primary Industries and Energy Research and Development Act 1989 (PIERD).

Funding received or receivable from the Department of Agriculture, Fisheries and Forestry (appropriated to the Corporation as a CAC Act body payment item for payment to the Corporation) is recognised as Revenue from Government unless they are in the nature of an equity injection or a loan.

PIERD Commonwealth Contributions revenue is recognised based on a percentage of monthly expenditure incurred by the Corporation, subject to a cap of 0.5% of the Gross Value of Production.

Amounts appropriated for Departmental outputs appropriations for the year (adjusted for any formal additions and reductions) are recognised as revenue when the Corporation gains control of the appropriation, except for certain amounts which relate to activities that are reciprocal in nature, in which case revenue is recognised only when it has been earned.

Appropriations receivable are recognised at their nominal amounts.

Interest revenue is recognised using the effective interest method as set out in the AASB139 *Financial Instruments: Recognition and Measurement*.

## **1.6 Gains**

### **Sale of Assets**

Gains from disposal of assets are recognised when control of the asset has passed to the buyer.

## **1.7 Transactions with the Government as Owner**

### **Equity Injections**

Amounts that are designated as equity injections for a year are recognised directly in contributed equity in that year.

## **1.8 Employee Benefits**

Liabilities for 'short-term employee benefits' (as defined in AASB 119 Employee Benefits) and termination benefits due within twelve months of the end of reporting period are measured at their nominal amounts.

The nominal amount is calculated with regard to the rates expected to be paid on settlement of the liability.

All other employee benefit liabilities are measured at the present value if the estimated future cash outflows to be made in respect of the services provided by the employees up to the reporting date.

### **Leave**

The liability for employee benefits includes provision for annual leave and long service leave. No provision has been made for sick leave as all sick leave is non-vesting and the average sick leave taken in future years by employees of the Corporation is estimated to be less than the annual entitlement for sick leave.

The leave liabilities are calculated on the basis of employees' remuneration at the estimated salary rates that will be applied at the time the leave is taken, including the Corporation's employer superannuation contribution rates to the extent that the leave is likely to be taken during service rather than paid out on termination.

The estimate of the present value of the liability takes into account attrition rates and pay increases through promotions and inflation.

## **Superannuation**

The Corporation's staff are members of the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS), the PSS accumulation plan (PSSap) or other retail superannuation funds.

The CSS and PSS are defined benefit schemes for the Australian Government. The PSSap is a defined contribution scheme.

The liability for defined benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course. This liability is reported by the Department of Finance and Deregulation as an administered item.

The Corporation makes employer contributions to the employees' superannuation scheme at rates determined by an actuary to be sufficient to meet the current cost to the Government of the superannuation entitlements of the Corporation's employees. The Corporation accounts for the contributions as if they were contributions to defined contribution plans.

The liability for superannuation recognised as at 30 June represents outstanding contributions for the final fortnight of the year.

### **1.9 Leases**

A distinction is made between finance leases and operating leases. Finance leases effectively transfer from the lessor to the lessee substantially all the risks and rewards incidental to ownership of leased assets. An operating lease is a lease that is not a finance lease. In operating leases, the lessor effectively retains substantially all such risks and benefits.

Operating lease payments are expensed on a straight-line basis which is representative of the pattern of benefits derived from the leased assets.

The Corporation has no finance leases.

### **1.10 Grants**

Most grant agreements require the grantee to perform services, provide facilities or meet eligibility criteria. In these cases, the Corporation recognises grant liabilities only to the extent that the services required have been performed or the eligible criteria have been satisfied by the grantee.

In cases where grant agreements are made without conditions to be monitored, liabilities are recognised on signing the agreement.

Grants expenses are recognised when a milestone is approved.

### **1.11 Cash**

Cash and cash equivalents includes cash on hand and any deposits in bank accounts with an original maturity of 3 months or less that are readily convertible to known amounts of cash subject to insignificant risk of change in value. Cash is recognised at its nominal amount.

### **1.12 Financial Assets**

The Corporation classifies its financial assets in the following categories:

- a) held-to-maturity investments; and
- b) loans and receivables.

The classification depends on the nature and purpose of the financial assets and is determined at the time of initial recognition. Financial assets are recognised and derecognised upon trade date.

#### **Effective Interest Method**

The effective interest method is a method of calculating the amortised cost of a financial asset and of allocating interest income over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset, or, where appropriate, a shorter period.

Income is recognised on an effective interest rate basis except for financial assets that are recognised at fair value through profit or loss.

#### **Held-to-Maturity Investments**

Non-derivative financial assets with fixed or determinable payments and fixed maturity dates that the group has the positive intent and ability to hold to maturity are classified as held-to-maturity investments. Held-to-maturity investments are recorded at amortised cost using the effective interest method less impairment, with revenue recognised on an effective yield basis.

#### **Loans and Receivables**

Trade receivables, loans and other receivables that have fixed or determinable payments that are not quoted in an active market are classified as 'loans and receivables'. Loans and receivables are measured at amortised cost using the effective interest method less impairment. Interest is recognised by applying the effective interest rate.

Financial assets held at amortised cost – if there is objective evidence that an impairment loss has been incurred for loans and receivables or held to maturity investments held at amortised cost, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate. The carrying amount is reduced by way of an allowance account. The loss is recognised in the Statement of Comprehensive Income.

### **1.13 Investments in Associates**

The Corporations's investment in its associates is accounted for using the equity method.

Under the equity method, investments in the associates are carried in the entity's balance sheet at cost as adjusted for post-acquisition changes in the entity's share of net assets of the associates. Goodwill relating to an associate is included in the carrying amount of the investment. After the application of the equity method, the entity determines whether it is necessary to recognise any impairment loss with respect to the net investment in associates.

### *1.14 Financial Liabilities*

Financial liabilities are classified as either financial liabilities 'at fair value through profit or loss' or other financial liabilities. Financial liabilities are recognised and derecognised upon 'trade date'. Supplier and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced)

### *1.15 Contingent Liabilities and Contingent Assets*

Contingent liabilities and contingent assets are not recognised in the balance sheet but are reported in the relevant schedules and notes. They may arise from uncertainty as to the existence of a liability or asset or represent an asset or liability in respect of which the amount cannot be reliably measured. Contingent assets are disclosed when settlement is probable but not virtually certain and contingent liabilities are disclosed when settlement is greater than remote.

### *1.16 Acquisition of Assets*

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken. Financial assets are initially measured at their fair value plus transaction costs where appropriate.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and income at their fair value at the date of acquisition, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor's accounts immediately prior to the restructuring.

### *1.17 Leasehold Improvements, Plant and Equipment*

#### **Asset Recognition Threshold**

Purchases of leasehold improvements, plant and equipment are recognised initially at cost in the balance sheet, except for purchases costing less than \$2,000, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total).

Assets which have a net book value of less than \$2,000 at year end are removed from the asset register and expensed.

The initial cost of an asset includes an estimate of the cost of dismantling and removing the item and restoring the site on which it is located. This is particularly relevant to 'make good' provisions for the office lease taken up by the Corporation where there exists an obligation to return to original condition. These costs are included in the value of the Corporation's leasehold improvement with a corresponding provision for the 'make good' recognised.



## Revaluations

Fair values for each class of asset are determined as shown below:

Asset Class	Fair value measured at
Leasehold improvements	Depreciated replacement cost
Plant and equipment	Market selling price

Following initial recognition at cost, leasehold improvements, plant and equipment were carried at fair value less subsequent accumulated depreciation and accumulated impairment losses. Valuations were conducted with sufficient frequency to ensure that the carrying amounts of assets did not differ materially from the assets' fair values as at the reporting date. The regularity of independent valuations depended upon the volatility of movements in market values for the relevant assets.

Revaluation adjustments were made on a class basis. Any revaluation increment was credited to equity under the heading of asset revaluation reserve except to the extent that it reversed a previous revaluation decrement of the same asset class that was previously recognised in the surplus/deficit. Revaluation decrements for a class of assets were recognised directly in the surplus/deficit except to the extent that they reversed a previous revaluation increment for that class.

