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<tr>
<td><strong>Author(s)</strong></td>
<td>Kelly, M.E.J.; Dempsey, Mary</td>
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<tr>
<td><strong>Publication Date</strong></td>
<td>1994</td>
</tr>
<tr>
<td><strong>Publisher</strong></td>
<td>Human Factors Research Unit, University College Galway</td>
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<tr>
<td><strong>Item record</strong></td>
<td><a href="http://hdl.handle.net/10379/6559">http://hdl.handle.net/10379/6559</a></td>
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Evaluation of the
Irish Productivity Centre
Environmental Business Management
(E.B.M.)
Training Programme

UNIVERSITY COLLEGE GALWAY
Evaluation of the Irish Productivity Centre Environmental Business Management (E.B.M.) Training Programme

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presented to

The Irish Productivity Centre

Date: February 1994
TABLE OF CONTENTS

1. INTRODUCTION ................................................................. Page 3
2. EVALUATORS METHODOLOGY ........................................ Page 4
3. INFORMATION SOURCES ....................................................... Page 4
4. TRANSNATIONAL DIMENSION ............................................ Page 5
5. CERTIFICATION ................................................................. Page 5
6. TRAINING PROGRAMME ....................................................... Page 6
7. SYNERGIC BENEFITS ............................................................ Page 9
8. SURVEY OF PARTICIPATING COMPANIES ............................. Page 10
9. CASE STUDIES ..................................................................... Page 12
   9.1 Irish Industrial Gases Ltd. ................................................. Page 12
   9.2 PRINTECH INT. PLC ....................................................... Page 13
   9.3 Wavin Irl. Ltd. ............................................................... Page 13
   9.4 Case studies findings .................................................... Page 14
10. CONCLUSIONS AND RECOMMENDATIONS ............................ Page 15
INTRODUCTION

Under the EUROPEAN initiative of the European Social Fund, the Irish Productivity Centre (IPC) identified a need for Environmental Business Management (E.B.M.) education and training for S.M.E.s. The relevance of E.B.M. to S.M.E.s, arises from: (1) a recognition that without E.B.M. there would be a loss of market share or potential market openings, (2) the risk of the company being held liable for environmental damage caused by its processes and products thus jeopardising the future of the company, (3) the improvement in profitability which can be obtained by adopting cost reducing environmental protection measures and by exploiting market openings for environmentally sound products.

In general there is an increasing awareness that management must ensure that a company is not affected by liability risks arising out of environment legislation and by the risks associated with the reduced demand for environmentally damaging products.

There is a need for S.M.E.s to follow and anticipate environmental demands made by large firms. It is also necessary that S.M.E.s be conscious that good environmental management may become a requirement in raising finance. The combination of the awareness of these issues and the necessity to educate and train S.M.E.s in environmental matters makes the project very relevant to S.M.E.s.

Consequently, the aims of the project were as follows: (i) define what environmental management means to S.M.E.s and (ii) reduce the complexity of environmental management to a language that is understandable to and motivates the managers in S.M.E.s.
The methodology employed in evaluating the I.P.C. Environmental Business training programme involved an analysis of the material and the documentation developed by the IPC team. The evaluation also includes the results of interviews with three participating companies namely, PRINTECH INT. PLC, Irish Industrial Gases Ltd. and WAVIN (IRL.) Ltd. A survey was also conducted of all participating companies so as to determine the outcome and effects of the I.P.C. Environmental Business Management training programme. The results from the survey are contained in this report.

The evaluators attended the final meeting in Jury's Hotel, Dublin, in December 1993 where contact was established with all participating companies. During this meeting, a summary of the advantages of the I.P.C. E.B.M. training programme was presented by groups of participating companies. The success of the I.P.C. E.B.M. training programme was very noticeable during the presentation.

The method of sourcing information regarding environmental legislation and expertise was carried out by I.P.C. in an effective and comprehensive manner. Essentially two approaches were adopted viz. (i) desk research and (ii) visits to selected persons and institutes. In this manner relevant up to date material from different institutes and countries was obtained. The results of this work were contained in a position paper which covered the major environmental issues, the capabilities of S.M.E.s to deal with these environmental issues, current approaches to environmental management within companies and the place of training in tackling these environmental issues. Essentially an understanding of the main matters relating to environmental management within S.M.E.s was attained through this research. In addition, the importance of working closely with (i) other institutes, (ii) S.M.E.s and (iii) specialists in the field of environmental management became clear to IPC in its efforts at designing an appropriate E.B.M. training programme for S.M.E.s.

