Facilitating Environmental Management Through a Participatory Approach

Pamela McDonnell B.Sc. (Hons)

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Mr. Noel Connaughton

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DECLARATION

Declaration

This thesis has not previously been submitted to this, or any other college. With acknowledged exception, it is entirely my own work.

Pamela McDonnell

Pamela McDonnell

ABSTRACT

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Abstract

The impact of the human resource and cultural aspects of an organisation on the success of an environmental programme cannot be underestimated. The literature widely recognises that active participation from employees at all levels is essential at each stage of the implementation process to overcome employee resistance and ensure a proactive environmental programme is accepted and permanently integrated into each aspect of an organisations' culture and functions. An extensive range of techniques are available to assist an organisation through the technical and cultural adjustments required to ensure pervasive participation in the environmental programme is achieved.

This study determines the extent of employee participation in environmental programmes in 38 Irish-based organisations and the participatory techniques that facilitate the inclusion of employees at all levels in the programme. The responding organisations did not achieve comprehensive involvement of employees from every level in the organisation and at each stage of the programme. Only top management and middle management employees participate in the programme in most cases. In the 36.8% of respondents that succeeded in involving front-line employees, the extent of participation was limited.

Organisations with a higher percentage of employees involved in the programme tended to have a middle-up-down management structure; have a policy to include employees in the environmental programme and have achieved front-line employee participation in line with this policy; facilitate employees to directly communicate to senior management and other parts of the organisation; and consider the environmental impacts of their products and processes to a greater extent than organisations with a lower percentage of employee involvement.

Organisations that achieved front-line employee participation consult employees when setting environmental objectives and targets; assess employee attitudes and willingness to accept the programme, assess the organisations culture; allow middle management and front-line employees to experiment to find solutions to environmental problems; allow front-line employees to make decisions in their own work area; communicate to front-line employees at an earlier stage in the implementation of the programme; consult employees about the processes they work on; use suggestion schemes; and link participation into job descriptions and staff appraisals to a greater extent than organisations without front-line employee involvement.

Techniques which were not conclusively linked to improved employee participation include training; environmental teams; providing feedback on the programme's progress; considering environmental issues in the business strategy; the presence of an environmental manager or environmental department; top management supportive actions and middle management support.

Organisations with front-line employee involvement in the environmental programme were more likely to experience a change in behaviour of managers and workers and improved environmental performance. The potential to reduce resistance through participation was noted.

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Glossary

Management Approach

Top-down: Top management create defined ideas and strategies, which are directly put into action by middle management

Middle-up-down (a): Top management provide a vision, which is translated into a workable solution by middle management

Middle-up-down (b): Middle management provide ideas and strategies which are accepted or rejected by top management for implementation

Middle-up-down & bottom-up: Middle management work with teams of front-line employees to develop ideas and strategies for top management

Bottom-up: Work teams consisting primarily of front-line employees develop ideas and strategies for direct implementation in their work area, with support from top management

1.0 INTRODUCTION

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1.1 Context

Ignoring environmental issues or addressing environmental problems only as they arise is no longer a viable option for today's competitive organisation. Increasingly stringent environmental legislation (Hillary, 2004) and pressure from internal and external stakeholders (Gerstenfeld and Roberts, 2000; Stamou, 2003; Poksinska *et al.*, 2003; Buysse and Verbeke, 2003) is driving modern organisations to look beyond current legislative requirements (Buysse and Verbeke, 2003), reduce resource use (del Brio *et al.*, 2001), reduce costs (Berry and Rondinelli, 1998) and become more proactive in protecting the environment from the impacts of their processes and products (van Hemel and Cramer, 2002).

Authors such as Hunt and Auster (1990), Roome (1992), Hart (1995), Forman and Jørgensen (2001) and Buysse and Verbeke (2003) have described a series of environmental strategies an organisation may follow in managing their environmental affairs. The authors begin by describing the characteristics of those organisations that are largely uninterested in environmental issues (i.e. 'Beginner', 'Non-Compliance', 'Reactive', 'Treatment' and 'End-of Pipe' strategies), moving to those that are becoming more aware of their environmental responsibilities (i.e.'Concerned Citizen', 'Compliance', 'Pragmatist' and 'Prevention' strategies) and finally addressing those that are highly proactive in managing their environmental performance (i.e. 'Proactivist', 'Environmental Excellence', 'Leading Edge' and 'Sustainable Development' strategies).

According to these characterisations, the proactive and sustainable organisation integrates environmental considerations in every aspect of it's business, from the wider business strategy and policies, to the everyday operational decisions regarding resources used, processes, procedures, and management systems employed and products produced. This requires substantial investment of time and resources and considerable change in the way the organisation operates, both technically and culturally.

A common thread through each series of strategies described by the various authors listed above is that as commitment to protecting the environment increases and a more proactive approach to sustainability is embarked on, the involvement of employees at every level

magnifies. In the environmentally inactive strategies, top management provide no support for the development of an environmental strategy and the remainder of the organisation are unaware of existing or potential environmental problems. As the organisation becomes more environmentally responsible, top management provide minimal to sufficient funding for the programme, key workers are educated and trained and specific staff are employed to implement an environmental programme. However, the environmental staff tend to be low in the corporate hierarchy and have little interaction with the rest of the organisation. In the environmentally advanced organisations, top management are actively involved in the implementation process, providing open ended funding, and planning and accepting the organisational changes necessary to ensure the environmental programme is an integral part of the organisation. An environmental champion from top management demonstrates to employees that the organisation really cares about environmental management and many different champions are created at different levels throughout the organisation. Environmental departments are staffed with strong, high-profile individuals who actively interact with other departments. The use of teams to involve employees in solving environmental problems is encouraged and responsibility and accountability for environmental issues is decentralised so that employees at all levels have environmental responsibility as part of their job function, and staff performance and review includes an environmental performance aspect.

This association between the participation of employees and the organisation's environmental progression is not just coincidental. The involvement and co-operation of employees is recognised and advocated by recent literature as the cornerstone of a successful and durable environmental system.

To move from a reactive/non-compliant state to environmental leadership (Buysse and Verbeke, 2003) means to embark on a programme of significant change in the way the organisation is operated. The organisation must address its management processes, organisation structure and work design (Moxen and Strachan, 1998b), and invest substantial resources in green product and manufacturing technologies, in employee skills and in organisational competencies (Buysse and Verbeke, 2003). The organisation must redefine roles and responsibilities along with it's visions, goals, norms and values (Allen *et al.*, 2002). Employees must unlearn old skills and problem-solving methods and start using new approaches (Moxen and Strachan, 1998b). It is also necessary for management to change their

attitudes, for if business issues continually takes precedence to the environmental agenda, then managers will not take seriously an environmental policy that requires them to incorporate environmental issues in the business strategy (Moxen and Strachan, 1998b).

One of the most significant barriers faced by organisations during a time of change is employee resistance to the change programme. This resistance stems from uncertainty about the validity of the change (Stamou, 2003; Senior, 2002; Chandrashekar *et al.*, 1999; Dodge, 1997) and the potential impact the change will have on their working situation (Maher and Hall, 1998; Stone, 2000). There is also the problem of peer pressure, where people withhold their personal views if they are contradictory to the perception of those around them in an effort to conform with their peer group (Sharp, 2002).

Resistance from employees will ultimately hinder the implementation process (Dodge, 1997) and poor handling and management of the situation will exacerbate the problem (Carnall, 2003; Maher and Hall, 1998). As Piasecka (2001) argues, it is futile to attempt to drive through changes with little regard for the employee. According to Dufresne (2000), it is ultimately the people in an organisation who will operate within an EMS and dictate whether it will be successful or not and as Stone (2006a) found, it is the people in the organisation, not policies and goals, which bring about change. Therefore the key is to focus on people as well as the process of change (Carnall, 2003).

From their review of greening models, Velumail *et al.* (1997) report that the co-operation of the entire workforce, or at least substantial parts of it, must be secured if the changes necessary to improve environmental performance are to be successfully implemented. This, according to the authors, is achieved by directly involving employees in the process.

According to Remmen and Lorentzen (2000), involvement gives employees a high degree of influence on the activities in their work area and a platform to discuss conflicts and problems arising during the process. By involving employees and/or their elected representatives in decision-making, planning, and implementation of changes in the organisation, employees can gain direct experience on which solutions work and which do not (Remmen and Lorentzen, 2000). They can take ownership of the issues relating to their work environment (Petts *et al.*, 1998) and the overall environmental strategy (Jones and Welford, 1997), which impacts

positively on employee morale (Hanna *et al.*, 2000; Zutshi and Sohal, 2004b) thus ensuring momentum behind environmental projects and eradicating a significant barrier in environmental improvement efforts (Petts *et al.*, 1998).

The EU developed EMAS (Eco-Management and Audit Scheme, Regulation EC No. 761/2001) strongly emphasises the need for continuous and active involvement and participation from employees and managers. EMAS states that involvement and participation will make implementation more effective, keep the system alive and fresh and put fewer burdens on both management and employees. Without involvement, EMAS states that the system can become bureaucratic and will not function well. Employee involvement is considered by EMAS to be a necessary driving force for continuous improvement and for anchoring the environmental programme in the organisation in a successful way.

Zutshi and Sohal (2004b) found that employee involvement is key to the EMS implementation process due to their detailed understanding of the processes in each department, and their ability to anticipate any problems which may occur during the change. This theory agrees with that of Petts *et al.* (1998) who also advocate the inclusion of shop-floor workers in the development and implementation of an EMS, as they are directly involved with the organisation's processes every day and can, with training, identify and possibly rectify processes and activities which create significant environmental impact.

The knowledge held by employees about the organisation's processes and systems is largely implicit. Boiral (2002) discusses at length how this tacit knowledge can be effectively tapped into and used for the identification of pollution sources, the management of emergency situations and the development of preventative solutions. It requires, according to the author, among many other factors, a climate of learning where employee experiences and ideas are recognised and shared. By creating an open atmosphere, mobilising this implicit knowledge and receiving lots of different views from within the organisation, there will be a wealth of knowledge on the organisation's present performance. The many view-points considered makes for a more holistic approach towards environmental issues (Halme, 1997).

Employees and managers must also receive active encouragement to utilise their skills and talents to facilitate and enhance the programme and a genuine opportunity to participate during each stage of the change (Moxen and Strachan, 1998b).

1.2 Objectives of this Study

This study sets out to:

- Identify the extent for which human resource aspects are currently considered in guidelines for proactive environmental management systems.
- Identify best techniques from international environmental management, change management and human resource literature for:
  - ❖ Gaining employee support for a programme in an organisation;
  - ❖ Including employees at all levels in each stage of programme implementation;
  - ❖ Sustaining employee participation; and,
  - ❖ Utilising employee skills and knowledge to facilitate the implementation of the programme and enhance environmental performance.
- Determine the extent of employee involvement in Irish-based organisations through a survey of:
  - ❖ ISO 14001 certified and EMAS registered organisations, with and without an IPC Licence;
  - ❖ Organisations with an uncertified EMS, with and without an IPC licence; and
  - ❖ Organisations with environmental and legislative issues but without an EMS.
- Identify the environmental management techniques most successfully used to facilitate employee involvement and manage environmental issues in the Irish-based organisations surveyed and compare the findings to the best practice identified in the literature.
- Identify the benefits experienced by the organisations surveyed following the participation of employees in their environmental programme.
- Based on the findings of this study, identify the most effective techniques which can be used by organisations to ensure organisation wide acceptance of an environmental programme and encourage participatory behaviour from all levels.

1.3 Thesis Structure

The overall context and objectives of this study are introduced in Chapter 1.

A review of literature related to this study is presented in Chapter 2. This chapter includes an assessment of human resource considerations in current environmental management guidelines. An accumulation of techniques recognised internationally as best practice for facilitating employee involvement in an environmental programme is also presented.

The methodology employed to fulfil the objectives of this study are defined in Chapter 3. This includes a questionnaire based survey of the environmental management practices in a selection of Irish based organisations carried out in August 2005.

Chapter 4 outlines the findings of this survey and discusses the extent of employee support of and involvement in the environmental programme in the organisations surveyed. Management techniques which were found to best facilitate involvement and improve the management of environmental issues in these Irish-based organisations are identified and compared to the best practice recommended in the literature.

The main findings of this study are summarised in Chapter 5. These findings have lead to the formulation of a methodology with which an organisation can initiate and promote a process where employees from all levels will accept and participate in the development and maintenance of a sustainable environmental programme. The chapter concludes with recommendations for further research on the impact of the culture of an organisation on employee involvement in an environmental programme in an Irish setting.

2.0 LITERATURE REVIEW

2.0 Literature Review

2.1 The Consideration of Employee Related Issues in Current Environmental Management Literature.

There is a plethora of literature available offering guidance and practical advice to organisations embarking on the management of their environmental activities. A significant proportion of the guidance available is aimed at those organisations who wish to attain a certified EMS as a symbol of superior environmental performance. ISO 14001 is a management tool that provides a framework for the organisation to take stock of the environmental aspects of its operations, products and services and to implement effective and efficient management processes to control their environmental activities. Consequently the guidelines associated with this scheme focus on the mechanistic establishment of the documentation and procedures associated with the programme. Although participating organisations are required to provide environmental training and establish an internal communications procedure, comprehensive and active involvement of staff at all levels is not an aspect of the ISO 14001 process and is not considered critical to its success.

EMAS goes further than ISO 14001 in its recognition of the contribution employees at all levels can make in an environmental programme. As well as training all personnel whose work may create a significant impact upon the environment and improving environmental awareness, the scheme also requires the involvement of employees through project-based group work and/or environmental committees and by establishing suggestion schemes, and providing rewards to employees for their efforts. The scheme recognises that participation includes the provision of information to employees, which thereby ensures that every member of the organisation has participated in the programme.

The effectiveness of the ISO 14001 and EMAS approach to combat employee resistance and facilitate successful implementation is unclear. Morrow and Rondinelli (2002), in their study of energy and gas firms implementing ISO 14001 and EMAS, noted an improvement in employee environmental awareness in the participating organisations and speculated that this was due to employee consultation and training throughout the implementation process and more consistent audits. However, strong employee resistance was encountered by each

organisation in the study and in some cases the programme, though implemented, had not been fully accepted by employees.

The reason for this could be explained by Stone (2006a and 2006b), who examined the practicalities and effectiveness of cleaner production (CP) and pollution prevention manuals used to guide New Zealand organisations in a cleaner production demonstration. The author discusses how the guidelines failed to adequately address the non-technical (organisational) aspects of environmental management such as culture, politics and human relations. The author found that the guidelines assume that top management will voluntarily commit to environmental improvements when presented with the benefits of the programme. They also assume that once presented with a sign of this commitment (i.e. a policy) staff will have the motivation and skills to work together and participate in implementing a set of sequential phases and overcoming any difficulties that may arise.

Table 2.1 below draws from a wide range of literature elements considered key to the implementation of a proactive environmental strategy. It demonstrates how each author focuses on a different combination of technical and non-technical elements and no one piece of literature encompasses all of the elements listed.

Savely, Carsen and Delclos (2007), Bhat (1998) and Nilsson (2001) for example lean more on the technical aspects of EMS development though still acknowledge the importance of training and the use of teams as a means of bringing employees along with the process. Others such as Ayers and Greene (1998), Berry and Rondinelli (1998), Daily and Huang (2001), Ramus (2002) and Zutshi and Sohal (2004b) require greater consideration of the human element of environmental management such as employee participation, employee resistance and cultural issues. They recommend that to be truly proactive environmentally requires a durable change in the organisation's culture and systems and the role of employees in this is crucial.

The core principles of change management are based on the notion that change will not be successfully implemented in an organisation without total consideration of the human resource aspects of the organisation. Based on a review of current change management literature, Table 2.2 below outlines the elements an organisation should implement to ensure a successful change programme.

Table 2.1 Elements of Successful Environmental Management Addressed by Various Studies

Element of Successful Environmental Management	Authors
Top management commitment	a, b, c, d, e, f, g, p, q s, t
Environmental champion/manager	g
(senior executive, with superior management skills, supported by top management)	a h
Create a vision	p, r
Written policy from top management	a, d, c, i, j, k, r, s, t
Communicate vision and policy	j, p,
Establish a sense of urgency	p
Secure long term funding	a, c, g, j, s
Budget to ensure surprise expenses do not impact profitability	d
Ascertain best practice from similar organisations, industry sector guidelines, attend seminars	c, g
Develop strategy (short and longer term)	d, r
Develop plan of action	j, r
Integrate environmental strategy/plan with business strategy	b, p
Set environmental goals and targets	d, g, j, p, t
Prioritise them	a
Base goals on policy,	j
Formulate in collaboration with top management	l
Assess areas of environmental exposure, (past and present)	a, d, t
Gather and analyse information on programme,	l
Determine environmental aspects and impacts,	e, r
Perform gap analysis,	g
Identify factors which help or hinder the process	j
Examine current and future legal requirements	d, m, t
Analyse impact of environmental issues on future competitiveness	d
Analyse impact of environmental issues on society	r
Identify and assess cultural and systematic issues involved	c, n
Understand the system	g
Develop strategy to deal with resistance to change	c
Promote programme to employees	l
Conduct cost-benefit analysis so system gains credibility	c, g
Provide on-going training for new and existing employees	e, f, g, h, i, j, l, n, p, q, t
Every employee must play a part in planning and implementation	b, c, f, n
View environmental performance as the responsibility of all employees	d
Use participatory decision-making and implementation	d, g, p
Empower employees	p, q
Use TQM practices to help employees identify and prevent pollution practices	i
Share experiences and knowledge of employees through learning-by-doing	p
Establish change teams/cross-functional teams/guiding coalition consisting of management and employees	b, c, e, j, p, q, s

Sources:

a. Hunt and Auster (1990)
b. Wenmouth (1994)
c. Ayers and Greene (1998)
d. Berry and Rondinelli (1998)
e. Bhat (1998)
f. O'hEocha (2000)
g. Zutshi and Sohal (2004b)
h. Petts *et al.* (1998)
i. Theyel (2000)
j. Nilsson (2001)
k. Ramus (2002)
l. Chandrashekar *et al.* (1999)
m. Del Brio *et al.* (2001)
n. Banargee (1998)
o. Henriques and Sadorsky (1997)
p. Lee (2003)
q. Daily and Huang (2001)
r. Cramer (2005)
s. Fresner and Engelhardt (2004)
t. Savely, Carson and Delclos (2007)

Table 2.1 Elements of Successful Environmental Management Elements Addressed by Various Studies (*continued*)

Element of Successful Environmental Management	Authors
Provide incentives to achieve participation	c
Introduce reward system	p
Avoid personality clashes	g
Consider changing the design and structure of the entire organisation	a, c, p
Select improvement projects	e
Implement improvement project (Plan, Do, Check, Act)	e, j
Develop tools to measure environmental performance (environmental indicators)	p
Monitor, measure, audit and evaluate performance	e, d, l, j, g, r, t
Develop document control system	g, j, s, t
Develop reporting systems	r
Continually review programme	b, j
Asses the effectiveness of the programme	d
Two-way communication about approach to, changes to and results of programme to management and employees	d, l, f, j, g, s
Encourage frequent discussion of environmental issues and activities at board level	d
Two-way communication between the organisation and its internal and external stakeholders	g, r, s
Standardise the improvements	e
Lock into culture	c
Integrate with existing management systems	g
Establish procedures for continued work	j
Create a good physical and social work environment	p, r
Create an innovative culture	g
Culture of continuous improvement	n
Culture willing to embrace change	g
Give time for culture change to occur	g
Publicly celebrate successes achieved	c, l, g
Consider environmental impacts of potential acquisitions	d
Require pollution prevention standards from suppliers	i
Develop total cost accounting/environmental accounting	i, j
Incorporate Design for Disassembly and Life-cycle analysis	g, r
All stakeholders are viewed as important and are involved	o, d, g
List expectations and demands of all stakeholders	r, j
Maintain close links to suppliers and customers	n

Sources:

a. Hunt and Auster (1990)
b. Wenmouth (1994)
c. Ayers and Greene (1998)
d. Berry and Rondinelli (1998)
e. Bhat (1998)
f. O'hEocha (2000)
g. Zutshi and Sohal (2004b)
h. Petts *et al.* (1998)
i. Theyel (2000)
j. Nilsson (2001)
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l. Chandrashekar *et al.* (1999)
m. Del Brio *et al.* (2001)
n. Banargee (1998)
o. Henriques and Sadorsky (1997)
p. Lee (2003)
q. Daily and Huang (2001)
r. Cramer (2005)
s. Fresner and Engelhardt (2004)
t. Savely, Carson and Delclos (2007)

The similarities between the change guidelines and the elements of a successful environmental management system (Table 2.1) is immediately obvious, with aspects such as vision, top management commitment, an effective champion, employee involvement, teams, communication, training etc. common to both topics.

This illustrates that the literature in proactive environmental management already draws on lessons in the change management field and strengthens Stone's (2006b) comment that environmental management strategies are in themselves change management strategies.

The following sections look at how the environmental field currently use these change techniques to ensure full and effective implementation of a proactive environmental programme.

Table 2.2 Change Management Techniques and Best Practice Addressed by Various Studies

Change Management Technique	Authors
Top management commitment/sponsorship	a, b, c, d,
Change champion to create vision	b
Change agent to translate vision to plan and implement plan Effective and consistent leader/manager	d, e, f, g, h, j, k
Written policy from top management	a, d, c, i, j, k
Secure long term funding	a, f, g
Create a sense of urgency	g, i
Define scope	a
Create vision and strategy	g, h, k, l
Agree objectives and goals	a, i, h, l
Plan the change	b, g, h, j, k
Develop implementation strategy	l
Identify constraints preventing change	l
Communicate the vision	a, b, g, h, i, k
Communicate the need for change, the change plan, intended result, how implemented, successes	
People should know what is expected of them	d
Communicate to develop stakeholder support	a, d, g
Sponsor must communicate their support	d
Encourage feedback from employees	b, h
Provide on-going training	b, g, h

Sources:

a. Maher and Hall (1998)
b. McNamara (1997)
c. Anon (2003)
d. Smith (2003)
e. Mendible *et al.* (2002)
f. Bamford and Forrester (2003
g. Kotter (1996)
h. Kerzner (2003)
i. Pennington (2003)
j. Meridith and Mantel (2003)
k. Gray and Larson (2003)
l. Senior (2002)

Table 2.2 Change Management Techniques and Best Practice Addressed by Various Studies (*continued*)

Change Management Technique	Authors
Create guiding coalition	g, h
Use teams	a, b, c, d, e, k
Efficient team management	e, h, k
Define roles and responsibilities within a team and throughout organisation	a a
Measure effectiveness of team	e
Shared leadership approach – employees an take role of leader (in teams)	
Create opportunities for ownership	i
Empower employees	g, h, b
Delegate tasks to other members	a, b
Motivate and influence people to participate	a
Bottom-up and middle-out action	f
Recognise and reward desirable and innovative behaviour	b, d, h
Celebrate successes	k
Negotiate	a, j
Manage conflict and resistance	a, g, h, j, l
Cultivate cooperation and trust	h
Generate short term wins	g
Address the needs of the employee	d
Focus on meeting needs of customer/client	b
Recognise the crucial role of middle management	d, g, h
Top and Middle management must coordinate their efforts	d
Address employee-manager problems	h
Identify stakeholders and how best to relate to them	a
Demonstrate visible support for programme to stakeholders	d
Position change strategy as part of business strategy	d, e, i, g, k
Remove structural barriers	g
Modify systems and structures in the organisation	b, i, h, j
Modify the organisation's plans, policies and procedures	b,
Modify culture	g, k, l
Coordinate departments and functions, don't focus on each part separately	b
Measure, monitor and control progress	a, e, d, i, h, j, k, l
Identify and solve problems early, quickly and cost effectively	h
Adopt an evolutionary approach Continuous improvement	i
Anchor new approaches in the culture	g
Protect project commitments from other business priorities	d
Use project management software as a tool, not as a substitute for effective planning and interpersonal skills	h g, h
Effective time management	h

Sources:

a. Maher and Hall (1998)
b. McNamara (1997)
c. Anon (2003)
d. Smith (2003)
e. Mendible *et al.* (2002)
f. Bamford and Forrester (2003
g. Kotter (1996)
h. Kerzner (2003)
i. Pennington (2003)
j. Meridith and Mantel (2003)
k. Gray and Larson (2003)
l. Senior (2002)

2.2 Top Management Commitment

Meima (1997) found that top management support is not always necessary for effective environmental management. He reports that where there is a strong personal interest in environmental issues among a few employees, organisational events can arise which leads to the development of corporate environmental management, despite the absence of top management support. Authors such as Medina-Ross (2002) and Beard and Rees (2000) however found a lack of support from the top was a significant barrier to environmental activity.

Stone (2006a), Poksinska *et al.* (2003), Nilsson (2001) and many others state that full senior management support is necessary to ensure an environmental programme will succeed. In fact, Kwai-Sang and Kit-Fai (1999) found that top management commitment was three times more important than having an appropriate environmental policy and four times more important than a regular environmental review.

As Govindarajulu and Daily (2004) point out, employees will inevitably follow management direction, so management must appropriately emphasise and push for the environmental cause. They must initiate and support the programme (Stone, 2006b), prioritise environmental issues and approach them with the same commitment as they would production and profit issues (Jones and Welford, 1997), thus demonstrating to employees that environmental performance is seen as an aspect of operational performance (Hanna *et al.*, 2000) and that any environmental action taken in the organisation is because there is a legitimate concern among board members for the environment (Rothenberg, 1998).

Top management must provide leadership and motivation to employees at all levels (Zutshi and Sohal, 2004b). They must communicate the importance of the programme to employees and provide a solid framework for environmental action in order to motivate and inspire employees to actively participate in and take responsibility for environmental issues (Govindarajulu and Daily, 2004; Poksinska *et al.*, 2003; Van der Wiele *et al.*, 2001; Kwai-Sang and Kit-Fai, 1999).

By ensuring that this commitment is sustained and appropriate attention is also given to three other crucial factors: employee empowerment, rewards and feedback (Govindarajulu and Daily, 2004), the new system will eventually gain credibility from employees (Poksinska *et al.*, 2003) and a culture will be developed that embraces environmentally responsive attitudes and behaviours (Keogh and Polonsky, 1998).

2.2.1 How Much Control Should Top Management Exert?

ISO 14001 and EMAS management systems encourage senior management control over the organisation's environmental performance. In this scenario, a senior management team creates the policy without any consultation with other employees and because of its hierarchical, formalised structure, the majority of employees in an organisation are excluded from any decisions to be made on the system nor can they make any input on the environmental objectives and goals selected or on how environmental projects will be carried out (Moxen and Strachan, 1998c).

This approach may work if management make a decision on environmental matters that matches the wishes of general staff, but as Palmer and Andrews (1997) discovered in one small traditional manufacturing company (Company X) with an environmentally reactive culture, when a decision was made which shop floor staff did not agree with, then the initiative was likely to fail.

If top management push for change (top-down approach), there is a danger organisational members will not take ownership of the initiative (Halme, 1997). Employees can lose interest and commitment due to the passive, receiving role they must adopt (Meima, 1997). It is crucial, therefore, that lower level employees are involved in planning the environmental programme from an early stage to foster commitment to the programme and encourage those with the necessary expertise to share their knowledge (Halme, 1997).

Therefore, Halme (1997) recommends a bottom-up or middle-up-down approach to environmental management. A bottom-up approach is where employees working on solving a particular problem develop new ways of doing things, and gradually form new attitudes and beliefs.

As each individual changes their outlook, their new knowledge and approach gradually spreads to others as they share their experiences socially. A group of individuals will begin to share their ideas through conversations and meetings. The new knowledge gained is integrated with existing knowledge and through trial and error on various environmental initiatives, new concepts are formalised. The new approach is used on ad hoc projects on the periphery of the organisation, and as successes occur and are shared with the rest of the organisation, the new approach will gradually be used in initiatives in other parts of the organisation. The new approach can then be formalised by means of policies and structures. In this bottom-up model, those initiating the change have less formal powers than those in the top-down approach, so it is vital that support from the top is given for all projects initiated so that new approaches are legitimised.

This bottom-up approach is seen as critical in the implementation of emergent change. The developing nature of emergent change means that the pace of change is so rapid and complex that it is impossible for management to identify, plan and implement every necessary action. For this reason, responsibility for the change should be devolved, so that senior management have a facilitative role instead of being the principal controllers of the change (Bramford and Forrester, 2003).

A middle-up-down approach requires that individuals work together horizontally. Top management provide a vision, middle managers translate that vision into middle-management visions, which are put into action in the field. They convert the ideals of top management into workable solutions in the front line (Halme, 1997). Bamford and Forrester (2003) report that this method was used in a UK hygienic plastics industry. In this case, middle management sell their ideas to top management, who discuss the changes and convert them into structured initiatives which middle management implement. The cross-functional nature of middle management means they have the most contact with other departments, suppliers etc. They can readily see the effect of change and adapt, control and influence the change as it occurs. It also allows top management to retain a certain element of control. Nilsson (2001) recommends a similar approach where top management develop the agenda but a bottom-up approach is used to design the necessary changes, thus including the people who will implement the change and securing support.

A further approach put forward by Halme (1997) is a variant of the bottom-up and middle-top-down approach, where a group of members from different levels and functions form a team to initiate environmental change.

In public organisations, Lee (2003) reports that those with a combination of a top-down and bottom-up approach are more likely to acquire support for the EMS from all levels. An identical approach is recommended by Dahle and Neumayer (2001) for improving environmental performance in UK universities. The 'bottom-up' approach involves students advocating environmental issues, influencing their peers to behave in an environmentally friendly manner, pressurising the campus to improve their environmental performance and assisting staff in performing environmental actions. A 'top-down' approach is also necessary where academics can provide environmental information, demonstrate good example and inspire students to participate and change their behaviour.

2.2.2 Policy

It is important that top management avoid paying superficial lip-service to environmental concerns (Keogh and Polonsky, 1998). International guidelines and recommendations for sustainable practices stress that companies must formulate an environmental policy (Madsen and Ulhøi, 2001). A written environmental policy demonstrates organisational commitment and support (Ramus, 2002), which must be backed up by regular support for difficult tactical and operational decisions that have to be routinely made during the implementation of the environmental programme (Chattopadhyay, 2001).

Not only should a policy pledge to reduce resource use and prevent or reduce polluting emissions, the organisation should aim to go beyond regulation and take leadership in environmental protection (Keogh and Polonsky, 1998; Schot and Fischer, 1993).

An article in the ENDS Report 343 (2003) states that environmentally mature organisations have environmental management systems that are fully integrated into operational management. Therefore the organisation's policy should ensure that environmental considerations are taken into account when other business policies are formulated, so that operations and strategies can be amended to prevent negative environmental impact (Moxen and Strachan, 1998b; Keogh and Polonsky, 1998). This integrates the environmental plan into

all business functions (Ramus, 2002), an essential move, as existing and future environmental issues affect all levels and functions within an organisation (Velumail *et al.*, 1997).

The policy must also clearly advocate active employee participation in environmental activities and the distribution of environmental responsibilities among employees at all levels. This is facilitated by pledging a training and education programme that is tailored to meet the specific needs of the organisation. When coupled with consistent supervisory encouragement, employees are clear on what the organisation expects of them, which heightens their motivation and abilities to actively contribute to the environmental programme (Keogh and Polonsky, 1998). Undertaking to link bonuses and performance evaluations to the fulfilment of environmental targets may be another way to attain continuous employee support (Ramus, 2002). The policy should imply that the attitudes and behaviours of individual organisational members would reflect the organisation's concern for the environment (Keogh and Polonsky, 1998).

2.2.3 Strategy, Objectives and Targets

Top management should define the strategy and goals of the new programme and link them to the business strategy (Van der Wiele *et al.*, 2001). A long-term strategy backs up the policy creating a strong programme to monitor environmental improvement and take corrective action when necessary (Berry and Rondinelli, 1998).

