Issue 13 • **Winter 2005** • Sustainable Industries Division

The Compass
New directions in Queensland industry

Partnerships the key in sustainable primary production

Queensland's agricultural sector is undertaking a range of initiatives to improve their use of resources and ensure their farms and businesses will be both sustainable and profitable in the long term.

Partnership programs are playing an important role, providing financial, technical, and in-kind support and promoting sustainability messages industry-wide.

Through the *Enhancing Sustainable Primary Production* project the EPA is working in partnership with the Queensland Farmers' Federation (QFF) to develop and implement a communication, education and awareness program for agriculture.

The project will focus on primary producer and supply chain case studies, highlighting best practice and promoting sustainable agriculture in Queensland.

Focussing on Farm Management Systems (FMS), the project will include field demonstrations of innovative farm practices, and an industry-lead Sustainable Agriculture Forum. QFF members, particularly those involved in FMS activities, will have the opportunity to be involved.

Development of an annual environmental reporting system for QFF and member bodies is a key element of the project.

EPA officers have recently visited two leading Queensland primary producers to find out about their achievements in improving eco-efficiency.

Water saving project brings business benefits

In Salisbury, on Brisbane's south side, a partnership between the EPA and the Nursery and Garden Industry of Queensland (NGIQ) is focussed on finding more efficient irrigation systems for the nursery industry.

The NGIQ is using an EPA WaterWise industry grant of $25,000 to carry out trials of special pots and new irrigation methods that could potentially save nurseries up to 12 million litres of water per hectare per year – a saving of more than 60 percent.

The NGIQ carried out a three-month assessment of six different irrigation methods and collected comprehensive data on both water use and plant performance.

Along with common overhead and drip irrigation methods, the project examined three types of zero-irrigation runoff capillary mats and a novel pot concept known as the Anovapot™ which substantially reduces or even eliminates root escape.

The studies showed that the combination of overhead and capillary mat irrigation systems with the use of the root escape-proofed pots achieved reductions in water use and wastewater runoff, as well as major reductions in nutrient loss.

This combination also supported more rapid plant growth delivering an increase of up to 43 percent in the fresh weights of plants. This increased productivity also spells increased profits.

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A WaterWise partnership between the EPA and the Nursery and Garden Industry of Queensland (NGIQ), has identified ways the nursery industry can reduce water use, wastewater runoff and nutrient loss, while supporting more rapid plant growth.

Anova Solutions

Queensland Government
Environmental Protection Agency

News in brief – Barramundi Blue takes the prize

Congratulations go to Barramundi Blue who last month took out the Environment gong at the 2005 Queensland Seafood Awards. The company will now compete as a finalist at the 2005 National Seafood Awards to be hosted in Sydney this September.

From their Ingham base, the company runs Queensland's largest environmentally sustainable recirculating aquaculture system.

They have achieved substantial environmental savings and increased profit margins by reducing energy and water use, and treating wastewater with an innovative hydroponics system.

For the full story on Barramundi Blue see Issue 11 of *The Compass* at www.epa.qld.gov.au/register/p00479ak.pdf

Dear Reader

In considering the landmark projects, technologies and business ventures profiled in this edition of *The Compass*, I am reminded that one of the key ingredients in the recipe for success is the establishment of mutually beneficial partnerships to work towards common goals.

Today, we have active partnerships with a wide range of industry, government and community groups. These partnerships are essential to ensure that we share and build on the information and expertise that will help us live within the limits of our natural capital as we grow and prosper into the future.

As an **eco**Biz program ally, the Redland Shire Council has taken on the management of participation in **eco**Biz by seven local businesses. A substantial amount of progress has already been made in a relatively short time to achieve both individual and shared goals. Individual businesses, and the shire as a whole, have cut costs and made significant savings on energy, water and resources.

ecoBiz has also been the catalyst to boost business efficiency for Marc Meili from Ferra Engineering, whose interview for our profile piece provides a revealing appraisal of the benefits and challenges of working towards environmental best practice.

Partnerships between government, industry groups, and front-line fishers have been vital in working towards a seafood industry Environmental Management System in Queensland. Such a system, designed to protect the environment, the future of fish stocks and the livelihood of commercial fishers, would not have been developed without commitment from all parties to work together.

Queensland's agricultural industries are increasingly investigating and adopting alternative practices that can improve farm management to ensure they remain viable and profitable long-term businesses. Through the Enhancing Sustainable Primary Production project the EPA is working in partnership with the Queensland Farmers' Federation to highlight best practice and raise the profile of sustainable agriculture in Queensland.

Our article on sustainable primary production tracks the progress of two projects that demonstrate how the industry is embracing innovation and environmental best practice to get a competitive edge and boost their financial bottom line.

Gold Coast company Australian Glass Technologies' 'trash to treasure' project to recycle previously nonrecoverable glass fines, is an excellent example of a company taking the extra step to achieve maximum resource recovery and reduce the waste stream. The growing list of products being developed using the recovered glass amply demonstrates the business sense of the venture.

One of the most important aspects of forming partnerships in sustainable industry development is that it promotes a sharing of information which in turn creates a culture where industry best practice is continually evolving.

Marc Jackson, a far north Queensland banana grower, tells how an EPA WaterWise grant has helped him save seven million litres of water a year, as well as money and time, making his enterprise more competitive. While he has spent a great deal of his own time and money fine tuning the systems and practices that have boosted his businesses efficiency and helped safeguard his farm against dry conditions, Mr Jackson is enthusiastic about sharing his experience with others in his field.

You'll also find articles on products that may help your business improve its sustainability. Queensland company ReBUL is cutting down the environmental and financial costs of packaging waste, while an Australian-designed technology has the potential to halve the operating and maintenance costs of commercial air conditioning systems.

From cutting edge world-beating technology to the very simple, you can read about the transformation of a 1914 Queenslander by Jerry Coleby-Williams and Jeff Poole. The story of how they've future-proofed a very ordinary suburban home will be of interest to both the housing industry and homeowners. I believe their passion for sustainable living is an inspiration and a vision for a bright future.

I hope you enjoy the articles and can use the experience of others to assist you in your own journey to sustainability.

John R Cole Ph D
Executive Director
Sustainable Industries Division

Partnerships the key... *Continued from page 1*

The NGIQ presented the results of their trials at a field day at the Department of Primary Industries and Fisheries Redlands Research Station earlier this year. They have already had interest in their products from industry players, and the Anovapot™ is now commercially available.

Recycled water better for crops and better for the environment

In the Lockyer Valley south-west of Brisbane, three farms known as the Blackboy Ridge Group are part of a ground-breaking project where recycled water is being used to irrigate low-chill tree and vine fruits such as persimmons and passionfruit.

The Blackboy Ridge Water Recycling Project began in 2002 as a partnership between the farmers, Gatton Shire Council, and the EPA, with the University of Queensland (Gatton Campus), providing technical support and monitoring soil and water conditions.