Any accumulated depreciation as at the revaluation date is eliminated against the gross carrying amount of the asset and the asset restated at the revalued amount.

## Depreciation

Depreciable leasehold improvements, plant and equipment assets are written-off to their estimated residual values over their estimated useful lives to the Corporation using, in all cases, the straight-line method of depreciation.

Depreciation rates (useful lives), residual values and methods are reviewed at each reporting date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate.

Depreciation rates applying to each class of depreciable asset are based on the following useful lives:

	2011	2010
Plant and equipment	3 years – 13 1/3 years	3 years – 13 1/3 years
Leasehold improvements	Lease term	Lease term

### **Impairment**

All assets were assessed for impairment at 30 June 2011. Where indications of impairment exist, the asset's recoverable amount is estimated and an impairment adjustment made if the asset's recoverable amount is less than its carrying amount.

The recoverable amount of an asset is the higher of its fair value less costs to sell and its value in use. Value in use is the present value of the future cash flows expected to be derived from the asset. Where the future economic benefit of an asset is not primarily dependent on the asset's ability to generate future cash flows, and the asset would be replaced if the Corporation were deprived of the asset, its value in use is taken to be its depreciated replacement cost.

### **1.18 Taxation**

The Corporation is exempt from all forms of taxation except Fringe Benefits Tax (FBT) and the Goods and Services Tax (GST).

Revenues, expenses and assets are recognised net of GST except:

- a) where the amount of GST incurred is not recoverable from the Australian Taxation Office; and
- b) for receivables and payables.

### **Note 2: Events after the Reporting Period**

No events have occurred after balance date that affect the Corporation's 2010–2011 financial statements.

	2011 \$'000	2010 \$'000
<b>Note 3: Expenses</b>		
<i>Note 3A: Employee Benefits</i>		
Wages and salaries	668	622
Superannuation:		
Defined contribution plans	46	48
Defined benefit plans	53	44
Leave and other entitlements	40	109
Other employment expenses	195	223
<b>Total employee benefits</b>	<b>1,002</b>	<b>1,046</b>

*Note 3B: Suppliers*

<b>Goods and services</b>		
Consultants and contractors	204	178
Other	576	503
<b>Total goods and services</b>	<b>780</b>	<b>681</b>
<b>Goods and services are made up of:</b>		
Provision of goods – external parties	133	178
Rendering of services – external parties	647	503
<b>Total goods and services</b>	<b>780</b>	<b>681</b>
Other supplier expenses		
Operating lease rentals – external parties:		
Minimum lease payments	219	217
<b>Total other supplier expenses</b>	<b>219</b>	<b>217</b>
<b>Total supplier expenses</b>	<b>999</b>	<b>898</b>

*Note 3C: Grants*

Private sector:		
Research and development grants – PIERD	8,182	7,764
<b>Total grants</b>	<b>8,182</b>	<b>7,764</b>

*Sugar Research and Development Corporation*  
**NOTES OF THE FINANCIAL STATEMENTS**

	<b>2011</b>	<b>2010</b>
	<b>\$'000</b>	<b>\$'000</b>

**Note 3D: Depreciation and Amortisation**

Depreciation:

Plant and equipment	<b>10</b>	16
Leasehold improvements	<b>32</b>	53
<b>Total depreciation and amortisation</b>	<b>42</b>	69

**Note 3E: Write-Down and Impairment of Assets**

Asset write-downs and impairments from:

Write-down of plant and equipment	<b>1</b>	8
<b>Total write-down and impairment of assets</b>	<b>1</b>	8

*Sugar Research and Development Corporation*  
NOTES OF THE FINANCIAL STATEMENTS

	<b>2011</b>	<b>2010</b>
	<b>\$'000</b>	<b>\$'000</b>

**Note 4: Income**

**OWN-SOURCE REVENUE**

*Note 4A: Interest*

Cash at bank	73	149
Deposits	591	308
<b>Total interest</b>	<b>664</b>	<b>457</b>

*Note 4B: Rental Income*

Rental income from sublease	29	14
<b>Total rental income</b>	<b>29</b>	<b>14</b>

*Note 4C: Other Revenue*

Royalties	8	20
<b>Total other revenue</b>	<b>8</b>	<b>20</b>

**REVENUE FROM GOVERNMENT**

*Note 4D: Revenue from Government*

Commonwealth contribution – PIERD Act	5,867	5,817
<b>Total revenue from Government</b>	<b>5,867</b>	<b>5,817</b>

*Sugar Research and Development Corporation*  
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	<b>2011</b>	<b>2010</b>
	<b>\$'000</b>	<b>\$'000</b>

**Note 5: Financial Assets**

*Note 5A: Cash and Cash Equivalents*

Cash on hand or on deposit	9,153	9,990
<b>Total cash and cash equivalents</b>	<b>9,153</b>	<b>9,990</b>

*Note 5B: Trade and Other Receivables*

**Good and Services:**

Goods and services – external parties	7	48
<b>Total receivables for goods and services</b>	<b>7</b>	<b>48</b>

**Department of Agriculture, Fisheries and Forestry:**

Commonwealth contribution receivable	2,128	1,059
Levies receivable	27	58
<b>Total receivable from Department of Agriculture, Fisheries and Forestry</b>	<b>2,155</b>	<b>1,117</b>

**Other receivables:**

GST receivable from the Australian Taxation Office	254	181
Interest	127	82
<b>Total other receivables</b>	<b>381</b>	<b>263</b>
<b>Total trade and other receivables (gross)</b>	<b>2,543</b>	<b>1,428</b>

**Receivables are expected to be recovered in:**

No more than 12 months	2,543	1,428
<b>Total trade and other receivables (net)</b>	<b>2,543</b>	<b>1,428</b>

**Receivables are aged as follows:**

Not overdue	2,543	1,428
<b>Total receivables (gross)</b>	<b>2,543</b>	<b>1,428</b>

*Sugar Research and Development Corporation*  
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	2011 \$'000	2010 \$'000
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**Note 5C: Investments Accounted for Using the Equity Method**

<b>Investments in associates:</b>		
Sacron Innovations Pty Ltd	-	-
<b>Total equity accounted investments</b>	<b>-</b>	<b>-</b>

Sacron Innovations Pty Ltd was incorporated to take up the residual assets from CRCSIIB which was wound up on 30 June 2010. The Corporation's share of the company is 33.07%.

The fair value of the Corporation's investment in Sacron Innovations Pty Ltd as at 30 June 2011 has been valued at \$nil, as it is unlikely that the Corporation would receive any funds upon the winding up of the company.

**Note 6: Non-Financial Assets**

**Note 6A: Leasehold Improvements**

<b>Leasehold improvements:</b>		
Fair value	158	162
Accumulated depreciation	(110)	(81)
<b>Total leasehold improvements</b>	<b>48</b>	<b>81</b>

**Note 6B: Plant and Equipment**

<b>Other plant and equipment:</b>		
Fair value	34	28
Accumulated depreciation	(22)	(12)
<b>Total other property, plant and equipment</b>	<b>12</b>	<b>16</b>
<b>Total property, plant and equipment</b>	<b>60</b>	<b>97</b>

All revaluations are conducted in accordance with the revaluation policy stated in Note 1.

No indicators of impairment were found for leasehold improvements, plant and equipment.

