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**Eco-Efficiency Assistance Program for Book Production Industries
FINAL REPORT AND TASK 3: PROGRAM PROPOSAL**

Prepared for

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Executive summary

A scoping study was carried out in order to develop recommendations on implementing an Eco-Efficiency assistance program for the book production industry. The study was supported by the Book Production-Enhanced Printing Industries Competitiveness Scheme (EPICS), Infrastructure and Industry Growth Fund. It was carried out by the Centre of Excellence in Cleaner Production, Curtin University of Technology (CECP), with the active support of the WA Branch of the Printing Industries Association of Australia (PIAA-WA) and PIAA national and regional offices. CECP and PIAA-WA were joint applicants for EPICS funding of the scoping study and will be joint applicants for any continuing program assistance.

This scoping study was carried out in recognition of the environment as a key issue for the book production/printing industry, and Eco-Efficiency as a potential source of business advantage in a highly competitive market. This advantage lies not only in cost savings, productivity and regulatory compliance but in being able to respond to potential emerging customer demands for environmentally responsible services.

Project tasks

The main tasks for the scoping study were as follows:

- €# Task 1: Baseline Assessment. This consisted of a review of publicly available Eco-Efficiency/ Cleaner Production case studies from the Australian book production industry, a telephone and written survey of the awareness and uptake of Eco-Efficiency principles and practices in the industry, development of new case studies, and preliminary Eco-Efficiency benchmarking. The survey included book producers/printers in all States.
- €# Task 2: Industry Consultation. This was undertaken in order to gather stakeholder input for the design of an Eco-Efficiency assistance program. It also sought feedback on and confirmation of the results of the baseline assessment. A further aim was to obtain additional case study material. Printing industry and environmental agency representatives and other potential collaborators were consulted in WA, NSW, Victoria and Queensland.
- €# Task 3: Program Proposal. The results of Tasks 1 and 2 form the basis for the Eco-Efficiency assistance program proposal combined with a final report on the project as a whole. Since further funding under EPICS might not be available (the scheme was cancelled in the 2002-2003 Federal Budget) this proposal has been prepared to complete the scoping study, recognising that assistance may have to be sought from other sources.

Results and conclusions of Task 1: Baseline Assessment

The baseline assessment found that awareness and uptake of Eco-Efficiency principles is generally limited in the Australian printing and book production industries. There are few existing publicly available case studies and new ones were hard to find anywhere in Australia. There was a poor response to the telephone and written surveys and those that responded had done little or nothing in this area.

In view of the generic benefits of Eco-Efficiency and the environmental and business challenges facing the industry, it was concluded that a program of assistance would be beneficial for the industry.

Results and conclusions of Task 2: Industry Consultation

The consultation involved visits to a variety of types of book production/printing firms, environmental agencies, industry specialists and TAFes) and included around 60 individuals from some 36 organisations. The visits were arranged through PIAA offices.

Within the industry as a whole there have been few initiatives which have been specifically about improving Eco-Efficiency although the PIAA, environmental agencies and other organisations had implemented some relevant environmental or other initiatives.

While only resulting in two further new case studies (in addition to the three found in Task 1), the review found that significant improvements in Eco-Efficiency are taking place in firms investing in such new technologies as computer-to-plate. However, these tend to be taking place for competitive and business efficiency reasons (for example cutting labour costs and shortening set up times) rather than for environmental reasons and are not necessarily recognised as examples of Eco-Efficiency. In general, however, there are many barriers to applying Eco-Efficiency and other environmental measures, such as short term pressures limiting time and interest, delivery pressures increasing the potential for errors and waste, conservatism limiting the willingness to try alternative, non-solvent materials, and lack of regulatory pressure or market incentives. There was a general feeling that firms trying to do the right thing often incur cost penalties compared to firms dealing with waste irresponsibly.

There was broad consensus on the need for capacity-building, particularly in the area of improved awareness and better information on such things as materials choices and what to do with waste. While there was general agreement on the need for training, especially as part of building management capability, the ability to attend external courses may be limited. Most were positive towards the idea of benchmarking, although participation would depend on the information being shared.

The consultation concluded, however, that while capacity-building initiatives are useful, their effectiveness is likely to be limited in the absence of regulatory or market stimulation of demand or pressure for good performance. Green procurement by government and some form of accreditation scheme would be necessary foundations for such market stimulation. Initiatives to support a green print market are therefore included in this proposal alongside capacity building.

Proposal for an assistance program

The overall aim of the assistance program will be to enhance the Eco-Efficiency performance of the Australian printing/book production industry and enable it to gain business benefits while improving its environmental performance.

General objectives and outputs will include:

- €# Building the Eco-Efficiency capacity of the industry through information, training and benchmarking
- €# Contributing to building the market through policy research, information provision and education of print buyers, all focused around the development of a green accreditation scheme.