Top management should also assist the EMS implementation manager/team, in collaboration with employees at all levels, to finalise realistic and achievable objectives and targets based on the activities and aspects of the organisation (Zutshi and Sohal, 2004b). These objectives and targets should be specific, measurable and memorable in order to generate momentum and enthusiasm for the programme (Berry and Rondinelli, 1998).

2.2.4 Allocate the Appropriate Resources

A lack of resources (people and money) and time are quoted as barriers to the implementation and maintenance of environmental and indeed any change project in an organisation by most of the studies in this area (Maher and Hall, 1998; Beard and Rees, 2000; O'hEocha, 2000; Dahle and Neumayer, 2001; Emilsson and Hjelm; 2002; Stamou, 2003; Hillary, 2004).

Top management must commit and allocate appropriate technical and financial resources (Ruch and Roper, 1991; Nilsson, 2001) to encourage environmental competence building by employees (Ramus, 2002) and for implementation of the changes required as part of the EMS implementation (Zutshi and Sohal, 2004b).

Without the necessary resources, environmental managers and teams will be unable to carry out their improvement tasks and change the company culture, regardless of how motivated they may be (Halme, 1997) and the implementation process will be delayed (Zutshi and Sohal, 2004b).

2.2.5 Appoint a Dedicated Environmental Manager

The terms 'champion' and 'manager' are interchangeable in the literature. Berry and Rondinelli (1998) describe an environmental champion as someone at board level who has influence within the organisation to allocate adequate resources to environmental management. Zutshi and Sohal (2004b) describe the champion as a representative from top or middle management, who has full support, adequate resources and authority from top management to take appropriate improvement actions. Theyel (2000) uses the term 'manager' to describe this role. For the purposes of this review, the term manager will be used to refer to the individual who coordinates and implements the environmental programme.

Appointing a dedicated manager to take the lead in the environmental policy (Petts *et al.*, 1998) and oversee the implementation and progress of environmental issues and programmes (Zutshi and Sohal, 2004b) is a clear sign of commitment from top management and further indicates the status given by that organisation to environmental matters (Angell and Klassen, 1999; Del Brio *et al.*, 2001).

This dedicated manager raises the profile of pollution prevention in the organisation and increases the likelihood that environmental impact will be taken into account in every business decision (Theyel, 2000). This ensures the smooth introduction and implementation of an environmental programme, providing the necessary support and resources are made available to them (Zutshi and Sohal, 2004b).

An article in the ENDS Report 343 (2003) states that environmentally advanced organisations have environmental managers who are high in the corporate hierarchy, such as a director or equivalent (Petts *et al.*, 1998; Velumail, 1997) who is involved in the decision-making of the organisation (Theyel, 2000).

In some cases, the role of environmental manager may be given to managers who already have other duties such as the quality manager or the health and safety manager (Petts *et al.*, 1998). This can be a beneficial arrangement for smaller organisations because if the pollution prevention manager has many other additional duties in the organisation, it may mean environmental protection practices can more easily be integrated with all plant processes (Theyel, 2000). According to Petts *et al.* (1998) however, many organisations soon realise that the role of environmental manager is a substantial job in its own right and create a specific environmental post.

Current trends indicate reluctance in many organisations to appoint an environmental manager. An article in the ENDS Report 343 (2003) discusses the results of their survey of environmental managers in the UK. They found that the peak in UK recruitment in the late 1990s has since slowed, with managers only spending between 40% and 70% of their time on environmental workload, although they are taking more of a role at plant level.

From their study of environmental practices in companies in Australia and New Zealand Petts *et al.* (1998) found only one company out of twelve who created a specific environmental post due to the enormity of the task at hand. This post was taken by the previous quality manager. In all other cases, the task was given to a manager with other duties (the quality manager in six cases and the health and safety manager in three cases). In Theyel's (2000) study of pollution prevention practices in chemical and ink manufacturing companies in the US, only 39.7% of the respondents had a designated pollution prevention manager.

2.2.6 Establish an Environmental Department

Halme (1997) states that the drive for environmental change should not fall to one person. According to the author, if the person with sole responsibility for the programme has limited knowledge, the project may eventually be counterproductive. Also, if that person were to leave, then the change process would come to a halt.

Del Brio *et al.* (2001) found that those companies with a greater concern about the environment, with more environmentally aware managers, and with sufficient resources, will have personnel and a department exclusively dedicated to the environmental area. Henriques and Sadorsky (1997) find that this demonstrates further commitment to environmental issues and shows that top management have invested money and time to dealing with the organisation's environmental performance.

To ensure the department is effective, there should be a formal link between the environmental function and top management and between the environmental function and other divisions and departments (Velumail *et al.*, 1997). However, according to Jackson (2000), it is important that the organisation does not become too dependent on the environmental department to deal with all of their environmental issues. The author advocates that each unit in the organisation should develop an infrastructure to manage their own environmental activities, with assistance from the environmental department when necessary.

2.3 The Environmental Manager

The role of the environmental manager involves implementing the organisation's environmental policy, ensuring compliance with relevant legislation and implementing the environmental management system, be it accredited or not (Petts *et al.*, 1998). They must support and reinforce continuous improvement and be closely linked with the environmental problems and practices within the organization (Kitazawa and Sarkis, 2000).

The environmental leader must ensure that the organisation "consistently, efficiently and effectively accomplishes the vital tasks and functions that encompass its mission, while simultaneously promoting innovation and embracing change" (Nilsson, 2001).

The environmental manager is also involved in changing the way people in the organisation function, behave and communicate. They must ensure effective communication and interaction between all people and all functions. They are a learning champion, helping people to unlearn old behaviours and approaches to environmental tasks and issues and gain insight and understanding of environmental requirements from experience (Nilsson, 2001; Mendibil *et al.*, 2002).

The environmental manager creates a climate of trust and respect where employees can air their views freely, without feeling as if they have to withhold information for political reasons (Emerson and Welford, 1997a).

The environmental manager helps employees to recognise their environmental responsibilities and goals, motivating them to perform environmental activities beyond compliance levels and giving them confidence in their abilities to perform beyond their own, and the organisation's, expectations (Dodge, 1997).

To successfully achieve this, the environmental manager must have the appropriate human resource skills to manage these 'softer' human aspects of environmental management (Zwetsloot, 2001). Maher and Hall (1998) summarise those key skills required by any manager instigating a period of change in any organisation.

Table 2.3: Principal Skills Required for Managing Change (*Adapted from Table 1.2: Key Change Management Skills, Maher and Hall, 1998, p. 13*)

Exploration	Communication skills, such as interviewing, probing, re-framing, listening, questioning, summarising, analysing.
Diagnosis	Decision-making and problem-solving.
Design	Team-building, communication, conflict resolution, estimating, planning.
Implementation	Negotiation, conflict resolution, teamwork, delegation, communication, motivating, influencing.
Follow-up	Monitoring, controlling, reviewing and communicating.

The environmental champion should be a motivated individual (Petts *et al.*, 1998). They must believe the change is necessary and appropriate and be prepared to recognise that the implementation of a change initiative is a dynamic one (Holt *et al.*, 2003). They should have an acute awareness of market and social pressures and a positive attitude. When provided with sufficient resources (money and time) and access to appropriate training to broaden skills

and knowledge, they can effectively introduce changes to work procedures, creating a positive state of environmental compliance and going some way to becoming a proactive organisation (Petts *et al.*, 1998).

The change leader must adapt a role of facilitator rather than doer (Bamford and Forrester, 2003). If the change leader tries to perform all tasks in the programme themselves, the change initiative will come to a standstill. They must know when and how to delegate responsibility for certain aspects of the programme to other members in the organisation, while still remaining accountable for any actions taken. This builds trust between the employee and the manager, allows the environmental manager to concentrate on strategic issues and gives employees the opportunity to develop their own approach to change and actively participate (Maher and Hall, 1998).

The environmental manager must deal with a large and complex system where information is 'filtered' as it passes through various levels of management (Nilsson, 2001). They must endeavour to loosen or remove political and structural obstacles that restrict the programme, and create a programme that does not conflict with other programmes in the organisation (Cebon, 1993).

The environmental manager, will also have to be a risk taker. They must also be prepared to challenge other managers on their contribution to the organisations environmental impacts, a difficult task if the environmental manager is low on the corporate hierarchy (Stone, 2006a). Often they will have to take an unpopular position on corporate policy to protect environmental values, discontinue products, refuse contracts based on environmental criteria and develop long-term company-wide plans to introduce greener technologies. A manager who avoids projects involving improvement in technologies will be less effective (Everett *et al.*, 1993).

The following sections outline the tasks the environmental managers must perform in their role as a change champion.

2.3.1 Securing Continuous Top Management Commitment

According to Sheldon and Yoxon (1999), the environmental manager needs to convince top management that:

1. There is a problem that can be solved by environmental management
2. It is right for the organisation
3. The benefits outweigh any downside factors

This involves ensuring top management fully understand the need for the programme and its significance for the organisation (Zutshi and Sohal, 2004b) and the liabilities which the organisation could incur should there be an environmental accident or deviation from the programme (Zutshi and Sohal, 2004b; Bhat, 1998).

However, the environmental manager must also present the programme in a positive light, emphasising the benefits of the programme, such as the cost savings which will result by investing in the programme (Zutshi and Sohal, 2004b; Bhat, 1998).

Top management will need to be convinced on a continuing basis (Sheldon and Yoxon, 1999). Therefore the marketing abilities of the environmental manager will be crucial if top management commitment is to be secured. Stone (2006a) reports how organisations participating in a cleaner production initiative in New Zealand found there was a lack of commitment from the top, due principally to the fact that environmental personnel were from a technical background and lacked the marketing skills to sell the project to the top level.

2.3.2 Assessing the Organisation

In a proactive organisation, assessing the organisation involves more than identifying its environmental aspects. The environmental manager must establish how prepared the organisation and its employees are to cope with the new programme and whether the culture in its current state will embrace the new system.

2.3.2.1 The Organisation's Capacity for Change

Judge and Elenkov (2005) discuss the concept of organisational capacity for change (OCC). It is defined as "a broad and dynamic organisational capability that allows the enterprise to adapt

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old capabilities to new threats and opportunities as well as create new capabilities" and was found by the authors to positively correlate with environmental performance.

The authors found from literature that the factors that should be examined to determine an organisation's capacity for change are:

1. Trustworthy leadership: leaders that earn the trust of the organisation and show members how to achieve collective goals
2. Trusting followers: the ability of those in the organisation to enthusiastically follow a new path advocated by leaders
3. Capable champions: the ability of an organisation to attract, retain and empower change leaders
4. Involved mid-management: the ability of mid-management to link senior management with the rest of the organisation
5. Innovative culture: the ability of the organisation to establish norms of innovation and encourage innovative activity
6. Accountable culture: the ability of the organisation to carefully steward resources and successfully meet deadlines
7. Systems communication: ability to communicate vertically, horizontally and with customers
8. Systems thinking: ability to focus on root causes and recognise interdependencies within and outside organisational boundaries.

These eight dimensions were found by the authors to be a reliable and valid measure of an organisation's capacity for change and by optimising them, the organisation should be well positioned to adapt to threatening change and innovatively improve environmental performance.

The organisation must also be willing to change to more sustainable practices. Montalvo Corral, (2003) identifies three factors which can determine and predict an organisation's willingness to be environmentally innovative:

1. Manager's attitudes towards innovation. If a positive attitude prevails, then the organisation is in a good position to engage in innovative behaviour

2. The perceived social pressure to innovate based on current regulations, competitive demands and pressure from the community.
3. The organisation's perceived control over the innovative process, i.e. the perceived technological capabilities of the firm and the perceived capability of the organisation to change.

This study revealed that to maximise the organisation's willingness to innovative to improve environmental performance, stringent regulation should not be a major stimulant as this attempts to force change, which generates a negative attitude towards innovation. Instead it is necessary for environmental risk to be perceived as high and the organisation should have high technological capabilities. To achieve this, the author prescribes the modification of the organisation's perception of environmental risk (through communication) and the creation of an institutional infrastructure that promotes sustainable and innovative behaviours throughout the organisation.

2.3.2.2 Employee Readiness for Change

It is important to remember that there is a limit to the change that people can tolerate (Emerson and Welford, 1997a). An organisation should therefore assess what level of change its employees can cope with. Dodge (1997) describes the concept of employee readiness for environmental management. This is a combination of the ability, skills, knowledge and experience of employees in managing environmental problems and their willingness (commitment, confidence and motivation) to complete the greening task.

If employee readiness to accept the new environmental culture is low, they are less likely to follow green issues unless directed to do so. As the employees readiness increases and the environmental culture becomes more positive, they become more receptive to the direction and training they are given by management. As the greening culture becomes stronger and employee readiness further increases, the empowerment process takes root. At this stage, employees participate in decision-making and in implementing green initiatives under the guidance of management. This part of the process requires a significant amount of time and effort from the organisation's leaders.

2.3.2.3 Identify Barriers to the Change Process

Reducing or overcoming resistance will depend on its sources (Senior, 2002). In the management of change, Trader-Leigh (2002) suggests that identifying and understanding the underlying factors of resistance may improve implementation outcomes. Based on her study of US State Department employees and Federal Agency personnel, the author recommends performing an organisation impact analysis on the people and systems in the organisation affected by the change in order to determine the impact on them. This involves engaging employees on issues associated with the change, assessing vested interests, politics and competing views. Factors creating internal tension (key resistance forces) e.g. culture, politics, psychological impacts; should be clearly characterised so they can be understood and managed appropriately.

The change initiator must look at what hinders change at individual, group, unit and corporate level (Carnall, 2003). According to Emerson and Welford (1997b), the following diagnostic approaches can be used to identify the internal factors which contribute to problems in implementing environmental change:

- View the organisation in its wider social context, to see ecological problems in the context of the organisation's total interactions with its environment, e.g. inputs, processes, outputs, internal decision-making strategies, response to stakeholders.
- Consider issues at the personal, interpersonal, divisional and whole organisational level.
- Examine issues from a range of different analytical frameworks. Each framework provides a different insight to the problem and the interaction between each framework should be noted.
    - The structural frame – look at how the organisation is divided into smaller units, the layers of management, the reporting process etc.
    - The human resource frame – study the skills and motivation of employees and the interdependence of organisation and staff
    - The political frame – examine the distribution of power among individuals and groups in the organisation and how power is used to compete for resources
    - The symbolic frame – analyse how humans create and use symbols to clarify confusion

- Take a holistic and longitudinal perspective. The relevant decisions and factors need to be looked at in interaction rather than in isolation.
- Attempt to trace the evolution of relevant decisions over time. This can be difficult to trace if change has occurred gradually. It may also be difficult to trace the reasoning behind various decisions made.
- Attempt to involve a number of people from the organisation in the diagnosis for additional perspectives on an issue and to foster a culture of inclusion and involvement.
- Recognise that the diagnostic process itself can lead to change. As questions are asked about an issue in a sensitive way, changes are likely to occur, as staff see that environmental problems are being seriously considered by the organisation and that the proposed changes will not threaten their position.

When the restraining factors have been identified, Ayers and Greene (1998) and Trader-Leigh (2002) suggests the development of a risk management framework to identify strategies to address and manage them, taking into account the characteristic features of the organisation. The change leaders must then develop a set of principles on how employees are informed and interacted with regarding the change, ensuring that the concerns of employees at all levels in the organisation are taken seriously and acted upon.

2.3.3 Assessing the Culture

Jones and Welford (1997) define corporate culture as '...a cohesion of ideas, values, norms and modes of conduct which have been accepted and adopted by a company.' Similarly, Emerson and Welford (1997b) refer to organisational culture as "...the norms, beliefs, customs and ways of thinking that people come to share with each other through being and working together."

These implicit norms and rules are developed through time (Remmen and Lorentzen, 2000) as individuals and groups continually re-enact behaviours which have proven successful in the past (Halme, 1997). In fact, the activities of management and staff are guided more by these unwritten implicit rules than the formal written procedures of the organisation (Dodge, 1997). Therefore, culture is a distinctive feature of the organisation (Jones and Welford, 1997), which

provides its members with stability and meaning (Halme, 1997) and determines how its members will behave (Remmen and Lorentzen, 2000).

The culture of an organisation is crucial in determining the attitudes of employees towards participation in pollution prevention. Where there is a tradition of cooperation and management commitment to solving environmental problems, there will be greater employee participation in environmental activities (Remmen and Lorentzen, 2000; Dodge, 1997).

Conversely, an organisation's culture may not be in a favourable position to implement an environmental programme. Organisations may find their environmental problems too difficult or immense to solve and either ignore them or make only small changes for the sake of portraying an environmentally friendly image (Emerson and Welford, 1997b). In smaller organisations in particular, environmental issues are relatively low down on the business agenda, with profit-making activities being given precedence over environmental issues (Tilley, 2000). This is not, as Tilley (2000) points out, because the owner-managers are environmentally negligent, but because economic issues are always a priority in small organisations. So with the environmental culture battling for prominence against a profit culture (Dodge, 1997), it may prove very difficult to change the culture of the organisation to permanently embrace environmental issues (Jones and Welford, 1997).

When introducing an environmental programme, the environmental manager or change initiator must be aware of how the existing culture can affect the implementation of a new environmental management system (Sheldon and Yoxon, 1999).

Dodge (1997) discusses four different models demonstrating the impact of culture on environmental structure.

Model 1 is where there is no environmental structure. This occurs when an organisation does not recognise environmental problems as a critical issue. Because of this negative environmental culture, an environmental strategy is not structured in the organisation.

Model 2 is where an informal structure controls the environmental strategy of the organisation. This occurs when the culture is resistant to considering environmental issues. A formal

structure is put in place with official reporting procedures and declared responsibilities. However, due to the resistant culture, an informal structure gradually takes over, where employees cling to old communication and environmental habits and environmental issues are dealt with on a casual basis. As a result, the organisation has the capability to recognise problems and organise tasks to solve them, but the initiatives are never fully carried out and little progress is made.

Model 3 describes an organisation with a traditional centralised structure. This culture trains employees and managers to work consistently within a traditional structure. However, in order to deal with volatile greening issues, the environmental manager may decide to decentralise environmental units throughout the various functions in the organisation. These organisations often find it is difficult to maintain consistent action in each department. Also, if the organisation is not familiar with the concept of decentralisation, then environmental activities may begin to conflict with the existing structure in the firm. Management may not be able to tolerate department employees making their own environmental decisions.

Model 4 describes organisations with established internal co-ordination and communication patterns. If a decentralised approach is taken to environmental management, it requires open communication between departments and high-levels of co-operation so that all departments react consistently. If the current communication system in the organisation is already like this, then implementation will proceed quickly. However, if the communication structure is not compatible, then implementation will be very slow. In this case, it will be necessary to change the environmental communication culture to become more open and this requires strong leadership. It may involve reassigning employees to different areas or supervisors in an effort to break current communication patterns and barriers.

Moving from a model 1 to a model 4 scenario is a slow process (Halme, 1997). People need time to think about where they stand on environmental issues, how others in the organisation view the environmental agenda and how the changes proposed will impact their personal values and their current work process. The organisation must take time to build understanding and commitment among employees (Jones and Welford, 1997; Maher and Hall, 1998), and to give them time to become ready to learn new approaches and integrate new responsibilities

into their daily duties (Forman and Jørgensen, 2001), otherwise the desired goals will not be achieved (Jones and Welford, 1997).

2.3.3.1 Approach to Culture Assessment

As Emerson and Welford (1997a) point out, we cannot expect to change behaviour unless we understand the behaviour itself and the cultural processes that give rise to it. Enquiring into the culture of an organisation demonstrates to its members that management values their views, feelings and motivations.

The culture, change and environmental literature describe many different types of organisational culture depending on what area of culture the focus is on. For example, Sheldon and Yoxon (1999) describe dictatorship, natural selection, survivalist and learning cultures whereas Emerson and Welford (1997a) describe power, role, task and person cultures.

The term used to describe the culture is immaterial. It is much more important that the culture is properly and fully examined and assessed so that the appropriate steps can be taken to effectively develop a culture, which thrives on effective communication, trust and cooperation (Kertzner, 2003), nurtures positive attitudes and demands reflection upon practice (Petts *et al.*, 1998) and learning (Owusu, 1999)

In the case of environmental management, Nash and Ehrenfeld (1997) recommend the consideration of four dimensions of an organisation's culture: forms of consciousness, norms, organisation and tools.

- Forms of consciousness

  People in an organisation have a basic perception of the environment and its vulnerability to human interference. This implicit information can be very important in determining an individual's every day actions in the organisation.
- Values and Norms

  Values and norms stand closer to the surface than consciousness and guide the actions people take. It will determine whether an organisation feels environmental compliance is sufficient or whether a more proactive stance to pollution prevention is required
- Organisational arrangements

This looks at whether the environmental manager alone is responsible for environmental matters in the organisation or if functional groups are involved. The authority held by those with environmental responsibility is also important.

- Resources, tools and technologies

  These are observable aspects, such as the requirements of the code being implemented.

Dodge (1997) recommends an environmental culture audit to identify the areas most in need of training, encouragement and participation in order to facilitate implementation of the programme and sustain momentum. It also allows future strategic environmental responses to be predicted. A one or two page survey can be used to identify:

- personal and demographic information to determine which departments need training and monitor the effectiveness of training already given. (This information must be kept confidential).
- Employee values to quantify individual environmental values and compare these to organisational values
- Company values to gauge the employees' perceptions of the organisation's values.

Following the culture assessment, Owusu (1999) states that the prerequisites for change can be identified, a list of actions for implementing the new culture can be developed and a vertical and horizontal communication and management style can be nurtured where employees at every level share common goals and efforts.

2.3.3.2 Assessing Attitudes

Every organisation is different and has differing perceptions of how much environmental improvement they are willing to make or commit to. Petts *et al.* (1999) for example found that medium sized companies were more aware of their ability to pollute than smaller companies. Similarly Ludevid Anglada (2000) suggests that SMEs may have different perceptions of the environment than large multinational companies and these perceptions must be clarified and understood so that an effective environmental policy can be set.

Where do these perceptions originate from? As it is top management who set a new cultural tone (Nilsson, 2001), top management attitudes to the environment should be examined.

Ludevid Anglada (2000) interviewed managing directors of 20 companies in Spain. Most felt that global environmental problems were being exaggerated and that the business community was being blamed for what is the responsibility of the public at large. Only a small number of respondents believed that industry should be more proactive in environmental protection.

If this type of attitude towards environmental management prevails among top management, employees will see past any lip service to proactivity. In fact, Velumail *et al.* (1997) found that examining employee perceptions of top management commitment to internal and external environmental issues can provide an indication of the organisation's true commitment to the programme.

Schalk *et al.* (1998) argue that the way employees perceive the reciprocal relationship between themselves and their employer (psychological contract) impacts greatly on their attitudes and behaviours. The more employees identify with their organisation, the higher their commitment to the organisation and the greater their willingness to accept change (Vakada and Nikalaou, 2005).

Although management and non-management largely hold the same concern for the environment, Petts *et al.* (1998) found from their study of management and non-management employee attitudes in manufacturing and non-manufacturing organisations in the UK that management tended towards a more positive perception than non-management of management efforts in taking environmental initiatives and listening to ideas from workers on how to improve environmental performance. The authors attribute this to:

1. Management having a better understanding of what is happening in their organisations
2. Managers tendency to view organisation behaviour positively because it is based on their own actions
3. Non-management tendency to blame managers for problems and failures.

Petts (2000) found that non-management in SMEs are generally not convinced that their organisation has a positive attitude towards environmental compliance. They believe the organisation will only comply with legislative requirements when forced to do so and will cut as many corners as they can in the process. This attitude largely stems from the actions of

their managers, who are seen to make an effort when an inspection is imminent but otherwise don't bother.

Petts *et al.* (1998) found there must be a better understanding of management and particularly non-management attitudes if a learning culture is to become an integral part of the organisation's operations. They looked at the impact of socio-demographic factors such as age and gender e.g. in industrial SMEs in the UK, younger people (under 25 years old) reported less concern for the environment than those over 55 years old; however younger managers seemed keener to initiate environmental issues than older managers, probably, speculates the authors, as an opportunity for advancement. An individual's function or role in the organisation will also impact on their perception of the organisation and its environmental issues, and the examination of these perceptions can reveal many different and useful view points on how the company is managed (Le Tainturier, 1998).

Ruch and Roper (1991) suggest that employee attitudes to environmental management are benchmarked by using questionnaires, interviewing a selection of participants and then analysing the data. If the benchmarking is effective, it will identify and examine the linkages between environmental functions and business processes and assess how integrated environmental issues are with business policies.

The assessment provides a forum for employees to voice their personal concerns for environmental protection which can then be addressed in the environmental programme, thereby linking the programme to individual and organisational values, a necessary prerequisite to ensure the institutionalisation of environmental management in an organisation (Jackson, 2000).

In addition, once the attitudes of employees at all levels are assessed, the difference in perception between top management, middle management and front-line workers can be bridged, reaping considerable rewards in environmental performance (Judge and Elenkov, 2005)

2.4 Providing an Opportunity for Employees to Participate

According to Lee (2003), employee participation should extend further than merely making suggestions or responding to surveys. Workers should be actively involved in the decision-making process associated with the programme.

Zutshi and Sohal (2004a) and Stone (2006b) advise that employees should be involved as early as possible in the EMS process. When they examined the role of employees and suppliers during the adoption of an EMS in organisations in Australia and New Zealand, they found that employees in the majority of the organisations surveyed in 2000 were not involved in the planning stages of environmental initiatives. However, employees contributed by giving suggestions and devoting extra time, in addition to their normal work schedule, during the implementation of the changes associated with the environmental programme. The authors attribute this to the fact that it is common organisational practice for employees to implement strategies but not to be involved in the decision-making process.

Stone (2006b) states employees must develop and own a vision of what the business needs to look like to be sustainable. They should be involved in the initial environmental review (EMAS) and the identification of and assessment of environmental aspects (Zobel and Burman, 2004). According to Halme (1997) and EMAS, employees should be involved in developing the goals, objectives and policies for the organisation so that the strategy becomes deep-rooted in the organisation. Then through environmental committees and joint working groups, employees can establish and implement the programme and audit its progress (EMAS).

An organisation may decide initially to adopt a partnership approach, where organisations involve employees in the drawing up and execution of policies but retain the right to manage (Farnham *et al.*, 2003). This combination of a top-down and bottom-up approach, where workers give input but management ultimately make the decisions, was found by Lee (2003) to be the best way to receive support and cooperation from all levels for the programme in public organisations.

Jarrar and Zairi (2002) hold the opinion that, ultimately, the best way to gain cooperation of employees during a time of change is to empower employees. Empowerment involves giving

employees autonomy and decision-making power (*ibid*, 2002) so they are more likely to be involved in making suggestions and taking responsibility for implementing good environmental practice in their work area (Govindarajulu and Daily, 2004) and take a role in initiating change (Petts *et al.*, 1998). It is the process of equipping staff with the knowledge, skills (Tomlinson, 1994); authority and accountability (Jarrar and Zairi, 2002) that will enable them to participate fully in the organisation's activities and valuing the contributions they make (Tomlinson, 1994).

According to Boiral (2002), Ramus (2002) and Jones and Welford (1997), an environmental programme will only be successful if this empowerment process takes place. As Jarrar and Zairi (2002) note however, few organisations are willing to take this step of handing over control to employees. Jones and Welford (1997) warn against management controlling the process too much, thereby limiting the decision-making capacity of employees and preventing them from fully carrying out the environmental initiatives of which they have taken ownership. Similarly, Cassar (1999) asserts that senior and middle management must not be tempted to disregard the working knowledge of their subordinates and impose their own ideas and methods to a problem or task, as positive attitudes towards participation can quickly diminish. Instead, staff must be supported in their efforts by giving them time to participate, promptly approving and prioritising environmental projects for implementation (Stone, 2006b), improving environmental communication between management and front-line staff (Stone, 2006b; EMAS), providing education and training, using suggestion schemes, promoting team work, providing incentives and rewards and linking environmental goals to performance reviews (Velumail *et al.*, 1997).

Jackson (2000) takes the view that it is unrealistic for an organisation to expect all employees to be involved in environmental management or to expect every employee to value environmental protection. Based on her work at Hewlett Packard, Jackson proposes four different levels of participation, depending on the individual's role and responsibilities in the organisation. The first she describes as 'General Involvement' where employees practice any environmental schemes or policies in place, e.g. a recycling scheme, regardless of their position in the organisation. At the 'Occasional Involvement" level are those who need to be aware of the company's environmental programme in order to fulfil their work responsibilities, e.g. sales and marketing staff, who play an important communication role

despite not taking direct action themselves. Level three is referred to as "Part Involvement". At this level, individuals slightly alter elements of their existing role in order to make a difference environmentally, e.g. those in the purchasing department who consider the environmental implications of potential purchases. These individuals may have environmental management as part of the performance criteria of their job, even though they may not follow general environmental practice in the organisation. The final level is "Full Involvement", where individuals can affect the organisation's environmental profile consistently within the realms of their existing responsibilities e.g. those working where there is direct potential environmental impact. Jackson believes this approach allows for a large number of employees to participate within the scope of their role.

2.4.1 Employee Willingness to Participate

From her examination of cleaner production and pollution prevention guidelines, Stone (2006b) found there seemed to be an assumption that staff would be committed to the environmental programme when presented with a policy, that they could be easily trained and would willingly work together to implement the strategy and have the skills to overcome any difficulties that arise. However in practice, for most organisations, the author found these assumptions to be false.

When asked to participate in the environmental programme, the employee may adopt one of four strategies towards the initiative (Forman and Jørgensen, 2001):

- The political strategy: where the employee takes a formal position (e.g. safety representative) in order to have enough clout in the political structure of the organisation to address environmental issues
- The resigning strategy: where the employee withdraws from an environmental task because they feel they are no longer allowed to work on it despite wishing to further participate.
- The uncertainty strategy: where the employee does not believe that they have the capability or know-how to effectively participate in the environmental strategy, and consequently does not develop their role in the environmental area
- The withdrawal strategy: where an individual such as a safety representative refuses to develop the role of other employees in the environmental effort in fear that they may have to control their colleagues' behaviour.

The extent to which employees are willing to participate and the strategy they choose to follow depends on the employee's interest and expertise in environmental issues; their educational background; problems in the working environment; the functions performed by the employee relating to environmental management; the responsibility held by each employee for the organisation's environmental performance; the decision-making power employees have in relation to environmental issues, and the commitment from management (*ibid,* 2001).

If top management regard the workforce merely as a production factor and do not expect employees to contribute to decisions regarding their working practices, then employees will be unwilling to take any responsibility or become involved in any way with organisation problems, hampering any new learning processes introduced to solve those problems (Remmen and Lorentzen, 2000; O'Brien, 2002). Petts *et al.* (1998) describe how one SME surveyed had a top-down management system, with employees involved on a 'need to know' basis only, and evidence of people being seen as the weak link. As a result, few employees would participate in management meetings even if the opportunity arose.

As Mullins *et al.* (2001) state in a people-centred management context, the organisation must believe in the ability of their employees and respect their dignity if fundamental change is to occur. Owusu (1999) argues that trust is fundamental to the creation of a world-class organisation i.e. management must trust in their employees' contributions and efforts to improve the workplace and employees must trust that they are supported by their superiors if the organisation is to flourish. To develop this trust, it is necessary to understand each other's motives and believe the other is being honest and has their best interests at heart (Proctor and Dukakis, 2003). This is a gradual process as the traditional culture and relationship between management and employees can create recurring difficulties (O'Brien, 2002).

Conflicts within the working environment can also influence employee and management willingness to participate in an environmental programme. One of the Danish companies studied by Forman and Jørgensen (2001) found that employees would not participate in the environmental programme unless they were also given the opportunity to actively address the working environment and the conflicting issues in it also.

2.5 Factors Facilitating Employee Involvement

If an organisation shows signs of relative advancement in areas such as top management commitment, environmental policy and environmental functions, it does not necessarily mean they also show comprehensive employee involvement practices (Velumail, 1997). To achieve this, it is necessary to create an atmosphere conducive to learning, development, creativity and communication (Carnall, 2003).