Subsequent to the information acquisition phase, I.P.C. transformed the vast amount of complex environmental management information into a more compact and easily comprehensible format for the use of S.M.E.s. Thus I.P.C. sought to: (i) carry out extensive research into the environmental business area, (ii) determine the relevant information and (iii) evaluate this information such that the correct action be subsequently taken. This approach was very useful to companies as it provided them with easily understood and relevant information.
The I.P.C. project is characterised by and benefited from its wide transnational dimension. Visits to INEM in Germany and the Winter Factory Headquarters also in Germany proved particularly valuable where information and experience relating to environmental issues were exchanged. I.P.C. were also involved with Southampton University. Southampton University provided exchange of material through its sister COMETT programme on Environmental Management case studies and action learning. In addition I.P.C. were linked with U.C.D. in Dublin (another EUROFORM project promoter) and I.P.C. used a live T.V. link up on Environmental Law on the opening I.P.C. session. I.P.C. were requested to prepare the Irish input to Dr. Georg Winter's book, which was sponsored by the European Commission. Overall, the transnational dimension has enormously enhanced I.P.C.'s position and reputation in the field of environmental management. In this context, it is worthwhile mentioning that considerable support was shown by the consortia of EUROFORM project leaders in allowing for an exchange of information and assistance to the smaller groups.

CERTIFICATION

On programme completion I.P.C. introduced an award in the form of a certificate to participating companies. This certificate emphasises and highlights the relevance of environmental issues and the importance of the programme to S.M.E.s. The certification also recognises the participants progress in achieving a foundation level on E.B.M. Further to this certification, there will be another goal for S.M.E.s to strive for higher attainment of the BS7750/IS310 standard and later, hopefully, the European Union Standard.
The training programme was divided into two phases: (1) workshops/seminars and (2) training/consultancy visits. Four seminars in the area of environmental management were conducted by the I.P.C. consulting staff concerned with environmental issues in their normal dealings with companies. I.P.C. appointed a Monitoring Group and a Support Group. These groups contributed expertise and training as required.

I.P.C. had hoped to utilise training material developed in German accessed by INEM and Dr. Winter. This material was translated. A major difficulty arose however, as the BAUM (German) training material, was found not to meet the objectives set by the I.P.C. for the EUROFORM project criteria. Thus considerable time was lost. Visits to Germany, with the view to exchanging experience, were not particularly beneficial as the work on environmental issues was not as advanced as was initially thought. However, on the positive side, the German partner led to additional contacts.

I.P.C. diagnosed the essential reasons for S.M.E.s to become involved in environmental management as (i) the compliance issues - S.M.E.s should be involved in the initial step of developing a picture of how legislation is likely to impinge on them and (ii) the commercial issues - this includes the consumer and public response to "being seen to be green".

The I.P.C. project approaches the training programme in three stages as follows:

1. An awareness creating module. This stage was executed through the use of videos, overheads and training documents.

2. An audit to allow a company to assess where they are and where they want to go with regard to E.B.M. Also at this stage, environmental issues were related to business strategy. The I.P.C. approach sought to have E.B.M. included as a strategic issue for companies. Business strategy is about setting the direction of the company and deciding where and how the company is going to compete. It is derived on the one hand from an analysis of the business environment and the assessment of the opportunities and threats inherent in that environment, and on the other hand from an analysis of the strengths and weaknesses of the company. Thus the end result of the formulation of a business strategy is an assessment of the capacity of the company to support the decision in respect of its chosen direction. In the context of business strategy, environmental considerations can provide an opportunity for the company, e.g. compliance with ecological considerations can mean new markets. On the other hand environmental consideration can pose a threat e.g. if the company does not invest in clean technologies it may be put out of business. In effect, having environmental issues considered in the context of business strategy means, that these issues are placed at the core of corporate decision making and are seen as having company or system wide importance. Reaction from the participating companies would seem to have supported the judgement of I.P.C. in adopting this approach. Examining the environment
considerations in terms of opportunities and threats allowed the companies to consider the degree of threat. The time frame available for dealing with these threats associated issues of investment could also be addressed. Equally the approach allowed each company to consider pollution issues, legal issues and the like in the same business context.