The EPA provided a funding boost of $75,000 towards the construction of a 5km pipeline to transport recycled water from the Gatton Shire Council wastewater treatment plant to the farms. The Commonwealth Government also provided funding of approximately $240,000 to get the project off the ground.

Under the scheme, a portion of the recycled water from the Gatton treatment plant is used to supplement water supply on the farms.

The project aims to demonstrate that horticultural tree and vine crops can be grown sustainably and safely with recycled water without risk to humans, soil or water resources.

An important difference between this and other water recycling projects is that while saving water and securing supply are excellent outcomes, the project is also designed to increase product value by improving crop quality as a result of water recycling and best management practices in irrigation techniques.

This is achieved by using innovative partial root-zone irrigation which conserves water while increasing the sugar content in the fruit and so raising their market value.

With the project now into its third year, the Blackboy Ridge Group is reporting excellent outcomes in terms of water usage, farm efficiency and increased profits.

Key outcomes include:

- an increase in crop value of up to $15,000 per hectare;
- a 33% water saving by using the partial root zone irrigation; and
- a reduction in the amount of fertilisers needed.

Blackboy Ridge Grower Ross Stuhmcke also said the importance of a reliable water supply should not be underestimated.

"The program highlights what partnerships between government and the private sector can achieve, offering a local solution to a local problem."

"It has allowed us to plan planting programs with confidence, which has great advantages for long-term crops such as tree and vine crops," Mr Stuhmcke said.

"The ability to water from a single point instead of from several underground bores, has also created further efficiencies.

"It means less equipment to maintain and it is easier to train someone to operate and monitor the system."

A key element in this demonstration project has been the inclusion of comprehensive health and environmental monitoring.

Extensive monitoring has shown that the microbiological quality of the recycled water used for irrigation is very high, and rigorous farm management procedures safeguard the health of both farm workers and consumers.

Environmental monitoring has shown that while the salinity of recycled water can be a source of concern, this can be managed by good agronomy practices.

The EPA's Manager of Sustainable Water Systems and Technology, Tad Bagdon, said overall the project achieved its objectives and provided an excellent model for other similar systems to be developed.

"This project supports the aims of the Queensland Water Recycling Strategy and also supports agribusiness through the development of higher value crops suitable for export," Mr Bagdon said.

"Not only does it make good environmental sense, it also makes good economic sense.

"This program also highlights what partnerships between government and the private sector can achieve, offering a local solution to a local problem. Council is able to recycle a valuable resource and there is less nutrient runoff into local waterways."

The Blackboy Ridge Group are available on (07) 5462 5202, and NGIQ can be contacted on (07) 3277 7900.

Water recycling and innovative irrigation techniques are improving crop quality and raising their market value.

Banana grower's hands-on approach pays off

Eighteen months after first committing to making his Tully banana farm more sustainable, WaterWise industry grant recipient Marc Jackson is saving seven million litres of water a year, as well as helping to protect Queensland's Great Barrier Reef and enjoying significant savings in costs and time.

One of seven organisations awarded EPA WaterWise grants in the program's first round of funding in 2004, the Jackson Farming Company received $15,000 for its project – Waste Water to Profit.

The company revolutionised the way water was used on the far north Queensland banana farm, designing a water treatment and recycling system specifically for the farm's washing and packing shed.

The system recycles and treats 100% of the water used in the bunch wash and fruit washing trough stages.

Wastewater passes through a number of filters to remove particles such as banana flowers. It is then treated with alum to neutralise the damaging effects of the banana sap, and chlorine to kill any bacteria, before being pumped back through the washing stages where the treatment and recycling process begins again.

This highly efficient, sustainable process replaces a system in which a large irrigation pump delivered fresh bore water into the packing shed. For each full day of operation, 270,000 litres of fresh water was pumped, over 210,000 litres of which was excess water which was then used for irrigation.

The 58,500 litres required in the washing process was used only once and then discharged, untreated, to Woolcoo Creek which flows into the greater Tully-Murray catchment area and then directly to the Great Barrier Reef lagoon.

With the packing shed operational for between two and a half and five days a week, it meant the farm could be pumping a massive 1.3 million litres of water a week.

Jackson Farming Company owner and operator Marc Jackson said although the excess water was used for crop irrigation, rainfall and other irrigation practices meant it was largely unnecessary, and sometimes the extra irrigation was actually damaging to his crops.

"This new system is working like a dream," he said.

"As well as the water treatment system we also installed a small second bore at the packing shed and in the six months since it's all been up and running, we haven't once turned on the large irrigation pump."

The fresh water pumped from the second bore is used for drinking or for a final wash, after which it is collected and sent back into the recycling tank.

Mr Jackson said the process of turning around water on his farm from waste to profit was part of a larger commitment to managing the farm's natural resources through the implementation of an ISO14001-certified Environmental Management System (EMS).

The priorities of the Jackson Farming EMS were reducing water and electricity use, and reducing the amount of wastewater and organic matter flowing into local waterways.

This has certainly been achieved, with the process taking a year to work through and requiring an investment of $30,000 from Jackson Farming, on top of the WaterWise industry grant.

Mr Jackson said that while the water savings and increased productivity due to better water use have made the process worthwhile, the new system also saves valuable time and money.

"The system is simple and easy to use. Everything's automated, any of the staff here can use it and it really runs itself," Mr Jackson said.

Despite the automation, Mr Jackson said the overall outcomes of the new system would include a saving of more than $2000 a year in electricity costs.

Mr Jackson is willing the share his knowledge and experience to assist other farmers and can be contacted on 0419 655 136.

For more information on EPA grants and programs, visit www.epa.qld.gov.au

Jackson Farming's WaterWise project included the development of a system that recycles and treats 100% of the water used in bunch and fruit washing – saving a massive seven million litres of water a year.

Best practice urban design

A new development in the Gold Coast's Currumbin Valley is set to become an industry leader in sustainable residential precincts.

Development group Landmatters recently began construction of a 144 lot Ecovillage just seven kilometres from the Currumbin River estuary.

The 110 hectare site features a range of landscape types including a 10 hectare native hoop pine forest, sections of Currumbin Creek, pockets of remnant rainforest and elevated ridges. Careful planning will enable the inclusion of a variety of residential options and community facilities while safeguarding precious natural habitat.

The Ecovillage will incorporate many innovative sustainable design elements including self-sufficiency in water supply and treatment, water re-use strategies, solar power and energy efficient home design features.

Community facilities such as the Village Centre have been fully integrated to encourage long-term social and economic sustainability, while the project has been designed to achieve improved biodiversity post-development. It features large areas of landscaping, with 80 percent of the site designated green space. Re-use of treated wastewater will support both revegetation and productive agriculture projects.

"Simply put, our objective is to create the world's best ecologically sustainable development, and every element of design, construction and future planning for the project is tested against this criterion," said Landmatters' Managing Director, Chris Walton.

EPA Liaison Officer John Moraitis said the development was unique as the scale and diversity of its design and occupancy could lead to the core principles forming the basis of a prototype for other mixed-use urban developments.