The following sections look at the features an organisation must have in place to create conducive conditions to support the participation of employees in the environmental programme.

2.5.1 Create a Sense of Urgency

Petts *et al.* (1998) point out the lack of 'immediacy' about environmental management in the work place. They argue that employees must be made aware of the organisation's environmental impacts, the critical importance of successful environmental protection and the potential outcomes if the organisation fails to improve its environmental behaviour.

Change authors such as Kotter (1996) and Maher and Hall (1998) also discuss the importance of raising the urgency level if energy for the implementation of the programme is to be maintained.

2.5.2 Communication

One of the predominant barriers to environmental management is a lack of communication and awareness about the environment, the environmental programme and the benefits of improved environmental performance between and among management and employees (Halme, 1997; Post and Altman, 1998; Gerstenfeld and Roberts, 2000; O'hEocha, 2000; Zilahy, 2004).

One of the most significant findings of the Forman and Jørgensen (2001) study was that there was a lack of dialogue in relation to employee views of and roles in the environmental effort, about bonuses and about decisions taken on initiated activities. As a result, conflicts in relation to the programme remained unresolved.

Communication with employees early in the planning and implementation stages is essential to facilitate employee participation and effective implementation of an EMS (Bhat, 1998; Zutshi and Sohal, 2004b). As Dufresne (2000) points out, if the development of an EMS is not announced until it is actually in place, employees will be suspicious as they don't understand the system and this will be detrimental to the long-term survival of the strategy.

There is a strong positive correlation between successful change and effective communication (Henderson and McAdam, 2003). Schalk *et al.* (1998) examined the role of communication, support and participation in the implementation of a change initiative in a telecommunications organisation. They found that if the employer is seen to adequately communicate and support the employee through a period of change, the employee is more likely to accept the change and adapt to it.

The communication strategy should ensure that employees fully understand the appropriateness of the change initiative (Holt *et al.*, 2003), the organisation's environmental policies and strategies (Jones and Welford, 1997) and the potential impact on the organisation's members (Zutshi and Sohal, 2004b). It should ensure employees are clear of their role in the organisation's environmental strategy (Bhat, 1998) and are fully aware of the responsibility and liability given to them by the organisation (Cook and Seith, 1992). Any changes to the plan should be continually communicated as they occur (McNamara, 1997). This will serve to abate, in part, employee resistance to the necessary changes (Zutshi and Sohal, 2004b), particularly if employees are to be held accountable for the organisation's environmental performance (Cook and Seith, 1992).

Clear lines of communication must be established between the environmental specialists, managers, other business teams and the remainder of the organisation (Henriques and Sadorsky, 1997). This is facilitated by communicating in the language of the receiving group e.g. presenting the programme in terms of operational efficiency for operational managers (Jackson, 2000).

Formal and tense lines of communication between management and staff create suspicion and apprehension, diminishing the effectiveness of cooperative efforts between the two groups

(Palmer and Andrews, 1997). It is therefore important to generate as much discussion and debate about the programme as possible (Maher and Hall, 1998) and create short communication lines, with fast and effective feedback in a transparent and open atmosphere (O'hEocha, 2000). This may involve reducing the tiers of middle management (Proctor and Doukakis, 2003).

According to Sheldon and Yoxon (1999), communication must be:

- Clear – so there is no misinterpretation
- Concise – so people are not expecting a lengthy speech every time you communicate
- Continuous – the communication process should be ongoing and systematic to all parts of the organisation (which sustains momentum, (Bhat, 1998)
- Connected – information should be communicated in such a way that the receiver can relate it to their own personal and professional lives and to the EMS

Communication is not a one-way system however (Sheldon and Yoxon, 1999). There should be a constant flow of information between management and the workforce (Daily and Huang, 2001) and other stakeholders (Zutshi and Sohal, 2004b). People need to listen and develop an understanding that what is being said to them is significant and the communicator must be prepared to receive feedback and encourage ideas from their target audience (Sheldon and Yoxon, 1999; Zutshi and Sohal, 2004).

Ramus (2002) suggested that in order to improve the willingness of employees to engage in innovative behaviour, supervisors should establish bottom-up, non-hierarchal communication where employees are encouraged to make suggestions, solve environmental problems and manage environmental goals and responsibilities. Employees are more likely to be creative when their environmental ideas, criticism or suggestions are heard and acknowledged and feedback is given on those ideas and are rewarded for successes achieved.

This also facilitates the process of mobilising and sharing the tacit knowledge among employees about the equipment and processes with which they work that can be a source of environmental contamination (Boiral, 2002).

2.5.2.1 Managing the Communication Strategy

From a change management perspective, Barrett (2002) recommends:

1. Forming a cross-functional strategic communication team to assess the organisation's current communication practice, address employee communication gaps, design and implement the change communication programme and serve as change ambassadors. (From an environmental management perspective, this role could be filled by the principal environmental team)
2. Assessing current communication practices (see section 2.5.2.2 below)
3. Establishing a vision and supporting objectives, holding workshops to discuss the changes and gain employee support for the changes and discuss job redefinitions based on the changes; and
4. Monitoring the results frequently, determining if change messages are being heard, understood and accepted by the organisation via surveys.

Throughout all of this, senior management must be committed to changing the communication programme and willing to provide the necessary resources to implement it. There should be hands-on interaction between management and employees (through workshops and groups). Employee ideas should be followed up immediately and good ideas and communication rewarded. Any barriers to the programme should be addressed immediately and the effectiveness of the programme should be continually monitored (Barrett, 2002).

2.5.2.2 Assessing Lines of Communication

The assessment of the lines of a communication in an organisation is an area covered predominantly by the change management literature. Proctor and Doukakis (2003) recommend looking at how information is cascaded down the organisation and how information can get withheld, changed and manipulated as it passes through the organisation's layers.

Barrett (2002) looks for the best practice definitions of effective communication. These are:

- Top management and middle management assume responsibility for establishing lines of communication and by adhering to the new strategy themselves, help to integrate them into the organisation's operations
- The communication strategy is continuously measured against clearly defined goals

- The communication strategy does not contradict the overall business strategy, but facilitates it by translating business visions into performance or financial goals to all employees
- The communication strategy is integrated into all business processes, objectives and plans
- Staff involved in the communication strategy have the power to influence the strategic and decision-making processes in the organisation
- Information is consistently relevant and meaningful to the target audience
- Direct, face-to-face communication is deemed preferable over indirect, printed or electronic media, so managers must have the appropriate interpersonal and facilitation skills

Barrett (2002) further recommends carrying out interviews or surveys with key managers and a cross section of employees to gain their opinion on current modes of communication and what changes they think should be made. This determines how much improvement is necessary in the communication and allows for the proposed strategy to be adjusted before implementation. The strategy will most likely undergo adjustments continually throughout implementation.

2.5.2.3 Effectively Raising Awareness

According to Halme (1997), Dufresne (2000) and Dahle and Neumayer (2001), employees can be continually informed of all project updates and general environmental information through bulletin boards, newsletters, newspapers and other circulated material, websites, emails, intranet, visible green recycling bins and signs, an environmental library and/or regular environmental reports.

In Madsen and Ulhøi's (2001) survey of Danish companies in the mid 1990s, the authors found that information meetings, notice boards and newsletters were the preferred mode of information dissemination. Those with responsibility for environmental issues appeared to be the principal source of environmental knowledge for employees, with superiors and co-workers generally not being considered a major source of environmental information.

It is useful to look at Beard and Rees' (2000) approach in Kent County Council. Green team issues were mentioned in management team agendas, annual monitoring reports to committee, corporate functions and through practical promotional materials. This highlighted to everyone in the organisation what action could be taken to improve environmental performance. This approach is also mentioned by Halme (1997) and by Dufresne (2000) as a means of demonstrating senior management commitment.

Meetings also provide a means of getting feedback about the programme and opens lines of communication (Halme, 1997) but only if they are managed correctly. Henderson and McAdam (2003) report how an electric company in Northern Ireland found that briefing sessions about a change initiative only took place at the manager's discretion, were short and vague, poorly delivered and feedback was poorly provided. The authors recommended that managers received training to attain presentation skills to improve delivery. Information was to be relevant to the site as well as the corporation and delivered in a timely manner. The authors also proposed the elimination of change jargon and the development of a communications strategy and policy where learning was a central element.

2.5.3 Training

An effective training programme is an essential part of a successful environmental management programme (Madsen and Ulhøi, 2001) and is necessary to enhance employee perception of change (Holt *et al.*, 2003) and for effective change to occur (Halme, 1997). Its importance is highlighted by Poksinska *et al.* (2003) in their study of ISO 14001 implementation in Swedish companies, even though it was one of the most difficult factors to implement. Similarly, Zutshi and Sohal (2004a) found there were difficulties associated with training employees (due to costs) in the planning stages of EMSs in Australian and New Zealand organisations, but that training employees in the new processes to be implemented was a very important aspect for reducing employee resistance. In Kent County Council, Beard and Rees (2000) used training and networking sessions to effectively communicate environmental information and issues up, down and across the organisational structure.

An effective training programme will ultimately ensure improved compliance with environmental regulations and company policies (Bhat, 1998; Cook and Seith, 1992) and avoid failures in managing environmental impacts, preventing pollution and achieving

continual improvement (Sheldon and Yoxon, 1999). In addition, by making employees aware of the impact of their actions, and helping them address their personal values and beliefs in relation to the environment, cultural and institutional changes can be achieved (Beard, 1996).

2.5.3.1 Training Requirements

Section 4.3.2 "Training, Awareness and Competence" of the ISO 14001 standard requires organisations to identify training needs and develop procedures for training employees. They must provide baseline training to all employees so they are aware of the importance of the EMS and the environmental policy, their roles and responsibilities in achieving compliance with environmental requirements and the potential consequences of deviating from operating procedures. Training should be provided for those responsible for activities or processes that may create significant environmental impacts to ensure they are competent based on education, training and experience and those responsible for emergency preparedness and response should be trained and competent to respond to emergency events if and when they occur (Bhat, 1998).

EMAS also requires the appropriate initial and advanced training that makes active participation in the establishment and implementation of the EMS possible. Annex I of Regulation (EC) No. 761/2001 stipulates that "...The organisation shall identify training needs. It shall require all personnel whose work may create a significant impact upon the environment have received appropriate training." The organisation must ensure that all employees at each relevant function and level are aware of:

- the requirements of the EMS and importance of conformance with the environmental policy and procedures
- the significant environmental impacts (actual or potential) of their work activities and the environmental benefits of improved personal performance
- their roles and responsibilities in achieving conformance with the policy and procedures and requirements of the EMS, including emergency preparedness response requirements
- the potential consequences of departure from specified operating procedures
- those performing tasks which can cause significant environmental impacts shall be competent on the basis of appropriate education, training and/or experience.

The European Environment Agency's Environmental Management Tool for SMEs (1998) recommends that staff whose work may create a significant impact on the environment must receive the appropriate training. They must be made aware of the importance of conformance with the EMS, the significant impacts of their work and the environmental benefits of improved personal performance, and their roles and responsibilities in the successful functioning of the EMS.

The International Chamber of Commerce's Business Charter for Sustainable Development: Principles for Environmental Management is a voluntary code consisting of 16 principles. Principle 4 on 'employee education' states participants should "educate, train and motivate employees to conduct their activities in an environmentally responsible manner." Principle 15, on 'openness to concerns', states participants must "foster openness and dialogue with employees and the public, anticipating and responding to their concerns about the potential hazards and impacts of operations, products, wastes or services, including those of transboundary or global significance".

The European Commission's Reference Documents on Best Available Techniques (BAT) for industries which fall within the scope of the Integrated Pollution Prevention and Control Licensing system (European Commission, 2001; 2003a; 2003b; 2005; 2006a; 2006b) recognise that training staff at all levels, from management to shop floor, in their duties can help to improve the control of processes and minimise consumption and emission levels and the risk of accident. It is considered best practice to ensure, through training, that employees are aware of the environmental aspects of the company's operations and their personal responsibilities in preventing resource wastage and pollution. These recommendations are reflected in the Environmental Protection Agency's (EPA) Draft BAT Guidance Notes for various sectors in the Integrated Pollution Prevention and Control (IPPC) licensing system (EPA, 2006a; 2006b; 2006c; 2007a; 2007b), where training is considered a general preventative technique.

2.5.3.2 Organising an Environmental Training Programme

Bhat (1998) states that it is a good idea to expand any existing training programmes in the organisation rather than starting from scratch e.g. if an organisation is planning to train employees about ISO 14000, then broadening the ISO 9000 training programme may reduce

training development time considerably. However, the author also recommends that a separate training programme should be designed for each site belonging to the organisation. Therefore, it seems it may be more effective for the implementation of an environmental programme to develop a specific environmental training programme.

Bhat (1998) uses a plan-do-check-act approach to environmental training:

1. Plan: by evaluating the deficiencies in the existing training programs, setting priorities, and developing a written action plan to correct deficiencies identified;
2. Do: by selecting participants, scheduling training programmes, and delivering training;
3. Check: by evaluating training programmes to identify any problems; and,
4. Act: by evaluating results and taking corrective actions.

To develop a training programme Halme (1997) and Cook and Seith (1992) recommend an organisation should:

1. Assess what knowledge and skills are needed to meet the training objective. The training objective should be derived from the overall goals of the environmental programme
2. Determine what employees are to be trained. According to Bhat (1998), this involves establishing criteria to identify potential participation in the training programme, monitoring personnel changes and evaluating the training requirements of new employees
3. Decide the content of the programme, the location and length of training sessions
4. Decide who is to conduct the training
5. Choose the type of presentation media that will be used e.g. lectures, case studies, PowerPoint, etc.

2.5.3.3 Establishing Training Needs

Sheldon and Yoxon (1999) recommend looking at the organisation as a whole first to identify strategic training needs. This involves examining the organisation's business plan, EMS strategy and talking with senior managers to identify the long and short-term organisational needs. From here, functional training needs can be assessed i.e. the level of training each function or department in the organisation requires. This will involve interviewing

representative managers and staff in the relevant functions to determine existing knowledge of processes and new goals and targets and identify information gaps.

Bhat (1998) advocates that the requirements, experience and the background of potential trainees should also be taken into account. As Zilahy (2003) found, lower level employees may be less aware of environmental measures in the company, so a pre-training assessment of the level of environmental awareness of the participants may be necessary to ensure that training will be appropriate and effective.

According to Emerson *et al.* (1997), there are three steps to the needs analysis approach.

1. Determine the extent to which environmental skills and knowledge already exist in the organisation. Those already committed to environmental issues can become instrumental in teaching others similar values
2. Identify the gaps in skills and knowledge so as to determine where training must be improved
3. Training needs to be delivered effectively. Look at who will conduct the training, where it will be held, how long it will last and how it will be presented.

Sheldon and Yoxon, (1999) argue that when the training needs have been identified, the appropriate training objectives can be set to:

- Bridge skill gaps
- Ensure the knowledge required for effective EMS implementation is transferred to relevant staff
- Develop cross-functional relationships to amplify the beneficial aspects of the EMS
- Challenge existing perceptions of environmental activities and promote a change in attitude
- Help staff understand and deal with change represented by the EMS

These objectives should be clear and specify measurable results. This helps participants to know what benefits they can obtain from the programme (Bhat, 1998).

Sheldon and Yoxons' (1997) final step is making sure individuals are aware of the entire EMS process, the issues the organisation is addressing and how their actions can improve environmental performance.

2.5.3.4 The Role of Management in Gaining Employee Commitment to the Training Programme

As Petts *et al.* (1998) point out, environmental issues can lack the same immediacy as other programmes in the organisation, such as health and safety. This makes it increasingly difficult to encourage and develop employee attitudes and to train people to understand the impact of their work upon the environment.

In addition, top management often consider training programmes to be a waste of time and money as payoffs from training are only obtained after long periods and supervisors feel that training takes employees away from their jobs for which they are paid (Bhat, 1998).

An organisation can devastate its efforts to become environmentally responsible if there is little or no support to train and encourage its employees to 'do the right thing' (Daily and Huang, 2001). Therefore top management commitment is vital if employees are to take training seriously (Bhat, 1998). This commitment is demonstrated by providing adequate financial and organisational resources to support the training effort (Bhat, 1998; Halme, 1997) and ensuring the training programme in each area has the support of the respective managers (Bhat, 1998).

Organisations must support participating individuals by allowing them to commit some of their time to the programme (Petts *et al.*, 1998). Workers in Danish companies surveyed by Madsen and Ulhøi (2001) were unanimous in saying that environmental training should not be placed in their leisure time.

It may also be appropriate to organise an award or certificate for those who complete training (Bhat, 1998) e.g. National Vocational Training (NVQ) in the UK (Petts *et al.*, 1998) to provide motivation but also to ensure the appropriate skills and knowledge have been attained by participants.

2.5.3.5 Trainers

Training may be implemented in-house or outsourced. When an outside trainer is hired, his or her qualifications and experience should be carefully examined.

He or she should have knowledge of environmental regulations and EMS implementation issues and new trends and developments in the environmental area (Bhat, 1998). They should be aware of the barriers to change, the time-frame and resources available, and of course the training objectives (Sheldon and Yoxon, 1999). They should also use high standards of training incorporating several approaches (Bhat, 1998).

Training programmes are also most successful when employees are involved in the preparation stages (Halme, 1997). Velumail *et al.* (1997) describe how staff members should be trained in providing awareness training for employees and facilitating the implementation of environmental initiatives at their respective operational sites. Bhat (1998) states that top management should assemble a team of dedicated trainers to coordinate and implement training efforts.

2.5.3.6 Training Content

Petts *et al.* (1998) lists possible topics for an environmental training session based on the requirements for NVQ (National Vocational Qualification) equivalent courses for environmental management.

- Consideration of basic environmental issues
- Consideration of global environmental issues
- Communication of the policy
- Developing environmental objectives and targets
- The design of the EMS
- Planning implementation of the EMS
- Assessing environmental impacts
- Environmental law and its relevance to the organisation and the individual,
- Compilation of register of legislation
- Mapping of processes relating to individuals job
- Identifying and quantifying waste of various processes

- Cost-benefit analysis of capital projects
- Developing/amending work procedures and determining the effectiveness of new procedures
- Developing methods to monitor targets
- Using continuous improvement tools
- Auditing – planning, implementation and control.
- Reviewing the EMS based on audit findings
- Implementing corrective action

Velumail *et al.*, (1997) divide training into two main groups: training related to environmental issues and training related to wider (non-regulatory) issues. For the purposes of this review, training topics are grouped into four categories: raising awareness about the environment, raising awareness about the change, defining the organisations policies and strategies, and providing skills.

(a) Raising awareness about the environment

Ahmed, (2001) recommends that an organisation can increase environmental awareness by requiring all personnel (at all levels, (Zutshi and Sohal, 2004b)) to attend a short non-technical seminar on general environmental issues, thus emphasising the importance of these issues (Bhat, 1998). Halme (1997) states that all training programmes should include ecological information and how a balance can be maintained between economics and positive environmental impact (Halme, 1997).

Creating awareness of the benefits that can be reaped in the natural environment, both locally and globally, through improved personal performance, can provide some incentive to employees to change their behaviour and accept new approaches to their work (Jones and Welford, 1997). This also encourages employees to become more environmentally friendly in general (Cook and Seith, 1992). For many in Madsen and Ulhøi's (2001) study of workers in Danish organisations, environmental training sessions sparked an interest in environmental issues and participants indicated they would welcome a follow-up session or an extended course.

(b) Raising awareness about the change

Extensive information and training must be provided (Nilsson, 2001) so that people can understand the change i.e. the rationale behind the change, how and when it will be achieved, by whom and the impact on themselves (Carnall, 2003). According to Holt *et al.* (2003) it is more important to communicate to employees the appropriateness of the change initiative and how the change would impact on their career outcomes than tell employees about top management and supervisory support and how the change would impact on social relationships in the workplace.

(c) Clearly defining the organisations policies and strategies

This may be followed by information on specific environmental issues in the organisation (Zutshi and Sohal, 2004b), regulatory issues pertaining to the organisation (Cook and Seith, 1992) and the potential legal, economic and environmental impact if these issues are not addressed (Zutshi and Sohal, 2004b). Future trends (from both a regulatory and internal environmental performance perspective) should also be explored (Cook and Seith, 1992).

Elements of the EMS or programme must be explained, i.e. the organisation's environmental policy, its overall environmental goals and objectives, (Cook and Seith, 1992), the process of implementation, the documentation required, internal auditing, gap analysis, potential cost reduction (Bhat, 1998), costs and benefits (Gerstenfeld and Roberts, 2000) and any feasibility studies or audits that have been carried out (Zilahy, 2004). It is also very important that the link between the environmental objectives and the overall corporate objectives of the organisation is made clear (Maher and Hall, 1998).

Employees must be aware of how they personally are affected by these policies. Without this, staff will arrive at their own conclusions about the organisation's environmental issues and communicate these possibly negative perceptions to their family and the local community (Jones and Welford, 1997). Educating personnel on the organisation's good management practices and promoting corporate and environmental policies and procedures develops a positive image of the company among personnel, which will extend to the public domain (Cook and Seith, 1992).

(d) Providing skills

Employees and managers must then be made aware of their responsibilities within the environmental programme (Cook and Seith, 1992) and how they can contribute to reducing the organisation's environmental impact (Zutshi and Sohal, 2004b).

By providing personnel with the necessary skills, knowledge and training to appreciate and understand the implications of the environmental programme for their particular function (Chattopadhyay, 2001; Madsen and Ulhøi, 2001) and making them aware of the significant impacts of their work (Bhat, 1998), and their own actions (Sheldon and Yoxon, 1999), personnel can mobilise their tacit knowledge to identify environmental hazards (Boiral, 2002; Bhat, 1998) and recognise where environmental improvements could be made in their work area (Ahmed, 2001; Halme, 1997).

With the correct support, personnel have the skills, commitment and motivation to take action, improving the organisation's environmental performance (Sheldon and Yoxon, 1999; Cook and Seith, 1992). Boiral (2002) for example describes a carpet and textile organisation that saved $80 million and significantly reduced the consumption of raw materials and waste, an achievement attributed to a training programme established to promote team spirit and sharing of information between employees for the purposes of finding environmental solutions.

Personnel should be trained to collect and use environmental information effectively, and in using audit tools; record-keeping; understanding environmental control systems; interviewing effectively; gathering evidence; using sampling techniques; evaluating findings and reporting findings (Ahmed, 2001). May and Flannery (1995) found that training employees to use simple tools like flowcharts and checklists allowed them to analyse their work area on a constant basis and significantly reduce waste streams at minimal costs. This training should be provided on a frequent basis for both managers and employees (Velumail *et al.*, 1997).

Training sessions can be facilitated by providing workshops to allow for critical exchange of experiences (Remmen and Lorentzen, 2000); by providing hands-on experience carrying out an environmental audit (Ahmed, 2001); bringing in visiting speakers (Pedersen and Nielsen, 2000) and allowing the opportunity for site visits to assist understanding of various activities relating to the EMS (Petts *et al.*, 1998).

2.5.3.7 Training Methods

There are numerous training packages and materials that can be bought in (Bhat, 1998), such as computer packages (Beard, 1996), but an organisation may chose to develop their own training methods.

Sheldon and Yoxon (1999) describe various methods for the purposes of training individuals and for training groups.

Methods for training individuals include:

1. Structured reading, which may be useful as part of a wider training programme but may not always be suitable.
2. Open learning, however this process requires strong self-motivation.
3. IT-based learning, where trainees can learn at their own pace and feedback is provided to the trainer.
4. Coaching and Mentoring, where first hand tutoring from experienced staff reinforces other training methods.
5. On the job training, which can depend heavily on the skills of the instructor.

For training groups, the authors recommend:

1. Lectures, a useful technique for broadly introducing a new topic but may not prove successful if the length of the lecture is greater than the trainees' attention span
2. Group discussions, where trainees are more actively involved in the lectures, understanding of new knowledge is tested, and feedback is actively received.
3. Role-playing and case studies, where trainees simulate real working situations to help bridge the gap between theory and practice. Some trainees may be reluctant to participate however.
4. Video presentation, which will maintain the trainee's attention if well produced, but it may also be perceived as irrelevant if it does not reflect the true situation in the organisation.
5. Outdoor training is useful for developing team cohesion and skills. It should combine some other group training methods as well as the outdoor activities.

Cook and Seith (1992) recommend open discussion, facility tours, case studies, and hands-on-exercises as part of the training programme as well as providing lectures, using slides and overheads, manuals and videotapes.

2.5.3.8 Assessing the Effectiveness of the Training Programme

Money spent on training programmes will be useless unless the results of the training programme are evaluated (Perron, Côté and Duffy, 2006; Bhat, 1998). All training programmes should be evaluated after implementation to see if objectives are met (Sheldon and Yoxon, 1999; Bhat, 1998) and if organisational performance has improved as a result of the training programme; if attitudes and behaviours have changed; if knowledge of the EMS has increased and if employees have the skills to implement an EMS in the workplace (Perron, Côté and Duffy, 2006). Ineffective training will only partly develop skills and behaviours and employees will not develop a need for ownership of the EMS (Sheldon and Yoxon, 1999) so every training programme should be redesigned based on the deficiencies identified (O'hEocha, 2000; Bhat, 1998).

Zutshi and Sohal (2004b) recommend that training should be evaluated by giving employees a questionnaire or informal test to ensure awareness has been sufficiently raised. This is also a way for employees to comment on the change or training provided.

2.5.4 Suggestion Schemes

One of the techniques used to empower workers to make process changes and encourage employee involvement is the use of suggestion schemes (Hanna *et al.*, 2000).

Cebon (1993) describes one case study where a suggestion box was in place. Suggestions were collected and acknowledged daily. The environmental committee provided funding for projects and awarded a small prize to the two best suggestions for the month. Similarly, Palmer and Andrews (1997) refer to Hampshire Chemical Ltd, who informed people of how to save money at home by being environmentally friendly to generate environmental awareness among all staff and used staff suggestion schemes, with prizes given for good ideas. As a result, employees developed a positive attitude towards greening and were motivated to act. They made regular suggestions for improvement and the savings realised by the company have been enormous.

To maintain the positive impact of suggestion schemes, it is important that the organisation make a concerted effort to seriously consider and take action on the suggestions given. Otherwise, as Kamp (2000) found, workers will not see any point in making suggestions and the scheme will be ignored. Similarly, Cebon (1993) states that supervisors may not want to 'waste' time developing proposals that could be rejected anyway. They would rather see that time spent on actually implementing the project.

If a suggestion scheme is used it should be dedicated to environmental issues (Petts, 1998). Velumail *et al.* (1997) found that most of the companies they studied did not operate suggestion schemes aimed solely at environmental management. Some operated schemes in relation to quality management. Rewards were offered for useful quality suggestions e.g. publicity in company newsletters, bulletin boards and team briefs; but often no reward was offered for environmental suggestions. The authors found that rewarding suggestions made is vitally important if the scheme is to be an effective way to accumulate employee ideas. Otherwise, suggestions will not be frequent and will not be regarded as an inherent part of environmental management.

Cebon (1993) describes in his case study of two waste reduction programmes how it may be beneficial to organise a competition between departments to see who comes up with the better environmental improvement to their process. Submissions were made and the most effective and efficient idea was awarded capital to carry it out. No financial awards were given to the engineers who came up with the designs as that would be seen to compete with the employees on the lines. Instead the plant gave a plaque to the department to recognise their achievement.

The suggestion scheme should also be simple and require very little effort on the employee's part. Tomlinson (1994) describes how in one organisation, staff were expected to identify savings and provide an implementation plan for any suggestions they made. As a result, few suggestions were made. Staff asked for a simple process, in addition to the more complicated one, where concerns and ideas could be expressed quickly, without filling in forms and without having to commit themselves to implementing them.

Ultimately, however, suggestion schemes are a 'low impact' method of participation, as managers ultimately have the right to decide if suggestions made will be acted upon or not. If managers show little interest and give no response to suggestions made, employees lose interest and ignore the scheme (Frölich and Pekruhl, 1996).

According to Petts *et al.*, (1998), team meetings and committees were seen as the most effective way for non-management to make their views known. In Le Tainturier's (1998) experience in a French frozen food industry on the other hand, new ideas were rarely voiced in formal meetings and presentations, but made informally.

2.5.5 Teams

Keogh and Polonsky (1998) state that teams are crucial to ensure successful environmental management and the meaningful involvement of the majority of the organisation's employees in the process. Teams are also considered the most effective way to manage change (Stead, 1998).

Teams are a small number of people with complementary skills who commit to a common purpose, performance goals and approach for which they hold themselves mutually accountable (Katzenbach and Smith, 1993).

The environmental team provides an opportunity for environmentally conscious and motivated employees to individually participate in the greening process (Remmen and Lorentzen, 2000) and provides an opportunity for them to think creatively (Moxen and Strachan, 1998c). By initiating, implementing and maintaining the programme as part of a team, employees are actively involved in environmental activities from which a framework can be established for initiating individual and collective learning processes (Remmen and Lorentzen, 2000).

A multi-disciplinary approach, an approach not acknowledged by ISO 14001 or EMAS (Moxen and Strachan, 1998c), is one of the best ways of facilitating employee involvement (Govindarajulu and Daily, 2004) as it ensures the participation of employees from key departments and with specific knowledge (Remmen and Lorentzen, 2000).

This cross-disciplinary approach is key to resolving environmental issues (Moxen and Strachan, 1998a). Environmental issues affect, either directly or indirectly, all parts of the organisation. All departments can have a significant impact on the organisations greening

process, including human resources, finance etc. Therefore every department must be involved in the greening process (Dodge, 1997).

The speed of implementation is increased because functional and hierarchical barriers are removed (Chattopadhyay, 2001) and with improved flow of information across departments (Moxen and Strachan, 1998c) there is greater comprehension within the team of the impacts of environmental issues throughout the organisation (Chattopadhyay, 2001).

When the teams consist of management and employee representatives, environmental issues are placed higher on the business agenda (Remmen and Lorentzen, 2000). Middle management and supervisors can become involved in facilitating coordination of activities and securing cooperation from key processes and functions (Remmen and Lorentzen, 2000).

Through teamwork, it is possible to identify sources of operational improvements, which can yield a significant number of concurrent environmental benefits. Hanna *et al.* (2000) found a positive relationship between operational and environmental performance and employee involvement in teams were key to this positive relationship, especially when there is a team focus on cost-reduction goals[1].

As well as environmental improvements, environmental teams can achieve cost reductions, process improvements, reduced process waste, improved morale, enhanced customer satisfaction, improved process safety, improved community relations and an enhanced public perception of a 'green' firm.

2.5.5.1 How to Get a Team Started

May and Flannery (1995) provide the following guidelines for establishing an employee involvement team to minimise waste. Additional guidance from Allen and Kilvington (2001) is included.

[1] *Findings based on study of companies where employee involvement project teams received company endorsement and funding, were considered significant and had a high strategic priority, and the organisation had a relatively low product variety and relatively large production volumes,*

1. Form a management steering committee

- Obtain essential CEO support.
- Compose the team of top level managers from each of the major functional areas in the organisation.
- Assign the manager with expertise in environmental issues to be the leader. Establish the programme's goals and objectives, written policies, procedures and measurable performance standards.

2. Employee problem-solving team

- Compose the team of 5-12 volunteer employees from different areas of a given department. Chattopadhyay (2001) recommends large team sizes in the planning stages and smaller more agile teams during the implementation stages for speedy implementation of the EMS.
- Include maintenance or facilities personnel and have teams select their own leaders.
- Train the teams in waste minimisation approaches, industry specific waste issues and systematic waste analysis. Teach them interpersonal skills that focus on team member roles, discussion and feedback principles and brainstorming and consensus techniques.
- Allow the team to meet formally for 1-2 hours per week and to have the autonomy to spend a designated budget on smaller projects and make financial justification to the steering committee for larger projects. Have the teams begin with simple projects in order to build team efficacy.
- Establish a means of communication and team accountability to all employees for waste minimisation projects.
- Establish a team-based reward system to build a feeling of solidarity and cooperation among team members. Use public recognition and bonuses for ideas implemented.
- Consider how the team will evolve, particularly in terms of adapting to new tasks that arise and recruiting new members as required (Allen and Kilvington, 2001).