*Sugar Research and Development Corporation*  
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	Leasehold improvements \$'000	Plant & equipment \$'000	Total \$'000
--	-------------------------------------	--------------------------------	-----------------

*Note 6C: Reconciliation of the Opening and Closing Balances of Leasehold Improvements, Plant and Equipment (2010–2011)*

**As at 1 July 2010**

Gross book value	162	28	190
Accumulated depreciation and impairment	(81)	(12)	(93)
<b>Net book value 1 July 2010</b>	<b>81</b>	<b>16</b>	<b>97</b>
Additions	–	6	6
Depreciation expense	(32)	(10)	(42)
Disposals:			
Other	(1)	–	(1)
<b>Net book value 30 June 2011</b>	<b>48</b>	<b>12</b>	<b>60</b>

**Net book value as of 30 June 2011  
represented by:**

Gross book value	158	34	192
Accumulated depreciation and impairment	(110)	(22)	(132)
	48	12	60

**As at 1 July 2009**

Gross book value	105	72	177
Accumulated depreciation and impairment	(28)	(17)	(45)
<b>Net book value 1 July 2009</b>	<b>77</b>	<b>55</b>	<b>132</b>
Additions	57	4	61
Depreciation expense	(53)	(16)	(69)
Disposals:			
Other	–	(27)	(27)
<b>Net book value 30 June 2010</b>	<b>81</b>	<b>16</b>	<b>97</b>

**Net book value as of 30 June 2010  
represented by:**

Gross book value	162	28	190
Accumulated depreciation and impairment	(81)	(12)	(93)
	81	16	97



*Sugar Research and Development Corporation*  
NOTES OF THE FINANCIAL STATEMENTS

	Leasehold improvements \$'000	Plant & equipment \$'000	Total \$'000
<b>Note 6D: Other Non-Financial Assets</b>			
Prepayments	20	1	–
Total other non-financial assets	20	1	–
<b>Total other non-financial assets – are expected to be recovered in:</b>			
No more than 12 months	20	1	–
<b>Total other non-financial assets</b>	20	1	–

No indicators of impairment were found for other non-financial assets.

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	<b>2011</b>	<b>2010</b>
	<b>\$'000</b>	<b>\$'000</b>

**Note 7 Payables**

*Note 7A: Suppliers*

Trade creditors and accruals	(63)	(36)
<b>Total supplier payables</b>	<b>(63)</b>	<b>(36)</b>

Supplier payables expected to be settled within 12 months:

External parties	(63)	(36)
<b>Total supplier payables</b>	<b>(63)</b>	<b>(36)</b>

Settlement was usually made within 30 days.

*Note 7B: Grants*

Private sector:

Other	(47)	(18)
<b>Total grants</b>	<b>(47)</b>	<b>(18)</b>

Total grants are expected to be settled in:

No more than 12 months	(47)	(18)
<b>Total grants</b>	<b>(47)</b>	<b>(18)</b>

Settlement was usually made according to the terms and conditions of each grant. This was usually within 30 days of performance or eligibility.

*Note 7C: Other Payables*

Salaries and wages	(17)	(12)
Superannuation	(2)	(2)
Other	(14)	(19)
<b>Total other payables</b>	<b>(33)</b>	<b>(33)</b>

Total other payables are expected to be settled in:

No more than 12 months	(33)	(33)
<b>Total other payables</b>	<b>(33)</b>	<b>(33)</b>

	<b>2011</b>	<b>2010</b>
	<b>\$'000</b>	<b>\$'000</b>

**Note 8: Employee Provisions**

Leave	(302)	(263)
<b>Total employee provisions</b>	<b>(302)</b>	<b>(263)</b>
Employee provisions are expected to be settled in:		
No more than 12 months	(42)	(28)
More than 12 months	(260)	(235)
<b>Total employee provisions</b>	<b>(302)</b>	<b>(263)</b>

**Note 8B: Other Provisions**

Make good provision	(58)	(58)
<b>Total other provisions</b>	<b>(58)</b>	<b>(58)</b>
Other provisions are expected to be settled in:		
More than 12 months	(58)	(58)
<b>Total other provisions</b>	<b>(58)</b>	<b>(58)</b>

**Note 9: Cash flow reconciliation**

**Reconciliation of cash and cash equivalents as per Balance Sheet to Cash Flow Statement**

	<b>2011</b>	<b>2010</b>
	<b>\$'000</b>	<b>\$'000</b>
Cash and cash equivalents as per:		
Cash flow statement	9,153	9,990
Balance sheet	9,153	9,990
Difference	-	-
Reconciliation of net cost of services to net cash from operating activities:		
Net cost of services	(5,702)	(5,158)
Add revenue from Government	5,867	5,817
Adjustments for non-cash items		
Depreciation / amortisation	42	69
Loss on disposal of assets	1	8
Changes in assets / liabilities		
(Increase) / decrease in net receivables	(1,115)	(120)
(Increase) / decrease in prepayments	(19)	23
Increase / (decrease) in employee provisions	40	153
Increase / (decrease) in supplier payables	27	(2)
Increase / (decrease) in other payables	-	(16)
Increase / (decrease) in other provisions	-	58
Increase / (decrease) in grants payable	29	(471)
Net cash from (used by) operating activities	<b>(830)</b>	<b>361</b>

## Note 10: Contingent Liabilities and Assets

	Guarantees 2011 \$'000	Guarantees 2010 \$'000	Total 2011 \$'000	Total 2010 \$'000
<b>Contingent liabilities</b>				
Balance from previous period	–	–	–	–
<b>Total contingent liabilities</b>	–	–	–	–
<b>Net contingent assets (liabilities)</b>	–	–	–	–

### Quantifiable Contingencies

At 30 June 2011, the Corporation had no quantifiable contingencies.

### Unquantifiable Contingencies

At 30 June 2011, the Corporation had no unquantifiable contingencies.

### Significant Remote Contingencies

The Corporation has no significant remote contingencies.

## Note 11: Directors Remuneration

The number of non-executive directors of the Corporation included in these figures are shown below in the relevant remuneration bands:

	2011 No.	2010 No.
less than \$30,000	14	6
\$30,000 to \$60,000		2
<b>Total<sup>(2)</sup></b>	<b>14</b>	<b>8</b>
Total remuneration received or due and receivable by directors of the Corporation	<b>162,705</b>	223,551

### Notes:

- Part-time non executive directors and the Chairman of the Corporation received fees and allowances as determined by the Remuneration Tribunal. Remuneration includes salary, allowances and superannuation.
- In 2009–2010, eight non-executive directors were employed by the Corporation and completed their term on 30 April 2011. On 27 May 2011, seven non-executive directors were employed by the Corporation for a three year term including one who was reappointed.
- The Executive Director is the only full-time director of the Corporation and receives a salary and allowances as approved by the Board. This is disclosed in Note 13 in 2010–2011. In 2009–2010, two officers held positions as Acting Executive Director and as a Part Year Executive Director. This has not been disclosed in either Note 11 or 13. The remuneration was less than \$150,000 for each individual Director. The combined remuneration for these directors was \$212,477 for the Financial Year 2009–2010.

**Note 12: Related Party Disclosures**

There were no transactions, grants or relationships to directors of any related parties (2009–2010: Nil).

**Note 13: Executive Remuneration**

*Note 13A: Senior Executive Remuneration Expense for the Reporting Period*

	2011 \$	2010 <sup>(2)</sup> \$
<b>Short-term employee benefits:</b>		
Salary	175,000	–
Annual leave accrued	(3,869)	–
<b>Total short-term employee benefits</b>	<b>171,131</b>	<b>–</b>
<b>Post-employment benefits:</b>		
Superannuation	33,569	–
<b>Total post-employment benefits</b>	<b>33,569</b>	<b>–</b>
<b>Other long-term benefits:</b>		
Long-service leave	3,310	–
<b>Total other long-term benefits</b>	<b>3,310</b>	<b>–</b>
<b>Total</b>	<b>208,010</b>	<b>–</b>

Notes:

- Note 13A was prepared on an accrual basis.
- Note 13A excludes acting arrangements and part-year service where remuneration expensed for a senior executive was less than \$150,000. In 2009–2010, two officers held positions as Acting Executive Director and as a Part Year Executive Director. These have not been disclosed in either Note 11 or 13. This is because the Directors were in an Acting Role and on a Part Year basis and the remuneration was less than \$150,000 for each individual Director. The combined remuneration for these directors was \$212,477 for the Financial Year 2009–2010.
- The remuneration package for the Executive Director does not include provision for performance bonuses or increments.