3. The action stage which involves the development of a plan of the steps that need to be undertaken.

Initially I.P.C. approached recruitment of companies to the programme through national advertising and used this approach in estimating the degree of interest in E.B.M. In so far as the approach is a reliable measure in this regard, the degree of interest must be deemed to be low. However, a personal approach to companies from I.P.C.'s own register and network elicited strong interest which was maintained throughout the programme thereafter. Eight companies were selected, ranging in size from a capacity of forty employees to three hundred and fifty employees. I.P.C. recruited a good mix in terms of size and spread of company types.

There were four one day workshops in addition to in-company training and consultancy work. The first workshop of May 20 1993 was seen as an E.B.M. awareness raising day. I.P.C. developed two manuals, an information manual and a training manual. The information manual consists of environmental legislation information. In between the first and second workshop, participants worked on Part One of the training manual on E.B.M. This required the participants to meet with other company colleagues to address environmental issues and identify in-company training needs. The second workshop on 3 June 1993 dealt with compliance and regulations etc. focusing primarily on environmental legislation, energy training and internal system development. It was recognised that the development of the in-company training manual and in-company sessions worked well together and essentially complemented each other.

Deliverables from the project included the development of: (i) manuals/workshops, (ii) in-company interventions, (iii) a register of legislation effects and (iv) a training video. The Manual and Workshop documents helped companies to assess how well they are dealing with environmental issues, to identify gaps in their approach, to evaluate the business risks of not closing these gaps and to plan further actions. Part One of the manual aimed at helping companies establish the new business risks posed by environmental issues and by competitors who are about to embark on E.B.M. Part Two of the manual assists companies in internal evaluation in order to determine if they need to make changes in areas such as marketing, design or production. If there is a need for change, companies are asked what these changes should be. Essentially, companies are "nudged" towards identifying and solving their company specific environmental problems. Part three of the manual helps companies set targets and plans for bringing about change.

The approach to the development of the Trainer Training Manual on intentions to achieve total environmental quality management within S.M.E.s consisted of (i) emphasising the need to broadcast management's commitment to environmental improvement; (ii) assisting staff in identifying the firms environmental goals, (iii) encouraging the empowerment of staff to do the right thing in order to ensure a common understanding of the firm's environmental management system and (iv) the training of staff in environmental issues and standards. Overall, the approach adopted was a very comprehensive one which looked at all aspects of a company with regard to environmental management training.
The I.P.C. training staff were assisted by a number of technical experts covering a range of specialisations. I.P.C staff trained two personnel, as environmental trainers, in each participating company. Once trained these people were then required to work within their respective companies with the newly established task teams for environmental training. The approach of the I.P.C. training programme was a practical one. The course materials were well received by participants, the interaction between participating companies proved very beneficial. I.P.C. are considering the provision of on-going assistance to S.M.E.s in order to achieve recognised E.B.M. standards such as BS7750. In summary the training has been successful, for companies interact and learn from each other and have been in open contact with one another with regard to their situation in E.B.M. I.P.C. was instrumental in creating this atmosphere of co-operation.

Once environmental awareness was established and the attention of the company was focused on environmental issues, it became clear that information was needed in a compact and simple format for industries to understand what is required from them. I.P.C. developed a document defining terms relating to E.B.M. This document contains a list of important environmental terms arranged in alphabetical order. It is a valuable document for companies. In the review of current practices/systems with regard to E.B.M., the Centre proposed a check-list of twenty questions to identify environmental issues and determine areas which require change. The scoring system ranged from zero to five points. Zero points implied that a company does not think the issue is relevant to them. One point implied that the company should perhaps look at the issue etc. The Guidelines for each question provided by I.P.C. were very useful to companies in filling in scores. The outcome of the check list enabled companies to see the state of environmental practice in sites under their control. The areas and locations needing environmental consideration were thus identified.

The Register of Legislation Effects outlines the requirements of Irish law relating to the environment. The register, which is very comprehensive, addresses all the major environmental areas facing manufacturers. It is a generalised guide explaining acts and regulations in a simplified format. There is also a brief introduction to each environmental area contained in the document. This is followed by a more detailed account of the important rules and regulations. As new legislation is expected it will be the responsibility of the companies to update their register of regulations. Overall the register gives an overview of the standards with which companies are legally obliged to comply. It is an essential part of the E.B.M. project.

A training video was also produced by I.P.C. to complement manuals developed for E.B.M. This video gives an overview of the I.P.C. E.B.M. programme outlining environmental issues, company views, legislation and I.P.C. E.B.M. training values. As such, the video is a very useful executive summary of the objectives of the programme.