Specific objectives and outputs will depend on the funding, focus and scale of work and national/regional emphasis. For practicality, including the need to work locally with firms, government agencies and others, and the availability of CECP resources, it is proposed that the initial emphasis should be on an assistance program in WA. The program will nevertheless be designed for adaptation and sharing of learning in other states.

The proposed initiatives and outputs are as follows:

- €# Development of information and guidelines for printers and print buyers. This would include a booklet(s) and information sheets which would also be made available on the CECP and PIAA web sites.

- €# Development of Eco-Efficiency/Cleaner production training material and delivery of training to support initial participants in an accreditation scheme. The training would be run after the scheme was announced and before launch in order to encourage interest and participation.
- €# Running a benchmarking scheme with a group of printers. Subject to interest and willingness to share information, this would be carried with a small group approached through PIAA. As with the training the aim would be to run the pilot during the pre-launch period for the accreditation scheme. Suitable metrics would be agreed, data collected and analysed and monthly results and comparisons fed back to participants over the trial period.
- €# Developing an accreditation scheme: Following consultation on its feasibility and criteria a scheme would be developed and refined during the pilot period. A selected number of pilot companies signing up to it would receive training and assistance in implementation and an audit. Those passing the audit would receive accreditation.

The success of such an accreditation scheme would depend on government agencies and print buyers supporting the scheme and committing to giving weighting to environmental performance in their procurement decisions.

The proposed program would be implemented over a twelve month period and the aim would be to pilot accreditation and benchmarking schemes and develop supporting material and capacity.

The eventual scope of work would depend on the level of interest and uptake for accreditation benchmarking and training. An indicative budget for all of the tasks would be \$125,000 to \$165,000. A minimal project of just information and training material development, and running some training, would cost much less.

Depending on the success of the program, some or all elements could be rolled out nationally via train the trainer sessions and ongoing support for facilitators/providers in other states. This would be the subject of a further program.

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1 Introduction

1.1 Purpose and scope of the scoping study

A scoping study was carried out in order to develop recommendations on implementing an Eco-Efficiency assistance program for the book production industry. The study was supported by the Book Production –Enhanced Printing Industries Competitiveness Scheme (EPICS), Infrastructure and Industry Growth Fund. It was carried out by the Centre of Excellence in Cleaner Production, Curtin University of Technology (CECP), with the active support of the WA Branch of the Printing Industries Association of Australia (PIAA-WA). PIAA national and regional offices also assisted in providing contacts for the survey and consultation tasks outlined below. The scoping study included Western Australia, New South Wales, Victoria, and Queensland.

CECP and PIAA-WA were joint applicants for EPICS funding of the scoping study which resulted from discussions in 2001 between CECP, PIAA and representatives from EPICS and ISR. CECP and PIAA-WA will be joint applicants for any future program assistance.

The tasks for the scoping study are summarised as follows:

- €# Task 1: Baseline Assessment. This consisted of a review of publicly available Eco-Efficiency/ Cleaner Production case studies from the Australian book production industry, a telephone and written survey of the awareness and uptake of Eco-Efficiency principles and practices in the industry, development of new case studies and preliminary Eco-Efficiency benchmarking. The conduct and results of Task 1 are summarised below and detailed in Annexes 1a to 1d attached to this document as electronic files.

- €# Task 2: Industry Consultation: The industry consultation was undertaken in order to gather stakeholder input for the design of an Eco-Efficiency assistance program. It also sought feedback on and confirmation of the results of the baseline assessment. A further aim was to obtain additional case study material on best practice in Eco-Efficiency by book producers. The consultation included printing industry representatives, environmental agencies and other potential collaborators. The conduct and results of Task 2 are summarised below and detailed in Annex 2 attached to this document.

- €# Task 3: Program Proposal. The results of Tasks 1 and 2 form the basis for the Eco-Efficiency assistance program proposal (below) which is combined in this document with a final report on the project as a whole. In view of the uncertainty regarding EPICS, it was not considered useful to prepare a detailed, costed proposal in the standard EPICS format and geared solely to EPICS aims and criteria. Instead, it was considered more useful to generate ideas for an assistance program that would be adaptable to other funding sources as well as EPICS, including sources which might require a regional rather than national emphasis. An indication is nevertheless provided of likely resource requirements.

In order to generate national as well as regional benefits, a program is proposed which would be carried out in WA but which would generate information, materials and models for wider application.

The initiatives suggested in this proposal are based not only on the results of the baseline assessment and consultations and also on experience of working with other industry sectors.

1.2 Background

The Australian book production industry is under severe competitive pressure as a result of several factors including competition by new media (electronic and on-demand printing) and effect of Asian competition on the Australian market. At the same time the book production industry is faced with stricter environmental standards and increasing levels of community concern about the environmental impacts of light industries, including book production, in particular for application of solvents in relation to local air quality issues. This program envisages to use environmental factors (including use of solvents, inks and other chemicals, energy, water and generation of waste and emission to water and air) as a driver for improving the business competitiveness of the Australian book production industry.