**Note 13B: Average Annual Remuneration Packages and Bonus Paid for Substantive Senior Executives as at the end of the Reporting Period**

as at 30 June 2011

Fixed elements					
Fixed Elements and Bonus Paid <sup>1</sup>	Senior Executives No.	Salary \$	Allowances \$	Total \$	Bonus paid <sup>2</sup> \$
<b>Total remuneration</b> (including part-time arrangements):					
\$150,000 to \$179,999	1	175,000	–	175,000	–
<b>Total</b>	<b>1</b>				

as at 30 June 2010

Fixed elements					
Fixed Elements and Bonus Paid <sup>1</sup>	Senior Executives No.	Salary \$	Allowances \$	Total \$	Bonus paid <sup>2</sup> \$
<b>Total remuneration</b> (including part-time arrangements):					
\$150,000 to \$179,999	1	175,000	–	175,000	–
<b>Total</b>	<b>1</b>				

Notes:

- This table reports substantive senior executives who were employed by the entity at the end of the reporting period. Fixed elements were based on the employment agreement of each individual. Each row represents an average annualised figure (based on headcount) for the individuals in that remuneration package band (i.e. the 'Total' column).
- The remuneration package for the Executive Director does not include provision for performance bonuses or increments.

**Variable Elements:**

The following variable elements were available as part of senior executives' remuneration package:

- The Executive Director is entitled to the following leave entitlements:
  - Annual Leave (AL): entitled to 20 days (2010: 20 days) each full year worked;
  - Personal Leave (PL): entitled to 15 days (2010: 15 days); and
  - Long Service Leave (LSL): in accordance with *Long Service Leave (Commonwealth Employees) Act 1976*.
- The following contributions for the Executive Director were made to the following superannuation fund:
  - During 2010–2011 the Corporation made employer contributions to the Commonwealth Superannuation Scheme (CSS) as per the defined benefits identified by Comsuper. More information on CSS can be found at <http://www.css.gov.au>

*Sugar Research and Development Corporation*  
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*Note 13C: Other Highly Paid Staff*

During the reporting period, there were no other employees whose salary plus performance bonus were \$150,000 or more.

**Note 14: Remuneration of Auditors**

	<b>2011</b>	<b>2010</b>
	<b>\$'000</b>	<b>\$'000</b>
Fair value of the services provided:		
Audit of the financial statements	<b>15</b>	15
<b>Total</b>	<b>15</b>	15

No other services were provided by the auditors of the financial statements.



	2011 \$'000	2010 \$'000
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## Note 15: Financial Instruments

### Note 15A: Categories of Financial Instruments

#### Financial Assets

Loans and receivables:		
Cash at bank or on deposit	9,153	9,990
Receivables for goods and services	7	48
Interest receivable	127	82
<b>Total</b>	<b>9,287</b>	10,120
<b>Carrying amount of financial assets</b>	<b>9,287</b>	10,120

#### Financial Liabilities

At amortised cost:		
Trade creditors	(63)	(36)
Grants payable	(47)	(18)
Provision for guarantees	(18)	(18)
<b>Total</b>	<b>(128)</b>	(72)
<b>Carrying amount of financial liabilities</b>	<b>(128)</b>	(72)

### Note 15B: Net Income and Expense from Financial Assets

#### Loans and receivables

Interest revenue	664	457
Net gain/(loss) from loans and receivables	664	457
Net gain/(loss) from financial assets	664	457

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*Note 15C: Fair Value of Financial Instruments*

	Carrying amount 2011 \$'000	Fair value 2011 \$'000	Carrying amount 2010 \$'000	Fair value 2010 \$'000
<b>Financial Assets</b>				
Cash	9,153	9,153	9,990	9,990
Interest receivable	127	127	82	82
Other receivables	7	7	48	48
<b>Total</b>	<b>9,287</b>	<b>9,287</b>	10,120	10,120
<b>Financial Liabilities</b>				
Trade creditors	(63)	(63)	(36)	(36)
Grants payable	(47)	(47)	(18)	(18)
<b>Total</b>	<b>(110)</b>	<b>(110)</b>	(54)	(54)

*Note 15D: Credit Risk*

The Corporation is exposed to minimal credit risk as the majority of loans and receivables are cash and appropriations made under law (which guarantees fixed amounts of funding that the Corporation can draw down on as required) or owed by the Australian Taxations Office in the form of a Goods and Services Tax Refund. The maximum exposure to credit risk is the risk that arises from the potential default of a debtor. This amount is equal to the total amount of trade receivables (2011: \$7,288 and 2010: \$47,553). The Corporation has assessed that there is no risk of default and has not recognised an impairment allowance account.

The Corporation manages its credit risk by undertaking background checks and general probity reviews as part of its project analysis process prior to allowing a debtor relationship.

The Corporation holds no collateral to mitigate against credit risk.

**Credit quality of financial instruments not past due or individually determined as impaired**

	Not past due nor impaired 2011 \$'000	Not past due nor impaired 2010 \$'000	Past due or impaired 2011 \$'000	Past due or impaired 2010 \$'000
Cash at bank or on deposit	9,153	9,990	–	–
Interest receivable	127	82	–	–
Other receivables	7	48	–	–
<b>Total</b>	<b>9,287</b>	10,120	–	–

There are no financial assets that are past due or impairment for 2010 or 2011.

**Note 15E Liquidity Risk**

The Corporation's financial liabilities are payables for goods and services. The exposure to liquidity risk is based on the notion that the Corporation will encounter difficulty in meeting its obligations associated with financial liabilities. This is highly unlikely due to appropriation funding and mechanisms available to the Corporation and internal policies and procedures put in place to ensure there are appropriate resources to meet its financial obligations.

The Corporation is appropriated funding from the Australian Government. The Corporation manages its budgeted funds to ensure it has adequate funds to meet payments as they fall due. In addition, the Corporation has policies in place to ensure timely payments are made when due and has no past experience of default.

**Maturities for non-derivative financial liabilities 2011**

	On demand \$'000	Within 1 year \$'000	1 to 2 years \$'000	2 to 5 years \$'000
Trade creditors	–	(63)	–	–
Grants payable		(46)	–	–
<b>Total</b>	–	(109)	–	–

**Maturities for non-derivative financial liabilities 2010**

Trade creditors	–	(36)	–	–
Grants payable		(18)	–	–
<b>Total</b>	–	(54)	–	–

The entity has no derivative financial liabilities in either the current and prior year.

**Note 15F Market Risk**

The Corporation holds basic financial instruments that do not expose the Corporation to certain market risks. The Corporation is not exposed to 'currency risk' or 'other price risks'.

The Corporation only exposure to interest rate risk is through credit cards. This risk is minimised by ensuring that the balance owing is paid monthly by the due date.

**Note 16: Reporting of Outcomes**

The Corporation’s mission is ‘to foster an innovative and sustainable Australian sugar industry through targeted investment in research and development’.

The Corporation is structured to meet one outcome; ‘A profitable and internationally competitive and sustainable Australian sugarcane industry providing economic, environmental and social benefits for rural and regional communities through targeted investments in research and development’.

Three Output Groups have been identified as contributing to the one corporate outcome.

- 1.1 Implementation of innovative farming, harvesting, transport, milling and marketing systems tailored to the needs of opportunities of each region (Regional Futures).
- 1.2 Rapid translation of relevant emerging technologies that will enhance the industry’s competitive edge in the global marketplace (Emerging Technologies).
- 1.3 Development of individuals and networks across the sugarcane industry that enhance the capacity for continuous improvement (People Development).

