STRATEGIES FOR PROMOTING CLEANER PRODUCTION IN THE FOOD INDUSTRY

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Summary
Victoria has a vibrant food industry producing and manufacturing a diverse range of products for local and international markets. The Victorian Government’s recent food industry statement *Food for Growth* expects the industry’s gross annual value of exports to increase from $4.0 billion to $12 billion by 2010. Areas such as the Goulburn Valley in North East Victoria are a focal point for such growth and are also assisted by national initiatives such as *Supermarket to Asia* which aims to increase exports of food products with ‘clean and green’ marketing.

Whilst *Food for Growth* aims to increase economic outputs, the quality and quantity of natural resources, already under considerable strain, are also recognised. Poor water management has led to resource deficiencies and land degradation (such as salinity) that limit production and increase costs. The generation, treatment and disposal of substantial quantities of wastes risk public infrastructure and important water supply and aquatic systems. These inefficiencies could limit the potential of the industry.

There are opportunities for significant improvements in production efficiencies. The Original Juice Company has introduced innovative technology to change a waste to a product generating about $700,000 per annum. Bonlac Foods’ generates almost zero waste from its new facility at Darnum, the largest milk processing plant in the southern hemisphere, and is now working with its suppliers, the dairy farmers of Victoria, to promote Cleaner Production.

This paper describes some food sector and regional Cleaner Production partnerships which have become a priority of EPA’s Cleaner Production program. These partnerships have the potential to extend ownership of Cleaner Production across a wider audience, better communicate the benefits of Cleaner Production and achieve widespread adoption. Partnerships are being developed with food production and processing industries involving development and promotion of Environmental Management Systems. A partnership with food industry leaders in the North East region of Victoria has also been established.

Keywords
Food processing, Cleaner Production
INTRODUCTION

Imagine the stupidity of expending valuable resources to produce a product that you could not sell. It does not make business sense – yet food businesses throughout the world continue to produce waste products of limited or no value.

Fortunately, many companies now recognise that waste production and its associated costs should not be viewed as an inevitable consequence of the manufacturing process. These companies recognise that waste production is an indication of process inefficiency and lost profit.

The Original Juice Company introduced innovative technology to change a waste to a product generating about $700,000 per annum. Bonlac Foods’ generates almost zero waste from its new facility at Darnum, the largest milk processing plant in the southern hemisphere, and is now working with its suppliers, the dairy farmers of Victoria, to promote Cleaner Production.

With such demonstrable benefits of Cleaner Production to industry, why isn’t there a widespread embrace of Cleaner Production by the Victorian food industry? Victoria’s Environment Protection Authority (EPA) has, for a number of years, been promoting the benefits of Cleaner Production. However, achieving a business environment that encourages the widespread implementation of Cleaner Production will require a greater understanding of what motivates businesses and what the barriers to change are.

Food sector and regional Cleaner Production partnerships have become a priority of EPA’s Cleaner Production programs. This approach has the potential to extend ownership of Cleaner Production across a wider audience, better communicate the benefits of Cleaner Production and achieve widespread adoption of Cleaner Production principles into business management. Partnerships are being developed with food production and processing industries involving Environmental Management System development and promotion. A partnership with food industry leaders in the North East region of Victoria has also been established.

BACKGROUND

Victoria has a vibrant food industry producing and manufacturing a diverse range of products for local and international markets. The Victorian Government’s recent food industry statement Food for Growth [1] expects the industries gross annual value of exports to increase from $4 billion to $12 billion by 2010. Areas such as the North East of Victoria are a focal point for growth given the presence of large food processors such as SPC Limited, Ardmona Foods Limited, Rosella, Campbell’s, Murray-Goulburn, Bonlac Foods Limited, Uncle Ben’s of Australia and Uncle Toby’s.