If a management steering committee is not established, ensure a management representative is on the team in order to have access to decision making in the organisation (Allen and Kilvington, 2001).

2.5.5.2 Selecting Team Members

A stumbling block to the multidisciplinary approach is getting the right people involved in the process. Adequate time and financial resources must be allocated to the project to achieve this so that key stakeholders are not left out (Allen and Kilvington, 1999). Allen and Kilvington (2001) recommend identifying people and selecting those willing to participate rather than calling for general volunteers.

Team members should be identified as early as possible so they can be involved in setting the programme objectives with other stakeholders (Maher and Hall, 1998).

For a team to be of greatest effect, its members must be proficient at considering the operational, managerial and strategic dimensions of pollution prevention activities within the organisation (Stead, 1998).

One or some of the team members should be skilled in communicating, facilitating and managing group processes and members, dealing with conflict, negotiating, motivating fellow members, thinking innovatively and performing tasks reliably (Allen and Kilvington, 2001; Perry *et al.*, 1998). Training in some of these aspects may be necessary (Perry *et al.*, 1998).

2.5.5.3 Roles Within the Team

Plenty of time should be given at the first full team meeting to allow for personal introductions and each individual's vision for the programme (Maher and Hall, 1998). Roles within the team are then developed, particularly that of a facilitator, chair, and administrator. A method should be determined for rotating these roles as necessary. These roles should not be allotted to just one person but should be divided among the group. Tasks must also be allotted to different members of the group, either voluntarily or by discussion. (Allen and Kilvington, 2001).

Similarly, O'hEocha (2000) believes equal and active involvement of middle management, supervisors, team leaders and shop floor operatives is essential in an environmental team, though it may be the role of the organisation's environmental champion to develop an environmentally committed culture within the team and have the ability to understand, amalgamate and effectively use the commitment given by team members to achieve the organisation's environmental goals (Keogh and Polonsky, 1998).

2.5.5.4 Agree on Goals and Objectives

Agreement must be reached on the definition of the key objectives and priorities of the partnership, and a schedule of implementation (Roberts, 1998). The greater the input by team members, the greater the degree of ownership (Allen and Kilvington, 2001). Wing (2005) suggests the development of metrics to measure achievement and help the team to identify successful actions and rewarding the team as a whole for the successes they achieve.

2.5.5.5 Group Processes and Well-being

The team should understand group processes and be able to move through the stages of forming (questioning the purpose of the group), storming (disagreements, conflicts and frustration), norming/performing (high levels of enthusiasm and optimism) and dorming (group processes are achieved) (Allen and Kilvington, 2001).

It must also be able to look after its own well-being. Well functioning groups according to Allen *et al.* (2002) have:

- a sense of cooperation
- good communication
- an equal emphasis on understanding their own process as a group as on achieving their tasks

It is important to be extra vigilant for problems in the group and approach the individuals concerned in an effort to resolve any conflict. It is also important to be aware of potential problems in the group, even if they do not materialise, so that conflict can be avoided Maher and Hall (1998).

Therefore the team should evaluate both the task at hand (are the project goals being met?) and the process they are using (how well does the group work together?). The team process should be monitored continually by looking at how well the team adapt the approach and goals to fulfil project implementation and if team members are cooperating successfully. This enables the team to learn and improve the way they work together rather than simply evaluate the worth of the work at the end of the project (Allen and Kilvington, 2001). Maher and Hall

(1998) suggests concluding each meeting with a review session where members can discuss how the team works together and air any grievances.

2.5.5.6 Routine

Rothenberg (1998) advocates Gersick and Hackman's (1990) approach of developing habitual behaviours in teams, to save time, energy, and resources and to help teams predict the responses and behaviours of others and thus accomplish tasks more effectively.

Routines must be established early in team development. This can be done by members of the team creating their own routines, which gradually become habitual (creation) or by the team following routines introduced or imposed by non-team members (importation). It should be noted however that if routines are continually 'imported' and forced upon staff, people could begin to lose interest. Their willingness to participate and give the project time may wane and as progress in the teams activities is reduced, so too may funding for the programme and any other involvement from top management. Instead the team should be allowed to develop new behaviours by introducing activities that gradually, either consciously or unconsciously, alter their routine (Rothenberg, 1998).

2.5.5.7 Commitment of Team Members

Managers and employees will only fully implement environmental policies when they are deeply committed to them (Moxen and Strachan, 1998a). Gaining team support for an environmental issue does not automatically mean every member of the team is committed to its activities or goals. Commitment to carry out a decision of the team depends on the support individual team members themselves give to the issue and to the views of others on the team. If that commitment is lacking, an initiative may be delayed or sabotaged. Alternatively, if all members of the team support the initiative, the strategic options available to the group to carry out the initiative will increase (Keogh and Polonsky, 1998).

Enthusiastic take-up of team working can depend on an individuals past experience (Palmer and Andrews, 1997), for example as Allen and Kilvington (1999) discovered, people may be reluctant to be involved in multi-disciplinary efforts if they have been involved in an unsuccessful one in the past.

In addition, teamwork requires considerable and sustained attention, time and energy, especially from the team leader/change agent (Maher and Hall, 1998). If volunteers to a project begin to feel that what they must put into the project is more than they wish to contribute, then they will back away. It is important that volunteers do not become stressed by the volume of work expected of them, regardless of how willing they seem to want to do it. Participants must feel that what they are doing is worthwhile. If their contribution is not valued or their personal needs and goals are not met, then their support for the team will waver and they will become distracted (Haigh, 1998).

If a project is to be completed successfully, participants must be enthusiastic (Haigh, 1998), willing to make sacrifices, and cooperate with others towards a common goal (Mendibil *et al.*, 2002). The principles of empowerment are particularly important at this stage, where participants can make decisions on their team's activities and have responsibility (and accountability) for the team's success (Jarrar and Zairi, 2002). Participants should be given the chance to experiment and use their own expertise in different areas and project leaders should show appreciation for the enthusiasm given by participants. Participants must also have a sense of ownership of the project in order to develop a sense of responsibility and duty towards the project. Otherwise, they will withdraw from the group (Mendibil *et al.*, 2002).

The attention of team members must be maintained throughout implementation. Presenting the environmental issues to the team in new ways e.g. in terms of costs, serves to better present the environmental problem as a business issue (Rothenberg, 1998), which increases the likelihood of environmental objectives being prioritised, financed and integrated in a similar way to other business objectives (Keogh and Polonsky, 1998). Even providing team members with a new physical location to work in could change their perspective on a particular project (Rothenberg, 1998).

Participants must also believe that the project is moving towards completion and all participants must want the project to achieve its goals (Haigh, 1998).

The team members should be given access to the information and skills needed to achieve their tasks within the budget and budgetary issues should be discussed regularly so everyone is informed (Rothenberg, 1998).

Communication is the key to effective team work (Perry *et al.*, 1998) and developing good cooperation (Allen *et al.*, 2002). From a business perspective, Mendibil *et al.* (2002) found in a case study company that by clearly communicating to its employees the company's vision for improvement, objectives, performance measurement methods and it's desire for self managed teams to carry out the change strategy, all employees were willing to cooperate and get involved. However as Wing (2005) stresses, it is important not to over communicate, but ensure that information of vital importance to the team's success is communicated.

2.5.5.8 Problems that Can Occur Using Teams

Despite the numerous advantageous associated with the team approach, teams are not the answer to every problem. Teamwork in itself has its own drawbacks - decisions are slowed, team members may be forced to think like every one else in the group and norms which develop may be slow to change. Teams will recruit like-minded people and may be reluctant to include a variety of different people from the organisation. The dynamics of working in a team can itself take over and the team's own goals can become more important than completing the tasks the team was established to do (Perry *et al.*, 1998). Wing (2005) advises that if problems occur, the team should not be punished. Instead, a climate of trust must be created so that problems can be worked through and solved quickly.

2.5.6 Learning-by-Doing

Boiral (2002) advocates that an organisation must promote a climate of learning where employee experiences and ideas are recognised and shared if behavioural and systematic change is to be successful.

It also ensures knowledge and ideas stay within an organisation, and not just with an individual. Margerum (2001) points out that if personnel are employed specifically to implement an EMS, the knowledge accumulated will leave with that individual if they leave their employment or are moved from one part of the organisation to another. Therefore continual improvement can only occur when knowledge is shared.

Carnall (2003) describes three learning modes that are of relevance to managers concerned with change:

1. Learning by doing: this is an internal process where people learn by experimentation, by trial and error, by pilot trials and so on
2. Learning by use: This is learning from the external world. Employees learn about how to improve products/services by gaining feedback from customers' experience of using the products and services and through comparing themselves with competitor organisations
3. Learning from failure: It is important to accept that failure will happen from time to time.

Remmen and Lorentzen (2000) discuss how companies participating in the Danish EPA MIRT project (Employee Participation in the Implementation of Cleaner Technology) adopted a learning-by-doing approach where the opportunity to actively participate in environmental activities allows employees to learn from their own practical experience.

Using this approach, organisational learning occurred in a 4 step cycle:

1. Widespread generation of information, where all employees give input to the policy, and discuss problems and proposed solutions
2. Integration into the organisation e.g. through cross-departmental teams
3. Collective interpretation, which is assisted by ensuring the social and cultural aspects of the company are suitable for the change to be successful and in order to reduce conflict
4. Action based on interpretative meaning, where employees have learned from their personal experiences and so will readily implement the necessary changes efficiently and effectively.

The study found that individual learning was critical for change to be successful. As they learned through action and experiences, perceptions, attitudes and behaviours in the organisation gradually changed. As this process usually happens in teams, collective learning takes place.

With employees participating over time, new formal and informal structures of management and cooperation develop in the organisation, creating significant organisational change.

The authors propose that a combination of individual learning and organisational change creates new methodologies for environmental improvement, which in turn leads to new strategies, policies and priorities in other educational, business and regulatory institutions (institutional change).

2.5.7 Incentives

Providing the opportunity for workers to participate in management meetings does not mean that workers will take the opportunity (Petts *et al.*, 1998). In addition, it is better to make the participation and cooperation process a rewarding one than coercing individuals to take part and achieving poor results (Allen *et al.*, 2002). Therefore it is necessary to make programmes more attractive to line management and participants by offering mutual advantages and benefits (Cebon, 1993; Nilsson, 2001).

Rewards can reinforce empowerment and good decision-making and improve corrective and preventive measures employees initiate (Daily and Huang, 2001) and if team and organisation-wide rewards are applied, they can encourage people to share information and expertise (Halme, 1997).

HR systems such as performance appraisals and promotions should make it in employees best interests to implement the new strategy (Kotter, 1996). Rothenberg (1998) suggests integrating environmental tasks into the primary job of employees, which leads to further innovative solutions and vastly improves environmental performance. Cebon (1993) found that this may not always be feasible however, especially if the site is large and staffing levels are very high.

The incentive could be in the form of financial bonuses (paid to individuals or to teams) (Emerson *et al.*, 1997). May and Flannery (1995) report how one company provided a 10% bonus to employees who developed a non-polluting or environmentally benign product. This motivated and stretched employees to embrace an attitude of corporate environmentalism and resulted in a positive change for the company and the environment. Rothenberg (1998) describes an automotive manufacturer that operates a 'risk and reward' incentive where management and non-management risk a portion of their salary (approximately 5%) only to be received if the employees' training goal is met. One company studied by Velumail *et al.*

(1997) did have a 'Win and Donate' scheme, where departments submitted project ideas. The department with the project that made the most significant contribution to the environment would win a cash award, which was then used to support environmental initiatives in the local community.

Denton (1999) however found that environmental companies worldwide, even those encouraging environmental performance, rarely combine financial rewards to environmental performance.

This is perhaps because despite motivating employees, monetary rewards can also cause competition between staff members, which can distort environmental results (Halme, 1997). There is also a risk that individuals will behave in an environmentally friendly manner without fully understanding the policy that requires the new behaviour (Allen *et al.*, 2002).

Recognition schemes for individuals, teams and divisions are a favourable option according to Emerson *et al.* (1997) and Jeffries (1997) e.g. publicity given via internal company media (Velumail *et al.*, 1997).

Other appropriate incentives may be in the form of an appeal to the health and welfare of the community, pressure from top management, an opportunity of diversion from routine work (Cebon, 1993; Farnham *et al.*, 2003), time off work (Bragg, 2000), extra holiday allowance, sabbaticals, gifts, time-off to engage in local community projects or access to further training (Emerson *et al.*, 1997).

Whichever combination of rewards is selected, the package must be customised to suit the organisation (Govindarajulu and Daily, 2004).

2.5.8 Middle Management

Line managers and supervisors, even in environmentally committed companies, are less supportive when managing environmental activities than other activities (Ramus, 2002). Petts *et al.* (1998) found that unless they were personally motivated, middle management perceive environmental management as something requiring additional time and work and they find it difficult to take ownership of the issue. They do not see the potential benefits of the

programme (van Hemel and Cramer 2002; Stamou, 2003; Hillary, 2004) as it can be difficult to specify the expected results and even harder to put them in financial terms (Pedersen and Nielsen, 2000). They have limited budgets and are often reluctant to expend their resources on areas such as environmental management that are not directly tied to their function. In addition, there is rarely an incentive for a manager to incorporate environmental considerations in their decision-making (Little, 1995). They may fear a loss of control if employees are included in making environmental decisions or if employees make changes without consulting them (O'hEocha, 2000), which potentially blocks the occurrence of employees involvement.

Holt *et al.* (2003) found that supervisory support was much more important than the role of top management support. Although top management may initiate the change, it is front-line supervisors who communicate change issues to employees and involve them directly in the process. Senior managers are often too remote and not entirely trusted by front-line employees but because employees work so closely with their supervisors, they tend to react to change similarly to their supervisor.

It is understandable therefore, that when line managers do not give environmental management sufficient emphasis and attention, then it is difficult to gain support from the rest of the organisation. Ramus's (2002) study of middle and low level employees from 12 countries employed by six companies with proactive environmental policies showed that employees need a clear sign of organisational support, through policies; and supervisory support, where supervisor's daily behaviours are aimed at encouraging environmental action. In fact according to the authors, when line managers show concern about environmental issues, invest in training and coaching, provide 360° feedback and develop environmental performance evaluation targets and other management development tools, the company is demonstrating that it is achieving sustainability.

2.5.9 Integrating Environmental Management with Operational Management and the Business Strategy

Authors from both the change and environmental management fields recommend that a new programme must be integrated with the business strategy and its operations if it is to succeed

(Smith, 2003; Pennington, 2003; Gray and Larsen, 2003; Jackson, 2000). As Jackson (2000) points out, it is business decisions that will reduce an organisation's environmental impact.

Competitive pressures (Post and Altman, 1998) mean there is an emphasis on production (Stone, 2000) in most organisations, and environmental programmes may seem to conflict with functional product requirement (van Hemel and Cramer, 2002). However as Judge and Douglas (1998) point out, organisations that develop better capabilities to incorporate concerns for the environment into their strategic planning process posses a competitive advantage in the market place, are better stewards of the environment and, as Hart (1995) argues, experience superior performance.

Similarly, Hanna *et al.* (2000), who examined 349 employee involvement (EI) team projects in manufacturing industries, found that projects chosen because of operational performance objectives often yielded unintended environmental benefits. Similarly, EI projects with environmental goals and/or a positive environmental impact outcome tended to demonstrate greater process improvements and improved employee morale than projects without environmental benefits or goals.

Angell and Klassen (1999) describe three different approaches management of any organisation may have to the inclusion of environmental considerations in operations management. They may have the traditional approach where environmental interventions are regarded as an obstacle, which constraints operation strategy and decision-making (the constraint perspective). Alternatively, top management may take a component perspective, where operations strategy is broken into structural operational issues, infrastructural operation issues and environmental operating issues (such as pollution control and waste minimisation). Finally, they make take the integrated approach, where environmental considerations are harmonised with every aspect of the operational process and supply chain via a process of continual environmental improvement.

Berry and Rondinelli (1998) state that environmental policies must be implemented in all departments to make environmental issues part of the organisation's ethos and of every business decision. In Hewlett Packard, Jackson (2000) found that environmental management was more likely to be adopted if it can be shown to link to existing company objectives of

which the members of the organisation are already aware. According to the author, hooking an environmental objective into a business objective adds legitimacy to the environmental issue. Jackson approached this task at an individual department level, amalgamating environmental objectives with the business objectives associated with individual departments and communicating environmental issues in a language appropriate to each unit. This was naturally followed by the integration of environmental objectives with existing company-wide objectives and strategies. Both of these tasks were preceeded by the consideration of individual environmental values and concerns and the ability of individuals in the organisation to participate in the programme.

Similarly, in some of the organisations in Australia and New Zealand studied by Zutshi and Sohal (2004a), the environmental policy was modified to accommodate the needs of individual departments. The modified policy coexisted with the overall organisation's environmental policy, and was formulated with employees, using their expert knowledge of operating procedures in the department.

This justifies Stone's (2006b) recommendation that the personnel co-ordinating the environmental programme should develop an understanding of the unique characteristics of the business and use this knowledge to customise the programme so it can fulfil the organisation's needs and maximise its' potential for success.

Cramer (2005) discusses the importance of embedding environmental and social responsibility into existing management and quality systems in the company as a means of maintaining momentum for the initiative. Stamou (2003) explores the emergence of integrated management systems (IMS). These systems are designed to meet the needs of environmental management, quality management and health and safety management, integrating these functions at the strategic level. Common elements of these three systems are brought together so that all three are implemented under the same holistic framework while still retaining their own policies for clarity. Stamou found that integrated management systems improved efficiency internally, homogenised management techniques and structures, streamlined paperwork and procedures, reduced audit and certification costs and increased employee motivation and awareness. Significant effort was required to implement the initiative however due to the differences between the three systems and cultural differences between disciplines.

Other authors have recognised the benefits of integrating management systems. Lee (2003) refers to Kamp and Blonsh's (2000) experience of integrating the environmental management system with the occupational health and safety management system. They found that each system raised the profile of the other and motivated employees to be involved in other areas.

2.5.10 Conflict Management

Disagreements are not necessarily a bad thing. In fact it shows that neglected issues about the change are been raised and sorted (Halme, 1997) and can be a catalyst for gaining people's involvement in an issue (Allen and Kilvington, 1999).

However personality clashes, particularly when employees and managers are working together, must be avoided when implementing a new system such as an environmental programme (Zutshi and Sohal, 2004b). As Stone (2006b) reported following implementation of a cleaner production project in a New Zealand organisation, if the worker-manager relationship is strained, employees will see the project as a management initiative and those asked to participate will be hostile, causing the project to remain at a standstill.

Vakada and Nikalaou (2005) found that work relationships strongly predict attitudes to change. When colleagues are socially supportive, stress levels are lower and it is easier to cope with and accept change. Therefore to ensure success, a culture of innovativeness and open-mindedness must prevail (Zutshi and Sohal, 2004b).

2.5.11 Negotiation, Coercion and Manipulation

Staff will not always be enthusiastic about accepting further duties on top of their already full workload, so the ability to negotiate will be key in the delegation process. In some cases, a certain amount of manipulation and coercion may be required for successful implementation of the change programme to occur.

Maher and Hall (1998) recommend communication with and educating employees about the change initially, followed by a participation strategy where resistant employees are involved in implementing the change and given the time and space to adapt to the new behaviours expected of them. If negotiating with employees does not seem effective, manipulation and

coercion should only be used as a last resort. Coercing employees from the start will only serve to break down any trust with the change agent (Maher and Hill, 1998).

2.6 Maintaining Momentum

It is a considerable challenge to maintain the momentum of environmental efforts once certification has been achieved or a particular objective has been realised (Pedersen and Nielsen, 2000).

Initial success in some environmental initiatives can greatly increase the motivation for environmental action and foster a positive environmental attitude within the organisation (Petts *et al.*, 1998). However, greening the processes of an organisation will be necessarily slow (Kemp, 1993), despite pressure from stakeholders. Therefore when additional successes are slow to achieve, employee enthusiasm will continue to diminish. It can also prove difficult to engage new employees if they have not been involved in the initial flush of enthusiasm (Pedersen and Nielsen, 2000).

In their study of Danish companies certified to ISO 14001 or EMAS, Pedersen and Nielsen (2000) found that one of the main reasons for a decrease in momentum in environmental management systems was where environmental improvements were carried out with minimal employee involvement, so that immediate results are not noticed by the workforce. Motivation can be lost very quickly if insufficient opportunities are taken to build the environmental team/department and encourage employee involvement (Petts *et al.*, 1998).

As the momentum decreases over time, the availability of employees may be reduced and the programme may lose the interest of top management. There may be a subsequent decrease in resources available, environmental staffing levels may decrease significantly, and the programme may lose a high-level champion. With less resources and staff, the environmental department may find themselves once more in a reactive stance – dealing with problems as they arise (Rothenberg, 1998).

Therefore as Pedersen and Nielsen (2000) argue, it is vital that the organisation learns to continue to focus on environmental issues and create new opportunities and values. They recommend activities such as the life-cycle analysis of all products; communicating the

organisation's environmental initiatives to customers, thus improving the market advantage associated with the EMS; cooperating with suppliers and customers to environmentally improve processes and products; and continually training and educating employees to facilitate understanding and participation.

2.6.1 Monitoring and Reviewing

Hansson *et al.* (2003) found that in the TQM, TPM (total productive maintenance) and RCM (reliability centred maintenance) setting it was most beneficial to use simple tools for monitoring aspects of the programme and highlight any positive effects, which stimulate employees for continual improvement.

Parameters should be set and measured to show progress, monitor effectiveness and demonstrate achievement (O'hEocha, 2000). External and internal environmental audits can also be used to assess environmental performance (Velumail *et al.*, 1997; Schot and Fischer, 1993) and gauge employees' opinion on how the EMS can be improved (Pedersen and Nielsen, 2000).

Senior management should periodically review the results of the assessments made in order to ascertain the effectiveness and adequacy of the EMS. This periodic review facilitates the element of continuous improvement that is essential to the success of maintaining an effective EMS (Daily and Huang, 2001).

It is important that when errors in a programme are realised, action is taken to correct them (Stone, 2006b). It is also important to be able to recognise when a change in strategy is necessary, however difficult it may be to admit to it (Allen and Kilvington, 1999).

In order to prevent a return to bad habits, new operational procedures should be put in place (O'hEocha, 2000). The organisation may also seek external verification as a further signs of commitment to the strategy (Velumail *et al.*, 1997).

2.6.2 Feedback

Chinander (2001) points out that organisations often fail to realise the importance of giving feedback to employees on environmental programmes. Employees need to see a link between

their efforts and the overall environmental improvements achieved in the organisation. Otherwise environmental efforts can come to a standstill.

This could involve continually highlighting implementation goals so employees and management stay motivated and committed to the programme (Hansson *et al.*, 2003) and communicating the results of audits to employees, emphasising the areas which require further environmental improvement (Govindarajulu and Daily, 2004).

When positive results are publicised internally, it encourages employees to maintain the process of continuous improvement. Positive public attention also reinforces the new environmentally friendly culture (Halme, 1997).

2.7 The Impact of the Change Process on Employees and on the Organisation

Change is a continuous process. It occurs in small incremental steps over a long period of time (Bamford and Forrester, 2003), during which, the organisation will gradually learn to accept new ideas (Ayers and Greene, 1998) and a major transformation occurs.

Halme (1997) proposes the phases of change an organisation could experience during the implementation of an environmental programme (using a learning-by-doing approach) in Figure 2.1 below.

If the initial resistance to the proposed programme is managed effectively, the organisation should begin to see a change in attitude, where a limited number of people begin to acknowledge and understand the new system (unfreezing). With continuous and effective employee involvement, training and communication, and where positive experiences arise from trying and refining new ideas, employees unlearn old practices and relearn new ones so that gradually, acceptance of the programme extends to other parts of the organisation. This is a turbulent time as tensions arise between groups clinging to the old methods and those adapting to the new behaviours. However with a combination of urgency, optimism, strong and consistent managerial support, relearning can effectively take place (Halme, 1997).

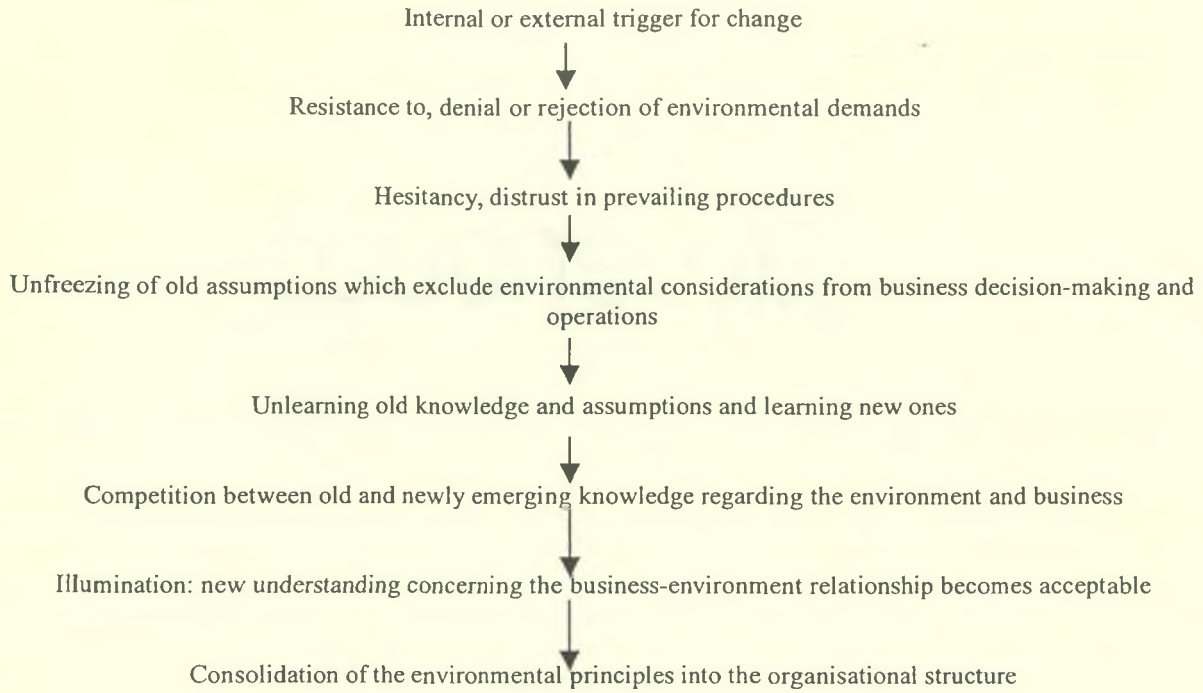


Fig 2.1 Phases of Environmental Change (from Halme, 1997, p.85)

When the new approach is accepted, and the majority of change has been implemented, the organisation can again become rooted in their new culture (Ayers and Greene, 1998).

2.8 Anchoring new approaches in the organisation's culture

Kotter (1996) found that problems associated with organisational culture are more easily solved at the end of the change initiative when performance improvements as a result of the initiative have been realised and recognised by the organisation. According to the author, the process will only be successful if the new approach is clearly superior to the old one, if a lot of verbal support is given to the new practices, and if there is a determination in the organisation to remove or change key people if they do not accept the new culture.

The alternative evidence presented in this chapter suggests that if the process is managed correctly, the organisation's systems and people are properly assessed; if time is taken to actively involve employees at all levels during each and every stage of the programme through team work, training and communication; if employees are supported through the process through active top management commitment, efficient and effective leadership, supportive

managerial and organisational structures, and by integrating the programme into the daily routine employees are familiar with, a new mindset and ethos develops gradually throughout the organisation.

2.9 Conclusion

This review accumulates an extensive range of techniques proven in the literature to be effective for establishing and maintaining employee participation in an environmental programme, thereby facilitating proactive management of an organisation's environmental issues. These techniques are summarised in Table 2.4 below.

The literature has examined in detail the use and benefits of each of these techniques on an individual basis, and in some cases, a limited number of techniques were assessed together in one study. A comprehensive assessment of each of these techniques in one study has not been carried out. It is also noted that the effectiveness of these techniques for facilitating employee involvement in Irish-based organisations has yet to be established.

Table 2.4 Elements of a Proactive Environmental Management System which Facilitate Employee Participation in the Implementation Process

Management/Organisational structure	
Top management commitment	Environmental policy
	Policy pledges to involve employees
	Objectives and targets
	Assist in defining objectives and targets
	Appropriate resources
	Dedicated environmental manager
	Environmental department
	Communicate importance of the programme
	Linking performance evaluations to fulfillment of targets
Environmental manager	Dedicated to environmental management
	High in corporate hierarchy
	Involved in decision making in organisation
	Effective communication between environmental department and other functions
	Communicating to top management re programme
Assess organisations capacity for change	
Assess employee readiness for change	
Assess culture	
Assess attitudes	
Assess barriers to change	
Assess employee willingness to participate	
Employee participation in	Initial review/assessment of environmental aspects
	Planning
	Setting objectives and targets, policies
	Implementation
	Decision-making (given responsibility and accountability)
	Review
Creating a sense of urgency	
Communication	Managing the communication strategy
	Effectively raising awareness
	Clear lines of communication between management and front-line employees

Training	Objectives and targets for training programme
	Establishing training needs
	Sufficient funding
	Support from management for training programme
	Assessing effectiveness of the training programme
Suggestion schemes	Rewards
	Suggestions used to select projects for implementation
Teams	Nature of team in organisation
	Group processes and well-being (team members trained)
	Team in each department
	Influence in operational decisions
Learning-by-doing	
Incentives	
Middle management	Less/equally/more supportive of programme
	Allow employees to attend training
	Supportive of employees on teams
Integrating environmental management with operational management	
Integrating environmental management with business strategy	
Conflict management	
Maintaining momentum	
Monitoring and reviewing	Audits
	Review
	Corrective action taken
Feedback	

3.0 METHODOLOGY

3.0 Methodology

3.1 Introduction

This thesis focused on the notion that the participation of employees at every level in the environmental programme of an organisation can facilitate the successful implementation of the programme and its integration into the organisation's culture and systems.

The main objectives of this research were to determine:

- the role of employees in a proactive environmental programme
- the most effective methods used to reduce employee resistance and involve employees in environmental management
- the extent of employee participation in the management of environmental activities in Irish-based organisations, and
- the impact of employee participation on environmental performance

These objectives were achieved through:

- A review of best techniques from the literature for the management of environmental programmes and for the inclusion of employees in the environmental management process
- A survey of Irish-based organisations to determine the extent to which these techniques are utilised in Ireland and the impact of employee participation and support (or lack thereof) on the success of the programme.

3.2 Literature Review

The research was initiated with an in-depth study of the available literature on the role of employee participation in successfully and proactively managing an organisation's environmental activities, and the most effective change management and environmental management techniques currently used to ensure full employee participation in and acceptance of the programme within the organisation. As there was little information on this topic in an Irish setting, most of the information was sourced from European and American literature.

3.3 Need for Survey and Type of Survey Chosen

Other studies in this area of research tend to focus on the examination of one or a limited number of issues or techniques in relation to employee participation in environmental

management. The literature review highlighted that a substantial number of factors must be considered when initiating and sustaining employee involvement in an environmental programme. No study to date has simultaneously explored the implications of this comprehensive list of techniques and issues in a sample population. In addition, there is a distinct lack of data on employee participation and participatory techniques used in the Irish setting.

To address this deficit, an in-depth study was initiated to explore an extensive range of issues relating to employee participation and environmental management in Irish-based organisations.

It was decided that a postal questionnaire would be the most suitable method for collecting this information as it would allow for the accumulation of qualitative and quantitative data in a structured manner. This facilitated comparisons between the responding organisations and enabled conclusions to be drawn regarding employee participation and environmental management issues in Ireland as a whole.