Eco-Efficiency is a concept that links environmental and financial performance, by focusing on the development, production and delivery of products and services that meet human needs while progressively reducing their environmental impact throughout their lifecycles. Eco-Efficiency essentially means doing more with less – using environmental resources more efficiently in economic processes. The application of Eco-Efficiency is undertaken, but not limited, by approaches and tools such as Cleaner Production and Environmental Management Systems. These tools help companies identify opportunities to improve resource efficiency and reduce environmental impacts ⁽¹⁾. Eco-Efficiency and Cleaner Production are increasingly recognised as complimentary and largely overlapping approaches, which can be used interchangeably.

The tools of Eco-Efficiency and Cleaner Production can be applied in all industries to identify improvement and innovation opportunities in process technology, chemistry and equipment; in management and information systems; and in operation and maintenance practices. Benchmarking systems allow business to monitor their Eco-Efficiency over time and compare their own performance with that of other enterprises locally, nationally and overseas.

¹ For a comparative discussion of Eco-Efficiency and Cleaner Production tools (with illustrations from the chemical industry) see for instance: R. Van Berkel (2000), *Cleaner Production in Australia: Revolutionary strategy or incremental tool?*, in *Australian Journal of Environmental Management*, September 2000, pg. 132 - 146.

2 Report on Task 1: Baseline Assessment

2.1 Introduction

A baseline assessment was carried out by CECP as Task 1 of the Scoping Study. The purpose of the baseline assessment was to understand whether and how Eco-Efficiency is being considered and implemented in the Australian book production industry. The results were to be used in developing recommendations on the implementation of an Eco-Efficiency assistance program.

The baseline assessment consisted of three parts in relation to the industry:

- ## A review of publicly available Eco-Efficiency and/or Cleaner Production case studies.
- ## A survey of awareness and uptake of Eco-Efficiency principles, this consisting of a telephone survey and a written survey.
- ## Development of new Eco-Efficiency case studies.
- ## Preliminary Eco-Efficiency benchmarking.

The conduct and results for each part are summarised in the following sub-sections.

2.2 Review of available case studies

A number of database sources were searched, including those of Environment Australia and all of the State Environmental Agencies. The latter were also contacted with a request to provide any Eco-Efficiency and/or Cleaner Production case studies related to the printing industry. The same request was directed to the regional PIAA branches.

Only nine cases were found for the Australian printing industry as a whole. Of these, six are involved to varying degrees in book production. Of the other three, two are on screen printers and one a chemical supplier benefiting its printer customers. The majority of those case studies (55%) are largely, if not exclusively, based on good housekeeping with the remainder consisting of comparatively simple changes in inputs, recycling and equipment. The more innovative and potentially most eco-efficient (environmentally and economically) Cleaner Production practices appear not yet to have been considered.

2.3 Survey of awareness and uptake: Telephone survey

The survey included telephone and written components and was carried out in the period October 2001 to March 2002.

Businesses for the telephone survey were identified from Yellow Pages On-line. Besides providing information for the present project, the telephone survey formed part of a project to test a survey instrument for assessing Cleaner Production and Eco-Efficiency uptake amongst CEOs of SMEs. The written questionnaire was based on a format initiated by Business SA.

The telephone survey covered awareness, management systems in place to support implementation, and the level of implementation, especially innovation. The survey was designed to avoid response bias, where respondents reply according to what they think the researcher wants to hear. The questions were therefore designed to prevent the respondents from knowing the purpose of the questionnaire until the implementation initiatives relating to Eco-Efficiency and Cleaner Production were allowed to emerge. Scoring methods were developed for awareness, management and implementation.

Of the over 660 printers and bookbinders in the Perth region, Queensland and South Australia, 40 of the sample of 103 companies contacted were willing to grant an interview, representing a 39% response rate. Of these 20 were from Western Australia, 9 from Queensland and 11 from South Australia.

The telephone survey revealed, on average, low to very low levels of awareness and implementation of Eco-Efficiency and Cleaner Production, with slightly better results for management initiatives supportive of Cleaner Production. The level of awareness and implementation in the printing and book making industries appears to be at comparable levels to other sectors dominated by SMEs, in particular, metal products, food processing and drycleaning.

Very few of the respondents scored more than 50% for management, implementation or even awareness of Eco-Efficiency/ Cleaner Production principles. The mean awareness of 18% for the printing sector suggesting that much needs to be done to convince businesses of the potential benefits.

Innovation and technological change are contributing to improved environmental performance. 23 companies (57%) listed at least one innovation that achieved environmental objectives. Of the innovations, a major part of them was related to new machinery and equipment (52%), several of them introducing the latest technology. Some other innovations listed included recycling activities and using environmentally friendly inks. 13 respondents believed their companies could benefit from Cleaner Production, 10 indicating that this would be through cost saving. Two of the respondents stated that they have already benefited from Eco-Efficiency/Cleaner Production.

2.4 Survey of awareness and uptake: Written survey

Since telephone surveys are not suited for collection of adequate performance information, a written survey was carried to obtain such information as well as assess awareness and needs for assistance.