Food for Growth is assisted by broader initiatives, that operate within the region such as the Commonwealth initiative Supermarket to Asia, and Australian Alpine Valleys Agribusiness Forum, a local initiative – both of which aim to increase exports of food products by taking advantage of Victoria’s potential “clean and green” marketing advantage.
Whilst *Food for Growth* primarily aims to increase economic outputs, the quality and quantity of natural resources, already under considerable strain, are also recognised. Poor land management has led to deficiencies in resource quality and quantity. Salinity and poor water quality are significant economic, social and political issues. The generation, treatment and disposal of substantial quantities of industrial wastes poses risks to infrastructure and essential water supply and aquatic systems. These inefficiencies limit the potential of the food industry.

*Food for Growth* places a 'whole of government' focus to ensure strong emphasis is placed on clean food, grown and processed using sustainable methods that increases market share and underpins the State’s economic security.

The Environment Protection Authority (EPA) is the lead government agency within the State of Victoria, Australia responsible for a sustainable environment through protection and restoration of air, land and water quality and control of unwanted noise.

EPA neither owns nor manages any sector of the environment but must achieve its goals through influencing those who do. This can sometimes only be achieved with hard edged means such as prosecution. However, as more people and companies recognise their corporate and individual roles in maintaining environmental quality, the emphasis has moved strongly to identifying strategic alliances and forming or facilitating partnerships. Environment Improvement Plans and the Cleaner Production Partnerships Program are examples of this approach.

Over 100 partnerships have been established with companies and organisations to demonstrate the benefits of Cleaner Production. In the focus area of the north east of Victoria some partnerships within the food industry include:

- Berrybank farm – piggery, energy recovery, waste reuse
- Dookie College – irrigation research
- Macallister research farm – irrigation research, dairy
- Pickworth Orchards – pesticide free storage of apples and pears
- Uncle Ben’s of Australia– using waste water for aquaculture
- Riverland Oilseed Processors – Waste reduction through an Environment Improvement Plan developed in consultation with the local community.

To build on these and other successes, EPA in consultation with industry established Victoria’s Industrial Waste Strategy to clear pathways for Cleaner Production and waste minimisation. The strategy, *Zeroing in on Waste*, [2] recognises that companies are looking beyond compliance and are increasingly focusing their investment to optimise both environmental and economic outcomes. The strategy provides a framework for the integration of Cleaner Production principles into business management.

**BARRIERS AND MOTIVATORS**

Achieving a business environment that encourages the widespread implementation of Cleaner Production requires an understanding of what motivates businesses and what the barriers to change are. The following table is adopted from the executive summary of a recent report commissioned by Environment Australia [3].

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<th><strong>Barriers</strong></th>
<th><strong>Motivators</strong></th>
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<td><strong>External</strong></td>
<td><strong>Internal</strong></td>
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<td>• The failure of existing regulatory approaches</td>
<td>• A lack of information and expertise</td>
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<td>• Difficulty in assessing cleaner technology</td>
<td>• A low awareness of environmental issues</td>
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<td>• Difficulty in accessing external finance</td>
<td>• Competing business priorities, in particular, the pressure for short term profits</td>
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<td>• Perverse economic incentives</td>
<td>• Bounded rationality in decision making processes (# see note below)</td>
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<td>• An absence of markets for recycled goods</td>
<td>• Financial obstacles</td>
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<td>• Economic cycles</td>
<td>• Lack of communication in firms</td>
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<td>• Middle management inertia</td>
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<td>• Labour force obstacles</td>
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<td>• Difficulty in implementing cleaner technology</td>
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<td><strong>External</strong></td>
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<td>• Innovative regulation and pollution prevention</td>
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<td>• Negotiated self regulation</td>
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<td>• Economic incentives</td>
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<td>• Codes of practice</td>
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<td>• Industry networking</td>
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<td>• Financial institutions</td>
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<td>• Community perceptions and involvement</td>
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<td>• Environmental auditors</td>
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<td>• Green consumers</td>
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<td>• International trade incentives</td>
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<td><strong>Internal</strong></td>
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<td>• Environmental management systems and continuous improvement</td>
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<td>• Voluntary initiatives</td>
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<td>• Environmental leadership</td>
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<td>• Corporate environmental reports</td>
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<td>• Environmental Accounting</td>
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<td>• Improvements in productivity</td>
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Note: External barriers and motivators are those that operate outside the business and include statutory, economic and social barriers and motivators. Internal barriers are those that operate within a business environment.