The transferability of the programme is high as it is a training programme which may be easily adapted to different industrial sectors. The programme can be modified to suit different S.M.E.s as companies take their requirements from the programme and transform the training programme to meet their own objectives. In respect of S.M.E.s in Europe outside Ireland, the legislation specific to the country involved would have to be compiled in the form of a Country specific Register of Legislation Effects before the programme could be used.

The project identified the needs of S.M.E.s for education and training in environmental matters. It
met the identified needs through the collaborative development of innovative training materials, training courses and information sessions. The delivery of the programme was within the time frame set. The companies taking part in the project achieved all the following objectives:

1. Adopted environmental protection measures.
2. Reduced energy, water and material usage.
3. Adopted integrated environmental management techniques.
4. Used ecological materials for economic benefits.
5. Designated a specific staff member as E.B.M. manager, and in some cases made new appointments.

**SYNERGIC BENEFITS**

Outcomes not anticipated by I.P.C. included a request from the Barleythorpe Management Centre to consider the transfer of the E.B.M. programme methodology within the context of a special UK. allocation for such joint initiatives. The European Foundation, Loughlinstown, Dublin requested that I.P.C. be used as one of two case studies of good environmental management practice. The National Standards Association of Ireland (NSAI) requested Mr. Norbert Gallagher to join their working committee on environmental management systems which was responsible for developing Irish standard on E.B.M. (IS5310) in line with BS7750 and other international standards.

I.P.C. was requested to participate in the next edition of Martin Charter's book - Greener Marketing. They were also invited to participate and exhibit their project at a major environment trade fair in Leipzig.

I.P.C. developed an explanatory brochure to aid the recruitment process for E.B.M. The Centre also carried out a series of reviews on environmental publications for Ireland's premier business management magazine, Management.
A survey of all the participating companies was carried out by the evaluators (copy of survey form attached). Half the companies surveyed had some familiarity with E.B.M. prior to the start of the I.P.C. programme but did not practice E.B.M. Currently seventy five per cent practice E.B.M.

The reasons given for becoming involved in the I.P.C. E.B.M. programme were:
- To gain market advantage and cost savings.
- To assess environmental implications for the organisation.
- To support legislation compliance.
- To eliminate pressure from parent companies.

The main reasons for adopting an E.B.M. programme were cost savings and market advantage.

Actions related to E.B.M. implementations in the companies included:
- Zero waste management.
- Formation of a chemical register.
- Step by step environmental analysis of the business.
- Development of an environmental policy.
- Waste matrix identification.
- Energy waste reviews.
- Vendor participation.
- Set-up of an environmental committee.
- Management commitment.
- Formulation of contracts for the disposal of all wastes.

The companies foresee the following benefits as a result of the I.P.C. E.B.M. programme implementation:
1. Market advantage and new customers.
2. Confidence of legislative compliance.
3. Reduction of waste production.
4. Economic survival.
5. Improved working conditions and company image.
6. Reduced danger of pollution.
7. Reduced potential for liability to third parties.
8. Reduction of costs.

All companies surveyed have general training schemes in place which would ease the problems of setting up training schemes in the area of E.B.M. The majority of companies believe that the I.P.C. programme lived up to the expectations implicit in the original objectives. The companies recognised the strengths of the I.P.C. E.B.M. programme as:
- It gave an opportunity for management to become more focused on best practice E.B.M. and more open to commitment to environmental issues
- It provided support on legislative issues with practical examples
- It introduced an opportunity to meet companies in a similar situation in regard to environmental issues.
- It created a solid basis for companies to contribute to a better environment
Areas for improvement of the E.B.M. training programme developed by I.P.C. as seen by the surveyed companies included:

- Additional individual organisational support in key legislation areas and waste management.
- Video records of companies pursuing E.B.M. of high quality with accounts of their successes and failures.
- Further more detailed statements from industrial leaders to help in convincing management of the need for E.B.M.
- Specific identification of various wastes and their disposal.

The impact of the thinking and actions of the training programme on senior management was that of greater awareness, commitment and support as far as environmental matters were concerned. Middle management have also realised their responsibility in the E.B.M. area. Staff in general are not yet aware of E.B.M. but companies are in the process of the diffusion of best practice E.B.M. through training. The usefulness of the training programme to senior management included the fact that targeted objectives are identified and the training programme is informative. Middle management and the general staff will benefit from the programme through the increase of their awareness to environmental matters, which in turn will add to their safety and welfare at work in addition to the economic advantages to their companies and themselves. The relationship with customers prior to the training programme was one of limited awareness of environmental issues, if any at all. However, there is currently an increased awareness in the companies surveyed due to the communication of environmental issues by these companies to their customers.