The written questionnaire was distributed to 40 book production companies recognised as industry leaders by their industry peers. 26 questionnaires were faxed and 14 companies were approached by phone to assist them with answering the questions. 17 companies cooperated, representing an overall response rate of 41%. 7 of the responses were from NSW, 7 from WA, 2 from Queensland, 1 from ACT and none from Victoria

The written survey revealed that half of the respondents claim to have made a genuine commitment to environmental performance improvement through, for example, nomination of a responsible person (50% of respondents) and/or implementation of measures considered as Cleaner Production or waste minimisation within the last 12 months (56%). The quantitative data obtained from a few of the respondents are patchy, in turn indicating that even the industry leaders are just starting to collect environmental performance data. Some supplied information but, while most were aware of materials and energy costs, few were aware of quantities of usage.

Several specifically mentioned the need for better information on chemicals and more information on cleaner production generally

2.5 New case studies

The search of companies, examination of the telephone and written survey results, and calls made to companies, only resulted in identifying three companies suitable for a new Cleaner Production case study. All are further examples of businesses shifting to solvent-free operations and implementing

good housekeeping practices. The Environmental Printing Company, especially, and also Queensland Complete, have also benefited from niche market demand for green printing. The Tennyson Group is of interest in signing up to the Greenhouse Challenge and making energy savings from downsizing its compressor.

Two more case studies were subsequently developed in the consultation stage: Platypus Graphics and Queensland School of Printing. These are attached in electronic file attachment 1d along with reformatted versions of the original three cases.

2.6 Preliminary eco-efficiency benchmarking

Benchmarking of the provided environmental performance data with European data seems to suggest that the environmental performance of Australian companies is better than that of their European counterparts. As data are normalised per employee, there is reason to be cautious about this comparison. The performance difference may just reflect differences in business sizes, with the apparently larger European businesses producing more product as well as consuming more inputs per employee. Benchmarking comparisons such as these raise general issues such as the importance of using comparable and reliable data. The MEPI approach used data collected over few years, while the Australian performance analysis is more of a “snapshot”.

2.7 Conclusions and recommendations

On the basis of this general assessment, awareness and uptake of Eco-Efficiency/Cleaner Production is generally low. Most companies could potentially benefit from applying techniques in this area to systematically examine options for improved performance, and to develop action plans. Most could at least benefit through good housekeeping measures. Many could also consider new technology options in materials and equipment, and better planning practices.

The industry could accordingly benefit from an assistance program that assists businesses with the implementation of Eco-Efficiency practices that enhance their economic and ecological performance.

Based on experience with other sectors, especially drycleaners, the baseline assessment report recommended that the program should consist of the following basic and complementary elements:

- €# Capacity building through training: To generate understanding of Cleaner Production/Eco-efficiency benefits and application, and enable companies to develop action plans
- €# Provision of tools, including diagnostic tools and best practice guidelines: To reach a wider audience, especially those who may not be reached by training
- €# A guided benchmarking service: To help improve performance through measurement and comparison.

3 Report on Task 2: Industry Consultation

3.1 Purpose, scope and conduct

Industry consultation was carried out as Task 2 of the Scoping Study.

The purpose of the consultation was to gain the views on the form that an Eco-Efficiency assistance program might take in order to further develop recommendations on the implementation of an assistance program.

The consultation took place under the auspices of the Printing Industry Association of Australia (PIAA) and with the active support of the national office and the regional offices of New South Wales, Queensland, Victoria & Tasmania, and Western Australia. Consultations took place with representatives of PIAA, printing firms involved in book production, state environmental agencies potential deliverers of training (TAFEs) and specialist advisors to the industry. The discussions focused on, but were not restricted to, information and training needs and the feasibility of benchmarking and green accreditation. It also reviewed existing and planned initiatives by consultees.

Visits were made and discussions took place during May 2002 with some 60 individuals representing 36 organisations (see annexes to Consultation Report attached as electronic file attachment Annex 2).

3.2 Industry context

While reviewing the industry structure and business conditions was not specifically part of the study, some general features were noted since they all have implications for environmental impacts or the scope of an assistance program. The industry context is best characterised by the following:

- ⌘ Intense competition and overcapacity driving down margins;
- ⌘ Rapidly changing technology;
- ⌘ Changing and increasing customer demands (including short delivery times);
- ⌘ A high level of diversity by size, operations, equipment and processes;
- ⌘ Changing skill requirements and gaps (including the need for greater management capability);
- ⌘ Weak regulatory and market signals;
- ⌘ A lack of cooperation in the face of common threats and issues.

Technology developments are generally increasing Eco-Efficiency, at least among firms investing in new technology. Eco-Efficiency improvements are not, however, general taking place for environmental reasons or in a systematic way.

Some factors are barriers to Eco-Efficiency. Intense pressures mean that is little time or interest in considering environmental issues, especially in smaller firms. This is reinforced by the lack of regulatory or customer demand for environmental performance. Short delivery times and pressures contribute to increased errors and waste. Intense competition and lack of cooperation represent barriers to benchmarking.