"Even in its initial development application the Ecovillage at Currumbin has set new standards in architectural and building requirements for sustainable urban development specifications. This has implications for future developments," he said.

The Ecovillage's water cycle is a closed loop that provides for total onsite self-sufficiency for both supply and treatment of water so the site's pre-existing connection to municipal water mains or sewerage mains will not be used. Valuable wastewater will be treated and re-used onsite, while underground bore water reserves will provide back-up supply.

"our objective is to create the world's best ecologically sustainable development, and every element of design, construction and future planning for the project is tested against this criterion."

Each building will have its own potable water supply gathered by roof collection and tank storage. This will be augmented by the reuse of black and grey wastewater treated to Class A+ reticulated back for toilet flushing, garden watering, car washing and the like.

Sustainable onsite wastewater treatment and recycling is a vital aspect of the Ecovillage, with the objectives of maximising environmental protection and ensuring no negative impacts within the community.

After intensive local and international research, Landmatters awarded the wastewater treatment and recycling plant contract to Melbourne Engineering company WJ Pratt. This company will work with Innoflow (NZ), the Australasian agents for Orenco systems and the patented AdvanTex textile filters, and Memcor, a division of Siemens which will provide a state-of-the-art micro filtration water polishing unit for tertiary treatment.

Consumption data across all buildings using this innovative wastewater treatment plant will be captured and analysed to ensure the water cycle model can be verified and refined for use in future developments.

Electricity and gas consumption and building climatic performance will also be monitored across the whole development to demonstrate what can be achieved through smart design.

The principles underlying the Currumbin Ecovillage development have already generated support from a wide range of government and industry bodies, and the project was a participant in the Sustainable Urban Development Program, a joint initiative of the Urban Development Institute of Australia (UDIA) and the EPA.

This support has been formalised by an agreement between the Queensland Government and Landmatters Currumbin Valley Pty Ltd endorsed by Environment Minister Desley Boyle.

On a local level, Gold Coast Water is providing technical and metering support while the project has been identified as a 'benchmark development' by the Gold Coast City Council. At federal level the project has had the seal of approval of the Department of Environment and Heritage, through the Australian Greenhouse Office and the Photovoltaic Rebate Program.

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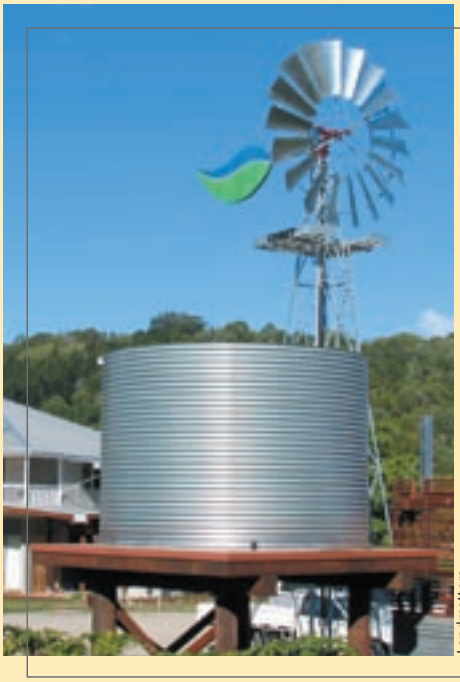


The Ecovillage at Currumbin will incorporate sustainable design elements in water and energy, along with large areas of landscaping and 80 percent designated green space.

Efficiency overdrive good for business

A Queensland company supplying hi-tech light metals components to the automotive, aviation and space industries has discovered environmental best practice delivers significant advantages for business and the financial bottom line.

Based at Tingalpa in Brisbane's east, Ferra Engineering has grown from a small family business into a market leader with an impressive customer list that includes Ford, Holden, Toyota, NASA, and the Joint Strike Fighter project.

Ferra's latest venture has been to partner with the EPA through the innovative **eco**Biz program to make improvements to their systems and processes that are good for business and for the environment.

Ferra General Manager Marc Meili said that from the outset Ferra was set up for continuous improvement in a very competitive market.

"Our aim is to exceed the environmental expectations of our current customers while staying competitive on price," Mr Meili said.

Through Ferra's involvement in **eco**Biz, EPA staff have uncovered two opportunities that will almost double Ferra's production efficiency.

Calculated using the **eco**Biz toolbox, Ferra's production efficiency measures the amount of product manufactured against the amount of raw materials consumed in production.

Mr Meili said by focusing on the two areas identified, which include re-using or selling waste aluminium and developing a coolant recycling plant, Ferra is set to achieve 90 percent efficiency.

Although the capital expenditure has been significant, the changes should pay for themselves within 14 months.

"We'll also cut our water use by 80 percent as our coolant make-up water will be recovered through the recycling process," Mr Meili said.

"Our metals recycling will be at 90 percent and we're already planning to install a smelter to take this to 100 percent. It all makes good business sense and **eco**Biz has helped us put it into context and clarify the savings."

With more of Ferra's customers asking for environmental standards to be a priority, their next step will be to achieve ISO14001 accreditation.

"Ford has asked what environmental accreditation we have so they're very pleased with our progress towards **eco**Biz certification and the results we've achieved so far," said Mr Meili.

He said Ferra had a deadline of 2006 to meet the ISO14001 standard, and working with the EPA through **eco**Biz would help the company meet that timeline.

"We also see that the **eco**Biz label will give us a marketing edge in finding new national and international markets for our product."

Henry Marszalek, Manager of Ford's Asia Pacific Environmental Quality Office, said Ford was pleased with Ferra's **eco**Biz work and their commitment to environmental goals.

"We set out some time ago to develop close relationships with our suppliers on environmental issues and to have the Queensland EPA assist us through their **eco**Biz program is a great way of cementing these relationships," he said.

For more information on the EPA's **eco**Biz program visit www.epa.qld.gov.au or email **eco**Biz@epa.qld.gov.au

Marc Meili profile
General Manager, Ferra Engineering

How long have you been with Ferra?
Almost 5 years.

How did you end up here?
I did an apprenticeship as a CNC Machinist with one of the more renowned machine tool manufacturers back in Switzerland. From there I moved on to complete an undergraduate degree in industrial engineering.

I travelled extensively for around 15 months, during which time I visited Australia, but eventually I went back to Switzerland and back to work in the engineering industry. When I came to Australia I was interested in Ferra through my network of contacts. I met with the Managing Director, we had a good look around the company and I was able to identify shortfalls in the planning and scheduling – so I basically created my own job at that time. The company and my position have changed and expanded since then, and in December last year, I was appointed as General Manager.

Why did you get involved in ecoBiz – was it driven by a personal passion for environmental issues or streamlining production efficiency?

On a personal level I'm certainly very conscious of environmental issues. My family was very environmentally conscious and Switzerland is quite advanced in these areas. My contributions at home include living on tank water, having a solar system, and in terms of rubbish collection we are very particular about separating everything.

That of course carries over to business – back in Switzerland the environment is always on the top of the list. There is nothing that doesn't get filtered, nothing that just goes down the drain, etc, so I am very conscious in environmental matters doing business.