# Note: “Bounded rationality” refers to the limits of business managers to have all the correct information and the abilities to process this information.

**CLEANER PRODUCTION MECHANISMS**

EPA uses a range mechanisms to enhance Cleaner Production motivators and assist overcome potential barriers. It is EPA’s experience that a combination of a number of mechanisms, applied over a period of time, results in the delivery of Cleaner Production. The following summarises some of the mechanisms that EPA uses to encourage Cleaner Production implementation in industry.

- Advanced legislation and industrial waste strategies
- Information and advisory services by supporting the Australia Centre for Cleaner Production
- Demonstration projects and case studies
- Partnerships with industry to improve Cleaner Production awareness and implementation.
• Direct loans and grants for innovative technology, environmental management systems and placement of experience managers
• Sponsorship and development of conferences and seminars
• Targeted Cleaner Production training and education for industry and government staff.
• Clean green market development
• High profile annual awards.

EPA together with other Victorian Government agencies has established strategies for the promotion and implementation of Cleaner Production around the following elements:

**Promoting industry leaders**

Awards to highlight innovations in Cleaner Production are presented annually by EPA to industry. Whilst these awards do not include a monetary component, the prestige associated with such awards enhances a company’s reputation, often providing significant economic and

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<th>Case study – Original Juice Company</th>
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<td>The Original Juice Company, an EPA Cleaner Production Award winner, opportunity to recover valuable by-products from orange peels in the form of citrus oil and evaporator with a capital outlay of A$1.1 million. Their investment had a years from reduced trade waste charges and by-product sales. The reduction in trade waste The recovery and sale of citrus oil and molasses is now a significant source of additional $700,000.</td>
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Food sector and regional Cleaner Production partnerships have become a priority of EPA’s Cleaner Production program. This approach has the potential to extend ownership of Cleaner and achieve widespread adoption of Cleaner Production principles into business management.

Funding is provided for specific projects to demonstrate the benefits of Cleaner Production. The demonstrations. Often, the partnership will promote practical, easy to use Environmental organisations. More progressive industry sectors
Case study – Tomorrow’s Food Today

EPA has a partnership with Tomorrow’ Food Today (TFT), a non-profit farm management consultancy, to promote Cleaner Production in the rural sector. EPA, with TFT has enlisted the aid of four progressive beef producers to pilot a new EMS as a prelude to going industry wide. The new system titled “10 easy steps to environmental management for beef farming” was partly funded under EPA’s CPPP and will help to cut water usage, fertiliser runoff to streams, land degradation and chemical residues.

Partnerships are now being developed with the dairy and wine industry involving environmental management system development and promotion.

Food Benchmarking

As part of Food for Growth, Victoria’s Department of State Development, with the cooperation with EPA and other government agencies, is conducting a food benchmarking study. The study involves benchmarking world’s best environmental practice in the food processing industry followed by a government and industry sponsored program with 15 large processors to improve environmental performance through Cleaner Production. An important outcome of the benchmarking will be development and implementation of waste management plans for participating companies.

Export Markets, Clean & Green Food

Victoria’s food industry is taking up the challenge to become world leaders in providing “Clean and Green” produce. Cleaner Production practices will be a key to future prosperity as the world seeks clean and green produce. Increasing demand for “Clean and Green” food by export markets will see the need to reduce environmental and human health risks in all steps of the production process- from the pasture to the plate.

EPA strongly encourages mutually beneficial partnerships between customer and suppliers and has developed, with the support of the dairy industry, Best Practice Environmental Management Guidelines for dairy processing and promotional material showing on-farm examples of Cleaner Production.

Regional Approach

The link between a healthy economy and environmental health is often directly apparent in regional communities. Establishing a partnership with industry leaders in a geographic region provides a logical approach for the promotion and implementation of Cleaner Production programs.