In the absence of greater regulatory threats or business benefits, industry participation in an assistance program may therefore be limited.

These issues are further discussed further in the Consultation Report – attached as electronic file attachment Annex 2.

3.3 Feedback and confirmation of the baseline assessment results

There was general agreement with the main findings of the baseline assessment, namely that awareness and application of Cleaner Production and Eco-Efficiency is limited, and that the industry would benefit from an assistance program. This finding must be qualified by the fact that technological changes for business efficiency reasons are generally improving Eco-Efficiency although they may not always be recognised as such. Moreover, there appears to be limited formal consideration of energy efficiency outside of large firms.

The consultations did not identify significant amounts of case study material illustrating specific application of Cleaner Production principles, although a number of the companies have applied beneficial but generic new technology. A number of cases of trials of new materials were noted.

3.4 Existing initiatives

There have been few initiatives in the industry which are specifically about improving Eco-efficiency. A number of the organisations consulted had nevertheless implemented, contributed to, were planning or were considering environmental or other initiatives relevant to this scoping study. These provide a basis for informing decisions and, in some cases a framework or foundation to build on.

- ⌘ The PIAA has produced and is producing a number of relevant guidelines or publications, is supporting local environmental assistance programs and has proposed a national business benchmarking survey. The latter could include Eco-Efficiency indicators. Increasing management capability has been recognised as a priority for training along with technical flexibility to use new technologies.
- ⌘ State environmental agencies have supported or led environmental guidance and assistance programs targeted at or including the printing industry, with varying degrees of success.
- ⌘ TAFEs are increasingly introducing environmental (especially materials and waste) issues into their curricula and practices. They are increasingly innovative in responding to changing technology needs and examples of eco-efficiency initiatives were noted such as trialling of waterless printing and water washable inks. Increased consideration is being given to management training.
- ⌘ A variety of eco-efficiency initiatives by firms were noted: Recycling of materials, including solvents and rags, application of new technologies including computer to plate, digital and automatic wash systems, better planning to improve paper and materials use and reduce waste, trialling of alternative materials and technologies.

3.5 Form of an assistance program

There was general agreement that an Eco-Efficiency assistance program would be beneficial, but its usefulness would be limited by the absence of regulatory or market signals. Government procurement favouring environmentally responsible printers would, for instance, provide a clear market signal. A common complaint by those who had tried to do the right thing was that presently there is little incentive.

Given the potential business benefits, for example waste and energy savings, an assistance program would still be beneficial now but be less effective and generate less interest without these external stimuli. Within the context of there being a clear business case for Eco-Efficiency and Cleaner Production, there was general consensus on the following:

- €# There was general agreement that better information is needed, with guidance on basic issues such as regulation and what to do with waste, and more advanced on experience of new materials. It should link to best practice worldwide and link to other sources. A web site would be especially useful.
- €# Training needs to build on existing vehicles and provision but should involve going to firms wherever possible and encouraging learning. It will be difficult to get busy people to attend external training.
- €# Benchmarking could be beneficial but would need to overcome a range of obstacles. A local pilot programme could be the best way to start the process. For firms to cooperate to the required degree usually requires a common external threat. New regulatory controls over the use and disposal of perchloroethylene was a major factor in encouraging WA drycleaners to participate in a Cleaner Production benchmarking club.
- €# An accreditation scheme through the PIAA could be well received provided there were perceived market benefits.

The effectiveness of all initiatives will depend on measures to stimulate the market. A focus should therefore be on assisting in this process, for example through workshops/conferences on such issues as regulatory and procurement policy and print buying, linked to the idea of developing an accreditation scheme. In view of practical issues relating to managing assistance in these areas, it is recommended that the initial focus should be on WA while aiming to transfer information and learning to other states.

3.6 Conclusions

The general conclusion of the consultations was that an Eco-Efficiency assistance program would be beneficial for the book production industry in generating cost savings and other business benefits which could enhance the competitiveness of firms and the industry as a whole. Information, training and benchmarking would be beneficial.

The usefulness and uptake of such assistance would, however, be limited without very clear business benefits.

4 Assistance program proposal

4.1 Aim, objectives and benefits

The overall aim of the assistance program will be to enhance the Eco-Efficiency performance of the Australian printing/book production industry and enable it to gain business benefits while improving its environmental performance. Eco-Efficiency performance improvement can be expressed as value increases or cost savings per unit of resource use or environmental impact.

General objectives will include:

- €# Building the Eco-Efficiency capacity of the industry through information, training and benchmarking
- €# Contributing to building the market for enhanced Eco-Efficiency performance by firms through policy research, information provision and education of print buyers

Specific objectives and outputs will depend on the funding, focus and scale of work and national/regional emphasis. However, practical constraints will influence what can be done and how, including the need to work locally with firms, government agencies and others, and the potential for leverage of CCEP resources. It is proposed that the initial emphasis should be on an assistance program in WA. The program will nevertheless be designed for adaptation and sharing of learning in other States.