**Note 16A: Net Cost of Outcome Delivery**

	<b>Outcome 1 2011 \$'000</b>	<b>Outcome 1 2010 \$'000</b>	<b>Total 2011 \$'000</b>	<b>Total 2010 \$'000</b>
<b>Expenses:</b>	<b>(10,226)</b>	<b>(9,785)</b>	<b>(10,226)</b>	<b>(9,785)</b>
Income from non-government sector				
Industry Contributions (sugar levies)	<b>3,823</b>	4,136	<b>3,823</b>	4,136
Interest	<b>664</b>	457	<b>664</b>	457
Other	<b>37</b>	34	<b>37</b>	34
<b>Total</b>	<b>4,524</b>	4,627	<b>4,524</b>	4,627
<b>Net cost of outcome delivery</b>	<b>(5,702)</b>	<b>(5,158)</b>	<b>(5,702)</b>	<b>(5,158)</b>

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	Outcome 1 2011 \$'000	Outcome 1 2010 \$'000	Total 2011 \$'000	Total 2010 \$'000
<b>Expenses:</b>				
Employees	(1,002)	(1,046)	(1,002)	(1,046)
Suppliers	(999)	(898)	(999)	(898)
Grants	(8,182)	(7,764)	(8,182)	(7,764)
Depreciation	(42)	(69)	(42)	(69)
Write-Down and Impairment of Assets	(1)	(8)	(1)	(8)
<b>Total</b>	<b>(10,226)</b>	<b>(9,785)</b>	<b>(10,226)</b>	<b>(9,785)</b>
<b>Income:</b>				
Income from Government	5,867	5,817	5,867	5,817
Interest	664	457	664	457
Industry Contributions (sugar levies)	3,823	4,136	3,823	4,136
Other	37	34	37	34
<b>Total</b>	<b>10,391</b>	<b>10,444</b>	<b>10,391</b>	<b>10,444</b>
<b>Assets:</b>				
Cash and cash equivalents	9,153	9,990	9,153	9,990
Trade and other receivables	2,543	1,428	2,543	1,428
Land and buildings	48	81	48	81
Property, plant and equipment	12	16	12	16
Other	20	1	20	1
<b>Total</b>	<b>11,776</b>	<b>11,516</b>	<b>11,776</b>	<b>11,516</b>
<b>Liabilities:</b>				
Suppliers	(63)	(36)	(63)	(36)
Grant	(47)	(18)	(47)	(18)
Other	(91)	(91)	(91)	(91)
Employee provisions	(302)	(263)	(302)	(263)
<b>Total</b>	<b>(503)</b>	<b>(408)</b>	<b>(503)</b>	<b>(408)</b>

## Section 6

### Appendices

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*Dr Karen Aitkin and Jingchuan Li from the CSIRO Sugarcane Genome Team received a Highly Commended Award as part of SRDC's 2011 Innovation Awards. (Photo courtesy of CSIRO)*



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## Appendix A

### Composition of National Research Priorities attributed to each Program 2010–2011 (\$'000)

National Research Priorities (NRP)	An Environmentally Sustainable Australia					Promoting and Maintaining Good Health		Frontier Technologies for Building and Transforming Australian Industries					Safeguarding Australia	Total
	A1	A2	A3	A5	A7	B3	B4	C1	C2	C3	C4	C5		
Regional Futures	314	345	333	8	372	39	1452	393	306		261	689	639	5151
Emerging Technologies	217	90			543		284		393		367	165		2059
People Development	9	8	18		80		160		40	5	11	635	5	971
<b>Total</b>	<b>540</b>	<b>443</b>	<b>351</b>	<b>8</b>	<b>995</b>	<b>39</b>	<b>1896</b>	<b>393</b>	<b>739</b>	<b>5</b>	<b>639</b>	<b>1489</b>	<b>644</b>	<b>8181</b>

#### Key to NRP Goals in which SRDC has R&D investments

##### *An Environmentally Sustainable Australia*

- A1: Water – a critical resource
- A2: Transforming existing industries
- A3: Overcoming soil loss, salinity and acidity
- A5: Sustainable use of Australia’s biodiversity
- A7: Responding to climate change and variability

##### *Promoting and Maintaining Good Health*

- B3: Preventive healthcare
- B4: Strengthening Australia’s social and economic fabric

##### *Frontier Technologies for Building and Transforming Australian Industries*

- C1: Breakthrough science
- C2: Frontier technologies
- C3: Advanced materials
- C4: Smart information use
- C5: Promoting an innovation culture and economy

##### *Safeguarding Australia*

- D3: Protecting Australia from invasive diseases and pests



## Appendix B1

*Composition of Rural Research and Development Priorities attributed to each Program 2010–2011 (\$'000)*

Arena	Productivity and Adding Value	Supply Chain and Markets	Natural Resource Management	Climate Variability & Climate Change	Biosecurity	Innovation skills	Technology	Total (\$'000 Value)
Regional Futures	1656	223	1299	347	680	462	486	5149
Emerging Technologies	605	45	205	548		256	417	2076
People Development	61	40	24	81	5	707	38	956
<b>Total</b>	<b>2322</b>	<b>308</b>	<b>1528</b>	<b>976</b>	<b>685</b>	<b>1425</b>	<b>937</b>	<b>8181</b>

*Please note: Data included in this table has been rounded to the closest whole number.*

## Appendix B2

*Composition of Rural Research and Development Priorities attributed to each Program 2010–2011 (%)*

Arena	Productivity and Adding Value	Supply Chain and Markets	Natural Resource Management	Climate Variability & Climate Change	Biosecurity	Innovation skills	Technology	Total (% Value)
Regional Futures	20	3	16	4	8	6	6	63
Emerging Technologies	7	1	3	7	0	3	5	25
People Development	1	0	0	1	0	9	0	11
<b>Total</b>	<b>28</b>	<b>4</b>	<b>18</b>	<b>12</b>	<b>8</b>	<b>18</b>	<b>12</b>	<b>100%</b>

*Please note: Data included in this table has been rounded to the closest whole number.*

## Appendix C

### All Active Projects 2010–2011

Arena: Regional Futures				
Priority strategy: Value Chain Integration				
Project No	Title	Period	Research Contact	Organisation
CPI020	Sugarcane compositional analysis to enable food safety assessment of modified varieties.	Jul 10 – May 13	Anne Rae	CPI
CVA003	Managing Climate Variability Program Phase 2.	Jul 07 – Sep 13	Diana Saunders	University of Melbourne
GTG002	Implementation of the communication plan for the Sugarcane Gene Technology Group.	Jul 07 – Aug 12	Warren Males	ASMC
JCU032	How will climate change impact climate variability in sugarcane growing regions?	Jul 09 – Oct 12	Yvette Everingham	JCU
NSC019	Improving the harvesting and transport of biomass for sugar and power production in NSW.	Jul 09 – Aug 12	Rick Beattie	NSWSMC
OHS003	Farming and Fishing Health and Safety Collaborative Partnership Phase 3.	Mar 08 – May 12	Bianca Cairns	Coordinated by RIRDC
QUT027	Opportunities for the Australian sugar industry in greenhouse gas abatement and carbon trading.	Dec 09 – Mar 12	Phil Hobson	QUT
UQ045	Streamlined life cycle assessment tool.	Jul 11 – Apr 12	Marguerite Renouf	UQ

Arena: Regional Futures				
Priority Strategy: Farming and Harvesting Systems				
Project No	Title	Period	Research Contact	Organisation
BPS001	Identifying management zones within cane paddocks: an essential foundation for precision sugarcane agriculture.	Jul 07– Aug 11	Ross Coventry	BPS
BSS296	Evaluation of genotypes for a controlled traffic farming system.	Jul 06 – Dec 11	Barry Salter	BSES Limited
BSS318	Measurement of in-field sucrose loss by mobile refractometry.	Jul 08 – May 12	Cam Whiteing	BSES Limited
BSS329	Understanding water quality in sugarcane farming systems.	Feb 10 – Aug 12	Toni Anderson	BSES Limited
BSS331	Preparing the Australian sugar industry for threats from exotic pests and diseases.	Jul 09 – Dec 12	Robert Magarey	BSES Limited
CSE022	A collaborative approach to Precision Agriculture RD&E for the Australian sugar industry.	Jul 08 – Sep 14	Rob Bramley	CSE
DPI020	Management solutions to optimise performance of new farming systems in southern cane lands.	Jul 08 – Oct 12	Mike Bell	DEEDI
DPI021	Remote sensing-based precision agriculture tools for the sugar industry.	Jul 09 – Aug 12	Andrew Robson	DEEDI
DPI022	Cropping solutions for the sugarcane farming systems of the Burdekin.	Jul 10 – May 14	Mike Bell	DEEDI
GGP037	New innovative double row chopper system.	Jul 07 – Feb 12	Chris Cannavan	Group 2 Harvesting Innovations
GGP039	Precision spot spraying system: it works in grains will it work in cane?	Jul 07 – Apr 12	Joe Linton	ABCR