3.4 Compilation of Questionnaire

3.4.1 Topics Addressed

The questions used in the questionnaire were largely based on information accumulated from existing studies in the literature related to this topic so that comparisons between this study and others could be made.

The population sample were initially asked to provide background details on their organisation such as the environmental systems in place in their organisation, the products they supply, annual turnover, size, and overall management approach so that respondents could be grouped and comparisons made between groups. This section (first three pages of the questionnaire) could be answered by organisations with or without an environmental management system.

Only those organisations with an environmental programme were required to answer the subsequent questions in the questionnaire relating to environmental programmes and employee involvement in those programmes.

These programme-related questions were structured to determine:

- The extent of top management, middle management and front-line employee support for the implementation of an environmental programme in Irish-based organisations;
- The extent of top management, middle management and front-line employee participation in environmental management in Irish-based organisations and the most common and effective practices for facilitating this participation;
- Attitudes towards the participation of front-line employees in environmental management;
- The causes of and solutions to employee and management resistance to the programme;
- The barriers and delays created from a lack of employee participation and support and how they are overcome;
- The advantages experienced by organisations with various environmental management systems, particularly those associated with employees.

3.4.2 Questionnaire Design

The questionnaire was designed to include a number of different question styles to ensure a complete representation of employee involvement techniques and attitudes in the responding sample. Some questions required the respondent to indicate their response by ticking a box or circling a number on a 1-5 rating system (providing quantitative data). These closed questions provided defined data on the respondent's current position that facilitated analysis with relative ease and allowed for precise comparisons to be made between organisations.

For other questions, spaces were provided where the respondents could give their opinion or further detail on a topic as desired (open-ended). This provides an opportunity to capture information that would not be exposed with a closed question format and discover issues that may not have been identified in previous studies but could be relevant to the Irish situation.

Questions were loosely grouped according to topic but not sectionalised, thus ensuring the respondent was not manipulated to answer questions in a particular way.

A copy of the questionnaire is presented in Appendix A.

3.5 Study Population

The survey was aimed primarily at those organisations operating in Ireland with an environmental management system.

3.5.1 Organisations with ISO 14001, EMAS and/or an IPC Licence

A list of organisations certified to ISO 14001 in Ireland was obtained from the National Standards Authority of Ireland (NSAI), and a list of organisations in Ireland registered to the European Eco-Management and Audit Scheme (EMAS) was obtained from the Irish National Accreditation Board (INAB) to provide a sample population with a certified EMS.

Since it is a requirement of an Environmental Protection Agency (EPA) Integrated Pollution Control (IPC) Licence to establish and maintain an EMS, a list of IPC licensed organisations was obtained from the EPA to provide a sample population that would have an EMS, though not necessarily a certified one.

As there are only eight EMAS organisations in Ireland, all of these were included in the sample population. Due to the large number of organisations in the IPC and ISO 14001 lists, these organisations were sorted into sectors loosely based on the IPC licensing sectors. Five of these sectors were chosen for the population sample based on the fact that the ISO 14001 organisations could be categorised into the sectors with relative ease (based on the products they supply) and also because each of these sectors had a representative number of organisations from both the ISO 14001 and IPC lists. The categories selected were:

1. Pesticide, veterinary and pharmaceutical product manufacturers
2. Chemical product manufacturers
3. Food and Drink Manufacturers
4. Wood, paper, textiles and leather manufacturers
5. Electronic, computers and circuit board manufacturers

3.5.2 Organisations with no Licence or Certification

A list of organisations not included in the ISO 14001, EMAS or IPC lists (and therefore known to be uncertified and unlicensed) was accumulated using the Kompass Directory

(2004) and categorised in the same way as the IPC licensed and ISO 14001 certified organisations. These organisations would provide data relating to organisations with an uncertified EMS or no EMS at all. Due to the extensive range of organisations included in this directory, a number of organisations equal to the number of ISO 14001 certified organisations plus the IPC licensed organisations within each sector (see Table 3.1 below), was selected using the random numbers method.

The random numbers method involves assigning each organisation a number and by following a list of random numbers (Table 37, Murdoch and Barnes, 1998), organisations are randomly selected as their number appears on the list. This ensures that each organisation has an equal chance of being selected and the organisations are independent from each other (Sarantakos, 2005).

3.5.3 Final Selection of Sample Population

When each list of organisations was categorised into sectors, it was decided to select 15% of the ISO 14001 certified, IPC licensed and uncertified/unlicensed organisations in each sector to include in the survey. These 15% were selected by the random numbers method. The final number of organisations selected for the survey are listed in Table 3.1 below.

3.6 Administration of Questionnaire

Following selection of the population sample, a total of 116 questionnaires were dispatched. The questionnaires were generically addressed to the Environmental Manager so that if an organisation did not have an environmental manager, the letter could be given to an individual with an interest or duties in the area.

Each questionnaire was accompanied with a cover letter that outlined the details of the study and gave an assurance that all the information submitted by the respondent would be dealt with in a strictly confidential manner. The cover letter also included telephone numbers and an e-mail address where potential participants could contact the author with any questions in relation to the study or the questionnaire. A self-addressed envelope was enclosed to allow ease of return and avoid administrative errors.

To encourage participation and provide some benefits to the respondents, an executive summary of the survey response was offered to the participants if they included their own contact details with their return. These contact details could then also be used if clarification on their response was necessary or if it was felt that a more in-depth analysis of their situation could further facilitate the study. The summary was delivered to those who requested it several months after the completion of the survey.

The final response rate was 32%. This is discussed in more detail in Chapter 4.

Table 3.1: Number of Organisations in the Population Sample

Sector	Licence/certificate	Total	15%	No. Surveyed
Pesticides, pharmaceutical and veterinary	ISO 14001	8	1	
	IPC Licence	42	6	
	Uncertified/ unlicensed	50	8	19
	EMAS	4	4[1]	
Chemical	ISO 14001	17	3	
	IPC Licence	70	11	
	Uncertified/ unlicensed	87	13	27
	EMAS	0	0	
Wood, paper, textiles and leather	ISO 14001	10	2	
	IPC Licence	76	11	
	Uncertified/ unlicensed	86	13	27
	EMAS	1	1[1]	
Food and drink	ISO 14001	34	5	
	IPC Licence	71	11	
	Uncertified/ unlicensed	105	16	34
	EMAS	2	2[1]	
Electronics, computers and circuit boards	ISO 14001	18	3	
	IPC Licence	9	1	8
	Uncertified/ unlicensed	27	4	
Engineering[2]	EMAS	1	1[1]	1
		Total number surveyed		**116**

[1] As only 8 organisations in Ireland are registered with EMAS, all were included in the sample population.

[2] EMAS registered organisation which did not fit into the existing categories.

3.7 Analysis of the Response

The statistical package SPSS (version 10.0) was used for the analysis of the quantitative aspects of the questionnaire. All quantitative answers were coded, and after running the various tests i.e. frequency table and cross tabulations, the results were interpreted.

Qualitative answers were coded for analysis in Microsoft Excel. Excel spreadsheets were also used to tabulate groups of organisations for the comparison of information in relation to employee participation.

3.8 Limitations of the Research

In order to complete the research within a reasonable time scale and under limited resources, the population sample was restricted to 116. The analysis of the questionnaires was time consuming due to the number of questions and depth of answers. Only those findings that were considered most significant were included in this report.

There may also be some bias in the responses as an environmental manager may not want to speak ill of the system they have developed and are in charge of implementing and co-ordinating. This is a particular issue for questions in relation to top management support where a senior member of management answered the questionnaire.

4.0 RESULTS AND DISCUSSION

4.0 Results and Discussion

An overview of each question asked as part of this survey and the associated frequencies and percentage response are tabulated in Appendix B and should be referred to in conjunction with this chapter.

4.1 Response Rate

The sample includes 38 organisations, giving a reply rate of 32.8%. This is consistent with other surveys in this area of study. As organisational sector and the presence of an environmental system and/or licence were the criteria used to select organisations for the survey, Tables 4.1 and 4.2 below detail the return rate based on these criteria.

From Table 4.1, it is evident that the majority of responses came from the food and drink and chemical sectors (41.2% and 40.7% return rates respectively). Table 4.2 illustrates that the highest response rates were from organisations with ISO 14001 certification (85.7%) and those with an IPC licence (45%).

An examination of respondents in the IPC licensed group revealed that 11 of the 18 respondents (61.1%) also had ISO 14001 certification. Both EMAS respondents were also certified to ISO 14001.

The lack of replies from the non-certified/non-licensed organisations (11.1% return rate) has a significant impact on the overall reply rate. It was anticipated that many of these organisations may not have any environmental activities or systems in place. Consequently, organisations of this nature were asked only to provide general information about their organisation in the first three pages of the questionnaire. Despite this, only 6 questionnaires were returned by this group. The reason for this is unclear but it is presumed that as they had no environmental system, the questionnaire was automatically dismissed.

The length of the questionnaire also contributed to the limited response. Many of the respondents commented on the comprehensiveness of the questionnaire and the time it took to complete it. This factor did not deter those with an ISO 14001 certified EMS.

Table 4.1: Return Rate Based on Organisational Sector

Sector	Licence/certificate	No. Surveyed	No. of Replies Received	Return Rate (%)
Pesticides, pharmaceutical and veterinary	ISO 14001	1	1	
	IPC Licence	6	3	
	Uncertified/ unlicensed	8	0	
	EMAS	4	1	
	Total	**19**	**5**	**26.3**
Chemical	ISO 14001	3	3	
	IPC Licence	11	7	
	Uncertified/ unlicensed	13	1	
	EMAS	0	0	
	Total	**27**	**11**	**40.7**
Wood, paper, textiles and leather	ISO 14001	2	1	
	IPC Licence	11	2	
	Uncertified/ unlicensed	13	1	
	EMAS	1	0	
	Total	**27**	**4**	**14.8**
Food and drink	ISO 14001	5	4	
	IPC Licence	11	6	
	Uncertified/ unlicensed	16	4	
	EMAS	2	0	
	Total	**34**	**14**	**41.2**
Electronics, computers and circuit boards	ISO 14001	3	3	
	IPC Licence	1	0	
	Uncertified/ unlicensed	4	0	
	Total	**8**	**3**	**37.5**
Engineering	EMAS	1	1	
	Total	**1**	**1**	**100**
	Total	**116**	**38**	**32.8**

Table 4.2. Return Rate Based on Environmental System

Group surveyed	No. of organisations surveyed	No. of replies received	Return rate (%)
Organisations with ISO 14001 certification	14	12	85.7
Organisations with an IPC licence	40	18	45
Organisations with EMAS registration	8	2	25
Non-certified/non-licensed organisations	54	6	11.1
Total	116	38	32.8

4.2 Sample Classification

The main characteristics of the sample are presented in Tables 4.3, 4.4 and 4.5 below.

Table 4.3: Sample Classified by Sector (Q2a)

Organisational sector	Number of respondents	Percentage of respondents (%)
Pesticides, veterinary and pharmaceutical	5	13.2
Chemical	11	28.9
Food and drink	14	36.8
Wood, paper, textiles and leather	4	10.5
Electronics, computers and circuit boards	3	7.9
Engineering	1	2.6
Total	38	100

Table 4.4: Sample Classified by Environmental System (Q9a)

Combination of environmental systems in place	Number of respondents	Percentage of respondents (%)
IPC licence and ISO 14001 in place	11	28.9%
IPC licence and ISO 14001 in development	2	5.3%
IPC licence and an uncertified EMS in place	5	13.2%
IPC licence and an uncertified EMS in development	1	2.6%
IPC licence and EMAS and ISO 14001 in development	1	2.6%
EMAS and ISO 14001 in place	1	2.6%
ISO 14001 certification only	11	28.9%
Uncertified EMS in place	1	2.6%
Uncertified EMS in development	2	5.3%
No licence, certification or EMS	2	5.3%
Other code of environmental practice	0	0
Not specified	1	2.6%
Total	38	100

In Table 4.4 the predominance of ISO 14001 certified organisations in the responding sample is again evident. The high representation from the food and drink and chemical sectors in Table 4.3 should also be noted. Table 4.5 illustrates that medium sized organisations account for nearly half of the sample (44.7%), with small and large organisations almost equally represented (21.1 and 26.3% of respondents respectively).

Table 4.5: Sample Classified by Size (Q4)

Number of employees	Size (based on EU criteria)	Number of respondents	Percentage of respondents (%)
<10	Micro	2	5.3%
10-24	Small	1	21.1%
25-50	Small	7	
51-100	Medium	4	
101-150	Medium	6	44.7%
151-200	Medium	4	
201-250	Medium	3	
>250	Large	10	26.3%
Not specified		1	2.6%
Total		38	100%

A cross comparison of these three tables is presented in Appendix C.

Half of the food and drink respondents are large organisations (7 out of 14) and most have either ISO 14001 certification only or ISO 14001 certification with an IPC licence (28.6% and 42.9% respectively). The majority of the chemical sector have an IPC licence with ISO 14001 in place or an IPC licence with an uncertified EMS in place (36.4% of chemical sector respondents in each case) and are mostly small (45.5%) and medium sized (45.5%) organisations.

Of the two micro organisations that replied, one had ISO 14001 certification, the other had no IPC licence or EMS, certified or otherwise. 42.9% (3) of the small organisations in the sample have an IPC licence and an uncertified EMS in place, while 28.6% (2 organisations) have an IPC licence and ISO 14001 in place. The majority of medium sized organisations (41.2%) have ISO 14001 only. 11.8% of the medium sized organisations have an IPC licence and ISO 14001 in place, a further 11.8% have an IPC licence and ISO 14001 in development, and those with an uncertified EMS in development account for an additional 11.8%. The large organisations in the responding sample mainly have an IPC licence and ISO 14001 in place (70%).

4.3 Employee Involvement in the Responding Organisations

4.3.1 Level of Employees Involved

Seven of the responding organisations did not state the number of employees involved at each stage of the implementation of the environmental programme, as requested in Q34. Of the 31 organisations who did provide this information, it was noted that 15 organisations involved top and middle management only and 12 organisations involved top management, middle management and front-line employees in this process. Fourteen organisations in total succeeded in involving front-line employees to some extent in the overall implementation of the environmental programme. Each of the 31 organisations had managerial representation involved in the programme.

A detailed breakdown of employee numbers involved in each organisation is presented in Appendix C.

Table 4.6: Level of Employees Included in the Implementation of the Environmental Programme

Level of employees involved in the Environmental Programme	Top Mngmt Only	Middle Mnmgt Only	Top and Middle Mngmt	Middle Mngmt and Front-line Employees	Top Mngmt and Front-line Employees	Top and Middle Mngmt and Front-line Employees
Number of Organisations	1	1	13	1	1	12

4.3.2 Percentage of Employees Involved in each Organisation

The highest number of employees (top management, middle management and front-line employees) involved at any one stage of implementing the environmental management programme, as indicated by the respondents in Q34, was expressed as a percentage of the total number of employees in the organisation.*

*As the respondents were asked in Q4 to select the range best representing the number of employees in the organisation e.g. 201-250, the lowest number in the range selected was chosen to represent the total number of employees in the organisation. In this example, the total number of employees in the organisation is taken as 201.

Four categories of organisation emerged, based on the number of employees involved in the environmental programme:

Group A: Greater than 20% of employees in the organisation are directly involved in the environmental programme.

Group B: 10% - 20 % of employees in the organisation are directly involved in the environmental programme.

Group C: 5% - 10% of employees in the organisation are directly involved in the environmental programme.

Group D: Less than 5% of employees in the organisation are directly involved in the environmental programme.

These groups are presented in Table 4.7 below. Group A consists primarily of small to medium sized organisations. Three of these have not attained comprehensive involvement of employees in the programme but due to the small number of employees in the organisation overall, they have involved a high percentage of their workforce at certain stages of implementation. All of the organisations in group A have, to some degree, included front-line employees in the implementation process.

Group B consists of a mix of small, medium and large organisations. Nine of the 11 organisations in Group C have over 100 employees in their workforce and 6 of the 10 organisations in Group D have over 200 employees. Some of the organisations in Groups B and C have a higher number of employees involved at more stages of the environmental programme than some of the organisations in Group A, but as they are larger organisations, the percentage of employees involved in the programme is lower. Group D tends to have limited involvement of employees in the environmental programme despite the organisation's size. Only one organisation in Group D involves front-line employees.

Table 4.7: Percentage of Employees Involved in the Environmental Programme

Group	Organisation Ref. No.	No. of employees in organisation	Highest number employees involv at any one time	% employees involved
A : >20% of employees in the organisation are directly involved in the environmental programme	17#	>250	all	100%
	32#	151-200	all	100%
	25#	25-50	all	100%
	10#	120	all	100%
	37#	25-50	13	52%
	3#	<10	3	30%
	21#*	25-50	6*	24%*
B: 10% - 20% of employees in the organisation are directly involved in the environmental programme.	35#	101-150	18	17.8%
	1	>250	35	14%
	36	51-100	7	13.7%
	23#	25-50	3	12%
C: 5% - 10% of employees in the organisation are directly involved in the environmental programme	11	101-150	10	9.9%
	33#	101-150	9	8.9%
	29	25-50	2	8.0%
	9	101-150	8	7.9%
	13#	>250	19	7.6%
	2	151-200	11	7.3%
	15	>250	18	7.2%
	14#	151-200	10	6.6%
	7	101-150	6	5.9%
	31	51-100	3	5.9%
	12#	>250	13	5.2%
D: <5% of employees in the organisation are directly involved in the environmental programme	19	201-250	8	4.0%
	22	201-250	8	4.0%
	38	51-100	2	3.9%
	20	51-100	2	3.9%
	16	151-200	4	2.7%
	24	>250	6	2.4%
	34#	>250	6	2.4%
	5	>250	5	2.0%
	28	>250	4	1.6%

*Employees involved in annual review process only, not at any other stage.

Frontline employees involved in at least one stage of the implementation process

4.4 Involvement Techniques used in the Responding Organisations

Each of the four groups outlined above were examined for the presence or absence of the techniques identified in the literature as key for successful employee involvement in environmental management. The findings of this examination are presented in Table 4.8. As only 31 organisations provided information on the number of employees (management and

front-line employees) involved in the programme, only these organisations are included in this analysis. It should be noted however that the remaining 7 organisations did not complete the majority of questions in the survey and would add little to the analysis at this point.

A separate assessment of the techniques used in those organisations that involve front-line employees in the environmental programme (14 organisations in total) and those that do not involve front-line employees in the programme (17 organisations in total) was also carried out. The most significant findings from this assessment are presented separately in the relevant sections below.

Table 4.8 Involvement Techniques used by Organisations in Groups A, B, C and D

	Group A	**Group B**	**Group C**	**Group D**
Total no. of organisations in each group	7	4	11	9
Size	Micro 1/7 **Small 3/7** **Medium 2/7** Large 1/7	Micro 0/4 Small 1/4 **Medium 2/4** Large 1/4	Micro 0/11 Small 1/11 **Medium 7/11** Large 3/11	Micro 0/9 Small 0/9 **Medium 5/9** **Large 4/9**
Environmental System in place	**IPC & ISO 2/7** **ISO only 3/7** IPC&uncert EMS 1/7 EMAS & ISO 1/7 Uncert EMS 0/7 IPC&EMAS&ISO 0/7	**IPC & ISO 2/4** ISO only 1/4 IPC&uncert EMS 0/4 EMAS & ISO 0/4 Uncert EMS 0/4 IPC&EMAS&ISO 1/4	**IPC & ISO 4/11** **ISO only 3/11** **IPC&uncertEMS 4/11** EMAS & ISO 0/11 Uncert EMS 0/11 IPC&EMAS&ISO 0/11	IPC & ISO 1/9 **ISO only 4/9** IPC &uncert EMS 2/9 EMAS & ISO 0/9 Uncert EMS 2/9 IPC&EMAS&ISO 0/9
4.4.2 The Role of Top Management in the Environmental Programme				
Top management support actions*	5, 7, 7, 8, 8, 8, 8	3, 6, 6, 6	2, 2, 2, 4, 4, 5, 5, 6, 7, 8, 8	1, 3, 4, 5, 5, 6, 7, 7, 8,
Management/ organisational structure	Top-down 0/7 **Mid-up-down(a) 5/7** Mid-up-down (b) 0/7 Mid-up-down and bottom-up 1/7 Top-down and bottom-up 1/7 Bottom-up 0/7 Unknown 0/7	Top-down 0/4 Mid-up-down(a) 1/4 Mid-up-down (b) 1/4 **Mid-up-down and bottom-up 2/4** Top-down and bottom-up 0/4 Bottom-up 0/4 Unknown 0/4	Top-down 2/11 **Mid-up-down(a) 4/11** **Mid-up-down (b) 3/11** Mid-up-down and bottom-up 0/11 Top-down and bottom-up 0/11 Bottom-up 0/11 Unknown 2/11	**Top-down 7/9** **Mid-up-down(a) 2/9** Mid-up-down (b) 0/9 Mid-up-down and bottom-up 0/9 Top-down and bottom-up 0/9 Bottom-up 0/9 Unknown 0/9

*Eight supportive actions were listed in Q21(a), the number given here is the number of these supportive actions selected by the responding organisations as being present in their organisation.

Table 4.8 Involvement Techniques used by Organisations in Groups A, B, C and D (*Continued)*

	Group A	Group B	Group C	Group D
4.4.2 The Role of Top Management in the Environmental Programme continued				
Environmental Policy	**Employee involvement included 7/7** Employee involvement not included 0/7 No policy 0/7 Unknown 0/7	**Employee involvement included 3/4** Employee involvement not included 1/4 No policy 0/4 Unknown 0/4	**Employee involvement included 8/11** Employee involvement not included 2/11 No policy 0/11 Unknown 1/11	**Employee involvement included 5/9** Employee involvement not included 2/9 No policy 1/9 Unknown 1/9
Objectives and targets	**Decided by management and communicated to employees 3/7** Decided by management and not communicated to employees 1/7 **Decided in consultation with employees 3/7** Unknown 0/7 No objectives and targets 0/7	Decided by management and communicated to employees 1/4 Decided by management and not communicated to employees 0/4 **Decided in consultation with employees 2/4** Unknown 1/4 No objectives and targets 0/4	**Decided by management and communicated to employees 6/11** Decided by management and not communicated to employees 2/11 Decided in consultation with employees 2/11 Unknown 1/11 No objectives and targets 0/11	**Decided by management and communicated to employees 6/9** Decided by management and not communicated to employees 0/9 Decided in consultation with employees 1/9 Unknown 0/9 No objectives and targets 2/9
4.4.2 The Role of Top Management in the Environmental Programme continued				
Integrating environmental management with business strategy				
Env considered in new business contracts and plans	Yes 7/7	Yes 4/4	Yes 9/11 Unknown 2/11	Yes 5/9 No 3/9 Unknown 1/9
Env considered in strategic planning process	Yes 7/7	Yes 4/4	Yes 9/11 Unknown 2/11	Yes 6/9 No 2/9 Unknown 1/9
Integrating environmental management with operational management	See Table 4.14			
Funding				
Generally sufficient funding	**4/7**	**4/4**	**5/11**	**4/9**
Budgets for problems as they occur	0/7	0/4	**4/11**	**3/9**
Consistent yet minimal budget	1/7	0/4	1/11	0/9
Variable	2/7	0/4	1/11	1/9
Open-ended	0/7	0/4	0/11	1/9

Table 4.8 Involvement Techniques used by Organisations in Groups A, B, C and D (*Continued)*

	Group A	Group B	Group C	Group D
4.4.2 The Role of Top Management in the Environmental Programme continued				
Environmental manager				
Title includes 'Environment'	3/7	4/4	**6/11**	**8/9**
Title does not include 'Environment'	**4/7**	0/4	4/11	0/9
No Environmental Manager	0/7	0/4	1/11	1/9
% time spent by Env. Mngr. on env. mngmt	**<25% 5/7** 25-50% 0/7 50-75% 2/7 75-100% 0/7 Unknown 0/7	<25% 0/4 **25-50% 2/4** 50-75% 1/4 75-100% 1/4 Unknown 0/4	**<25% 4/11** **25-50% 6/11** 50-75% 0/11 75-100% 1/11 Unknown 0/11	<25% 1/9 **25-50% 3/9** 50-75% 1/9 **75-100% 3/9** Unknown 1/9
Environmental Department	Dedicated Dept 2/7 EHS 1/7 **EHSQ 4/7** No Env Dept 0/7 Unknown 0/7	Dedicated Dept 0/4 EHS 1/4 **EHSQ 2/4** No Env Dept 1/4 Unknown 0/4	Dedicated Dept 1/11 **EHS 4/11** **EHSQ 3/11** No Env Dept 2/11 Unknown 1/11	Dedicated Dept 1/9 **EHS 4/9** EHSQ 2/9 No Env Dept 1/9 Unknown 1/9
4.4.3 Assessing the Organisation				
Assessed employee readiness for change	**4/7**	0/4	3/11	0/9
Assessed culture	**4/7**	0/4	3/11	0/9
Assessed attitudes	**5/7**	0/4	3/11	0/9
4.4.4 Organisational Attitude towards Participation				
Front-line employees can make decisions in own work area	**Yes 7/7** No 0/7 Unknown 0/7	**Yes 2/4** **No 2/4** Unknown 0/4	Yes 3/11 **No 5/11** Unknown 3/11	**Yes 5/9** **No 4/9** Unknown 0/9
Would consider giving lower levels more responsibility and accountability	**Yes 4/7** No 1/7 Unknown 2/7	**Yes 2/4** No 0/4 **Unknown 2/4**	**Yes 7/11** No 1/11 Unknown 3/11	Yes 2/9 **No 4/9** **Unknown 3/9**

Table 4.8 Involvement Techniques used by Organisations in Groups A, B, C and D (*Continued)*

	Group A		Group B		Group C		Group D	
4.4.5. Communication to Employees								
Communication	See Table 4.18							
Feedback	**Yes**	**6/7**	**Yes**	**4/4**	**Yes**	**6/11**	**Yes**	**5/9**
	No	1/7	No	0/4	No	4/11	No	3/9
	Unknown	0/7	Unknown	0/4	Unknown	1/11	Unknown	1/9
Training	See Table 4.21							
Mid management encourage front-line employees to attend training	**Yes**	**7/7**	**Yes**	**4/4**	**Yes**	**7/11**	**Yes**	**7/9**
	No	0/7	No	0/4	No	1/11	No	1/9
	Unknown	0/7	Unknown	0/4	Unknown	1/11	Unknown	1/9
					No training	2/11		
4.4.6 Communication from Employees								
Consult employees about processes they work on	**Yes**	**6/7**	Yes	1/4	**Yes**	**8/11**	**Yes**	**4/9**
	No	1/7	**No**	**2/4**	No	1/11	**No**	**4/9**
	Unknown	0/7	Unknown	1/4	Unknown	2/11	Unknown	1/9
Staff Suggestion Schemes	**Yes**	**5/7**	**Yes**	**2/4**	**Yes**	**4/11**	Yes	3/9
	No	2/7	No	1/4	**No**	**5/11**	**No**	**5/9**
	Unknown	0/7	Unknown	1/4	Unknown	2/11	Unknown	1/9
Direct communication to top mngmt	**Yes**	**6/7**	**Yes**	**4/4**	**Yes**	**6/11**	**Yes**	**8/9**
	No	0/7	No	0/4	No	3/11	No	1/9
	Unknown	1/7	Unknown	0/4	Unknown	2/11	Unknown	0/9
Direct Communication to other parts of organisation	**Yes**	**7/7**	**Yes**	**4/4**	**Yes**	**6/11**	**Yes**	**4/9**
	No	0/7	No	0/4	No	2/11	**No**	**5/9**
	Unknown	0/7	Unknown	0/4	Unknown	3/11	Unknown	0/9
4.4.7 Providing an Opportunity to Participate								
Teams	**Yes**	**6/7**	**Yes**	**2/4**	**Yes**	**5/11**	**Yes**	**6/9**
	No	1/7	**No**	**2/4**	**No**	**5/11**	No	3/9
	Unknown	0/7	Unknown	0/4	Unknown	1/11	Unknown	0/9
Front-line encouraged to be involved in teams	**Yes**	**6/7**	**Yes**	**2/4**	**Yes**	**4/11**	**Yes**	**5/9**
	No	0/7	No	0/4	No	2/11	No	1/9
	Unknown	0/7	Unknown	0/4	Unknown	3/11	Unknown	0/9
	N/A	1/7	N/A	2/4	N/A	5/11	N/A	3/9
Front-line willing to be involved in teams	**Yes**	**5/7**	**Yes**	**2/4**	**Yes**	**4/11**	**Yes**	**4/9**
	No	0/7	No	0/4	No	2/11	No	1/9
	Unknown	1/7	Unknown	0/4	Unknown	0/11	Unknown	1/9
	N/A	1/7	N/A	2/4	N/A	5/11	N/A	3 /9
Mid mngmt willing to join teams	**Yes**	**4/7**	**Yes**	**2/4**	Yes	2/11	**Yes**	**5/9**
	No	1/7	No	0/4	**No**	**4/11**	No	0/9
	Unknown	1/7	Unknown	0/4	Unknown	0/11	Unknown	1/9
	N/A	1/7	N/A	2/4	N/A	5/11	N/A	3 /9
Encourage FL to experiment to find solutions to environmental problems	**Yes**	**3/7**	Yes	1/4	**Yes**	**4/11**	Yes	1/9
	No	**3/7**	**No**	**2/4**	**No**	**4/11**	**No**	**6/9**
	Unknown	1/7	Unknown	1/4	Unknown	3/11	Unknown	1/9

Table 4.8 Involvement Techniques used by Organisations in Groups A, B, C and D (*Continued)*

	Group A		Group B		Group C		Group D	
4.4.7 Providing an Opportunity to Participate continued								
Encourage middle management to experiment to find solutions to environmental problems	**Yes**	**6/7**	**Yes**	**2/4**	**Yes**	**5/11**	**Yes**	**6/9**
	No	0/7	No	1/4	No	3/11	No	1/9
	Unknown	1/7	Unknown	1/4	Unknown	3/11	Unknown	2/9
4.4.8 Other Facilitating Factors								
Incentives	Yes	1/7	Yes	1/4	Yes	1/11	Yes	3/9
	No	**5/7**	**No**	**3/4**	**No**	**6/11**	**No**	**5/9**
	Unknown	1/7	Unknown	0/4	Unknown	4/11	Unknown	1/9
Participation integrated into job descriptions and staff appraisal	**Yes**	**5/7**	**Yes**	**2/4**	Yes	2/11	Yes	2/9
	No	1/7	No	1/4	**No**	**4/11**	**No**	**3/9**
	Unknown	1/7	Unknown	1/4	**Unknown**	**5/11**	**Unknown**	**4/9**
4.4.9 Middle Management Support								
Middle management support for prog compared to other progs	**Equal**	**5/7**	**Equal**	**3/4**	**Equal**	**6/11**	**Equal**	**6/9**
	Less	2/7	Less	0/4	Less	4/11	Less	2/9
	More	0/7	More	1/4	More	1/11	More	1/9
Departments opting out of programme a problem?	Yes	1/7	Yes	1/4	Yes	3/11	Yes	2/9
	No	**6/7**	**No**	**3/4**	**No**	**8/11**	**No**	**7/9**
	Unknown	0/7	Unknown	0/4	Unknown	0/11	Unknown	0/9

4.4.1 Environmental System

As discussed in section 4.2 above, 28.9% of the overall respondents have an IPC licence and ISO 14001 certification and a further 28.9% have ISO 14001 certification only.

This is reflected in Table 4.8, where the majority of organisations in each group have these systems in place. It is therefore difficult to determine whether involvement is actually impacted by the presence or absence of an IPC licence and/or ISO 14001 certification.

Organisations with an IPC licence and its associated uncertified EMS were represented in Groups A, C and D, although Group C has a slightly higher percentage of organisations in this category (36.4%). Both organisations with an uncertified EMS only were in group D.