From Ferra's business perspective, we want to put this company on the right path. It is a challenge as a company to always comply or do better than what we should be doing because that is usually associated with a cost and we're competing with companies that might just open the drain and pour it [waste products] down. But long term I think that if companies like ours do find these ways of improving our environmental performance, then obviously we'll be more highly regarded. We view environmental responsibility as a long-term obligation that every organisation has – if you can't afford this aspect of the business then you are doing something wrong.

Funding program drives energy and water savings

Cars that provide improved fuel efficiency, solar and electric vehicles, solar-powered agricultural driers, and biodiesel-fuelled buses and ferries are all on the agenda in Queensland, thanks to the latest round of grants awarded under the EPA's Queensland Sustainable Energy Innovation Fund (QSEIF).

Established in 1999, QSEIF assists Queensland companies to develop and market innovative products, services and technologies that significantly reduce the consumption of energy.

Under this seventh funding round, the Queensland Government has awarded more than $620,000 for six new projects, taking total QSEIF funding over the past five years to some $4 million.

Development of a new type of control system that will provide optimal direct control of engine power and fuel efficiency by Locasia Pty Ltd (ChipTorque), in collaboration with the University of Queensland, is one project approved for funding.

Other projects include:

- development of an advanced motor controller for solar and electric vehicles by Tritium Pty Ltd;
- development of a novel system for storing hydrogen fuel, using magnesium alloys and low-cost casting processes, to be undertaken by Uniquest Pty Ltd;
- a large-scale demonstration of biodiesel fuel in buses and ferries by Brisbane City Council;
- development of a prototype drier for agricultural products using solar energy to generate a liquid desiccant drying medium, to be undertaken by Agridry RFM and Queensland University of Technology; and
- development of an efficient heat pump water heater to be fitted to existing hot water tanks, by Solarwise Solutions Pty Ltd.

Dr Martin Gellender, Research Officer with the EPA's Sustainable Innovation and Technologies Unit, said the projects demonstrated potential to achieve substantial environmental benefits and capacity for the technology to be adopted on a wide scale.

"The aim of the fund is to establish Queensland as a market leader in energy innovation," he said.

"We're broadening the scope of QSEIF to support water-saving technologies, and technological process improvements that save energy and/or water.

"Special consideration will be given to projects that achieve reductions in the use of energy as well as water, for example by reducing energy requirements for water pumping, distribution or treatment.

"Up to $500,000 has been specifically allocated to assist commercialisation of innovative water re-use, water treatment and water-efficient technologies throughout Queensland."

Under QSEIF, funding of up to $200,000 is available to each project for researching, developing, demonstrating or commercialising sustainable energy technologies.

Applicants are expected to make significant cash or in-kind contributions to the project.

The fund will generally cover 50 – 80% of the total project costs borne by the applicant, with the amount depending on a range of factors including the project's demonstrated environmental and business benefits.

For more information on applying for funding, see page 10.

Do you think there are currently more demands for you to be an environmentally-conscious business or are you getting in before that starts to happen?

We have a large established customer base of companies that we want to be working with long term and these companies do expect it – so we have their requirements to comply with. Outside of that, we really are staying ahead of what's expected and that is definitely what we want to achieve through ISO14001 process.

We have given a lot more focus over the last six months in terms of the environment as well as the health and safety of our personnel. If we continue to move forward with our program I think we will stay well ahead of many others.

How did you hear about ecoBiz?

We were looking at compressed air and the air leaks, recycling, and issues with lights for quite a while and the person we contracted to look after that as a project came across **eco**Biz in his evaluation of the best sorts of systems for these types of projects.

What has been the most valuable benefit you've achieved through the ecoBiz program?

The process of fast tracking our environmental projects is the major benefit. We had a budget for environmental development and **eco**Biz took us through the process more quickly. Also, the development of ISO14001 is quite stringent and demanding on a business but the work we've done with **eco**Biz will help us implement ISO and achieve our goals much more quickly.

When you joined ecoBiz did you know what your end goals would be, or have you learnt things along the way?

The **eco**Biz format helped us to be more structured with our approach. It helped us put things in place and yes, we certainly did end up reviewing other aspects of the business as well. So certainly we now have to revisit some of those other areas for future projects to see where we can achieve more savings or reductions.

The next big project on our list will be the compressed air upgrade. We have some air-leaks, which require us to create a whole new system, and as part of that process we will be reviewing our compressors to see how efficient they in fact are. This evaluation project will take place during the next six months.

Have Ferra's employees been a big part of the success of this project?

Certainly the involvement and engagement of people is crucial – without the people nothing happens. Anyone can buy good machines and systems but to apply them correctly and efficiently the people are crucial.

In terms of our approach to the environmental commitments there has been a good response and we have made certain that we have explained why we're working through this to show staff the end benefit. The person that looks after the coolant and swarf recycling is the proudest man in the whole company because he's saving money and coolant while reducing waste and the burden to the environment.

Redland Shire ecoBiz team tackles environmental issues

An agreement between the EPA and the Redland Shire Council to cooperatively manage and deliver the EPA **eco**Biz program in Redland Shire has delivered significant benefits to business, community and the environment.

A Memorandum of Understanding between the parties, signed late last year, marked the start of a six month trial project which achieved widespread successes and could become the future model for **eco**Biz partnerships.

As part of the project, Redland Shire Council not only became the first local government to become an **eco**Biz ally, but also became the first local government to join up to complete the **eco**Biz program as a participant.

Council recruited seven small to medium-sized local businesses to the project with the aim of implementing systems and processes to reduce energy and water consumption and waste generation – The Good Guys at Capalaba, Alchemy Cordials, Redland Nursery, Stradbroke Ferries, Darwalla Milling Company, Sirromet Wines and Sheldon College.

The outstanding achievements of Redland Council and the seven participating local businesses were acknowledged at a forum on 20 June.

The Good Guys at Capalaba

The Good Guys electrical goods retail store in Capalaba was keen to use the **eco**Biz program to establish real and sustainable cost savings, particularly in the areas of energy and waste. They have successfully implemented a program to provide information to customers about energy efficiency of appliances, and are in the process of developing an in-store energy efficiency education program with Redland Shire Council to raise awareness and the profile of energy efficient appliances.

As waste is a big issue, the Good Guys had already implemented cardboard recycling processes prior to joining the **eco**Biz program. They built on this by introducing paper recycling, printer and toner cartridge recycling, and degradable carry bags.

James Brockhurst, proprietor of The Good Guys Capalaba, said: "**eco**Biz has given us an opportunity to become a responsible and forward-thinking company – not only for the maintenance of our fragile environment, but also from a business perspective in terms of both growth and leadership."

Alchemy Cordial Company

The Alchemy Cordial Company, a small cordial manufacturer, has a clear company vision of being clean and green, and to leave a minimal environmental footprint.

While they had introduced paper and cardboard recycling prior to joining the **eco**Biz project, by thinking outside the box, they were able to take their vision further and save on costs while delivering clear environmental benefits.