The adoption of Eco-Efficiency and Cleaner Production principles, practices and technologies will enable the book production industry to make wiser use of materials, energy and water. This will lead to savings on input costs (for printing media, ink, solvents, glues, energy etc.), and reduce environmental costs associated with the discharge of wastewater, disposal of printing wastes ('controlled wastes') and solid waste (off cuts, off specification print, packaging, etc.). Moreover, better management of materials, in particular pre-press, printing and finishing chemicals, will minimise the risks for accidental release of those chemicals into the environment and thereby reduce (future) liability risks. In certain market conditions, improved environmental performance may lead to increased sales.

While it is not possible to quantify cost savings, sales benefits and other competitive benefits from improved Eco-Efficiency performance some indicative estimates can be made, for example, in the area of energy efficiency to which little attention has been given but which is a significant cost item for many firms. Experience in other industries is that savings of around 10%, sometimes more, can typically be made where firms have not yet made savings efforts. While savings may be small compared to labour and materials costs, they go straight to the bottom line. In a low margin industry they then become significant.

4.2 Program initiatives and outputs

Under the broad headings of capacity-building and market development, there is a range of possible initiatives. The degree to which these are worth pursuing will depend on the effort and costs in relation to the chances of success and possible benefits.

The main tasks proposed are as follows:

- €# Development of information and guidelines for printers and print buyers.
- €# Development of training material for printers for delivery by PIAA, TAFEs and other facilitators or providers.
- €# Running a benchmarking scheme with a group of printers.
- €# Formulating an accreditation scheme.

Output 1: Information kit

There was general agreement in the consultation that improved Eco-Efficiency/environmental information would be beneficial. Presently information is scattered and often difficult to access on such basic matters as what to do with waste and on alternative materials and technologies. For many firms the main need is for very basic information in very simple forms

At the basic level we propose a simple booklet and information sheets for printers, including basic tips and job-specific sheets, which would also support the training modules (below). We also propose developing information guidelines for print buyers, aimed at government and business procurers. All of this information could be initially posted on the CECP and PIAA web sites.

While not included as part of this program, we recommend the future development of a PIAA Eco-Efficiency/environment web site, providing information, links to international best practice, including supplier and other information and sources of advice.

The information kit would be developed in consultation with PIAA and book production/print firms.

Output 2: Training modules

We propose developing or adapting three levels of training:

- €# Level 1: General: A short (45-60 minutes) briefing session on the business benefits of Eco-Efficiency/Cleaner Production and an introduction to the options. The material would include a short presentation and the information kit (Output 1). A facilitator would encourage discussion and thought on what firms had done and what they might consider. It could be run in firms or as part of PIAA or other management briefings and included in TAFE training. Facilitators would be briefed in train the trainer sessions.

This information could also be web-based for wider national distribution.

- €# Level 2: For business owners and managers: This would consist of a two hour facilitated session on the business benefits of Eco-Efficiency, and an overview of the process for developing options and an action plan. This session would include a worked case study example. Material would include a powerpoint presentation and a level 2 workbook. This could, like level 1 be delivered by PIAA or TAFE personnel.
- €# Level 3: For operational management: Within existing level 3 courses run by CECP participants attend 5 sessions and develop a Cleaner Production action plan. Existing powerpoint and manual material can be adapted to be printing industry specific. This training is delivered through CECP and one program could be adapted and delivered specifically for the book production industry.

In view of the difficulties in attending external courses, levels 1 and 2 would be run in firms where possible.

CECP has recently developed level 1 and 2 material including video on applying Cleaner Production which includes a printing firm case. The video could be shown in the training and printed material adapted to the book production/printing industry.

These basic training levels can be delivered regardless of market stimulus but it must be recognised that interest is likely to be limited without an accreditation scheme. With such a scheme in place or about to be launched, interest in training/awareness could be generated. In this event a specific briefing on the scheme could be developed or information could be included in Levels 1-3 training material.

Output 3: Benchmarking

The consultation highlighted the practical difficulties of benchmarking in this industry, especially the diversity of operations and the unwillingness to share information. Nevertheless benchmarking provides a potentially useful vehicle for performance measurement, comparison and improvement and so is included as an optional item if willing participants can be found.

As with training there is likely to be most interest if there was an accreditation in which case common interest would be created (us versus the ‘cowboys’). CECP would work with a small group of firms to advance best practice in a similar way to its Dry Cleaners’ Cleaner Production Club. Information on company performance against agreed average measures would be shared on a non-attributable basis and the firms assisted in improvements

As a pilot exercise, the aim would be to recruit a limited number of firms following consultation and at the same time develop key performance indicators (KPIs). The firms would be briefed and assisted in generating data. The data would be analysed and aggregated and each firm would receive their own report against the average for each measure. The exercise would be repeated monthly for the trial period of 3-4 months.