Some of the short term initiatives being introduced as a result of the training programme include:

- More emphasis on the practice of E.B.M. and increased time resources devoted to the work of the E.B.M. team.
- Development of policy and targets.
- Legislative compliance.
- Company environmental survey.
- Cost savings through environmentally friendly products.

Long term initiatives include the inclusion of E.B.M. programmes with quality and safety programmes and the implementation of BS7750 environmental standards. The I.P.C. E.B.M. programme created new positions in some companies while other companies delegated E.B.M. responsibility to an existing member of staff. Half the companies surveyed admitted to reducing energy consumption and waste/raw material usage but, as of yet, definite figures are unavailable. Seventy-five per cent of the companies adopted the use of ecological measures for economic benefit and all the companies did or will adopt integrated management techniques for the prevention of detriment and/or waste, for the conservation of energy and for material reuse. Additional comments from the participating companies were that the training programme was excellent for the following reasons:

1. Increased awareness of environmental issues.
2. Definition of activities, targets.
3. Support for compliance to legislative requirements.
4. Provision of individual support.
5. Waste reduction at source.
7. Waste separation.
8. Energy use reduction.
Three case studies were undertaken to provide a more in-depth assessment of the I.P.C. E.B.M. programme. The three companies visited were:

1. Irish Industrial Gases Ltd, Bluebell, Dublin 12.
2. PRINTECH INT. PLC, Clover Hill, Dublin 22.

9.1 Irish Industrial Gases Ltd.
The first case study involved the gas manufacturing company, Irish Industrial Gases (IIG) Ltd. The interviewee was Mr. P. Flynn, Quality and Environmental Manager.

IIG were initially encouraged to take environmental matters seriously by their parent company, British Oxygen Company (BOC). They joined the I.P.C. training programme for two main reasons: (i) to establish that all management systems comply with legislation and (ii) to conform to BOC group environmental policy.

I.P.C. were highly commended for giving IIG the necessary "push to get going". The first in company working session in which IIG was involved, aimed at establishing compliance with Irish and EC law and operating to a group standard. The second working session involved IIG identifying key issues, in industrial waste and energy areas. Waste for IIG included air and water.

Essentially IIG worked through all areas associated with environmental issues and developed a matrix. The matrix headings concerned various process plants against environmental review. Each matrix square allowed for the identification of environmental hazards. IIG’s matrix was examined and it was found that there was no substance escaping which would affect the environment. One item of concern had been dealt with previously. Minute traces of mercury and copper had been discovered in waste, but these substances are currently being disposed of in Manchester in quantities of 30 to 40 drums per year.

The team set up by IIG consisted of three existing managers from the areas of (i) safety, (ii) operations safety and customer services, and (iii) quality and the environment. Support was also received from other managers and I.P.C. IIG found the Draft Register of Regulations developed by the I.P.C. team to be an excellent help. IIG also recognised that the knowledge of what other companies were doing was beneficial, as each learned from the other. IIG have produced an internal environmental action plan which was sent to their parent plant in early December 1993. In January 1994, IIG aimed to use the slides prepared by I.P.C. in order to train managers and supervisors in the area of E.B.M.

IIG found that the I.P.C. E.B.M. programme overlapped with other areas of activity e.g. quality. IIG are currently looking at recycling Carbide drums and waste paper. The company are positively seeking to eliminate any environmentally damaging emissions to air. A waste management
programme is being incorporated into T.Q.M.

In conclusion, as a direct result of participating in the I.P.C. E.B.M. programme, an energy audit was concluded and the results were sent to I.P.C. IIG are now taking steps to obtain an in-company approach to E.B.M. IIG also stated that I.P.C. had given them good guidance and provided them with the necessary details on legislation, mechanisms and standards of planning for E.B.M., auditing procedures and an overall E.B.M. system. IIG will develop in more detail for their own purposes some of the slides from the I.P.C. training package.

9.2

PRINTECH INT. PLC

The second case study involved a printing manufacturing company, PRINTECH INT. PLC. The interviewee was Mr. John Harris, Manufacturing Director.

Interest in environmental business management issues developed eighteen months ago in PRINTECH. They believe that E.B.M. issues overlap with health, safety and quality matters. PRINTECH having participated in the I.P.C. E.B.M. programme regard themselves as organised and set to go. They visited BORLAND INT. - a major customer - on the 15 December 93 initialising communication on environmental issues with their customers.