In a smart business move, Alchemy introduced a process to reuse the waxed backings from the reams of sticky labels used to label their products. The label backing paper, which previously ended up in landfill, is now shredded and used for packaging in place of a commercial packing filler. This process improvement saves the company around $300 a year in landfill disposal and packing costs.

Alchemy have also redesigned their supplier cartons to reduce the overall amount of cardboard used in packaging, and introduced a number of energy saving processes.

Stradbroke Ferries

Through **eco**Biz, Stradbroke Ferries has achieved a 50% reduction in water consumption through simple measures including:

- installation of low flow water fixtures on taps;
- using high pressure hoses for wash-down of vessels; and
- identifying and correcting leaking taps or broken pipes.

The company has also developed barge wash-down and water tank filling procedures for staff, and encouraged all staff to be involved in the push for better practices.

In terms of waste minimisation, Stradbroke Ferries has installed five recycling bins for weekly pickups, which are saving the company over $1000 per year in landfill costs, as well as reducing landfill by around 200 cubic metres per year.

EPA

The Good Guys at Capalaba are providing customers with information sheets about energy efficiency, allowing them to choose items based on future costs, and not just the sale price.

EPA

Alchemy Managing Director Michael Bishop (left) has put in place a clear company vision for being clean and green.

EPA

Heather Truman presents Stradbroke Ferries' achievements at the forum on 20 June.

Darwalla Milling Company

Darwalla Milling Company, comprising the mill, a chicken hatchery and a number of chicken growing sheds, is proactive and advanced in their eco-efficiency work.

To achieve energy savings, the company has:

- upgraded lights, walls, fans, heaters, cooling systems and all electricals in their growing sheds;
- installed Programmable Logic Controls on electric heater machines;
- upgraded air compressor lines, and reduced leaks in the mill and hatchery; and
- replaced an existing 30kW mixer motor with a 50kW variable speed drive motor.

They are also looking at measures to reduce water used in washdown processes and to better manage wastewater and stormwater flows.

Redlands Nursery

Redlands Nursery's previous eco-efficiency work focussed on saving water throughout its production facility. Through **eco**Biz they identified additional water savings but also found ways to cut energy and waste.

Redlands Nursery's achievements include:

- irrigation pump upgrades which have delivered annual energy savings of almost 20,000 kWh; and
- introduction of collapsible bins to replace nonrecyclable trays for delivering plants, saving 635 waxed trays (1m³ or 195kg) from landfill over a three month trial and reducing shipping costs by around 30 percent.

The nursery has also introduced water-saving initiatives including upgrading irrigation sprinklers to reduce water usage by 30 percent; recycling of irrigation water; use of water storing granules and wetting agents to minimise water requirements of plants; and introduction of new Turbomiser sprayer to reduce chemical use.

Managing Director of Redlands Nursery John Bunker said the **eco**Biz program had "demonstrated that in looking objectively at the three areas of water, energy and waste and looking at current processes objectively to see if there is a better way not only does the bottom line benefit but so too does the community".

Replacing non-recyclable trays with collapsible bins for plant delivery has allowed Redlands Nursery to reduce shipping costs by around 30 percent and cut the amount of waste going into landfill.

Sirromet Wines

Sirromet Wines consists of the winery, vineyard and a restaurant. The company has already implemented a range of eco-efficiency measures in water and waste recycling, chemical reduction, and land and wildlife management. During the **eco**Biz project, they made additional improvements to energy efficiency and waste management, including:

- installation of variable speed drives on chiller motors to reduce energy consumption;
- introduction of a system to compost coffee waste;
- reduction in the number of waste bin pickups; and
- replacement of paper cups with ceramic cups.

Sheldon College

Sheldon College is a not-for-profit, independent college with students from preschool to year 12.

Their efforts to reduce energy consumption by students and staff include the development of a monitoring program that sees the students conduct regular checks of the energy meters for detection of unexpected overnight loads or leakages.

They have also produced posters for classrooms reminding staff and students to turn off computers, lights, and air conditioning.

The College plans to continue to enhance and build on current recycling practices to further reduce waste.

Redland Shire Council

As part of their **eco**Biz project Redland Shire Council has implemented energy-saving measures at two demonstration sites.

At The Donald Simpson Leisure Centre, Council achieved energy savings of 18 – 38% per month compared to 2004 figures through simple measures including: replacing existing light bulbs with energy saving bulbs; installing a Zip Instant Boil boiling water system; mapping and marking light switches for ease of use; installing signs at the entry advising visitors to close the front door; turning off the kitchen cool room when not in use; and replacing auditorium lights with high intensity fittings and clear diffuser to supply flexible lighting options.

At the Cleveland Library, Council reviewed air conditioning needs, identifying that the system could be switched off to vacant areas on certain days, and installing a 365 day air conditioning clock which allows for public holidays.

The Redland Shire Council recently received the 'Initiative of the Month Award' from the Australian Greenhouse Office Cities for Climate Protection program, for its work with the **eco**Biz program.

Concrete project achieves solid savings

Brisbane company Concrete Slab Technology (CST) has developed a method of controlling cracking in concrete pavements that is expected to generate savings of more than $13 per square metre of concrete. The technology can eliminate the need for steel reinforcement and, in some cases, the need for saw cut joints and their fillers.

If concrete cracking is not controlled, premature wear can result in increased maintenance costs. In the construction of concrete pavements and on-ground slabs, steel reinforcement is typically used to control the width of cracks as the concrete expands and contracts with changes in temperature. In theory, small quantities of steel reinforcement (e.g. mesh) in concrete pavements do not increase the load carrying capacity of the pavement. In practice this is confirmed by the fact that nearly all airport and highway concrete pavements are constructed without steel reinforcement.

Energy requirements to manufacture steel reinforcing mesh are 40 – 50 times as much as the energy used to produce the same volume of concrete. Steel reinforcing mesh typically comprises 1 – 6% of the volume of cement. By eliminating steel reinforcing mesh, greenhouse emissions incurred in producing concrete slabs are reduced by about 3.6kg CO_2/m^2 slab area.

With the assistance of a $153,500 grant under the Queensland Sustainable Energy Innovation Fund (QSEIF), CST has developed a mobile prototype machine that can create a network of controlled cracks in sections of established concrete.

CST proposes to use its new technology to develop a service business constructing higher quality industrial concrete pavements more economically than its competitors.

The construction of concrete without steel reinforcement also reduces the energy needed to produce it, and requires less resource inputs, as well as being easier to remove and crush for recycling.

The commercial sector may be a future target for the company if commercial property owners begin demanding improved standards for their concrete pavements in line with industrial applications.

The technology can also be applied to the construction of airport runway and highway concrete pavements, thereby potentially improving construction quality and reducing construction and long-term maintenance costs.

Building on their initial success, CST plans to make a serious bid for market leadership in concrete pavement construction and develop its market beyond Queensland and Australia, into competitive overseas markets through future franchise arrangements.

CST's mobile prototype machine, is cutting the financial and environmental costs of concrete.