**Arena: Regional Futures**

*Priority Strategy: Farming and Harvesting Systems*

Project No	Title	Period	Research Contact	Organisation
GGP042	Winter soybean for biodiesel and nitrogen fixation.	Jan 09 – Mar 12	David Singh	Innisfail District Winter Soybean Nitrogen Fixation Group
GGP044	Enhancing nutrient placement: Sub surface application of cane specific compost.	Jan 09 – Sep11	Barbara Walker	Advanced Nutrient Solutions
GGP045	Developing extended fallow options for the Plane Creek district.	Jan 09 – Dec 11	Robert Sluggett	PCSF
GGP046	Investigate skip row configuration in sugarcane.	Dec 09 – Apr 12	Lee Blackburn	Blackburn Harvesting Group
GGP047	Maximising soy in Central Queensland.	Mar 09 – Apr 12	Simon Mattson	Mackay Area Soybeans in Sugar
GGP048	Better targeting of new cultivars for north Queensland through additional trials in four areas.	Mar 09 – Dec 11	Chris McClelland	MAS
GGP049	Investigating reduced nitrogen application rates for profitability and sustainability.	Apr 09 – May 12	Chris McClelland	MAS
GGP050	Improving soybean and nitrogen management in subtropical NSW cane systems.	Apr 09 – Dec 11	Alan Munro	NSW Farming Systems Group
GGP051	Maximising centre pivot efficiencies.	Apr 09 – Mar 12	John Fox	Precise Pivot Management
GGP053	Improvement of internal soil drainage and yield on heavy clay soils in the Herbert.	Jan 10 – Dec 12	Vince Russo	LUMPS Farming Group
GGP054	Herbert cane growers strategic grub management implementing BSES decision-making tools.	May 10 – Jan 13	Geoff Morley	Herbert CaneGrub Management Group

<b>Arena: Regional Futures</b>				
<i>Priority Strategy: Farming and Harvesting Systems</i>				
Project No	Title	Period	Research Contact	Organisation
GGP055	Helping sugarcane farmers integrate electronic recording systems into their farming business.	Jan 10 – Jan 12	Michael Reinaudo	Herbert Cane Productivity Services Limited
GGP056	A monitoring-based system to enhance canegrub control best management practice for Isis sugarcane growers.	Feb 10 – Jan 13	Wayne Stanley	Isis Productivity Ltd
GGP057	SECMAPPER (Soil Electrical Conductivity Mapper) mapping soil electrical conductivity patterns below trash blankets and stubble.	Jan 10 – Dec 11	Alan Pace	EM Mapping In Trash Group
GGP059	Developing prescription compost to suit specific soils in Maryborough.	Feb 10 – Feb 13	Glen Grohn	Driving Agricultural Goals Group
MAF002	Evaluating alternative irrigation for a greener future.	Jul 06 – Aug 11	Chris Hesp	MAFIA
NCA011	Development of precision spray technologies.	Jul 10 – Aug 13	Craig Baillie	National Centre for Engineering in Agriculture
NPSI01	National Program for Sustainable Irrigation.	Jul 07 – Jun 12	Guy Roth	CRDC
NSC019	Improving the harvesting and transport of biomass for sugar and power production in NSW.	Jul 09 – Aug 12	Rick Beattie	NSWSMC

**Arena: Regional Futures**

*Priority strategy: Transport, Milling and Marketing Systems*

Project No	Title	Period	Research Contact	Organisation
MSA006	Investigation into alternative clarification.	Jul 10 – May 12	Bryan Lavarack	MSL
NSC020	Commercialisation of a low cost trash.	Jul 10 – May 13	Cam Palmer	NSWSMC
QUT024	Reducing transport costs through the automation of schedule generation.	Nov 08 – Nov 11	Geoff Kent	QUT
QUT029	Evaluation of a prototype dewatering mill.	Nov 08 – May 14	Geoff Kent	QUT
QUT037	Assessing the impact of processing the whole crop on factory performance and operations.	Aug 09 – Sep 11	Geoff Kent	QUT
QUT040	Advanced computer simulation of sugar factories – SysCAD.	Jul 10 – May 12	Ross Broadfoot	QUT
QUT039	Reducing the economic and environmental risks of large scale bagasse storage through depithing.	Jul 10 – Aug 11	Ian O’Hara	QUT
TSL002	Pelletising mill mud and ash.	Jul 07 – Mar 14	John King	TSL

Arena: Emerging Technologies				
Priority strategy: Farming, Harvesting, Transport, Milling and Marketing Systems				
Project No	Title	Period	Research Contact	Organisation
GRF001	Automating harvester and haulout forward progression during harvest utilizing DGPS.	Jul 07 – Nov 11	Bryan Granshaw	Granshaw Farming
QUT030	Vacuum condenser design modification.	Nov 08 – Dec 10	Kameron Dunn	QUT
QUT031	Dunder concentration.	Jul 10 – May 12	Rod Steindl	QUT
QUT036	The production of biofuels and value added co-products from thermo-chemical processing of sugarcane bagasse.	Jul 09 – May 14	Phil Hobson	QUT
QUT014	Recovery of sucrose Project 2.	Jul 10 – Dec 11	Rod Steindl	QUT
QUT038	Implement supervisory/ advisory control of pan and fugal stations.	Jul 10 – Dec 12	Ross Broadfoot	QUT

**Arena: Emerging Technologies**

*Priority strategy: Genetics and Breeding Systems*

Project No	Title	Period	Research Contact	Organisation
BSS307	Development and implementation of NIR based predictive tools to rate sugarcane varieties against smut and Fiji leaf gall.	Jul 07 – Nov 11	Michael O'Shea	BSES Limited
BSS319	Maximising the rate of parental improvement in the Australian sugarcane breeding program.	Jul 08 – Mar 15	Xianming Wei	BSES Limited
CPI017	Developing sugarcane for production systems utilising total biomass.	Jul 09 – Dec 13	Phillip Jackson	CPI
CPI018	Climate ready sugarcane: Traits for adaptation to high CO2 levels.	Jul 09 – Aug 13	Geoff Inman–Bamber	CPI
CSE023	Pathways to exploiting enhanced photosynthetic efficiency for higher sucrose and biomass yield.	Jul 08 – Aug 11	Geoff Inman–Bamber	CSE
UQ044	SaveN Cane: Developing selection tools for N-efficient sugarcane.	Jul 09 – Dec 14	Susanne Schmidt	UQ
BSS334	More crop per drop II: developing water-efficient and drought tolerant sugarcane cultivars for irrigated and dryland farming – Stage 2.	Jul 10 – Dec 14	Prakash Lakshmanan	BSES Limited
CPI019	Towards a complete genome sequence of sugarcane; generation of data and development of bioinformatic resources.	Jul 10 – Aug 13	Karen Aitken	CPI



Arena: People Development				
Priority strategy: Individual Capacity				
Project No	Title	Period	Research Contact	Organisation
AFF002	Science and Innovation Awards for Young People.	Mar 03 – Apr 12	Carolyn Martin	DAFF
MSF006	Bridging the ditch – Improving my capacity as an advisor by attending The Australian Society of Agronomy Conference in New Zealand.	Jul 10 – Aug 11	Andrew Dougall	MSF
QUT003	An integrated pest management strategy for climbing rat in the Far North Queensland sugarcane production system.	Jul 05 – Mar 12	Susan Fuller	QUT
QUT032	Developing a new methodology for Competency-based training courses for shift supervisors in sugar factories.	Nov 08 – May 12	Ross Broadfoot	QUT
QUT033	Improving the efficiency of traffic office operations through improved traffic officer training.	Nov 08 – Aug 11	Geoff Kent	QUT
RDA005	Rewarding an innovation culture in the Australian sugar industry.	Jul 06 – May 13	Carolyn Martin	SRDC
QUT045	The 2011 Nordic Biorefinery Conference.	Jan 11 – Aug 11	Tom Rainey	QUT
STU060	<b>Felicity Atkin</b> Estimates of breeding value of sugarcane clones and their impact on efficient parent management and cross pollination.	Apr 07 – Jan 12	Joanne Stringer	BSES Limited