Only 2 organisations with EMAS gave details of employee involvement in their responses. One of these organisations is in group A and the other in Group B. Both organisations also have ISO 4001 however and one has an IPC licence. It is therefore difficult to make a definitive determination on the impact of EMAS on employee involvement based on these two responses.

Table 4.9: Environmental Systems in Place in Organisations With and Without Front-line Employee Involvement in the Environmental Programme

System	No. of organisations with front-line employee involvement (n=14)	No. of organisations without front-line employee involvement (n=17)
IPC licence and ISO 14001 in place	4	6
IPC licence and an uncertified EMS in place	1	5
IPC licence and an uncertified EMS in development	0	1
IPC licence and EMAS and ISO 14001 in development	0	1
EMAS and ISO 14001 in place	1	
ISO 14001 certification only	7	3
Uncertified EMS in place	1	1

Seven out of fourteen organisations with front-line employee involvement in the environmental programme have ISO 14001 only. Only four other organisations with ISO 14001 only responded to the survey, and they did not succeed in involving front-line employees in their programmes. To have an uncertified EMS with an IPC licence is more likely to be found in organisations where the involvement of front-line employees has not occurred. This may be because the EMS required by an IPC licence stipulates that only personnel whose job could have a significant impact on the environment should receive environmental training and does not obligate the organisation to involve employees in any other way in the implementation of the programme. Although the ISO 14001 framework does not focus on comprehensive employee involvement either, it places greater emphasis on internal communication procedures and teamwork, which may have facilitated the participation process.

4.4.2 The Role of Top Management in the Environmental Programme

The literature generally concedes that clear commitment from top management to the environmental programme is vital in order for the programme to gain credibility from employees (Poksinska, 2003) and motivate them to participate in it.

The following sections look at some of the ways top management in the responding organisations demonstrate this commitment to their employees.

4.4.2.1 Supportive Actions (Q21a)

Table 4.10 below displays a series of 8 top management supportive actions, ranked according to their use or relevance in the responding organisations. Signing and sanctioning an environmental policy, providing financial support, setting objectives and targets and attending environmental team meetings and training sessions were the most common supportive actions from top management in the responding sample.

Table 4.10: Top Management Supportive Actions for the Environmental Programme

Supportive Action	Frequency (%)
Signing and sanctioning an environmental policy	32 (84.2%)
Financial support	31 (81.6%)
Involved in setting environmental objectives and targets	29 (76.3%)
Attendance at environmental team meetings/training sessions	23 (60.5%)
Providing support for difficult tactical and operational decisions	21 (55.3%)
Accepting any organisational changes necessary	21 (55.3%)
Continually promoting the environmental programme internally and externally	20 (52.6%)
Formation of a senior level environmental steering committee	12 (31.6%)
Other	4 (10.5%)
Top management do not contribute in any way to the environmental programme	0 (0%)

Generally, organisations in Group A indicated that a high number of supportive actions (7 to 8) are demonstrated by top management in their organisations. However a high number of supportive actions (6 to 8) was selected by some organisations in Group C and Group D also.

It was noted that the organisations with the lowest number of supportive actions belong to Groups C and D, where less than 10% of employees are involved in the programme. This indicates that where the above support actions are not demonstrated by top management, employee involvement could be hampered, but this finding is not conclusive.

4.4.2.2 Management/Organisational Structure (Q5)

The most conducive management structure to facilitate the participation of employees in an environmental programme was identified by Halme (1997) as a bottom-up or middle-up-down management approach. In a top down organisation, employee empowerment will be inhibited (Mallak and Kurstedt, 1996) and the organisation will experience more difficulties implementing change than if it had a flat organisational structure (Zilahy, 2004).

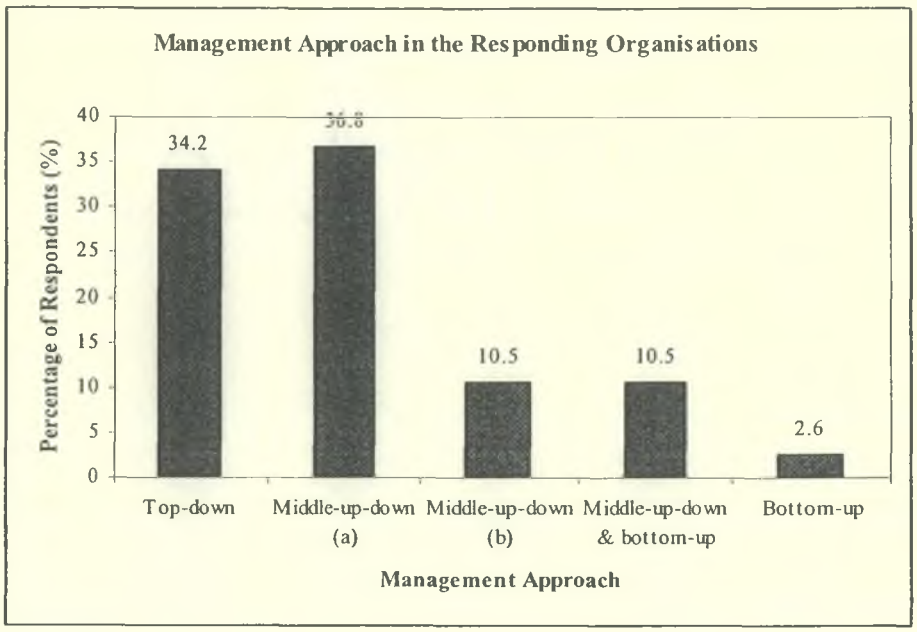
Overall, the respondents to this survey predominantly follow two management approaches:

1. Middle-up-down (a), where top management provide a vision, which is translated into a workable solution by middle management (36.8%), 42.9% of which are large organisations and 28.6% small.
2. Top-down approach, where top management create defined ideas and strategies, which are directly put into action by middle management (34.2%). 61.5% of these are medium sized organisations.

Those in Group A, with over 20% of employees participating in the environmental programme, mainly follow a middle-up-down(a) approach to managing the organisation (5/7 organisations in this group). Two of the 4 organisations in Group B, with 10%-20% of employees involved, follow a middle-up-down and bottom-up management structure. None of the organisations in Group A or B have a top-down management structure.

Group C, with 5-10% of employees involved in the programme, tend to follow either a middle-up-down (a) (4 out of 11 organisations) or middle-up-down (b) (3 out of 11 organisations) approach to managing their organisation. Only 2 organisations in this group have a top-down structure.

The highest occurrence of top-down managed organisations is in Group D (7 out of 9 organisations), which has less than 5% of employees involved in the programme. This indicates that a top-down management approach is associated with fewer numbers of employees involved in environmental management (<5% involvement) and a middle-up-down structure is likely to be found in organisations with greater than 5% of employees involved in the programme.



Note:

Top-down: Top management create defined ideas and strategies, which are directly put into action by middle management (34.2%)

Middle-up-down (a): Top management provide a vision, which is translated into a workable solution by middle management (36.8%) (Halme, 1997)

Middle-up-down (b): Middle management provide ideas and strategies which are accepted or rejected by top management for implementation (10.5%) (Bamford and Forrester, 2003)

Middle-up-down & bottom-up: Middle management work with teams of front-line employees to develop ideas and strategies for top management (10.5%) (Halme, 1997)

Bottom-up: Work teams consisting primarily of front-line employees develop ideas and strategies for direct implementation in their work area, with support from top management (2.6%) (Halme, 1997)

Fig 4.1: Management Approach Used by the Responding Organisations

The association between management approach and the involvement of front-line employees is unclear. Out of the 14 organisations where front-line employees are involved to some extent in the process, only one organisation, No. 10, with a combined top-down and bottom-up management approach, has top-down influence in their management structure (see Table 4.11 below).

Table 4.11 Involvement of Front-line Employees in the Various Stages of Implementing an Environmental Programme Compared to Management Structure

Group	Ref. No.	Management Structure	Number of Front-line Employees involved at Various Stages of Implementation						
			Initial review	Set obj & targets	Choose projects	Implement projects	Review progress	Communicate results	Manage prog
A	17	Mid-up-down (a)	0	As required	0	If on project team	If on project team	0	3
	32	Mid-up-down & bottom-up	8	4	0	all	Various	Various	4
	25	Mid-up-down (a)	0	0	0	all	0	0	1
	10	Top-down & bottom-up	0	0	0	120	0	0	0
	37	Mid-up-down (a)	2	3	0	9	0	0	0
	3	Mid-up-down (a)	1	1	1	1	1	1	1
	21	Mid-up-down (a)	0	0	0	0	2 (annual review)	0	0
B	35	Mid-up-down (b)	8	0	0	0	0	0	0
	1	Mid-up-down (a)	0	0	0	0	0	0	0
	36	Mid-up-down & bottom-up	0	0	0	0	0	0	0
	23	Mid-up-down & bottom-up	1	0	0	0	0	0	0
C	11	Mid-up-down (b)	0	0	0	0	0	0	0
	33	Unknown	0	0	5	5	5	1	0
	29	Mid-up-down (a)	0	0	0	0	0	0	0
	9	Mid-up-down (a)	0	0	0	0	0	0	0
	13	Mid-up-down (b)	5	5	5	5	5	5	1
	2	Top-down	0	0	0	0	0	0	0
	15	Mid-up-down (a)	0	0	0	0	0	0	0
	14	Unknown	0	0	0	5	5	5	5
	7	Top-down	0	0	0	0	0	0	0
	31	Mid-up-down (a)	0	0	0	0	0	0	0
	12	Mid-up-down (b)	0	0	0	6	0	0	0
D	19	Top-down	0	0	0	0	0	0	0
	22	Top-down	0	0	0	0	0	0	0
	38	Top-down	0	0	0	0	0	0	0
	20	Top-down	0	0	0	0	0	0	0
	16	Top-down	0	0	0	0	0	0	0
	24	Top-down	0	0	0	0	0	0	0
	34	Mid-up-down (a)	1	2	2	2	2	2	2
	5	Mid-up-down (a)	0	0	0	0	0	0	0
	28	Top-down	0	0	0	0	0	0	0

In this organisation, front-line employees are involved in the implementation of projects, but at no other stage. This suggests that the top-down approach could potentially suppress front-line involvement in planning, reviewing and managing the environmental programme. However, organisations such as No. 25, No. 21, No. 35 and No. 12, have middle-up-down (a) or middle-up-down (b) management styles and only involve employees at one stage of the programme also.

A bottom-up management approach does not necessarily mean that the involvement of front-line employees will occur either. In Group B, organisation No. 23 has a middle-up-down and bottom-up approach to managing their organisation. Although they have succeeded in involving middle and top management in the programme, they have only 1 front-line representative at the initial review stage. Similarly, organisation No. 36 in this group has a middle-up-down and bottom-up management style but no front-line employees are involved at any stage of the programme.

A balance has been achieved in organisation No. 32, which has a middle-up-down and bottom-up management structure. In this organisation, a number of employees at every level are represented at each stage of the programme, and all employees are involved in implementing projects in relation to the programme.

4.4.2.3 Environmental Policy (Q16)

Ramus (2002) points out that an environmental policy is a written demonstration of the organisation's support and commitment to the environmental programme. When this policy advocates active employee participation, employees are motivated to become actively involved in the programme (Keogh and Polosky, 1998).

89.5% of organisations in the responding sample have written environmental policies. 85.3% of those that have a written environmental policy indicate in the policy that the organisation will strive to include its employees in managing environmental issues.

Table 4.12 below presents the extent to which those organisations with an environmental policy which indicates that it will strive to include its employees in managing environmental issues, have succeeded in involving front-line employees in the programme.

All of Group A have such a policy and all have included front-line employees in the programme. In Group B, 3 out of 4 organisations have a policy to include employees and 2 of these have front-line employee involvement.

Table 4.12 Front-line Employee Involvement in Organisations With and Without a Policy to Include Employees

Group	Organisation Ref. No.	Policy to include employees	Front-line employees involved
A : >20% of employees in the organisation are directly involved in the environmental programme	17	Yes	Yes
	32	Yes	Yes
	25	Yes	Yes
	10	Yes	Yes
	37	Yes	Yes
	3	Yes	Yes
	21	Yes	Yes
B: > 10% of employees in the organisation are directly involved in the environmental programme.	35#	Yes	Yes
	1	No	No
	36	Yes	No
	23#	Yes	Yes
C: >5% of employees in the organisation are directly involved in the environmental programme	11	Yes	No
	33#	Yes	Yes
	29	Yes	No
	9	Yes	No
	13#	Yes	Yes
	2	Yes	No
	15	Yes	No
	14#	No	Yes
	7	No	No
	31	No	No
	12#	Yes	Yes
D: <5% of employees in the organisation are directly involved in the environmental programme	19	Yes	No
	22	Yes	No
	38	No	No
	20	?	No
	16	Yes	No
	24	Yes	No
	34#	Yes	Yes
	5	?	No
	28	No	No

In Group C, 8 out of 11 organisations have a policy to include employees in environmental management but only 4 have succeeded in involving front-line employees. In Group D, 5 out of 9 organisations have a policy to include employees but only one of these achieved front-line involvement. This particular organisation has an environmental team.

This suggests that organisations with a higher percentage of employees involved in the programme, are more likely to have an environmental policy which indicates it will strive to include employees in the environmental programme, and to have achieved front-line employee involvement in keeping with this policy. Where there is a lower percentage of employee involvement in the programme, the organisation is less likely to have such a policy, and even less likely again to involve front-line employees in the programme in keeping with this policy.

The reason for this may be to do with the environmental culture in the organisation. Group A and B organisations may have a more proactive approach to environmental management, devising a policy to include employees and making an effort to involve front-line employees in order to facilitate the process. Group C and D organisations are less likely to have a policy to include employees, and even where such a policy is in place, are less likely to have achieved front-line involvement than organisations in Groups A and B. This indicates that Group C and D organisations do not see the need to involve employees in order to enhance the implementation of the programme, and may have a less proactive attitude towards environmental management.

Those organisations with a policy to include employees in the environmental programme, but that did not succeed in involving front-line employees (10 organisations in total) were examined to determine why involvement at this level was not achieved.

Four of the organisations with a policy to include employees but have not achieved front-line involvement, do not have an environmental team. The absence of this involvement mechanism could explain the lack of employee involvement – without a team, there is limited opportunity for them to participate. For example, only one organisation in this group, No. 9, has a suggestion scheme by which employees can make suggestions, provides an opportunity to employees to bring environmental ideas directly to other parts of the organisation and would consider giving lower level employees more responsibility in the programme.

The remaining 6 organisations with a policy to include employees but without front-line involvement have environmental teams in place.

The first of these, No. 36 in Group B, stated that front-line employees were willing and encouraged to be involved on the environmental team. However, the team has no influence and does not have a sufficient budget with which to perform its tasks, which indicates that the environmental team is not taken seriously in the organisation and the benefits of teamwork in environmental management are not recognised. It should be noted however that this organisation stated it would consider giving lower level employees more responsibility in the programme.

The environmental team in organisation No. 15 (Group C) consists of members of the environmental department only. Although front-line employees are encouraged and willing to participate on the team, middle management are not willing to be involved, even though middle management are generally supportive of the environmental programme. In this instance, the absence of an organisation wide team, and the lack of enthusiasm from middle management in relation to the environmental team may stifle any involvement from the lower level in the organisation. However the organisation did state it would consider giving lower level employees more responsibility, so it shows some potential to participate in this regard.

Organisation No. 11 (Group C) stated that their environmental team consists of employees at all levels, yet front-line employees are not encouraged or willing to be involved. Middle management are not willing to participate either and the programme as a whole receives less support from middle management than other programmes in the organisation. The team has no influence in the operational systems of the organisation. In this case, there is a prevailing negative attitude towards the programme and the environmental team, which has prevented comprehensive involvement from all levels, despite the policy. It should be noted however that this organisation also indicated it would consider giving front-line employees more responsibility and authority, which demonstrates a potential to include front-line employees in the future.

In organisation No. 24 (Group D), the environmental team again consists of EHS personnel only. Front-line employees and middle management are willing to be involved on the team, and middle management are more supportive of the environmental programme than other programmes. The team has sufficient influence and budget to operate. In fact, the organisation as a whole has a team based organisational structure. In this instance, the lack of

front-line involvement in the programme is most likely because the environmental team is limited to EHS personnel only.

Organisation No. 16 (Group D), whose environmental team is confined to the environmental department, states that middle management personnel are willing to be involved but front-line employees are neither encouraged or willing to participate. The team has no influence in the organisation and an insufficient budget in which to operate. This organisation would not consider giving front-line employees more responsibility in the programme either, which indicates a culture that is against front-line participation, despite having a policy to include employees.

The environmental team in organisation No. 19 (Group D) consists of personnel from many different departments in the organisation. Front-line employees and middle management are willing to be involved on teams and front-line employees are encouraged to do so. The team has influence to change operational systems but does not have a sufficient budget. However, front-line employees are generally not consulted about environmental issues in their work area and the organisation would not consider giving them more responsibility in implementing the environmental programme. Yet again, there is a culture against including lower level employees in the programme.

The above six examples of organisations with teams and a policy to include employees but no front-line involvement, demonstrate once again that if there is a culture in the organisation which does not support front-line involvement, then involvement may not take place.

Similarly, if middle management are not fully supportive of the programme, or the involvement of lower level employees in the programme, then involvement will not occur, despite a policy in the organisation to include employees in the process. This emphasises the need to examine the culture of an organisation before the implementation of a programme to take into account the attitudes of employees at all levels towards the programme and to develop an environment conducive to participation.

Some of the other significant differences identified between organisations with a policy to include employees and who achieved front-line employee involvement and those with a policy to include but did not achieve front-line involvement are:

- 6 out of 13 organisations that achieved front-line involvement follow a middle–up-down (a) management structure and 3 out of 13 follow a middle-up-down (b) management structure. 5 out of 10 of those organisations without front-line involvement despite a policy to include employees, follow a top-down management structure and in 3 out of 10 cases, follow a middle-up-down(a) structure. This indicates that the top-down management structure could limit the extent of employee involvement in the environmental programme.
- 9 out of 13 organisations that achieved front-line involvement have suggestion schemes in place. Six out of 10 organisations without front-line involvement do not have staff suggestions schemes. Suggestion schemes demonstrate that the organisation values the opinion of front-line employees, which evidently increase the likelihood of participation.
- In 10 out of 13 organisations with a policy to include employees in the environmental programme and front-line involvement, front-line employees can make decisions relating to their own work area. 5 out of 10 organisations with a policy to include employees but who have not achieved front-line involvement allow front-line employees to make decisions in their own work area but a further 5 out of 10 do not grant front-line employees this privilege. It should be noted that the decision-making ability of front-line employees in all cases was limited. However, in organisations where front-line employees have been given a certain amount of control in their own work areas, the organisation is more likely to involve front-line employees in the environmental programme.

There is less than a 10% difference between the two groups for all other involvement techniques, in favour of those organisations that achieved front-line involvement. However, the positive influence of suggestion schemes and empowering employees in their own work areas on front-line employee involvement in the environmental programme is highlighted, as is the negative influence of a top-down management structure.

4.4.2.4 Environmental Objectives and Targets (Q22)

Authors such as Zutshi and Sohal (2004b) advocate that employees at all levels should be involved in establishing environmental objectives and targets for an organisation.

78.9% (30) of the responding sample have set environmental objectives and targets. Only 5.3% have not.

These objectives and targets are:

- Decided by management and communicated to employees by 66% of those with objectives and targets
- Decided by management and not communicated to employees by 10% of those with objectives and targets;
- Decided in consultation with employees in 26.4% of organisations with environmental objectives and targets.

A breakdown of how environmental objectives and targets are decided in Groups A, B, C and D is presented in Appendix C.

In Groups A and B, with over 20% and 10% respectively of employees involved in the environmental programme, objectives and targets are in the main decided by management and communicated to employees (3 out of 7 and 1 out of 4 respectively) and decided in consultation with employees (3 out of 7 and 2 out of 4 respectively).

Objectives and targets in Groups C and D (less than 10% of employees involved in the programme) are mainly decided by management and communicated to employees (6 out of 11 and 6 out of 9 respectively).

In three organisations, objectives and targets are decided by management and not communicated to employees: organisation No. 10 in Group A, with a top-down and bottom-up management structure; organisation No. 9 in Group C, with a middle-up-down (a) structure; and, organisation No. 7 in Group C, which has a top-down structure.

Two of the organisations in Group D have no environmental objectives and targets at all; No. 20 and No. 38. Both of these organisations have an uncertified EMS, a top-down management structure and have not achieved front-line employee involvement.

Table 4.13 below presents how environmental objectives are decided in organisations with and without front-line employee involvement. In 6 out of 14 of those organisations with front-line employee involvement, management decides the objectives and targets and communicates them to employees. Objectives and targets are decided in consultation with employees in 5 out of 14 of these organisations. However in response to Q34, only 5 of the organisations include front-line employees in setting objectives and targets – organisation Nos. 3, 13, 32, 34 and 37. Only organisations No. 32 and No. 37 indicated in Q22 that objectives and targets are decided in consultation with employees. Organisation Nos. 3 and 34 indicated that management decides the environmental objectives and targets and these are communicated to employees. In organisation No. 13, objectives and targets are decided by the environmental team and are not communicated to employees. This highlights the inconsistencies in some of the responses received from the responding organisations.

Table 4.13: Deciding Environmental Objectives and Targets in Organisations With and Without Front-line Employee Involvement

Objectives and Targets:	**No. of organisations with front-line employee involvement (n=14)**	**No. of organisations without front-line employee involvement (n=17)**
Are decided by management and communicated to employees	6	9
Are decided by management and not communicated to employees	1	2
Are decided in consultation with employees	5	3
Are decided by the environmental team	1	0
No objectives and targets	0	2
Unknown/missing	1	1

In conclusion, objectives and targets are decided by management and communicated to employees in the majority of the responding sample, regardless of the number of employees involved in the programme. Objectives and targets are decided in consultation with employees in organisations with a higher percentage of employee involvement (Group A and Group B). Where front-line employees are involved in the programme, objectives and targets

are either decided by management and communicated to employees or decided in consultation with employees.

Success in achieving objectives in the responding organisations was primarily because the environmental policy emphasises continuous improvement (60% of those with objectives and targets). Strong commitment from top management was found to be a key factor in successfully meeting objectives and targets by 53.3% of respondents. 50% found that strong commitment from middle management was a strong contributing factor towards meeting targets successfully and 43.3% felt that strong commitment from employees was significant in this regard. 10% of respondents found that when objectives and targets were developed to be achieved in the short term, they were more likely to be successfully achieved.

4.4.2.5 Integrating Environmental Management with the Business Strategy and Operational Management

Jackson (2000), Pennington (2003) and others found that a new programme will only succeed if it is integrated with the business strategy of an organisation. According to Jackson (2000), hooking an environmental objective onto a business objective adds legitimacy to the environmental issue. Authors such as Hart (1995) and Forman and Jørgensen (2001) report that by including environmental considerations in the wider business strategy and in everyday operational management, the organisation is demonstrating a proactive and sustainable approach to managing its systems.

73.7% of respondents overall include environmental considerations in new business contracts and plans and 78.9% include environmental considerations in the strategic planning process.

All of Group A and B and most of Group C (9 out of 11 organisations) consider environmental issues in business contracts and plans and in the strategic planning process. In Group D, 3 out of 9 organisations do not consider environmental issues in new contracts and plans and 2 out of 9 organisations do not include environmental considerations in the strategic planning process.

As most of the organisations in each of Groups A, B, C and D demonstrate a proactive approach to environmental management by considering environmental issues in their business

strategy, it is difficult to identify a link between this aspect of proactivity and the involvement of employees in the environmental programme. However it should be noted that Group D, with less than 5% involvement, has a higher percentage of organisations who do not consider the environmental aspects of their business strategy.

Where the environmental programme is integrated with the operational processes in the organisation, it becomes part of the organisation's culture to consider the potential environmental impact of all operations in the organisation, thereby preventing environmental problems from occurring (Berry and Rondinelli, 1998) and reducing the organisation's environmental impact (Jackson, 2000). Environmental management becomes part of the norm for employees in the organisation, which leads to a greater acceptance of the programme and potentially more employee participation in the programme.

From Table 4.14 below it can be seen that Group A organisations show a more comprehensive consideration of environmental issues in the operational management as 5 out of 7 organisations modify operational processes in order to improve the quality of their emissions and design products to minimise their environmental burden over its life-cycle. They tend to give active consideration or a lot of consideration to environmental issues in the production/operations area of their organisation.

In Group B, 3 out of 4 organisations modify their operational processes to improve emissions but only 1 organisation designs products to minimise their environmental burden. The organisations in this group give active, a lot or some consideration to the environmental issues in their production/operations area.

In Group C, 7 out of 11 organisations modify operational processes but only 3 out of 11 modify the design of their products to minimise their environmental burden. The majority of organisations in this group give a lot of consideration to environmental issues in their operational management.

In Group D, 4 out of 9 organisations modify their operational processes to reduce or improve emissions and design products to minimise their environmental burden. Five out of 9

organisations give active consideration to environmental issues in the production/operations area.

Table 4.14: Integrating Environmental Management and Operational Management

	Group A	Group B	Group C	Group D
Total no. of organisations in each group	7	4	11	9
Operational processes are modified to improve the quality of emissions and/or ensure that emissions remain below regulation limits	**5/7**	**3/4**	**7/11**	**4/9**
Products are designed to minimise their environmental burden during the product's lifecycle	**5/7**	1/4	3/11	**4/9**
Consideration given to environmental issues in production/operations	**Active 4/7** **A lot 3/7** Some 0/7	Active 2/4 A lot 1/4 Some 1/4	Active 3/11 **A lot 6/11** Some 1/11	**Active 5/9** A lot 2/9 Some 2/9

As Group A organisations modify both operational processes and design products to minimise their environmental burden, this indicates that in organisations where over 20% of employees are involved in the programme, a more proactive stance is taken towards environmental management.

The design of products to minimise their environmental burden during the products' life cycle occurs mainly in Group A and D organisations. Similarly, over half the organisations in Group A and Group D give active consideration to environmental issues in the production/operations area (57.1% and 55%), a much higher percentage of organisations than in Groups B and C. It would therefore seem that this aspect of environmental management may not impact on the extent of employee involvement in the organisation.

However, only 44.4% of Group D organisations modify operational processes to improve emissions, less than in Group A (71.4%), Group B (75%) and Group C (63.6%), which indicates that a higher percentage of employee involvement is likely to occur where this aspect of environmental management is in place, and vice versa. Also, as the organisations in Group A tend to both modify processes and modify products, it can be concluded that the presence of both these practices is associated with a higher percentage of employee involvement (>20% involvement).

4.4.2.6 Funding

Predominantly, the overall responding sample indicated that top management allocate "generally sufficient funding" (39.5%) and "budgets for problems as they occur" (23.7%) to the environmental programme. According to Hunt and Auster (1990), providing generally sufficient funding for the environmental programme is a sign that the organisation is in the Pragmatist stage and is moving towards proactivity. Providing budgets for problems as they occur suggests a Fire-Fighting strategy (Hunt and Auster, 1990) or an End-of-Pipe strategy (Hart, 1995), where environmental issues are addressed as they arise rather than predicting problems and taking appropriate preventative measures, indicating that proactive environmental management is not an immediate priority for the organisation.

Most of the organisations in Groups A and B, where over 20% and 10% respectively of employees are involved in the environmental programme, are provided with generally sufficient funding for the programme (Group A: 4 out of 7; Group B: 4 out of 4). Groups C and D are split between those that receive generally sufficient funding (Group C: 5 out of 11; Group D: 4 out of 9) and those who receive budgets for problems as they occur (Group C: 4 out of 11; Group D: 3 out of 9).

Only one organisation has open-ended funding for the environmental programme (No. 38). This organisation is in Group D (less than 5% of employees involved in the programme), has a top-down management structure, has not set environmental objectives and targets, does not have an environmental team and does not have front-line employees involved.

As Groups A and B are marked by having generally sufficient funding for their environmental programmes, it could be said that increased employee involvement occurs where sufficient funding is provided and a more proactive stance is taken towards environmental management. However as Groups C and D have a significant representation of organisations with generally sufficient funding also, it is harder to make this conclusion decisive.

However those organisations with budgets for problems as they occur are mainly found in Groups C and D. Therefore a loose association exists between funding and the percentage of employees involved in the programme: where the budget for the environmental programme is restricted, a lower percentage of employees in the organisation are likely to be involved.

Therefore when funding is not made available it is likely to be a restrictive factor in the involvement process, but is not necessarily a facilitative factor when available. This suggests that many other factors must be in place for successful employee involvement.

4.4.2.7 Environmental Manager (Q18)

Del Brio *et al.* (2001) state that to have an environmental manager and an environmental department with dedicated personnel demonstrates the importance attached by an organisation towards the environmental programme. This facilitates the acceptance of the programme among employees, thereby creating a conducive platform in which to secure employee involvement.

88.6% of respondents overall have an individual responsible for the management of environmental issues. 72.7% (24) of these have 'environment' in their job title. Six of these (25%) have no other duties outside of environmental management. The remaining 18 have responsibility for other areas in addition to environmental management, e.g. health and safety, quality, operations and utilities. This is in keeping with the findings of a 2003 ENDS survey (ENDS Report 343) which found 83% of environmental managers in the UK had additional duties outside of environmental management. Those surveyed spend between 40% and 70% of their time on their environmental workload.

The environmental manager should be a facilitator rather than a doer in times of change (Bamford and Forrester, 1998). As Maher and Hall (1998) discuss, a change initiative can come to a standstill if the change leader performs all the tasks themselves. Delegating tasks but maintaining accountability for them builds trust between employees and management and provides employees with the opportunity to actively participate in the change.

The majority of environmental managers in Group A organisations (5 out of 7) spend less than 25% of their time on environmental issues. 4 of these indicated they either delegate tasks to environmental staff or an environmental team, maintaining control over their input and output (2 out of 4), or, they take a facilitative role and assist environmental teams to perform their own environmental projects (2 out of 4). In the remaining organisation, with less than 10 employees, the environmental manager personally performs all environmental tasks.

In two organisations in group A, the environmental managers spend 50-75% of their time on environmental issues. In one of these, No. 17, the environmental manager personally performs all environmental tasks, despite having a number of environmental project teams throughout the organisation. The environmental manager in organisation No. 32, facilitates and assists teams to perform their own environmental projects.

Two organisations in Group B have environmental managers that spend 25-50% of their time on environmental management (No. 35 and No. 23). In both cases, the environmental manager delegates environmental tasks to environmental staff or an environmental team. The environmental manager in organisation No. 1 in this group, spends 50-75% of their time facilitating environmental teams to perform their own environmental projects. In organisation No. 36, the environmental manager spends 75-100% of their time performing all environmental tasks themselves, despite having an environmental team.

The environmental manager in 6 out of 11 organisations in group C spend 25-50% of their time on environmental management, predominately delegating environmental tasks to environmental staff or an environmental team (4 out of 6). In 4 out of 11 cases, the environmental manager spends less than 25% of their time on environmental management. Three of these delegate tasks to environmental staff, but one environmental manager personally performs all environmental tasks.

In Group D, the environmental manager generally spends either 25-50% (3 out of 9) or 75-100% (3 out of 9) of their time on the environmental programme. For those spending 25-50% of their time in this area, 2 managers facilitate environmental teams to perform their own projects while 1 performs all environmental duties themselves. Similarly for those mangers spending 75-100% of their time on environmental issues, 2 delegate tasks to other staff while 1 personally performs all environmental duties.

In summary, most organisations have an individual responsible for the environmental programme. Whether their job title has the word "environment" in it or not appears to make little difference to the % of employees involved in the programme overall or to whether front-line employees will be involved or not. Similarly, the percentage of time spent by the

environmental manager on environmental issues does not appear to have a bearing on the percentage or level of employees involved in the programme.

4.4.2.8 Environmental Department (Q12)

34.2% of respondents overall have an integrated environmental, health and safety and quality (EHSQ) department. 26.3% have an environmental, health and safety (EHS) department. Groups A to D reflect these findings with the majority of organisations in each group having an EHSQ (Groups A and B) or EHS (Groups C and D) department.