CST

Funding for energy and water innovation

The Queensland Sustainable Energy Innovation Fund (QSEIF) assists Queensland organisations to develop innovative technologies that reduce the environmental impacts of energy and water consumption.

Applications are invited for the next round of funding, closing 7 October 2005.

Applicants may seek assistance to **either** develop an innovative energy/water-saving product, technology or service for sale or licensing, **or** develop technological process improvements to reduce their use of energy/water (providing a case study for other companies).

For more information follow the links from www.epa.qld.gov.au or contact Dr Martin Gellender or Mr Glenn Tipman on (07) 3225 1999 or email sustainable.technologies@epa.qld.gov.au

Australian technology delivers cheaper, cleaner, quieter air conditioning

Replacing traditional centrifugal compressors with frictionless, oil-free compressors is having a significant impact on air conditioning industries worldwide. This Australian technology is making air conditioners cleaner, quieter and more energy-efficient.

The frictionless compressor technology, developed locally and released onto the world market around five years ago, delivers significant benefits to end users, saving on energy, oil and maintenance costs.

The Danfoss Turbocor oil-free compressor uses a digitally controlled magnetic-bearing system, with permanent and electro-magnets, to replace conventional lubricated bearings.

The compressor's only moving part – the rotor shaft – is levitated between magnetic bearings and can rotate freely between 18,000 and 48,000rpm.

Sensors at each magnetic bearing provide real-time repositioning of the rotor shaft more than six million times a minute, keeping its position correct to within less than one micron.

The compressor draws only two amps of power on start-up compared with the 500 – 600 amps required by most conventional compressors.

The oil-free design avoids the costs of oil pumps, sumps, heaters, coolers and oil separators, as well as the expense of oil-related servicing and maintenance.

Regular maintenance requirements are reduced to tightening the terminal screws quarterly, blowing off dust and cleaning the boards annually, and changing the capacitors every five years.

All this in a unit that is smaller, lighter, and quieter than conventional systems.

Mr Alan Warrington, from Air Conditioning Products, the Queensland company that sells the Australian-made PowerPax Chiller with oil-free compressor technology, said there were significant advantages for organisations adopting the product.

"Depending on site parameters, the oil-free technology can save between 25 and 47 percent of actual running costs," he said.

Mr Warrington said two independent energy audits had been conducted to determine the savings.

"The first was carried out at Wests' Leagues Club, Newcastle, in June 2003 where the existing chiller was retrofitted with Turbocor compressors.

"The audit recorded an average energy saving of 47 percent over the old equipment, ranging from 28 percent at full load to 75 percent at low load, giving an average saving of 55,000 kWh per compressor per year.

"It shows that unlike regular centrifugal compressors, the Turbocor compressor's performance under moderate conditions is excellent," he said.

In dollar terms those savings can translate to an annual reduction in energy costs of around $5000, and a corresponding reduction in demand charges of just over $2000.

In an audit of the Coles Myer Victorian office, where a PowerPax PPW800 chiller with three Turbocor compressors has been installed, energy savings of 29 percent have been reported.

Along with the reduction in running costs, Mr Warrington said the oil-free compressors also delivered significant savings in terms of maintenance.

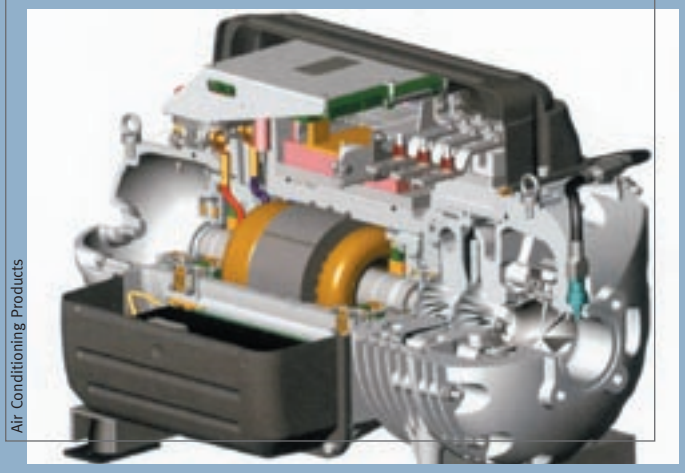
"The average maintenance charge on a conventional chiller would be between $3000 and $3500 each year," he said.

"Installing a PowerPax chiller with an oil-free compressor could reduce this bill to between $1000 and $1500."

Continued page 15

Air Conditioning Products

Magnetic bearings levitate the rotor shaft.



Air Conditioning Products

Frictionless, oil-free compressor technology, developed in Australia, makes air conditioners cleaner, quieter and more energy efficient.

Future of fishing industry buoyed by Environmental Management Systems

Queensland's fishing industry relies heavily on natural resources that are placed under ever-increasing demand by a range of disparate activities and interests.

Through a partnership with the Queensland Seafood Industries Association, the EPA is helping professional fishers in Moreton Bay and far north Queensland develop Environmental Management Systems (EMS) that will help improve management of their use of natural resources.

Designed to help industry achieve improved environmental performance, an EMS can demonstrate the advantages of minimising environmental impact and pursuing sound environmental stewardship.

Queensland projects in Moreton Bay and the far north are unique in that they are the first large-scale trials involving a collective approach to EMS by the fishing industry. Support for EMS development is also being recognised nationally with financial contributions to EMS work by the Australian Government and the Fisheries Research and Development Corporation.

Hundreds of fishers and many fisheries are involved in the projects, including Moreton Bay's net fishery, otter trawl and beam trawl industry groups, while in the Cairns region the trawl fishery group is involved.

Project Manager Kellie Williams, based at the University of Queensland, is working closely with fishers to guide them through the EMS development process.

"By developing an EMS, fishers are aiming to protect fish stocks for the future and to ensure that professional fishing remains a viable industry," Ms Williams said.

"Other priorities include improving relationships within the industry, and promoting environmental commitment and achievements to the community.

"From a thorough, scientifically-based risk assessment of their activities both on and off the water, fishers are working through the EMS process and developing a set of actions which build on industry best practice."

Ms Williams said the comprehensive risk assessment addressed environmental issues, social and economic risks, occupational health and safety, food safety and quality, and community perceptions.

"A lot of culture change has occurred in Queensland to enable EMS plans to even get off the ground, and that's been largely due to the commitment of all parties to the partnership," she said.

"Every fisher I've spoken to is keen to make a formal commitment to environmental sustainability through an EMS."

She said the EMS process had already achieved major improvements in relationships between fishers as well as a dramatic increase in awareness of what an EMS is and the benefits of co-management, and an increase in positive media portrayal of the fishing industry.

EMS development for fisheries involves an eight-step process, working through:

1. a **vision** of what fishers want the industry to look like in the future;
2. the **scope**, including which fishers, fisheries or regions will be included;
3. a **policy** or written commitment to environmental sustainability and other issues;
4. a **risk assessment** of all fishing activities;
5. development of **actions** to address activities that have high risks – the major part of the action plan;
6. **implementation** of actions;
7. **audit**, certification and review of the EMS; and
8. **report – communicate** achievements and commitment to other groups.