Output 4: Development of a green accreditation scheme

The idea of a green accreditation scheme was generally favoured provided that there was government and other market support for such an initiative and for responsible printers. Such a scheme could be along the lines of the Motor Traders Association (MTA) Green Stamp or the Housing Industry Association (HIA) Green Smart schemes. It would need to be run through the PIAA in order to have industry credibility. It would need ongoing funding assistance assuming that, at least initially, accredited firms might not be willing to pay the full costs of an audit while benefits are uncertain. It would not be a substitute for a full certified environmental management system but be a simple minimum standard ‘badge, especially for the majority for whom ISO 14001 is not a realistic option.

The scheme include would cover basic regulatory compliance, good practice and Cleaner production initiatives and cover, say 12 criteria agreed with stakeholders. It could be based on the rating scheme currently available for SME Associates to the WA Cleaner Production Statement. The latter is administered by the WA Sustainable Industries Group which is facilitated by CECP (see Information about the proponent – below).

For the purposes of this proposal a scheme would be formulated but the interested parties would need to find administrative and ongoing funding.

Consultation meetings with key stakeholders would be held to gain their support and identify assessment criteria and methods. Stakeholders would include PIAA and firms, and government regulatory and procurement agencies and other print buyers.

Participants signing up to the scheme during the pilot phase of this program would receive free implementation training and, when ready, an audit. Up to 10 firms which passed the audit before the official launch would receive a certificate at the launch event.

4.3 Work plan

Tasks and timing

The various tasks can be carried out in parallel or in a staged approach. They can be divided into the following categories:

- ⌘ Are interest-dependent or independent of interest
 - Those which can be done in any event (eg information and training material development)
 - are contingent on participation and interest (eg accreditation scheme, training delivery a benchmarking club)
- ⌘ Time dependent
 - Discrete tasks which can be carried out in the short term (eg information development)
 - Tasks which will take longer (eg developing an accreditation scheme)
 - Tasks which will depend on timing and events for their success (eg interest in training and benchmarking and the program as a whole may follow from first developing or being about to launch an accreditation scheme).
 - Ongoing or open-ended tasks. To be successful, accreditation and benchmarking schemes would need to be ongoing and further developed in WA and ideally rolled out in other states. The first phase of the work described in this proposal is to pilot the schemes in WA. If successful, enhancement and wider roll-out could be the subject of a future program.

In view of the central importance of procurement and an accreditation scheme it is proposed that an early start is made into preparing guidelines on the former and into the feasibility and format of the latter. A first step would be a consultative workshop(s).

An early start can be made on developing information sheets and initial training material for early training delivery (subject to interest), but it is suggested that the main training effort should be held back until development of an accreditation scheme is well under way. This would provide a focus for the training and help to stimulate interest in a way which is normally difficult among SMEs.

It is proposed that the program is carried out over a 12-month period as indicated in the preliminary plan below. The exact timing and delivery dates would be firmed up following more detailed discussions and agreement.

Task	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Information kit Research	****											

Development Consultation		****	***									
Training Material Running					****			****	****	****	****	
Benchmarking Consultation Develop KPIs Collect data Present results						***** *****	***** *****	***** *****	***** *****	** *	** *	
Accreditation Consultation Development Promotion Audits Launch	****	*****	*****	****	**	* ** ****	* ** ****	* **	* *	* *	* *	
Reporting			*			*			*			*

When the accreditation scheme has been developed in draft form through the initial consultative process, its promotion can be commenced in order to raise interest and invite firms to participate and attend briefings and training sessions. Firms which are ready could be audited and accredited under the pilot scheme prior to the launch in month 12.

Regular reports would be provided on progress.

Project team

The work will be undertaken by staff of the Centre of Excellence in Cleaner Production . The Centre’s staff will coordinate their work with representatives of the Printing Industry of Australia - WA .

Tom Clark will be project leader for this program. Tom is Program Manager at CECF. He has over 12 years’ environmental management consulting experience, including piloting certified Environmental Management Systems (ISO 14001 and BS 7750) and implementing systems in many firms internationally, for example assisting Ford in achieving worldwide ISO 14001 certification of its environmental management systems. He has been involved in a number of waste minimisation, cleaner technology and life cycle assessment and design projects involving small and medium sized firms in the UK and Australia, including printing firms.. He was project leader for the scoping study described in this report and undertook the consultation task and some of the baseline assessment work. Tom has a BSc in civil engineering, an MBA and a MSc in Environmental Technology.

Tom will carry out the work with Albena Bossilkov and Jim Altham, and in consultation with Rene Van Berkel.

↓#Albena is a research associate with the Centre of Excellence in Cleaner Production. She is a chemical engineer by education and has strong environmental management record in small to medium sized enterprises (in particular in printed circuit board and surface finishing industries). She undertook much of the work of Task 1 (Baseline Assessment).

↓#Jim is a research associate at the Centre of Excellence in Cleaner Production and has a wide environmental management background with specialist theoretical and practical experience in benchmarking, part of his Doctoral research. He has a B.Econ in economics and an MA in Ecologically Sustainable Development.