4 organisations in the responding sample do not have a department relating to the environmental function:

- An organisation in Group B (No. 23) with generally sufficient funding, an IPC licence and ISO 14001 certification, but only 25-50 employees and no environmental team;
- Organisation No. 12 (Group C), with >250 employees, an IPC licence and ISO 14001 certification, an environmental services manager and an environmental team, but who only have a budget for problems as they occur;
- Organisation No. 2 (Group C) with 151-200 employees, an IPC licence and generally sufficient funding for the environmental programme but the EMS is only in the development stages and there is no environmental team; and,
- Organisation No. 20 (Group D), with 51-100 employees, an uncertified EMS, no environmental manager, no environmental team and budgets for problems as they occur.

Organisations Nos. 23 and 12 both succeeded in including front-line employees in the programme, despite not having an environmental department, although organisation No. 23 only has one front-line representative at the initial environmental review stage and organisation No. 12 includes 1-6 employees in implementing projects only. It should be noted that both of these organisations have ISO 14001 certification, while organisation Nos. 2 and 20 have an uncertified EMS.

Two organisations (Nos. 17 and 25) in Group A have a dedicated environmental department and both involve front-line employees in the programme. In organisation No. 17, front-line employees are involved as required through environmental project teams, and in organisation

No. 25, all employees are involved in the implementation of environmental projects, with one front-line representative managing the programme.

In summary, environmental departments which are integrated with other functions in the organisation are the most common type of department in the responding sample, but have no obvious association with the extent of employee involvement in the organisation. Front-line employee involvement in the environmental programme can occur regardless of whether an environmental department is present or not, and regardless of whether the department is integrated with other functions or not.

4.4.3 Assessing culture, employee willingness to accept the programme and employee attitudes towards the programme (Q26).

The culture of an organisation is the implicit norms and rules which determine how people in the organisation will behave (Remmen and Lorentzen, 2000). Where there is a positive culture towards participation and proactive environmental management, employee participation in the environmental programme is more likely to take place. Sheldon and Yoxon (1999) found that an organisation should be aware of the existing culture and determine how this may impact on the new environmental programme. Steps may then be taken to gradually change the culture, if necessary, to one which is more receptive to environmental management and comprehensive participation from employees at all levels (Halme, 1997; Jones and Welford, 1997).

As part of this assessment, due consideration must be given to perceptions held by employees at different levels in the organisation (Petts *et al.*, 1998) and the impact top management attitudes have on employee perceptions of the programme (Velumail *et al.*, 1997; Remmen and Lorentzen, 2000; Vakada and Nikalaou, 2005). The organisation should also assess how ready employees are to accept and participate in the programme. According to Dodge (1997), as employee readiness for environmental management increases, the environmental culture becomes more positive, the empowerment process takes route and employees gradually take a role in decision-making and implementing green initiatives.

Only 18.4% of the respondents overall (7 organisations) assess the culture of the organisation before or during the implementation of the programme. Only 18.4% (7 organisations) assess

employee readiness or willingness to accept the environmental programme and only 21.1% (8 organisations) assess employee and/or management attitudes towards the programme.

The organisations that assess these three aspects in relation to their environmental programme are in Group A and C only, with a higher proportion of those organisations being in Group A (greater than 20% of employees involved in the environmental programme).

Table 4.15 Organisational Assessments

Group	Assess Culture	Assess Readiness for Change	Assess Attitudes towards Programme
A: >20% employees involved (n=7)	4	4	5
C: 5% to 10% employees involved (n=11)	3	3	3

In relation to front-line employees, 5 of the 7 organisations that assess the organisation's culture before programme implementation have front-line employee involvement in the programme. 4 of the 7 organisations that assess employee willingness and readiness to accept the programme have achieved front-line employee involvement. 6 of the 8 organisations that assess employee and management attitudes towards the programme have involved front-line employees in the programme.

Therefore, those that assess the organisation's culture before programme implementation, assess employee willingness and readiness to accept the programme and/or assess employee and management attitudes towards the programme are most likely to be those with >20% of the organisations' employees involved in the programme and to have front-line employees involved in the process. This indicates that assessing these three aspects of the organisation can facilitate the inclusion of employees at all levels in the implementation of the environmental programme.

4.4.4 Organisational Attitude Towards Participation

4.4.4.1 Decision-Making by Front-Line Employees in Their Work Area (Q6a)

This question sought to determine if the organisation had empowered employees in other areas of the organisation's operations and if this empowerment has extended to the environmental programme.

60.5% of the overall respondents indicated that front-line employees could make decisions affecting their own work areas and 34.2% stated that front-line employees did not have that power. 43.5% of those that allow front-line employees to make decisions in their own work areas follow a middle-up-down (a) management approach.

The decision making power of front-line employees in these organisations is limited however. Some examples of how employees are involved in decision-making include:

- Team based organisational structure/self directed work teams
- Involvement in risk assessments, safety committees, recycling committees and/or quality control which subsequently impacts on how tasks are carried out
- Employees make suggestions to their supervisors regarding improved work methods and making work areas safer and cleaner
- The ability to order/purchase a limited quantity of materials
- Day-to-day running of the work area e.g. organising cover during tea breaks

All of Group A and half of Group B allow front-line employees to make decisions in their own work areas. Group D organisations are split between those that allow front-line employees the opportunity to make decisions (5 out of 9) and those that do not (4 out of 9). Five of the 11 organisations in Group C do not afford front-line employees this opportunity.

It was noted that 10 of the 14 organisations with front-line employee involvement allow front-line employees to make decisions in their work areas. 7 of the 17 organisations without front-line involvement provide front-line employees with this opportunity (see Table 4.16 below).

Table 4.16 Employee Empowerment in Organisations With and Without Front-line Employee Involvement in the Environmental Programme

Can front-line employees make decisions in their own work areas?	No. of organisations with front-line employee involvement (n=14)	No. of organisations without front-line employee involvement (n=17)
Yes	10	7
No	2	9
Don't know/Missing	2	1

It can be concluded therefore that those organisations with over 20% of employees involved in the programme are more likely to allow front-line employees to make decisions in their own work areas than organisations with a lower percentage of employee involvement. It is also noted that where front-line employee empowerment takes place in other areas of an organisation, front-line employee involvement in environmental management may be facilitated, but does not necessarily lead to front-line employee involvement in the programme taking place.

4.4.4.2 Giving Lower Level Employees More Responsibility in the Programme (Q35(g))

44.7% of respondents overall indicated they would consider giving lower level employees more responsibility and authority in the environmental programme to facilitate the acceptance of the environmental programme (Q35(g)). 42.1% believe the implementation process would move faster if front-line employees were more involved (Q34(f)). These questions indicate the respondents' attitude towards the ability of lower level employees to contribute to the programme. Those that responded positively demonstrate that they recognise how front-line employee support (or lack of same) can impact on the success of the programme, and that providing employees with the opportunity to take responsibility for certain aspects of the programme can enhance progress.

This information was used to determine which organisations in the responding sample show a potential to initiate front-line employee participation or, where front-line employees are already involved to a certain extent in the programme, the potential to create further involvement opportunities.

The potential to involve was assessed by looking at the organisation's responses to the following three questions:

Q16 **(b)** Does the environmental policy indicate that the organisation will strive to include its employees in managing environmental issues?

Q36 **(f)** In your opinion, if front-line employees were more involved in the implementation of the environmental programme, would the process mover faster/move slower/have no impact?

Q36 (g) Would the organisation consider giving lower level employees more responsibility and authority in the environmental programme to facilitate the acceptance of a new programme?

Three groups emerged: those organisations with front-line employee involvement and who show the potential to create further involvement opportunities; those organisations with front-line involvement who do not show any potential to further involve front-line employees; and, those organisations who do not currently involve front-line employees but who show the potential to involve them in the future. These groups are presented in Table 4.17 below.

Seven of the organisations who already have front-line employees involved in the environmental programme demonstrate an appreciation for the contribution front-line employees can make to the programme and would consider giving front-line employees greater responsibility in it. This is in keeping with their policy to include employees in the programme. These organisations all have >5% of their employees involved in the environmental programme.

Four organisations have a policy to include employees in the programme and already have an element of participation from the front-line employees but do not recognise the benefit of front-line involvement and generally would not consider giving lower level employees more responsibility and authority in the programme. Two of these organisations (Nos. 25 and 12) only involve front-line employees during the implementation of projects. Organisation No. 3 has less than 10 employees in the organisation overall, so further involvement may not be feasible. Organisation No. 34 has 2 front-line employee representatives at most stages in the implementation of the programme.

Ten organisations do not currently involve front-line employees in the environmental programme but their responses indicate they have a positive attitude towards the participation of lower level employees in the programme. Five of these organisations have >5% of their employees involved in the environmental programme. Out of those with less than 5% involvement (Group D), three have a policy to include employees and believe the programme would move faster if front-line employees participated. However, they are unlikely to give front-line employees more responsibility and authority in the programme.

Table 4.17: Potential for Respondents to Include/Further Include Front-line Employees in the Environmental Programme.

Category	Group	Org Ref. No.	Would consider giving front-line more responsibility and authority	Believe process would move faster/slower/no impact if front-line involved	Policy to include employees in the programme
Organisation has front-line employees involved and show potential to progress involvement further	A	32#	Yes	Faster	Yes
		10#	Yes	Faster	Yes
		37#	Yes	Faster	Yes
		17#	Yes	Unknown	Yes
	B	35#	Yes	Faster	Yes
	C	33#	Yes	Faster	Yes
		13#	Yes	Faster	Yes
Have front-line employees involved but unlikely to progress involvement further	A	3#	Unknown	No impact	Yes
		25#	No	Slower	Yes
	C	12#	No	No impact	Yes
	D	34#	No	No impact	Yes
Do not have front-line employees involved in the programme but show potential to involve employees in the future	B	1	Yes	Faster	No
	C	15	Yes	Faster	Yes
		9	Unknown	Faster	Yes
		31	Yes	Faster	No
		11	Yes	Unknown	Yes
	D	19	No	Faster	Yes
		16	No	Faster	Yes
		24	Unknown	Faster	Yes
		38	Yes	Unknown	No
		28	Unknown	Faster	No
Not enough information provided	A	21#*	Unknown	Unknown	Yes
	B	23#	Unknown	Unknown	Yes
		36	Unknown	Unknown	Yes
	C	14#	Yes	Unknown	Unknown
		29	Unknown	Unknown	Yes
		2	Unknown	Unknown	Yes
		7	Unknown	Unknown	No
	D	5	Yes	Unknown	Unknown
		22	No	Unknown	Yes
		20	Unknown	Unknown	Unknown

A further two organisations in this group do not have a policy to involve employees in the programme but one would consider giving front-line employees more responsibility and authority and the other believes the programme would move faster with front-line employee participation.

Overall, 17 of the 31 organisations discussed above (54.8%) show potential to involve/increase involvement of front-line employees, regardless of the percentage of employees involved in the programme or whether the organisation already has front-line employee involvement.

4.4.5 Communication with Employees

There is general consensus in the literature that communication in relation to the environmental programme should begin as early as possible in planning and implementing the programme to ensure employees understand the need for the programme and their role in its implementation (Bhat, 1998; Dufresne, 2000; Zutshi and Sohal, 2004). This ensures that the changes associated with the programme are accepted by the organisation's employees (Schalk *et al.*, 1998), thereby reducing delays and facilitating successful implementation.

4.4.5.1 Communication of Environmental Information to Employees

Table 4.18 below summarises when communication of environmental information starts and the frequency of communication to each level of employee in the responding organisations. This information is presented in more detail in Appendix C.

In all groups, communication with top management tends to begin when the programme is initiated and for middle management when the programme is initiated or during planning.

For front-line employees, communication begins earlier in organisations where a higher percentage of employee involvement has been achieved.

Table 4.18: Communication with Each Level of Employee – Summary of Most Common Answers

Group	Communication	Top Management	Middle Management	Front-line employees
A	**Starts**	When programme initiated	When programme initiated	During planning
	Frequency	Monthly	Daily/monthly	Daily/biannually
B	**Starts**	When programme initiated	During planning	Undetermined
	Frequency	Quarterly	Weekly	Weekly
C	**Starts**	When programme initiated	When programme initiated	During implementation
	Frequency	Monthly	Monthly	Weekly
D	**Starts**	When programme initiated	When programme initiated	During implementation
	Frequency	Monthly/annually	Monthly	Monthly

A comparison of the frequency of communication with front-line employees in organisations with front-line involvement in the programme and in organisations without front-line involvement is presented in Table 4.19 below.

Table 4.19: Communication with Front-line Employees in Organisations With and Without Front-line Employee Involvement in the Environmental Programme.

Communication		Organisations with front-line employees involved	Organisations with no front-line employees involved
Started	When prog initiated	3	2
	During planning	4	3
	During implementation	4	7
	After implementation	1	1
	Unknown	2	3
	No Communication		1
How often?	Daily	2	1
	Weekly	3	3
	Bi-monthly	1	
	Monthly	4	6
	Quarterly	2	1
	Bi-annually	2	
	Annually		1
	As required		1
	Rarely		1
	Never		2
	Unknown		1

Two of the organisations (Nos. 20 and 16) with no front-line employees involved in the environmental programme do not communicate environmental issues at any stage of the programme. Organisation No. 20 has an uncertified EMS, no environmental policy or objectives and targets, no training and no environmental teams. Organisation No. 16 communicates environmental information to top and middle management only, both of which are involved in the programme. They do not consult front-line employees about the processes they work on and would not consider giving front-line employees any responsibility or authority in the programme.

One organisation (No. 31) without front-line involvement, rarely communicates to any level but they have succeeded in including top and middle management in the process to some degree.

A large proportion of organisations without front-line involvement begin communication to front-line employees during the implementation of the programme (7 out of 17). Six out of 17 organisations provide information to the front-line on a monthly basis.

In organisations with front-line involvement in the environmental programme, communication to front-line employees begins during the planning stages and during the implementation of the programme in most cases (4 out of 14 organisations in both cases). Three out of 14 organisations begin communication when the programme is initiated. Communication continues on a monthly or weekly basis for most organisations in this category.

This trend shows that communication tends to start earlier in the programme in organisations where front-line employees are involved in implementing it. Where front-line employees are not involved in the process, communication tends to start as the implementation of the programme is underway. Monthly communication thereafter is the typical frequency for organisations with and without front-line involvement.

4.4.5.2 Feedback to Employees

Updating employees on the programme's progress provides them with the opportunity to see a link between their efforts and the overall environmental improvements achieved in the

organisation (Chinander, 2001), thus encouraging employees to maintain the process of continuous improvement (Halme, 1997).

Feedback on the environmental programme is given in 57.9% of organisations overall and occurs in the majority of organisations in each of Groups A, B, C and D, indicating that feedback on the programme's progress occurs regardless of the number of employees involved in the programme.

Table 4.20: Feedback Provided in Organisations With and Without Front-line Employee Involvement in the Environmental Programme

Is feedback on the programme provided to employees?	**No. of organisations with front-line employee involvement (n=14)**	**No. of organisations without front-line employee involvement (n=17)**
Yes	13	8
No	1	6
Don't know/Missing	0	3

As presented in Table 4.20, only one of the organisations that do not provide feedback to employees has front-line employee involvement. Organisation No. 10 in Group A involves all employees in the implementation of projects only.

4.4.5.3 Training

An effective training programme can enhance employee perception of change (Holt *et al.*, 2003), reduce resistance (Zutshi and Sohal, 2004) and facilitate the effective implementation of change (Halme, 1997).

The majority of organisations in each of Groups A, B and D provide regular training (where training is provided at least every 2-5 years) to all levels in the organisation.

The organisations in Group C however are more likely to provide once-off training or no training at all to top management than regular training. For middle management, 5 out of 11 organisations in Group C provide regular training to this group of employees but 4 out of 11 organisations provide once-off training only. Front-line employees receive regular training.

Table 4.21: Environmental Training Provided to Top Management, Middle Management and Front-line Employees

Group	Top Management			Middle Management			Front-line employees		
	Once-off training	Regular training	No training	Once-off training	Regular training	No training	Once-off training	Regular training	No training
A	2/7	4/7	1/7	2/7	5/7	0/7	2/7	5/7	0/7
B	0/4	3/4	1/4	1/4	3/4	0/4	0/4	4/4	0/4
C	4/11	3/11	4/11	4/11	5/11	2/11	1/11	8/11	2/11
D	1/9	6/9	2/9	1/9	5/9	3/9	3/9	5/9	1/9

Where front-line employees are involved in the environmental programme, 10 out of 14 organisations provide regular training for front-line employees (see Table 4.22 below). Four out of 14 organisations provide training to the front-line on a once-off basis.

Table 4.22: Environmental Training Provided to Front-line Employees in Organisations With and Without Front-line Employee Involvement in the Environmental Programme

Training provided to front-line employees	No. of organisations with front-line employee involvement (n=14)	No. of organisations without front-line employee involvement (n=17)
Once-off training	4	3
Regular training	10	11
No training	0	3

In organisations where front-line employees are not involved in the environmental programme, 11 out of 17 organisations provide regular training for front-line employees. Three out of 17 organisations in this group provide once-off training for the lower level employees. Three out of 17 organisations do not provide any training to employees at this level. These three organisations do not have a training programme in place in the organisation. One of these organisations, No. 20, has an uncertified EMS, No. 7 has an IPC licence and an uncertified EMS, and No. 31 has an IPC licence and ISO 14001 certification. Both ISO 14001 and the IPC licensing systems require training of key personnel, so it is unusual that organisations with these systems in place do not have a training programme.

Petts *et al.* (1998) found that employees must be encouraged and facilitated to commit some of their time to attend environmental training.

Middle management encourage front-line employees to attend training in all of the organisations in Groups A and B.

In one of the organisations in Group C, No. 11, middle management are not supportive of front-line employees attending training. This organisation provides induction training and periodic training every 2-5 years for front-line employees.

Similarly, middle management do not support front-line training in one organisation (No. 22) in Group D). In this case, front-line employees receive induction training only.

It appears that regular training for front-line employees is provided in the majority of organisations, and this does not necessarily increase the likelihood of the involvement of front-line employees in the environmental programme. Middle management generally encourage front-line employees to attend environmental training.

4.4.6 Communication from Employees

Forman and Jørgensen (2001) found that a lack of dialogue in relation to employee views of and roles in the environmental programme could result in conflict within the programme which may not be resolved. As Ramus (2002) found, employees are more likely to be creative and innovative when their environmental ideas, criticisms or suggestions are heard and acknowledged. Communication from employees also ensures that tacit knowledge held by employees in relation to environmental issues in their own work area is shared throughout the organisation.

4.4.6.1 Consulting Front-line Employees about Processes they Work on (Q36b)

55.3% of the responding organisations consult front-line employees about the processes they work on to gain an insight into environmental problems in their work area. These organisations are mostly found in Group A and Group C. Only one organisation in Group B consults front-line employees in relation to their processes and Group D gave a split response (4 out of 9 - yes; 4 out of 9 - no).

Eleven out of 14 organisations with front-line involvement consult employees on environmental issues in relation to the processes they work on. Two out of 14 of these organisations do not consult employees in this way: organisation No. 25, where all employees are involved in the implementation of projects and one front-line representative is involved in managing the environmental programme; and organisation No. 35, where 8 front-line employees are involved in the initial environmental review only.

Table 4.23: Front-line Employee Consultation in Organisations With and Without Front-line Employee Involvement

Are front-line employees consulted about the processes they work on?	No. of organisations with front-line employee involvement (n=14)	No. of organisations without front-line employee involvement (n=17)
Yes	11	8
No	2	6
Don't know/Missing	1	3

Eight out of 17 organisations without front-line involvement consult employees on their work area to identify environmental problems. Six out of 17 of these organisations do not consult employees.

These findings lead to the conclusion that the consultation of front-line employees is not obviously associated with the percentage of employees in the organisation involved in the programme. However, where front-line employees are involved to some extent in the programme, it is more likely that front-line employees will be consulted about the processes they work on in order to gain an insight of any environmental problems in their area.

4.4.6.2 Suggestion Schemes

This involvement technique is hailed by a number of authors as a useful way to elicit employee ideas and opinions and create a positive attitude towards environmental management and encourage participation (Hanna *et al.* 2000; Palmer and Andrews, 1997). The suggestions made must be taken seriously by the organisation if the scheme is to maintain credibility among employees however (Kamp, 2000) and useful suggestions should be rewarded to encourage continued submission of ideas and comments (Velumail *et al.*, 1997).

39.5% of respondents overall reported using suggestion schemes for staff comments although a further 39.5% said they did not use these schemes. Any suggestions made by staff are used to select environmental initiatives by 47.4% of those who use suggestion schemes.

Rewards are offered for useful suggestions made by only 18.4% of respondents. 47.4% did not offer any rewards. Rewards offered include:

- Money
- Competition prizes
- Vouchers of nominal value
- Recognition internally for efforts made

Five out of 7 of the organisations in Group A use staff suggestion schemes and 5 out of 9 of the organisations in Group D do not use these schemes. The organisations in Groups B and C are split almost evenly between those who use suggestion schemes and those that don't. As noted in section 4.4.2.3 above, 9 out of 13 organisations with a policy to include employees in the environmental programme and who have achieved front-line involvement have suggestion schemes in place. Six out of 10 of those with a policy to include employees without front-line involvement do not have staff suggestions schemes. Therefore suggestion schemes may demonstrate that the organisation values the opinion of front-line employees, which could increase the likelihood of participation.

Most of those that do not have suggestion schemes have direct communication to either top management and/or other parts of the organisation as an alternative form of upward communication.

One organisation in each of Groups C and D do not have any upward feedback mechanisms. One of these communicates environmental information to all levels on a monthly basis. The other organisation communicates monthly to top management and front-line employees only. Both have 151-200 employees and ISO 14001 certification.

4.4.6.3 Direct Communication to Senior Management and Other Parts of the Organisation

In the responding sample, employees are encouraged/facilitated to communicate environmental ideas directly to other parts of the organisation (57.9%) and to senior management (65.8%).

The ability to directly communicate to senior management is the norm for employees in most of the organisations in each of Groups A, B, C and D. Direct communication to other parts of the organisation is standard practice for Groups A, B and C. In Group D, 5 out of 9 organisations do not encourage employees to directly communicate environmental ideas to other parts of the organisation, though 4 out of 9 do facilitate this mode of communication.

Therefore, organisations with less than 5% of employees involved in the environmental programme are more likely to facilitate employees to directly communicate environmental ideas to top management than to other parts of the organisation.

4.4.7 Providing an Opportunity to Participate

As Lee (2003) points out, participation should extend further than making suggestions or responding to surveys. Workers should be actively involved in all stages of the programme and as early as possible in the process (Stone, 2006b; Zutshi and Sohal, 2004a). As noted in section 4.3.1, although top management and middle management are involved in the environmental programme in most cases, only 14 organisations (36.8% of organisations overall) succeeded in involving front-line employees (refer to Table 4.24 below and Appendix C).

The majority of organisations with front-line employee involvement involve front-line employees in implementing projects (11 out of 14 organisations), followed by reviewing projects (8 out of 14 organisations). Only 4 organisations involve front-line employees in choosing projects.

Organisation No. 32 was the only organisation to include all of top management, middle management and front-line personnel in implementing environmental projects. A limited number of employees are involved at other stages. This organisation has EMAS and ISO 14001 certification.

Organisations Nos. 25 and 10 involve all front-line employees in implementing projects. However only a small number of top and middle management personnel are involved at this stage.

Organisation No. 17 should also be noted, where employees are enlisted as required to participate on project teams.

Table 4.24 Involvement of Front-line Employees in the Various Stages of Implementing an Environmental Programme

Group	Ref. No.	Number of Front-line Employees Involved in Various Stages of Implementation						
		Initial review	Set objectives & targets	Choose projects	Implement projects	Review progress	Communicate results	Manage programme
A	17	0	As required	0	If on project team	If on project team	0	3
	32	8	4	0	all	Various	Various	4
	25	0	0	0	all	0	0	1
	10	0	0	0	120	0	0	0
	37	2	3	0	9	0	0	0
	3	1	1	1	1	1	1	1
	21	0	0	0	0	2 (annual review)	0	0
B	35	8	0	0	0	0	0	0
	23	1	0	0	0	0	0	0
C	33	0	0	5	5	5	1	0
	13	5	5	5	5	5	5	1
	14	0	0	0	5	5	5	5
	12	0	0	0	6	0	0	0
D	34	1	2	2	2	2	2	2
No. of organisations (Out of 14)		**9**	**6**	**4**	**11**	**8**	**6**	**7**

Overall, the organisations in the responding sample have not achieved comprehensive involvement of employees from every level in the organisation and at each stage of the programme. However, some of the responding organisations have made efforts to involve a certain number of employees (management and front-line) at each stage of the programme.

4.4.7.1 Environmental Teams

Teams are considered the most effective way to manage change (Stead, 1998) and ensure the meaningful involvement of the majority of the organisation's employees in the process (Keogh and Polonsky, 1998; Remmen and Lorentzen, 2000). The cross-disciplinary approach in particular ensures that key personnel are involved in the process (Remmen and Lorentzen, 2000) and a comprehensive understanding of environmental issues in the organisation can be achieved (Chattopadhyay, 2001).

52.6% of the respondents overall have environmental teams, most commonly one green team consisting of members from several different departments (36.8%).
The majority of organisations in Group A and D use teams in their environmental management programme (6 out of 7 and 6 out of 9 respectively), whereas in Groups B and C, there is a split between those that use teams and those that do not. This indicates that the presence of an environmental team in an organisation does not automatically mean an increase in the percentage of employees involved in the environmental programme will occur.

Tables 4.25 and 4.26 below outline the characteristics of the teams in organisations with and without front-line employee involvement.

Ten of the 20 organisations with teams have no front-line employees involved in the environmental programme. In three of these organisations, the environmental teams consist of members of the environmental department only and one organisation has a waste management team only. In these three cases, the organisation may have become dependent on the environmental department to deal with environmental issues and involvement of employees outside of the environmental department is limited. The remainder of the organisations without front-line employee involvement have teams which consist of individuals from a number of different departments in the organisation.

In the 10 organisations with teams and front-line employee involvement, environmental teams are made up of individuals from different departments in the organisation in all cases.

All 10 organisations with teams and front-line employee involvement indicated that front-line employees were encouraged to participate on environmental teams. Nine of these indicated

Table 4.25: Teams in Organisations where Front-line Employees are Involved in the Environmental Programme

Group	A					
Org. No.	3	25	17	32	10	21
No of employees	<10	25-50	>250	151-200	101-150	25-50
Type of team	One team, members from different depts	One team, members from different depts	One to manage programme, team members from different depts, also smaller project teams to implement projects	One team, members from different depts	One team, members from different depts and from all levels	One team, members from different depts and from all levels
No. on team	<5	5-10	5-10	5-10	<5	<5
FL[2] encouraged to participate	Yes	Yes	Yes	Yes	Yes	Yes
FL[2] willing to participate	?	Yes	Yes	Yes	Yes	Yes
Mid[3] willing to participate	?	Yes	Yes	Yes	No	Yes
Mid[3] support for programme in general	Equal	Less	Equally	Equally	Less	Equally
High turnover of personnel?	No	No	No	No	Don't know	No
Members trained?	No	Yes	Yes	Yes	Yes	Yes
Team has influence?	Yes	Yes	Yes	Yes	Yes	Yes
How often does team meet?	Quarterly	Once a month	6 times a year	Every day informally, formally monthly	Several times a year	Several times a month
Team has own objectives?	Yes	Yes	No	Yes	No	Yes
Sufficient Budget?	Yes	Yes	Not always	Yes	Yes	Yes

Table 4.25: Teams in Organisations where Front-line Employees are Involved in the Environmental Programme (*continued*)

Group	C			D
Org. No.	14	12	33	34
No of employees	151-200	>250	101-150	>250
Type of team	One team, members from different depts	?	One team, members from different depts	One team, members from different depts
No. on team	5-10	5-10	5-10	5-10
FL[2] encouraged to participate?	Yes	Yes	Yes	Yes
FL[2] willing to participate?	Yes	Yes	Yes	Yes
Mid[3] willing to participate?	Yes	Yes	No	Yes
Mid[3] support for programme in general	Equally	Less	Equally	Equally
High turnover of personnel?	No	Don't know	Don't know	Don't know
Members trained?	Yes	No	Yes	Yes
Team has influence?	Yes	Yes	No	Yes
How often does team meet?	Once a month	Several times a year	Several times a year	Once a week
Team has own objectives?	No	No	No	Yes
Sufficient Budget?	Yes	No	No	Yes

[2]FL: Front-line employees

[3]Mid: Middle management

Table 4.26: Teams in Organisations where Front-line Employees are not Involved in the Environmental Programme

Group	B		C		
Org. No.	1	36	15	11	31
No of employees	>250	51-100	>250	101-150	51-100
Type of team	Waste Management team	One team, members from different depts	Env dept team and team in each dept looking at specific projects	Team consists of members from all levels	Team consists of members of management only
No. on team	10-15	5-10	<5	5-10	<5
FL[2] encouraged to participate?	Yes	Yes	Yes	No	No
FL[2] willing to participate?	Yes	Yes	Yes	No	No
Mid[1] willing to participate?	Yes	Yes	No	No	No
Mid[1] support for programme in general	Equally	Equally	Equally	Less	Less
High turnover of personnel?	No	No	No	Yes	Yes
Members trained?	No	No	Yes	Yes	No
Team has influence?	No	No	Yes	No	Yes
How often does team meet?	Several times a year	Several times a year	Once a month	Once a month	Once a year
Team has own objectives?	No	No	?	No	Don't know
Sufficient Budget?	Don't know	No	No	N/A	Don't know

Table 4.26: Teams in Organisations where Front-line Employees are not Involved in the Environmental Programme (*continued*)

Group	D				
Org. No.	5	24	19	16	28
No of employees	>250	>250	201-250	151-200	>250
Type of team	One team, members from different depts	EHS Dept only	One team, members from different depts	Env Dept only	One team, members from different depts
No. on team	5-10	5-10	5-10	<5	
FL[2] encouraged to participate?	Yes	Yes	Yes	No	Yes
FL[2] willing to participate?	Yes	Yes	Yes	No	?
Mid[3] willing to participate?	Yes	Yes	Yes	Yes	?
Mid[3] support for programme in general	Less	More	Equally	Equally	Equally
High turnover of personnel?	No	No	No	No	No
Members trained?	Yes	Yes	Yes	Yes	No
Team has influence?	Yes	Yes	Yes	No	Yes
How often does team meet?	Once a month	Once a month	Several times a year	Several times a year	Once a month
Team has own objectives?	No	Yes	No	No	No
Sufficient Budget?	Yes	Yes	No	No	No

[2]FL: Front-line employees

[1]Mid: Middle management

front-line employees were willing to participate on environmental teams and 7 organisations stated that mid management were also willing to be involved in environmental team work.

In those organisations with teams but no front-line involvement, only 7 stated they encourage front-line employees to join environmental teams. In 6 organisations, front-line employees are willing to join teams and similarly 6 organisations stated that middle management were willing to participate in this regard.

The most significant difference between the two groups of organisations was in relation to team objectives and the team's budget. Only 2 organisations with teams but without front-line employee involvement said their teams have a sufficient budget to allow them to perform their task. Seven organisations with teams and front-line involvement have a sufficient budget, and most of these were in Group A (>20% employee involvement in the programme).

Similarly, one of the organisations without front-line involvement has separate objectives and targets for their environmental team as opposed to 5 of the organisations with front-line employee involvement, most of which are in Group A.

There is generally little difference between how teams perform in Groups A, B, C and D, although Group A is marked by having teams with their own objectives and targets and a sufficient budget in which to operate.

The organisations in Group B with teams do not train personnel on the team and their teams do not have the influence or authority to change operational systems in the organisation in order to fulfil environmental management goals.