The Moreton Bay EMS is in final drafting stages and implementation is due to begin later in 2005.

Once completed, the EMS will provide a template for fisheries in other regions to develop their own environmental management systems.

"We've seen small groups of fishers come together throughout Queensland to develop an EMS for their area, outside of the pilot project, and many more are waiting on the results of the project," Ms Williams said.

"Fishers in Queensland see this as the way to stay in the industry and are committed to safeguarding future fish stocks and their livelihood."

The seafood industry EMS pilot program has been a success in partnership management, development of shared goals, and commitment to positive change. The program is uncovering many interesting aspects of EMS preparation which will be further addressed, from both individual and industry perspectives, in the future.

Kellie Williams, University of Queensland

The EPA is helping professional fishers in Moreton Bay and far north Queensland develop Environmental Management Systems (EMS) that will protect fish stocks and manage environmental impacts.

Bellis – towards sustainable living

While Queensland residents rely on ageing dams with dwindling water reserves to survive, each time it rains 'excess' water flows off our properties and down the drain.

In the meantime, Bellis – a refitted 1914 Queenslander promoting sustainable living in Brisbane's bayside suburbia – uses almost every valuable drop.

Owners Jerry Coleby-Williams and Jeff Poole enjoy guilt-free showers, thriving gardens and fresh drinking water after investing in a selection of sustainability features to effectively future-proof their home and garden.

They earn ordinary incomes and describe their home improvement skills as very average, but they began their project by developing a whole-of-site plan to ensure every surface on the property would contribute to water conservation.

The roof harvests rain to a 21,000 litre underground tank in the back garden, with the overflow recharging subsoil via a drainage system. Any excess, including surface runoff, collects in a landscaped soak-away pit at the lowest point of the property which is in the front garden. Here it recharges the subsoil of the ornamental subtropical garden which needs no irrigation, just natural rainfall, with plants ready for predicted climate change.

The toilet uses recycled water and a sewerage system processes all wastewater onsite. When the irrigation system has been installed to deliver excess recycled water to the fruit trees, Bellis will be ready for its public launch.

Soil on the property has been extensively composted to absorb, not shed, rainwater and vegetable beds have been raised to cope with flooding rain. This new garden was established during 2004, Brisbane's driest year in a century, and town water was used briefly on two occasions. While nearby gardens wilted or used extra town water, a sustainable, organic lawn was being established at Bellis.

As well as a healthy garden designed for water efficiency, Bellis now boasts energy-efficient features including roof-top solar panels which generate grid connected electricity onsite, energy-efficient appliances and gas cooking.

Although some of these features have an up-front cost, the owners are more than happy with the ongoing savings from their investment.

"The beauty of this garden is that anyone with basic skills can copy it," Mr Coleby-Williams said.

"We get a lot of pleasure out of simple things like tasty home-grown food, and water that tastes pure and cleans clothes really, really well.

"And we love getting energy bills now – it must cost more to process and print them than the amount they charge us!"

Mr Coleby-Williams and Mr Poole are part of a growing number of homeowners looking to wean themselves off energy and water utilities, and live more sustainably.

Sustainable housing is about being more efficient with finite natural resources, providing a better quality of life and reducing long-term costs for both homeowners and the community.

It is estimated that the average annual household electricity bill in Queensland has risen from around $800 to $1000 in recent years. Much of this increase is attributed to poorly designed housing that requires the installation of air conditioners that are both expensive to buy and to run.

Continued page 15

EPA

Vegetable garden in action, sustainable lawn established and home operating sustainably.

Breaking the boundaries of glass recycling

Gold Coast family company Australian Glass Technologies (AGT) is turning trash into treasure at its new fine glass recycling facility which processes 300 tonnes of broken glass a week.

Increasingly, glass supplied for recycling has been broken. Too small for most glass recyclers to accept, the tiny pieces of broken glass known as glass fines can be smaller than a 10 cent piece, and have previously ended up at the tip.

AGT Director Jim McLeod, who runs the company with his wife Chris and son Mark, said in the past the broken glass had gone straight to the dump in a waste stream with cigarette butts, straws, plastic cutlery and other rubbish. This waste stream, which is actually 85 to 95 percent glass fines, has now become a valuable resource for AGT.

"No other recycling plants handle anything that small," Mr McLeod said.

"We've developed a fully automated plant that puts the glass fines through a five-stage treatment process, after which it comes out clean, crushed and graded."

The AGT plant sorts the recycled glass into classes from very fine powders to coarse glass pieces, and the father and son team has found a diverse range of markets for their recycled glass.

"The glass is being used to manufacture bricks, pavers and roofing tiles for the building products industry which supplies both domestic and export markets," Mr McLeod said.

"We also sell to the mining industry and to homewares manufacturers who use the coloured glass pieces as decorative features in pot plants and home items."

Aside from the valuable environmental benefits of recycling and reusing the waste glass, buying recycled also has important benefits for industry and consumers.

"Incorporating glass into bricks and pavers stops salt water from breaking down the clay, making these products good for use in coastal areas or landscaping around swimming pools," Mr McLeod said.

"In the mining industry the glass is used for blasting, and because it doesn't spark it's a safe option."

In fact all of AGT's end glass products, from the powders through to the coarse glass, are produced to strict safety standards.

"Our end products are free of glass slivers or sharp edges, so you can pick up a handful of the glass without getting cut."

The EPA's Peter Collins attended the launch of AGT's fine glass recycling plant in June this year and was impressed with what he saw. He believes AGT's new plant is an example of how companies are starting to go that extra step to achieve maximum resource recovery from what were previously waste streams.

Best practice... *Continued from page 5*

"With the planning stage recently completed we are confident that we have successfully combined community, industry and government resources to develop a unique nationally-relevant project that will maximise investment in Australia's water futures, and present significant ongoing opportunities for innovative Australian companies," Mr Walton said.

A full time interpretive centre will be opened on site in September 2005 to enable demonstration of sustainable products, services and technologies used in the project during and after construction, and to inform visitors and residents about relevant environmental issues.

The Ecovillage initiatives showcased in this centre will help influence consumer perceptions about the residential use of tank water and recycled water, energy efficient home design and solar power systems.

The EPA is a partner in the interpretive centre which is a WaterWise and EnergyWise demonstration project.

The planning and design phases for the development have been completed, and first-stage construction and sales have started with initial contract settlements due in October 2005.

Two display homes will be operational by January 2006.

For further information on the development visit www.theecovillage.com.au

Landmatters

The Ecovillage's homes will incorporate self-sufficiency in water supply and treatment, water re-use strategies, solar power and energy efficient design features.

Cleaner, quieter air conditioning... *Continued from page 11*

With approximately 80 percent of faults in conventional chillers relating to oil, Mr Warrington said PowerPax recommended just four maintenance visits per year, rather than the average 12 for conventional chillers.

He said while the initial installation costs were higher, the savings achieved paid back that additional outlay within an average of three to five years.