Common issues such as resource availability and waste disposal can provide incentives for different industries to come together to tackle the challenges of sustainable development.
Case study – Bonlac Foods

Darnum plant was awarded the 1997 EPA Cleaner Production Award for its innovative approach to waste management. The new leading the Australian dairy export industry with a range of environmental processes which will

• segregating wastewater from each part of the process to maximise recycling and minimise water usage and product loss;
• using membrane technology to recycle acid and alkali washwater streams in order to reduce salt loads going into irrigation water;
• cleaning boiler water condensation to the standard of town water so it can be re-used in the plant; and
• reusing water with an artificial wetland filled with native flora and fauna, and irrigating expansive parklands surrounding the factory.

Cleaner Production at the Darnum plant also significantly reduced energy costs and greenhouse gas emissions and also assisted the company to establish its environmental credentials and win the right to be the official supplier to the Sydney 2000 Olympic Games.

Bonlac Foods is now working with its suppliers, the dairy farmers of Victoria, to promote Cleaner Production.

Case study – Goulburn Valley and North East Victoria

A partnership with industry leaders in the North East region of Victoria has been established. The partnership is based on a common goal of ecological sustainability for the region through improved natural resource efficiencies and waste reduction.

Governments on a national, state and local level have recognised the region as strategically important in food production. Through forums such Supermarket to Asia and Australian Alpine Valleys Agribusiness Forum the region intends to market it’s “clean green” produce to the world.

The Cleaner Production partnership in the North East Region can be compared to an extension program to facilitate a collective learning process within businesses and government. This learning process aims to change central attitudes within food businesses using a number of Cleaner Production mechanisms in an integrated and coordinated manner. Elements of the partnerships include: providing EPA resources, identifying industry needs, developing industry clusters, increasing Cleaner Production awareness and information, facilitating specific Cleaner Production projects and establishing further industry, government and community partnerships.
STRATEGIC CLEANER PRODUCTION DIRECTIONS FOR THE FOOD INDUSTRY

consultation with industry leaders of north east Victoria.

Improved promotion of the benefits of Cleaner Production targeted towards senior management of small to medium sized enterprises, specific industry sectors and groups. The program will emphasis the potential for increased profits through good

Improved communication by fostering greater dialogue on Cleaner Production through the creation of new networks that integrate and organisations; including existing development, government, community and environment groups; and

Education and Training
Develop regional education and training activities, with support from industry, to increase financial managers. Training to involve education institutions such as Universities and may include business management system training. Activities may also involve providing

Financial and Economic
Encourage financial institutions to support the up-take of Cleaner Production by improving increasing growth through the widespread adoption of Cleaner Production and limitations to economic growth imposed by finite natural resources and waste disposal.

Increase the availability of Cleaner Production expertise to industry, support existing programs that encourage Cleaner Production and investigate new mechanisms for Cleaner Production such as “industry clusters”. Provide a Cleaner Production information and advice service to industry and the community that allows for the identification of Cleaner Production projects, feasibility, development and implementation through industry partnership and support.

CONCLUSIONS AND FUTURE CHALLENGES
Realising the economic and environmental potential of the food industry in Victoria will require business and government to be far more efficient in the use of limited resources than has ever
been the case in the past. There are a number of tools and mechanisms to use, and there are broad directions to take - the challenge is to prioritise actions in accordance with the limited human and financial resources available.

Awareness of the benefits of Cleaner Production as well as barriers and how to overcome them is critical, as is the need to reinforce the motivators for Cleaner Production. EPA is currently developing a strategic marketing plan to ensure our efforts in this area get maximum results.

Education and training will increasingly become more important as companies realise the potential business advantages of resource efficiency, product stewardship and clean and green food. Successful Cleaner Production education will be a collective learning process similar to the Total Quality Management (TQM) process which many companies are now familiar with.

Changing the culture of industry will take time and much effort. It will require the cooperation and teamwork from all those interested in clean and green food business. Effective partnerships between industry, community and government will need continued nurturing to firstly increase awareness of the benefits of Cleaner Production and then to convert awareness into action.

Clean and green food is more than an idealistic goal. The community and the markets expect it – the environment will demand it. If we get it right, the potential rewards are great, not only for but for the long term future of Victoria.

REFERENCES