**Arena: People Development**

*Priority strategy: Individual Capacity*

Project No	Title	Period	Research Contact	Organisation
STU062	<b>Henry Thomas</b> Effective methods for communicating the lessons learned from decision support systems to broader audiences.	Jan 07 – Dec 11	Joseph Mula	USQ
STU063	<b>Ian O’Hara</b> Pre-treatment of sugarcane bagasse for enzymatic hydrolysis and fermentation.	Mar 08 – Jul 11	Les Edge	QUT
STU064	<b>Daniel Zamykal</b> Intelligent data analysis methods from effective integration of precision agriculture within the Australian Sugar Industry.	Mar 08 – Jan 12	Yvette Everingham	JCU
STU065	<b>Milovan Bokan</b> Abiotic stress tolerant sugarcane: Drought–proofing sugarcane with cell-death protection genes.	Feb 08 – Jan 12	Harjeet Khanna	QUT
STU066	<b>Darryn Rackemann</b> Production of levulinic acid and its derivatives from sugarcane biomass.	Jul 09 – Jul 13	William Doherty	QUT
STU067	<b>Kameron Dunn</b> Conversion of lignin to industrial fuels and chemicals.	Jul 09 – Jul 13	Phil Hobson	QUT
STU068	<b>Patrick Bewg</b> Modification of lignin biosynthesis in sugarcane for the production of cellulosic ethanol.	Feb 10 – Jul 13	Heather Coleman	QUT
STU069	<b>Mark Wang</b> Greenhouse gas emissions from sugarcane agriculture and mitigation options.	Mar 10 – Sep 13	Ben Macdonald	ANU

Arena: People Development				
<i>Priority strategy: Individual Capacity</i>				
Project No	Title	Period	Research Contact	Organisation
STU070	<b>Richard Brackin</b> Microbiology of sugarcane soils.	Jan 10 – Jul 13	Susanne Schmidt	UQ
STU071	<b>William Gilfillan</b> Biodegradable polymer nanocomposites derived from natural fibre and starch.	Jan 11 – Jul 14	William Doherty	QUT
STU072	<b>Anthony Brinin</b> Enhancing Sugarcane for decreased water content and increased sugar content at harvest.	Jan 11 – Jul 14	Sagadevan Mundree	QUT
STU073	<b>Danielle Skocaj</b> Climate forecasting to improve sugarcane nitrogen management in the wet tropics.	Jan 11 – Jul 14	Yvette Everingham	BSES Limited

Arena: People Development				
<i>Priority strategy: Social Capacity</i>				
Project No	Title	Period	Research Contact	Organisation
BCA002	Performance evaluation of SRDC R&D Investments.	Jul 07 – Sep 13	Annette Sugden	SRDC
GGN001	Grower Group Services.	Jul 08 – May 12	Joe Muscat	Grower Group Services
RDA005	Rewarding an innovation culture in the Australian sugarcane industry.	Jul 06 – May 13	Carolyn Martin	SRDC
WS009	R&D Communication. Includes R&D workshops, seminars, expos, industry conference sponsorships etc.	Jul 03 – Jun 13	Carolyn Martin	SRDC

## Appendix D

### Final Project Reports Approved

Regional Futures				
Value Chain Integration				
Project No	Title	Period	Research Contact	Organisation
CGT001	Development and implementation of harvest management planning tools for the maximisation of CCS in the Tully district.	Jul 06 – Aug 10	Trent Stainlay	Tully Cane Productivity Services Ltd
CSR038	Increasing in-mill NIR effectiveness and communicating data to all sectors for improved decision making in the sugarcane value chain.	Jul 06 – Feb 11	John Markley	MSL

Regional Futures				
Farming and Harvesting Systems				
Project No	Title	Period	Research Contact	Organisation
BSS268	Accelerated adoption of best-practice nutrient management.	Jul 04 – Dec 10	Bernard Schroeder	BSES Limited
BSS302	Epidemiology studies into sugarcane smut.	Jan 07 – Dec 10	Robert Magarey	BSES Limited
BSS303	Sugarcane biosecurity integrated plan.	Jul 07 – Aug 10	Nader Sallam	BSES Limited
BSS306	Establishing the second crop cycle into permanent beds.	Jul 07 – Dec 10	Bradley Hussey	BSES Limited
BSS325	SmutBuster: Accelerated breeding of smut-resistant sugarcane varieties.	Jul 08 – Jun 11	Frikkie Botha	BSES Limited
CG013	Growers working together to improve water quality in the Herbert sugar industry.	Jul 05 – Sep 10	Eric Danzi	CANEGROWERS

Regional Futures				
<i>Farming and Harvesting Systems</i>				
Project No	Title	Period	Research Contact	Organisation
DPI015	Enhancing an economic way of doing business in the cane industry.	Jul 05 – Nov 10	Neil Sing	DEEDI
GGP027	Developing a sediment trapping system in the Silkwood drainage Board area.	Jul 07 – Aug 10	Ian Brooks	Silkwood Drainage Board
GGP038	Improving billet planter efficiency.	Jul 07 – Aug 10	Chris Shannon	NCIPG
GGP041	Better frost tolerant varieties for NSW.	Jan 09 – Dec 10	Alan Munro	NSW Farming Systems Group
GGP052	The next step for precision agriculture.	May 09 – Jan 11	Tony Bugeja	Homebush Innovative Farmers Group
NFS002	An integrated approach to nut grass control.	Jul 07 – Aug 10	Bob Aitken	BSES Limited
UQ043	Harnessing soil biology to improve the productivity of the new sugarcane farming system.	Jul 07 – Aug 10	Susanne Schmidt	UQ

Regional Futures				
<i>Transport, Milling and Marketing Systems</i>				
Project No	Title	Period	Research Contact	Organisation
LEV001	Restoring efficiency to harvested cane transport in NSW.	Jul 08 – Mar 11	Michael O'Connor	Lower Empire Vale Harvesting Co-op
TSL001	Improved management of scale formation and scale removal in the Tully evaporator station.	Jul 07 – Aug 10	John King	TSL

**Emerging Technologies**

*Genetics and Breeding Systems*

Project No	Title	Period	Research Contact	Organisation
BSS305	More crop per drop: developing water-efficient and drought tolerant sugarcane cultivars for irrigated and dryland farming.	Jul 07 – Apr 11	Prakash Lakshmanan	BSES Limited
UQ040	Extending Sugar Booster technology into multiple sugarcane cultivars for optimal deployment by Australian industry.	Jul 05 – Aug 10	Robert Birch	UQ

**Emerging Technologies**

*Farming, Harvesting, Transport, Milling and Marketing Systems*

Project No	Title	Period	Research Contact	Organisation
GRF001	Automating harvester and haulout forward progression during harvest utilizing DGPS.	Jul 07 – Jun 11	Bryan Granshaw	Granshaw Farming
QUT015	Pilot scale development and evaluation of an improved process for furfural and fuel production from bagasse.	Jan 07 – Jul 10	Phil Hobson	QUT

**Emerging Technologies**

*Diversifying the income stream*

Project No	Title	Period	Research Contact	Organisation
MUL003	Removal of endogenous polysaccharides in raw sugar.	Jul 10 – May 11	Glenn Pope	The Mulgrave Central Mill Co. Ltd

People Development				
<i>Individual Capacity</i>				
Project No	Title	Period	Research Contact	Organisation
BSS337	New links with sugarcane research institutes in China.	Jul 10 – Nov 10	Priya Joyce	BSES Limited
STU059	Anna Satje – Improving the cation retention capacity of cane-growing soils using high activity clays.	Mar 06 – Oct 10	Paul Nelson	JCU
STU064	Daniel Zamykal – Intelligent data analysis methods from effective integration of Precision Agriculture within the Australian sugar industry.	Mar 08 – May 11	Yvette Everingham	JCU
UQ041	Participation at the Soil and Water Conservation Society Conference – Colorado USA.	Jul 06 – Aug 10	Peter Wulf	UQ

People Development				
<i>Social Capacity</i>				
Project No	Title	Period	Research Contact	Organisation
CG021	Next Gen Growers – expanding the boundaries.	Jul 10 – Oct 10	Ron Mullins	CANEGROWERS
JCU030	Pre-treatment of sugar cane.	Jul 09 – May 11	Mohan Jacob	JCU
SRD027	Review of Investment in the People Development Arena.	Aug 10 – Dec 10	Jeff Coutts	Coutts J & R

## Appendix E

### SRDC report on KPIs and deliverables from Portfolio Budget Statements 2010–2011

SRDC report on set key performance indicators and deliverables linked to SRDC Portfolio Budget Statements (PBS) 2010–2011.