Several Queensland companies and government offices have invested in the long-term benefits. These include the Brisbane Myer Centre, AMP, Queens Plaza, the Brisbane Hilton, Printcraft, RACQ, Powerlink, Indooroopilly Shopping Centre, Maroochy, Noosa, and Thuringowa Shire Councils and QUT.

For more information on the frictionless compressor technology, visit www.airconproducts.com

Air Conditioning Products

Many Queensland companies are investing in the long-term benefits of the frictionless compressor technology.

Towards sustainable living... *Continued from page 13*

Demand for sustainable housing is growing, with more and more developers offering sustainable options to their customers. When mainstream demand really takes off, smart developers will be well positioned to take advantage of higher consumer expectations.

In a research report based on three sustainably built display houses at Springfield in Brisbane's west, Dave Luxmoore spells out the benefits of incorporating sustainability features at the design stage.

Mr Luxmoore's study shows that by addressing building orientation, insulation, water- and energy-efficient appliances, energy-efficient lighting, water heating and fans in the original design and fit-out, the savings generated would pay for these features in less than four years.

Mr Luxmoore believes that once homebuyers understood the cost-benefits of sustainable housing, demand would follow.

"The housing industry will make small, gradual changes but mainly in response to attitude changes by the buying public," he said.

This is where Mr Coleby-Williams and Mr Poole want to play their part. A regular on ABC television's 'Gardening Australia' program, Mr Coleby-Williams is passionate about sustainable living and believes the building and development industry is missing a big opportunity by not promoting its benefits.

"Show people on a tight budget – like a retiree or a first-time buyer – how much cheaper it is to run a sustainable house, and your house will sell itself," he said.

Sustainable housing is designed to minimise the use of non-renewable resources with the added advantage to the householder of reduced operating costs. While retrofitting a house such as Bellis with sustainability features is very affordable, the benefit is even greater if the home is designed and built with these features.

The average annual cost of living comfortably in a home has reached four figures and rising, but thankfully for new homeowners many of the changes that make a house cheaper to run are free. With ongoing research and the passion of residents such as Mr Coleby-Williams and Mr Poole, a house with no bills may not be far away.

For more information on energy efficiency at home visit www.epa.qld.gov.au/sustainability/energy/

News in brief - Smart housing design made simple

Simple housing design solutions that look good, function well, save money and benefit the environment, are the focus of a new Queensland Government guide to Smart Housing.

The Smart Housing Design Objectives provide a blueprint for designers and homeowners to design a home that is socially, environmentally and economically sustainable. Such a home will be safer, more secure, flexible, comfortable, waste and resource efficient, and cost efficient over time.

Energy and water use, natural heating and cooling options, toxins, family safety and security are all addressed in the design objectives. These provide solutions that, if adopted early in the design stages, translate to long-term benefits for homeowners.

You can download the Smart Housing Design Objectives from the website at www.smarthousing.qld.gov.au/initiatives/smarthousing/publications/design.htm

Queensland company delivers a successful package

Queensland father-and-son company ReBUL Packaging is taking advantage of the push for better management of packing waste with a product that offers financial, environmental, practical, and logistical advantages to companies transporting goods.

Dr John Cole, EPA Executive Director Sustainable Industries and National Packaging Covenant Council member, said ReBUL (Recyclable Bulk) Packaging was helping reduce the environmental impacts of packaging, meeting the objectives of the National Packaging Covenant.

ReBUL is made from 100 percent recycled paper, is itself 100 percent recyclable and provides an alternative to timber and steel packaging.

The patented ReBUL box design system results in an innovative packaging box that is lightweight, strong, easy to assemble and disassemble, and can be custom-made in sizes to suit specific needs.

Brad Huggett, who runs ReBUL with his father Mike, said their product was unique in the market place, offering a range of benefits particularly in the transportation of delicate, valuable or heavy goods.

"The boxes are designed to make packaging simple, give piece of mind to users and reduce the total cost of packaging," Mr Huggett said.

"The boxes have comparable strength to timber crating, and while a one cubic metre box can hold around one tonne of goods, its weight is about a sixth that of similar sized wooden crating.

"This makes them easier and safer to work with and reduces transport costs. Their excellent strength to weight ratio also makes them especially favoured for air freight."

Mr Huggett said that as the packaging was 100 percent recyclable it was often used for one-way shipment, reducing the burden of packaging disposal on the receiver.

"Instead of paying to have packaging removed, the box can be easily disposed of through the recycle chain," he said.

"They're also fully reusable and easy to disassemble, so they can be stored flat for future use or transported back to a supplier very cost effectively compared with transporting an empty crate. This makes them very affordable for interstate and/or intercompany use."

ReBUL's packaging weighs about a sixth of similar-sized wooden crating.

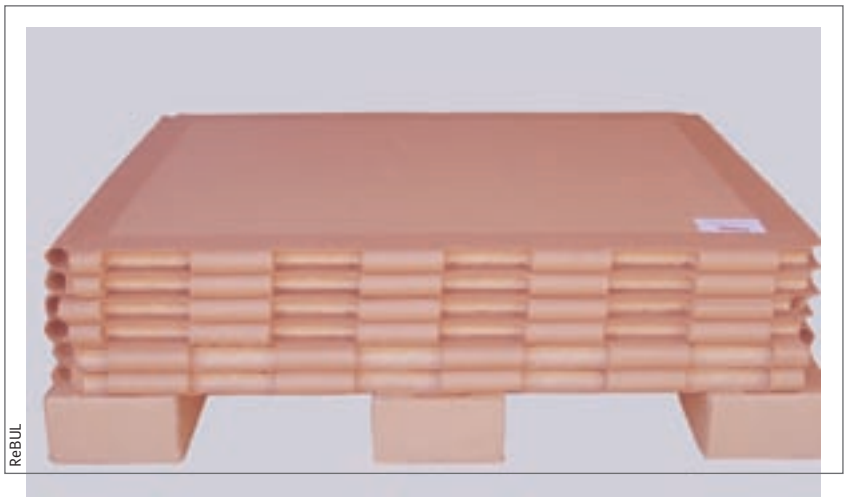
Customers ordering packaging from ReBUL get their boxes delivered as a flat pack, with panels custom-cut to size and a tubing system which holds panels together like a hinge. The design enables fast, easy assembly and includes a security locking feature.

They can be assembled in seconds without tools, and as individual panels can be replaced if they get damaged, this greatly reduces costs.

Orders for custom-made boxes have ranged in size from panels 200mm square up to 3 metres.

Mr Huggett said ReBUL's shock-absorbent boxes offered superior product security for transporting a range of goods from automotive components and electronic goods, to artwork and glass products.

For more information on ReBUL's products visit www.rebul.com.au



ReBUL's recyclable bulk packing is easy to store, transport, and assemble.

The Sustainable Industries mission is to help Queensland industries invest, compete and profit sustainably. If you think you may have a project opportunity that could be developed in partnership with the Division, or if you would like to know more about what we do, please contact us.

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