PRINTECH have achieved the BS7750 standard and were the first in Ireland and Europe to achieve this standard. Mr. Harris sees environmental issues as very important and found I.P.C. to be the "vehicle in making them aware" of environmental issues. PRINTECH stated that already there is pressure from new and existing customers on environmental issues. At present PRINTECH are documenting waste as part of the involvement of the company in the I.P.C. E.B.M. programme.

Environmental issues, in addition to customer satisfaction and cost reduction must be at the forefront of company objectives according to PRINTECH. The company has implemented a reduction in waste policy along with the recycleability of paper. There is also, as a result of the I.P.C. E.B.M. programme an increased awareness in the need for improvements in the handling and use of chemicals. Weekly meetings concerned with environmental matters are held between the eight members of a team which include personnel from: quality, customer services, facilities, engineering, health and safety departments.

9.3

Wavin (Irl.) Ltd.

The third case study involved Wavin (Irl.) Ltd. who manufacture plastic products. The interviewee was Mr. P. McCartan, Development Manager. Wavin (Irl) was visited on the 17 December 1993.

At present there exists an Environmental Care Programme in Wavin (Irl). This environmental programme existed prior to I.P.C. involvement. Wavin Industrial held meetings in Holland and distributed paperwork to subsidiary companies. Wavin (Irl) as a result have in place an environmental care system which is documented in booklet form. This booklet contains an environmental policy statement from the managing director in Wavin Industrial. However, this
policy is too broad for use at the operational level. Wavin (Irl) need a statement specific to their activities.

After I.P.C. involvement, Wavin (Irl) decided it was necessary to adjust the company environment policy and make it specific to their own requirements. I.P.C aided Wavin (Irl) by providing documents on legislation and training manuals. As of yet Wavin (Irl) have not implemented a training programme of their own as they believe that a small group should set up the E.B.M. system first. The team has developed a matrix detailing areas and problems in relation to environmental issues. Wavin (Irl) considered the I.P.C. environmental training programme as a good start for their own purposes. The company is in a positive frame of mind in that management knows what has to be done. After the team has the I.P.C. E.B.M. programme underway they will involve all employees and continue to receive assistance from I.P.C. in respect of training.

At present Wavin (Irl) sends some waste to land fill and deep fill sites and documents are available from the contractors who deal with the waste. They have a zero waste programme in operation for the last two years. External to the plant, Wavin (Irl) are keeping a close eye on the effects the products of the company are having on the environment. Recycled pipe returns from customers are reprocessed. The main reason for recycling pipe is the economic benefit. Wavin (Irl) would like to develop a step by step procedure for other environmental issues e.g. fire. They have a safety procedure for fire but would like to include steps to be taken if there were emissions to the air as a result of a fire.

The company previously contributed to good environmental practice when they put a BOON (sponge type mechanism) in the nearby river to soak up oil leaking from the plant. To enhance this solution Wavin (Irl) decided to go back to the root cause rather than deal with the end of the line problem and in so doing put traps on pipes leading from the plant. Wavin are proud of the fact that the BOON in the river is clear of oil traces over the last four months. They now want a programme to identify all leaks and cure the problem at the source.

Wavin (Irl) were very impressed with the professionalism of I.P.C. and the material developed for the E.B.M. programme. The legislation document provided good information for the company. The trainer manuals reference to the T.Q.M. methods was an added advantage. Wavin (Irl) hope to develop a company specific policy and reinforce schemes for a reduction in waste production and in water and energy usage.

9.4

Case studies findings

I.P.C. focused the attention of the companies on the need for environmental training. The detail in the documentation developed by I.P.C. was adequate for their needs and provided good guidelines and information.

Overall, the companies saw the I.P.C. E.B.M. programme as a good programme. The content of the programme was beneficial and the companies have already seen many benefits arising from the I.P.C. E.B.M. programme.

Clearly the detailed case studies show the strengths of the I.P.C. approval to the E.B.M. programme.
In the view of the evaluators, the I.P.C. E.B.M. programme met all the objectives set originally. The project by any standards is an excellent one. All the companies which participated in the project were impressed with the direction and material provided by I.P.C. The programme was well researched, designed and is soundly based.

It would be well worth while expanding the project to put all the material on video and to provide a number of case studies on the progress made by Irish S.M.E.s in the area of Environmental Business Management. The project could also be expanded to European S.M.E.s by suitable translation of material and the addition of the relevant legislative framework. In principle, the essence of the programme could be extended to cater for the needs of even larger companies.