#### Program 1.1: Sugar Research and Development Corporation (SRDC)

*Program objective: To assist the Sugarcane Industry to become more innovative, sustainable and competitive by effectively targeting and managing research expenditure; applying industry, scientific and community resources effectively; building the industry's capacity to innovate; and communicating research outputs effectively.*

#### Deliverables from PBS

Deliverables (Measures)	2009–2010 Actual	2010–2011 Budget Target	2011–2012 Forward Year	Results
New and continuing research and development projects that address priority investment areas outlined in the R&D Plan 2007–2012 and provide information to industry to help enhance its profitability, international competitiveness and sustainability <sup>1</sup>	117 projects	99 projects	90 projects	Partly achieved  Due to the impact from tropical cyclones in North Queensland followed by flooding, as well as above average rainfall and flooding in North NSW, some SRDC funded projects were terminated or delivery dates extended to allow projects to continue. In 2010–2011, the SRDC investment portfolio was reduced by 15 projects leaving 84 new and continuing research projects and scholarships active in 2010–2011
Distribute information through the website, e-newsletters and rural and regional media	1000 hits per month	1000 hits per month	1000 hits per month	Achieved
	+ 24 media releases; +9 magazine articles; +12 newsletters	+ 24 media releases; +9 magazine articles; +12 newsletters	+ 24 media releases; +9 magazine articles; +12 newsletters	Achieved
Promote research findings through industry workshops, forums and extension activities	24 events	24 events	24 events	Achieved



### Program 1.1: Sugar Research and Development Corporation (SRDC)

*Program objective: To assist the Sugarcane Industry to become more innovative, sustainable and competitive by effectively targeting and managing research expenditure; applying industry, scientific and community resources effectively; building the industry's capacity to innovate; and communicating research outputs effectively.*

#### Deliverables from PBS

Deliverables (Measures)	2009–2010 Actual	2010–2011 Budget Target	2011–2012 Forward Year	Results
Stakeholder consultation meetings	Average 4 per month	4 per month	4 per month	Achieved
*Provide support for people development through new and continuing scholarships	24 awards or scholarships	20 awards or scholarships	19 awards or scholarships	Achieved

\* This includes Grower Group Innovation Projects and Capacity Building Projects

#### Key Performance Indicators from PBS

Key Performance Indicators	2009–2010 Estimated Actual	2010–2011 Budget Target	2011–2012 Forward Year	KPI update
Maintain the extent to which investments match priorities defined in AOP and R&D Plan	100%	100%	100%	Achieved
Improvement in access to the R&D information provided to industry evidenced by increasing the number of people accessing our information	10% of industry accessing our information	15% of industry accessing our information	20% of industry accessing our information	Achieved
Return on investment of portfolio projects evidenced by evaluation on selected case studies	4:1	4:1	4:1	Achieved

**Program 1.1: Sugar Research and Development Corporation (SRDC)**

*Program objective: To assist the Sugarcane Industry to become more innovative, sustainable and competitive by effectively targeting and managing research expenditure; applying industry, scientific and community resources effectively; building the industry's capacity to innovate; and communicating research outputs effectively.*

Key Performance Indicators from PBS

Key Performance Indicators	2009–2010 Estimated Actual	2010–2011 Budget Target	2011–2012 Forward Year	KPI update
Increase stakeholder satisfaction of SRDC and measure results using surveys	60% of stakeholder surveys highly satisfied	65% of stakeholder surveys highly satisfied	65% of stakeholder surveys highly satisfied	Achieved  Feedback from stakeholders who attended SRDC seminars, expos and events stated they were more than satisfied with SRDC.
Increases the capacity of people in the sugar industry to innovate through scholarships and Capacity Building Projects awarded	3 scholarships awarded; 10 Capacity Building Projects awarded	3 scholarships awarded; 10 Capacity Building Projects awarded	3 scholarships awarded; 10 Capacity Building Projects awarded	Achieved

## Appendix F

### Abbreviations

<b>ABCR</b>	Advanced Burdekin Collective Research	<b>GVP</b>	Gross Value of Production
<b>ACFA</b>	Australian Cane Farmers' Association Limited	<b>IPM</b>	Intellectual Property Management
<b>ACGC</b>	Australian Cane Growers' Council	<b>IPS</b>	International Pol Premium Scale as used for the sale of raw sugar
<b>ASSCT</b>	Australian Society of Sugarcane Technologists	<b>JCU</b>	James Cook University
<b>AOP</b>	Annual Operational Plan	<b>MAFIA</b>	Mulgrave Area Farm Integrated Action
<b>ANU</b>	Australian National University	<b>MAS</b>	Mossman Agricultural Services
<b>ASMC</b>	Australian Sugar Milling Council Proprietary Limited	<b>MSF</b>	Maryborough Sugar Factory
<b>BPMS</b>	Business Process Management System	<b>MSL</b>	Mackay Sugar Limited
<b>BPS</b>	Burdekin Productivity Services	<b>NCIPG</b>	North Clarence Innovative Planting Group
<b>BSES</b>	BSES Limited	<b>NPSI</b>	National Program for Sustainable Irrigation
<b>CBP</b>	Capacity Building Project	<b>NSW</b>	New South Wales
<b>CCS</b>	Commercial Cane Sugar	<b>NSWSMC</b>	NSW Sugar Milling Cooperative
<b>CEC</b>	Cation exchange capacities	<b>OH&amp;S</b>	Occupational Health and Safety
<b>CPI</b>	CSIRO Plant Industry	<b>PA</b>	Precision Agriculture
<b>CRDC</b>	Cotton Research and Development Corporation	<b>PIERD</b>	Primary Industries and Energy Research and Development Act 1989
<b>CRRDC</b>	Council of Rural Research and Development Corporations	<b>QUT</b>	Queensland University of Technology
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation	<b>R&amp;D</b>	Research and Development
<b>CSE</b>	CSIRO Sustainable Ecosystems	<b>RDCs</b>	Research and Development Corporations
<b>DAFF</b>	Australian Government Department of Agriculture, Fisheries and Forestry	<b>RIRDC</b>	Rural Industries Research and Development Corporation
<b>DEEDI</b>	Department of Employment, Economic Development and Innovation	<b>SECMAPPER</b>	Soil Electrical Conductivity Mapper
<b>EC</b>	Electrical conductivity	<b>SDBA</b>	Silkwood Drainage Board Area
<b>FOI</b>	Freedom of Information	<b>SRDC</b>	Sugar Research and Development Corporation
<b>GGIP</b>	Grower Group Innovation Project	<b>TSL</b>	Tully Sugar Limited
<b>GI</b>	Glycemic Index	<b>UQ</b>	University of Queensland
<b>GIS</b>	Geographical Information System	<b>USQ</b>	University of Southern Queensland

## Appendix G

### *Table of compliance with publishing guidelines and legislation*

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*DEEDI Sustainable Agriculture Director Lea Diffey investigates the Racecourse Mill in operation.*



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**Australian Government**

**Sugar Research and Development Corporation**