↓ #Rene is the Chair and Director of the Centre of Excellence in Cleaner Production. He has been working as a researcher, trainer and consultant in the Cleaner Production field since 1988. Rene has developed and delivered a number of sector specific and cross industry sector assistance programs for small businesses which involved for instance a few Dutch commercial printers. Rene has a PhD in Environmental Science and a MAgrSci and BAgrSc in Environmental Science and Engineering.

Budget

At this stage we are only able to provide indicative cost estimates for the various tasks and overall program. Detailed costs would depend on the scope and level of interest in the accreditation scheme and other elements and the scale of assistance which would be subject to agreement.

Estimated costs for the main tasks are as follows:

	\$
1: Information kits: Booklets, information sheets (5-7)	30,000-40,000
2: Training package	
- Develop level 1 material including presentation and accreditation briefing	
- Develop level 2 including presentation and accreditation briefing	
- Develop level 3 and run one program	
- Run one (or two) train the trainer sessions for levels 1 and 2.	
Total	40,000-50,000
3. Benchmarking	
- Design and pilot (5 or 6 companies)	25,000-35,000
4. Accreditation	
- Draft scheme and consultation; auditing pilot companies	30,000-40,000
Total (excl GST) \$125,000-165,000	

This figure excludes the in kind contribution from PIAA representatives, as well as the contribution from the industry participants (eg participating in industry consultation, training and benchmarking). For the purpose of this program, this time will not be costed and claimed as an eligible expense. CECP might be able to provide in-kind contribution as part of its remit to provide Cleaner Production support to SMEs as part of its funding from the Waste and Recycling Fund of WA. The scale of these in-kind contributions must be clarified.

Information About the Proponent

The Centre of Excellence in Cleaner Production (CECP) will implement the assistance program in close collaboration with the Printing Industries Association of Australia (PIAA). ⁽²⁾

² Curtin Consultancy Services (CCS) is the commercial arm of Curtin University of Technology. Under the University's consultancy policy, CCS is the recognised commercial entity charged with managing all commercial or business activities between CECP and outside agencies and companies, such as EPCIS, the Printing Industries Association of Australia its members and collaborators. As such, for the purpose of the *Eco-Efficiency Assistance Program for the Book Production Industry* proposed here, CCS will only be the project's administrator and not interfere directly with the execution of the project as stipulated in this proposal.

The Centre of Excellence in Cleaner Production (CECP) has been set up in 1999 at Curtin University of Technology with support from the Western Australian Waste Management and Recycling Fund (WM&RF). The Centre's mandate is to foster the adoption and implementation of Cleaner Production technologies and practices in Western Australia, in particular among small to medium sized enterprises. The Centre conducts customised training programs for industry and government staff, provides on site technical assistance and compiles and disseminates information (see website for additional information: <http://cleanerproduction.curtin.edu.au>). The Centre actively supports the implementation of Eco-Efficiency Agreements in Western Australia, in particular with the Housing Industry Association, Chamber of Commerce and Industry and the Aquaculture Council of Western Australia. It also provides postgraduate education and is establishing a multi-disciplinary applied research program on life cycle assessment and design and sustainable technology development.

CECP is particularly interested in the Printing Industry given the fact that this sector is characterised by many small and medium sized operators which form our primary target group. The industry has a sizable environmental impact (primarily but not restricted to solvents) and the potential for cleaner production and eco-efficiency in this sector is significant.

The Centre convenes the WA Sustainable Industry Group (WA SIG), a multi-stakeholder network of over 200 business, public sector, engineering and environmental professionals committed to achieving a cleaner and more competitive Western Australia, through the promotion of Cleaner Production and Eco-Efficiency. The WA SIG is a regional partner organisation to the World Business Council for Sustainable Development – the global alliance of businesses that aim to provide leadership in addressing the sustainable development and global environmental challenges. CECP plans to use its existing national and international networks, including the WA SIG, to promote and disseminate the outcomes of this Eco-Efficiency initiative for the Book Production Industry.

The Centre's dealings with the book production and printing industries has so far been limited, largely due to resource constraints in the Centre of Excellence in Cleaner Production. The Centre's strength is in the successful delivery of similar programs to other industry sectors, such as the dry-cleaning industry, housing industry and nursery industry. The Centre is well positioned to manage the Eco-Efficiency Assistance Program, develop the necessary tools, and facilitate the delivery through involvement and training of industry Eco-Efficiency promoters. The mechanisms for disseminating the findings and promoting the Eco-Efficiency Technologies and Practices to the book production industry are already in place.

PIAA State and National Representatives will be actively involved in the execution of the scoping project, through:

- €# Facilitation of consultation meetings with interested parties from the book production industry and other organisations
- €# Assistance in the identification of interested companies for accreditation and the benchmarking scheme.
- €# Contribution to the development of all aspects of the Eco-Efficiency Assistance Program, including formulation of the accreditation scheme and review of all documentation and other elements.