The impact of a lack of middle management support in evident in three Group C organisations (Nos. 11, 15 and 31) with no front-line involvement. Two of these (Nos. 11 and 31) report that middle management are less supportive of the programme overall, front-line employees are not willing or encouraged to be involved on teams and the team has a high turnover of personnel.

All but one organisation in Group D stated that front-line employees are encouraged and willing to be involved on environmental teams. Only one of these have achieved front-line involvement.

Apart form the above exceptions, it appears that there is little association between how a team is managed and the number of employees involved in the programme or the participation of front-line employees in the programme.

Tables 4.27 and 4.28 below outline the environmental performance of those organisations with and without teams. Organisations with environmental teams which have the appropriate resources (budget and training) and power (influence and authority to change operational systems in order to fulfil environmental goals) are highlighted in bold in Table 4.27, to help assess whether these organisations perform better environmentally. The percentage of environmental objectives and targets achieved among these particular organisations varies significantly, with one organisation, No. 5 (no front-line employee involvement) achieving only 25% of their annual objectives and targets, No. 21 (front-line employees involved) achieving 50% of the objectives and targets and No. 25 (front-line employees involved in the implementation of projects only) achieving 80-100% of their annual objectives and targets. The number of non-compliances received in their last audit ranges between 0 and 3.

The environmental performance of these organisations is not significantly different to those organisations with environmental teams who have a lower budget, no training and/or no influence in the operational aspects of the organisation.

The difference between the environmental performance of those organisations with environmental teams and those without environmental teams is not remarkable either.

In organisations without environmental teams, 6 out of 10 did not indicate the number of non-compliances they received during their last audit and 2 organisations in this group (Nos. 20 and 38) do not have environmental objectives and targets.

The largest number of non-compliances was received by an organisation without environmental teams and without front-line involvement (7 secondary non-compliances).

Table 4.27 Environmental Performance of Organisations with Teams

Group	Org Ref No	Front line employees involved?	Objectives & Targets achieved	Number of non-compliances at last audit
A	3	Y	90%	0
	25	Y	80-100%	2
	17	Y	75%	0
	32	Y	Not quantifiable, many on-going	1 minor
	10	Y	100%	3
	21	Y	50%	1
B	1	N	90%	0
	36	N	80%	No external, 10 internal
C	**14**	Y	100%	1
	12	Y	65%	4
	33	Y	A large number	0
	15	N	EMS newly implemented, too early to tell	3
	11	N	85%	3
	31	N	No objectives and targets	2
D	**34**	Y	90%	0
	5	N	25%	2
	24	N	100%	?
	19	N	75%	2
	16	N	100%	4 minor
	28	N	Many achieved (unsure of number)	3

Organisations marked in bold have sufficient team resources and authority in which to perform its task

Table 4.28 Environmental Performance of Organisations Without Teams

Group	Org Ref No	Front line employees involved?	Objectives & Targets achieved	Non-compliances
A	37	Y	50%	3
B	23	Y	80%	?
	35	Y	90%	6
C	13	Y	100%	?
	2	N	?	1
	9	N	65%	?
	7	N	75%	3
	29	N	80%	?
D	22	N	100%	7 secondary
	20	N	No objectives and targets	?
	38	N	No objectives and targets	?

However this organisation achieved 100% of their objectives and targets for the year. Similarly, organisation No. 35 (no front-line involvement) who achieved 90% of their objectives and targets received 6 non-compliances in their last audit.

Among the organisations with environmental teams, 5 achieved zero non-compliances in their last audit. In 2 of these organisations, the environmental team has no influence to change operational systems in the organisation (Nos. 1 and 33).

To determine the impact of teams and front-line involvement on environmental performance, the average number of non-compliances and objectives and targets achieved was calculated as outlined in Tables 4.29 below.

Table 4.29: Average Percentage of Objectives and Targets Achieved and Average Number of Non-Compliances Received in the Last Year.

Organisation with:	**Average % of Objectives and Targets Achieved:**	**Average Number of Non-Compliances:**
Teams and front-line employee involvement	81.3%	0.76
Teams and no front-line involvement	79.3%	2.1
No teams and front-line employee involvement	80%	4.5
No teams and no front-line employee involvement	80%	3.7
Teams (with and without front-line involvement)	80.3%	1.5
No teams (with and without front-line involvement)	80%	4

Whether an organisation has an environmental team or not, or whether it has front-line employee involvement or not appears to have little impact on the number of environmental objectives and targets achieved by the organisation.

However, it can be concluded that where an organisation has an environmental team and front-line employees involved in the environmental programme, it will receive less non-compliances in an environmental audit. Also, an organisation with no environmental team (with or without front-line employee involvement) will receive more non-compliances in an environmental audit than an organisation with teams.

4.4.7.2 Are Front-line Employees and Middle Management Encouraged to Experiment to Find Solutions to Environmental Problems?

In order for employees to become more deeply involved in the environmental programme and give it their full support, employees should be empowered to make decisions in relation to the programme and take responsibility (Jarrar and Zairi, 2002; Jones and Welford, 1997).

Over half of the respondents overall (52.6%) encourage middle management to experiment to find solutions to environmental problems. Only 23.7% said they encourage front-line employees to experiment.

From Table 4.8, it is difficult to determine if there is a relationship between those that allow front-line employees to experiment and the percentage of employees involved in the programme. Group D are the only group where there is a clear indication that front-line employees are generally not encouraged to experiment (6 out of 9 organisations). All of the organisations in Group D who stated they do not encourage front-line employees to experiment allow middle management to experiment.

Six out of 7 of the organisations in Group A and 5 out of 11 in Group C encourage middle management to experiment. The 3 organisations in group C that do not encourage middle management to experiment do not encourage front-line employees to experiment either.

Seven out of 14 organisations with front-line employee involvement encourage front-line employees to experiment in relation to environmental issues. Middle management employees are encouraged to experiment in 11 of these organisations.

Two out of 17 organisations without front-line involvement encourage front line employees to experiment. Seven out of 17 organisations in this category allow middle management this opportunity.

It appears that the general culture in Irish organisations is to encourage middle management to experiment to find solutions to environmental problems but not to encourage front-line employees in this regard. Organisations with less than 5% of employees involved in the organisations generally do not encourage front-line employees to experiment. Front-line

employees are more likely to have the opportunity to experiment where front-line employees are involved to some extent in the environmental programme.

Middle management are encouraged to experiment in over half the responding organisations. This practice does not appear to be associated with the % of employees involved in the organisation. However, middle management experimentation is more common in those organisations with front-line employee involvement. This could be an indication that those organisations with front-line employees involved in environmental management are more proactive in the environmental field and therefore actively encourage middle management to develop solutions.

It should be noted however that some of the responding organisations, for example pharmaceutical organisations, are highly regulated and may not be in a position to encourage uncontrolled experimentation.

4.4.8 Other Facilitating Factors

4.4.8.1 Integration of Participation in Environmental Issues into Employee Job Descriptions and Staff Appraisal Schemes (Q36h)

Ramus (2002) found that where performance evaluations are linked with environmental targets, continuous employee support can be attained.

As many organisations in the responding sample integrate environmental issues into job descriptions and appraisal schemes as do not (28.9% in each case). This technique is more likely to be used in organisations in Group A (5 out of 7) and Group B (2 out of 4). The organisations in Group C and Group D (less than 10% involvement) either did not use this technique or did not answer the question. This indicates that integrating participation in environmental issues into employee job descriptions and staff appraisal schemes is associated with organisations with a higher percentage of employees involved.

4.4.8.2 Incentives

Using incentives to facilitate the acceptance of the environmental programme in an organisation is not common practice in the responding sample. Only 18.4% overall use

incentives in this regard. This is reflected in the involvement groups above, where only one organisation in each of groups A, B, and C use incentives and all three have front-line involvement in the programme. Three organisations in group D use incentives, one of which has front-line employee involvement.

Therefore, providing incentives to encourage co-operation from employees in the environmental programme is not a common occurrence in Irish-based organisations. Those that use incentives in this way tend to have achieved the involvement of front-line employees.

4.4.9 Middle Management Support

Ramus (2002) found that line managers and supervisors are often less supportive when managing environmental activities than other activities. However, middle management support for the environmental programme and its impact on employee involvement should not be underestimated. As Holt *et al.* (2003) found, it is front-line supervisors who communicate change issues to employees and involve them directly in the process and front-line employees will mirror their supervisor's reaction to change.

4.4.9.1 Middle Management Support for the Programme.

In the responding sample, middle management are equally as supportive of the environmental programme as other programmes in the organisation. One organisation in each of Groups B, C and D stated that middle management are more supportive of the environmental programme compared to other programmes.

In those organisations (6 No.) where middle management are less supportive of the programme, 3 organisations have succeeded in involving front-line employees. Organisation No. 12 involves 1-6 front-line employees in implementing projects, organisation No. 10 involves all employees in implementing projects, and organisation No. 25 also involves all employees in the implementation of projects but also includes one front-line employee in managing the programme. This supports the findings of section 4.4.2.3 that where middle management support for the programme is lacking, front-line involvement in the programme is limited. However, middle management are equally supportive of the programme in organisations without front-line employee involvement.

4.4.9.2 Departments Opting Out

Only 18.4% of organisations overall experienced problems with departments in the organisations opting out of the environmental programme and creating delays in programme implementation. The organisation in Group A that experienced this difficulty, No. 25, found that its middle management employees were less supportive of the environmental programme compared to other programmes. This also occurred in 2 of the organisations (Nos. 9 and 11) in Group C.

However, the organisation (No. 1) in Group B that indicated it had difficulty with departments opting out of the programme found their middle management were equally supportive of the programme. The third organisation in Group C where departments opted out of the programme did not indicate the extent of middle management support so a comparison cannot be made in this instance.

Overall therefore, Irish organisations tend not to experience delays in the implementation of the environmental programme due to departments opting out of the programme. Where it does occur, middle management tend to be less supportive of the programme overall.

4.5 Employee Resistance

Resistance from employees towards an environmental programme will ultimately hinder the implementation process (Dodge, 1997) and poor handling and management of the situation will exacerbate the problem (Carnall, 2003; Maher and Hall, 1998). An approach must be taken by the organisation which focuses on the potential impact of and the effective management of the human resource aspects of the organisation on the environmental programme (Stone, 2006a; Piasecka, 2001; Dufresne, 2000). The results to the following questions are presented in full in Appendix C

4.5.1 Level of Difficulty Experienced in Trying to Convince staff to Accept an Environmental Management Programme and take it Seriously (Q27).

In general, a little to some difficulty is experienced by most organisations convincing staff at all levels to accept the environmental programme.

In most cases, the greatest difficulty lay at management level. Group A organisations had a lot of difficulty convincing department heads/managers to accept the environmental programme and take it seriously. Group B organisations had a lot of difficulty convincing the CEO to accept the programme. Group C had a lot of difficulty convincing top management and department heads/managers to accept the programme. Group D had a lot of difficulty with top management, department heads/manager, supervisors/line managers and purchasing staff.

It was noted that those organisations with no front-line employee involvement in the programme had some difficulty convincing staff at various levels to accept the programme. Where organisations achieved front-line involvement in the environmental programme, only a little difficulty was experienced convincing staff to accept the programme in most cases.

4.5.2 Middle Management Reluctance to Accept the Programme (Q30)

In most cases the respondents either slightly disagreed or neither agreed nor disagreed with the reasons offered in Q30 for middle management reluctance to accept the programme. The exceptions to this included the following:

- Organisations in Groups A and B strongly agreed that middle management perceive the programme as requiring additional time and work. Group C and D organisations only slightly agreed with this statement. This may be because Group A and B organisations expect more personnel to participate in the programme and hence management are required to contribute more time and effort to its implementation than in organisations in Groups C and D. Organisations with and without front-line involvement generally slightly agreed with this reason for middle management reluctance in general.
- Group B organisations slightly agreed that middle management do not want to spend their limited budget in the environmental area. Although Group A and C organisations neither agreed nor disagreed with this statement, Group D organisations slightly disagreed.
- Group D organisations slightly agreed that there is no incentive for middle management to include environmental issues in decision making. All other groups neither agreed nor disagreed with this statement. This indicates that in organisations with less than 5% employee involvement in the programme, environmental management issues are not

integrated into each area of the business, and there is no obligation on managers to consider these issues in their working area.

4.5.3 Front-line Employee Reluctance to Accept the Programme

The responding organisations either slightly disagreed or neither agreed nor disagreed with most of the reasons offered in Q31 for front-line employee reluctance to accept the environmental programme. The exceptions to this were:

- Group B organisations slightly agree that front-line employees feel their position is threatened when changes are made to their work procedures. All other groups slightly disagreed with this statement.
- Group C and D organisations slightly agreed that employees are reluctant to alter how they have performed their work for years. Group A and B neither agreed nor disagreed with this statement. Organisations without front-line employee involvement in the programme slightly agreed with this reason for front-line employee reluctance, but organisations with front-line involvement neither agreed nor disagreed.
- Groups A, C and D and from organisations with and without front-line employee involvement slightly agree that employees perceive the environmental programme as requiring additional time and work. Group B neither agreed nor disagreed with this statement.
- Only Group D organisations slightly agreed that employees do not see the need for or benefit of the programme and that employees are told about the changes that will be made rather than included in the planning of those changes.

It can be concluded that reluctance to alter how they have performed their work for years is an issue for employees in organisations without front-line employee involvement. Organisations with a lower percentage of employee involvement (<5%) tend to experience employee resistance because employees do not see the need for or benefit of the environmental programme and/or are told about the changes that will be made rather than included in the planning of those changes. Therefore it seems that many of the reasons for employee reluctance could be eliminated by actively including employees at all levels in the environmental programme.

4.5.4 Overcoming Resistance

Neither Group A nor B organisations implement the environmental programme regardless of employee resistance. Half of the Group C organisations and 5 out of 8 Group D organisations that answered this question stated that they would implement the programme despite resistance.

In all four groups, the majority of organisations provide training/information seminars to make employees aware of the environmental programme, explain why changes are necessary and try and alleviate fears. This emphasises the dependence on communication in most organisations to ensure employee support for the programme is established and maintained. Only Group A organisations (with > 20% front-line employee involvement) would allow potential resistors to participate. Providing incentives to co-operate was not a frequently used method in any of the groups.

There was little difference between the techniques used by organisations with or without front-line employee involvement to overcome resistance. Interestingly, a higher percentage of organisations with no front-line employee involvement in the environmental programme restructure environmental actions based on employee concerns. Most of the organisations with front-line employee involvement allow potential resistors to participate in the programme, unlike those without front-line employee involvement.

4.6 Issues Addressed During Implementation (Q43)

In general, organisations with various levels of employee involvement differed little in relation to the issues they considered created delays, were difficult to address, were specifically addressed and were successfully addressed as part of the implementation of the environmental programme. The most significant differences between the respondents are outlined below. A detailed breakdown of these findings is presented in Appendix C.

4.6.1 Issues that Created Delays in the Implementation of the Environmental Programme

Organisations with front-line employee involvement experienced delays mainly due to a lack of financial resources (45.5%). The delays experienced by organisations without front-line employee involvement related more to a lack of managerial support (a lack of supervisory support (38.5%), waning support from management (23.1%), departments opting out of the

programme (23.1%)), a lack of personnel to implement the programme (38.5%), no incentive provided to employees to participate in environmental strategies (23.1%) and conflicts within the organisation (workplace politics and conflict (30.8%); conflicts between environmental and other corporate priorities (23.1%)). These responses were reflected in Group D organisations (less than 5% involvement), who also experienced delays because employee involvement was not encouraged (20%) and no guidance or support was provided to employees to cope with changes in their daily routine (20%).

4.6.2 Issues that were Difficult to Address in the Implementation of the Environmental Programme

A lack of managerial support was a difficult issue to address for organisations without front-line employee involvement in the environmental programme (a lack of supervisory support (30.8%); waning support from management (23.1%)), as was the fact that no incentive was provided to employees to participate in environmental strategies (30.8%).

Notably, the main issue that organisations with front-line involvement in the environmental programme found difficult to address was a lack of personnel to implement the programme (45.5%). These organisations comprise 60% of Group A organisations (>20% employee involvement) and 50% of Group B organisations (10-20% employee involvement). This may indicate that achieving active involvement from personnel was a difficult process and that further and more active involvement may be considered necessary in these organisations.

4.6.3 Issues that were Specifically Addressed in the Implementation of the Environmental Programme

Training and communication issues were specifically addressed by organisations with and without front-line employee involvement in the programme. However those organisations with front-line employee involvement also concentrated on specifically addressing personnel issues (front-line response/attitudes (36.4%); a lack of personnel to implement the programme (36.4%)), management issues (leaders lack of influence over operations (36.4%); a lack of top management support (27.3%); a lack of supervisory support (27.3%)) and by addressing the culture of the organisation in relation to the programme (incorporating environmental strategies into everyday activities/culture (36.4%)).

4.6.4 Issues that were Successfully Addressed in the Implementation of the Environmental Programme

In organisations that achieved front-line employee involvement, the main issues successfully addressed in the implementation of the environmental programme were:

- Lack of awareness of programme's progress (54.6%)
- A lack of personnel to implement the programme (45.5%)
- A lack of expertise to fully implement the programme (45.5%)
- Lack of financial resources (45.5%)
- Poor communication between environmental personnel and other areas (45.5%)
- Necessary training not provided (45.5%)
- Monitoring progress and audits (45.5%)
- A lack of top management support (36.4%)
- A lack of supervisory support (36.4%)
- Poor leadership (36.4%)
- A lack of awareness of environmental goals and/or expected outcomes (36.4%)
- Employee involvement not encouraged (36.4%)
- Conflicts between environmental and other corporate priorities (36.4%)
- Successes not recognised (36.4%)
- Implementation of corrective action to put programme back on track (36.4%)

Group A organisations (> 20% front-line employee involvement in the environmental programme) make up the higher proportion of the responses provided above.

In organisations that did not achieve front-line employee involvement, the main issues successfully addressed were:

- A lack of top management support (38.5%)
- Success not recognised (23.1%)
- A lack of supervisory support (23.1%)

These were also the main issues successfully addressed by Group C and D organisations more so than Group A and B organisations. The findings demonstrate how organisations without front-line involvement were successful in achieving managerial support but did not register any success with human resource or culture related issues, though these issues were probably not a focus of these organisations.

4.7 Advantages Realised as a Result of Implementing the Environmental Programme (Q47)

The predominant advantages experienced overall by the responding organisations include (refer to Appendix B):

- Compliance with legislation (60.5%)
- Waste reduction and reduced waste costs (57.9%)
- Pollution prevention (57.9%)
- Improved environmental awareness among employees (55.3%)
- Less environmental risk (55.3%)
- Improved environmental performance (52.6%)
- Reduced consumption of energy and materials (44.7%)
- Improved image among employees (42.1%)
- Safer storage of substances and materials (42.1%)

The advantages realised to a lesser extent by the responding organisations include:

- Viewed more favourably by the financial sector (7.9%)
- Improved customer relationships (15.8%)
- Improved employee morale (15.8%)
- Increased productivity (15.8%)
- Increased market opportunities/competitiveness (18.4%)

A higher proportion of Group A organisations experienced an improved image among employees as a result of the programme (A: 85.7%; B: 50%; C: 55.6%; D: 33.3%) and a reduced consumption of energy and materials (A: 100%; B: 50%; C: 55.6%; D: 50%). An interesting observation is that a higher proportion of Group D organisations indicated achieving optimised use of resources (A: 14.3%; B: 25%; C: 22.2%; D: 83.3%) and an

improved environmental awareness among employees (A: 71.4%; B: 75%; C: 77.8%; D: 100%).

The most significant differences in advantages experienced by organisations with and without front-line involvement are outlined in Table 4.30 below.

Table 4.30: The Main Advantages Experienced by Organisations With and Without Front-line Employee Involvement in the Environmental Programme

Advantage	**Organisations with front-line employee involvement in the environmental programme (%)**	**Organisations without front-line employee involvement in the environmental programme (%)**
Increased market opportunities	53.9	7.7
Reduced consumption of energy and materials	84.6	46.2
Safer storage of substances and materials	46.2	76.9
Change in behaviour of managers and workers	53.9	38.5
Viewed more favourably by regulator	30.8	61.5
Improved awareness among employees	69.2	92.3
Targets set and met	53.9	30.8
Improved staff involvement	53.9	30.8
Less environmental risk	69.2	92.3
Increased productivity	38.5	7.7
Improved employee morale	30.8	15.4
Improved image among employees	69.2	46.2

As expected, organisations with front-line employee involvement are more likely to experience improved staff involvement in the programme, a change in behaviour of managers and workers, an improved image of the organisation among employees and improved employee morale compared to organisations without front-line employee involvement. Organisations with front-line employee involvement also indicate an increase in productivity and market opportunities, targets are set and met and the consumption of energy and materials is reduced. Those organisations without front-line involvement report they have less environmental risk and are viewed more favourably by the regulator as a result of the programme. They also note to a greater extent than organisations with front-line involvement, an improved environmental awareness among employees.

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Summary, Conclusions and Recommendations

5.1 Summary

A survey of Irish-based organisations with and without an environmental management system was carried out to determine the extent of employee participation (management and front-line employees) in environmental programmes in an Irish setting and the participatory techniques which facilitate the inclusion of employees at all levels in the programme.

Overall, the organisations in the responding sample have not achieved comprehensive involvement of employees from every level in the organisation and at each stage of the programme. Only 18.4% of the respondents overall include over 20% of their employees at one or more stages of implementing the environmental programme (Group A). 10.5% include between 10% and 20% of their employees at one or more stages of implementing the environmental programme (Group B). 29.0% include between 5% and 10% of their employees at one or more stages of implementing the programme (Group C). 23.7% include less than 5% of their employees at one or more stages of implementing the programme (Group D). 18.4% of the respondents did not provide data on the number of employees involved.

The employees involved in the implementation of the environmental programme are at top management and middle management level in most cases. Only 14 organisations (36.8% of organisations overall) have succeeded in involving front-line employees in the programme. The actual number of front-line employees participating at any one stage of the programme rarely exceeded 9. Where an organisation indicated that "all" front-line employees were involved, this was limited to the implementation of individual projects.

The majority of organisations that achieved front-line employee participation involve front-line employees in implementing environmental projects (11 out of 14 organisations), followed by reviewing environmental projects (8 out of 14 organisations). Only 4 of these organisations involve front-line employees in choosing environmental projects for implementation. Although 7 out of 14 organisations included front-line employees in managing the programme, the number of front-line employees actually involved in this task in any one organisation did not exceed 5.

This indicates that although efforts are being made in Irish-based organisations to involve a certain number of employees (management and front-line) at each stage of the programme, the concept of extensive employee participation in environmental management has not been fully embraced, particularly in relation to front-line employees. However, 17 of the 31 (54.8%) responding organisations examined demonstrated a potential to involve or increase involvement of front-line employees by indicating:

- They would consider giving front-line employees more responsibility and authority in the programme;
- They believe the implementation process would move faster if front-line employees were involved in the programme; and/or,
- They have an environmental policy which indicates they will strive to include employees in the programme.

The occurrence and effectiveness of an extensive range of management techniques, identified in the literature as key to facilitating employee involvement in an environmental programme, were examined in the organisations participating in this study. The findings highlighted that the following environmental management and change management techniques may impact on employee involvement in an environmental programme:

- A middle-up-down management structure was mainly associated with organisations with greater than 5% of employees involved in the environmental programme. A top-down management structure was prevalent among organisations with less than 5% employee involvement in the environmental programme. In agreement with Halme's (1997) study, these findings indicate that a top-down management structure may stifle employee involvement in the environmental programme, whereas a middle-up-down management approach facilitates the participation of employees. The impact of management structure on front-line employee involvement was not conclusive in this study and is an issue that merits further study.

- As most of the respondents had an IPC licence and/or ISO 14001 certification, and as these systems were prevalent in each of Groups A (greater than 20% employee involvement), B (10-20% employee involvement), C (5-10% employee involvement) and D (less than 5% employee involvement), it was difficult to identify an association between environmental

system and employee involvement in the environmental programme. However, of the 11 organisations with ISO 14001 certification and no other environmental system in place, 7 achieved front-line employee involvement. An IPC licence and uncertified EMS was more commonly found in organisations without front-line employee involvement in the environmental programme. This may be because the EMS required by an IPC licence stipulates that only personnel whose job could have a significant impact on the environment should receive environmental training and does not obligate the organisation to involve employees in any other way in the implementation of the programme. Although the ISO 14001 framework does not focus on comprehensive employee involvement either, it places greater emphasis on internal communication procedures and teamwork, which may have facilitated the participation process.

- Those organisations with a higher percentage of employees involved in the environmental programme were more likely to have an environmental policy which indicates it will strive to include employees in the environmental programme and have achieved the involvement of front-line employees in keeping with this policy. Organisations with a lower percentage of employees involved in the programme are less likely to have such a policy and even less likely again to have achieved the involvement of front-line employees in keeping with this policy. Where organisations had a policy to include employees but had not achieved front-line employee involvement, the responses indicate that a lack of middle management support for the programme and a culture that is not supportive of environmental management and employee participation may be the inhibiting factors. The potential positive influence of empowering employees in other areas of the organisation and having suggestion schemes was noted.

- In most of the responding organisations, environmental objectives and targets are decided by management and communicated to employees (66.0% of those respondents with environmental objectives and targets). However, deciding environmental objectives and targets in consultation with employees is more likely to occur in organisations where over 10% of employees are involved in the programme and is associated with organisations with front-line employee involvement in the programme. In agreement with Stone (2005b) and Zutshi and Sohal (2004a), this finding demonstrates that to include employees

at an early stage in the implementation process has a positive impact on the extent of involvement overall.

- Most of the organisations with over 20% employee involvement in the programme (5 out of 7 organisations) both design products to minimise their environmental burden during the products' life-cycle and modify operational processes to improve the quality of emissions and/or ensure that emissions remain below regulatory limits. This may indicate that organisations with over 20% employee involvement in the environmental programme take a more proactive stance towards environmental management.

- Where the budget for the environmental programme was restricted in the responding organisations (indicating that environmental issues are addressed as they arise and proactive environmental management is not an immediate priority for the organisation (Hunt and Auster, 1990; Hart, 1995) a lower percentage of employees were involved in the programme (less than 10% employee involvement). However it was found that a sufficient budget for the programme does not in itself ensure that employees will be involved in the programme.

- Few of the respondents assess the culture of the organisation (18.4%), employee readiness to accept the environmental programme (18.4%) or employee/management attitudes towards the programme (21.1%). Those organisations that assess these aspects were more likely to be those with over 20% employee involvement and have achieved front-line involvement. This indicates that the assessment of these three aspects may demonstrate that the organisation seriously considers the human resource aspects of environmental management and by addressing these issues, may succeed in facilitating employee participation in the environmental programme.

- Organisations with over 20% of their employees involved in the programme were more likely to allow front-line employees to make decisions in their own work areas. 10 out of 14 (71.4%) organisations with front-line employee involvement in the environmental programme allowed front-line employees to make decisions in their own work area. Only 7 out of 17 (41.2%) organisations without front-line involvement in the environmental programme provided this opportunity to front-line employees. This suggests that where

front-line employee empowerment takes place in other areas of an organisation, front-line employee involvement in environmental management may be facilitated, but does not necessarily lead to front-line employee involvement in the programme taking place.

- Organisations in the responding sample with a higher percentage of employee involvement begin communicating environmental information to front-line employees at an earlier stage in the implementation of the environmental programme than organisations with a lower percentage of involvement. Where front-line employees are involved in the programme, communication begins during planning (4 out of 14 organisations), during implementation (4 out of 14 organisations) and when the programme is initiated (3 out of 14 organisations). Where front-line employee involvement does not occur in an environmental programme, communication of environmental information to front-line employees does not begin until during the implementation of the programme. This indicates that early communication of environmental information facilitates the inclusion of front-line employees in the implementation of the environmental programme.

- Feedback on the environmental programme is given to employees in most of the responding organisations, regardless of the percentage of employees involved in the programme. Only one organisation with front-line employee involvement does not provide feedback to employees.

- Consulting employees about the processes they work on in order to identify environmental problems occurred to a greater extent in organisations with front-line employee involvement in the environmental programme (11 out of 14 organisations (78.6%)) compared to those without front-line employee involvement (8 out of 17 organisations (47.1%)). This consultation process does not appear to be associated with the extent of overall employee involvement in the programme.

- Suggestion schemes were used in 5 out of 7 of the organisations with over 20% employee involvement in the environmental programme and to a lesser extent in organisations with a lower percentage of employee involvement. A higher proportion of organisations with front-line employee involvement have suggestion schemes compared to those organisations without front-line involvement. Therefore suggestion schemes may

demonstrate that the organisation values the opinion of front-line employees, which could increase the likelihood of participation.

- In organisations with less than 5% employee involvement, 6 out of 9 organisations facilitate employees to communicate directly to senior management but only 4 out of 9 facilitate direct communication to other parts of the organisation. Organisations with over 5% involvement tend to facilitate direct communication to both senior management and other parts of the organisation.

- Environmental teams were not associated with an increase in the percentage of employees involved in the programme. This may be because the environmental team is established to involve key personnel, probably at management level, in the programme, rather than to involve as many people as possible in the organisation in its implementation. Whether an organisation has a team with or without front-line involvement appears to have no impact on the number of environmental objectives and targets achieved by the organisation. However, those organisations with an environmental team and with front-line employee involvement in the environmental programme received less non-compliances in their last environmental audit. In fact, the results indicated that to have an environmental team, even without front-line employee involvement, will result in a lower number of non-compliances.

- In organisations with less than 5% employee involvement, front-line employees are generally not encouraged to experiment to find solutions to environmental problems. Front-line employees are more likely to have the opportunity to experiment where front-line employees are involved to some extent in the programme (7 out of 14 organisations with front-line employee involvement encourage front-line employees to experiment to find solutions to environmental problems whereas only 2 out of 17 organisations without front-line involvement encourage this practice). Middle management experimentation is more common in those organisations with front-line employee involvement (11 out of 14 organisations with front-line involvement compared to 7 out of 17 organisations without front-line involvement), which may indicate that organisations with front-line employee involvement take a more proactive approach to environmental management by encouraging employees to develop solutions. It should be noted however that some of the

responding organisations, for example pharmaceutical organisations, are highly regulated and may not be in a position to encourage uncontrolled experimentation.

- Those organisations with over 10% of employees involved in the environmental programme were more likely to have participation in the programme integrated into job descriptions and staff appraisals. This mechanism occurs to a higher extent in organisations with front-line employee involvement (8 out of 14 organisations with front-line employee involvement compared to 3 out of 17 organisations without front-line employee involvement).

- Although using incentives to facilitate the acceptance of the environmental programme was not common practice among the respondents (18.4% overall provide incentives), they are used to a greater extent in those organisations with front-line employee involvement (4 out of 14 organisations) than those without (2 out of 17 organisations).

- Front-line employee involvement in the responding sample occurred even when middle management support for the environmental programme was less than for other programmes in the organisation, though the extent of front-line employee involvement in this instance was limited. Middle management in organisations without front-line employee involvement were found to be equally as supportive of the environmental programme as other programmes in the organisation, indicating that middle management support for the programme does not necessarily mean that front-line involvement will occur.

- In general, a little to some difficulty was experienced by most of the responding organisations convincing staff at all levels to accept the programme. In most cases, the greatest difficulty lay at management level. The responding organisations encountered less difficulty convincing staff to accept the environmental programme when front-line employees were involved in its implementation.

- Although the responding organisations in general found that middle management were reluctant to accept the environmental programme in the organisation because "they perceive the programme as requiring additional time and work", this was more of an issue

for Group A and B organisations (who strongly agreed with this statement) than for Groups C and D (who slightly agreed with this statement). This may be because Group A and B organisations expect more personnel to participate in the programme and hence management are required to contribute more time and effort to its implementation. Only Group D found that middle management reluctance stemmed from there being no incentive to include environmental issues in their decision making. This indicates that where there is less than 5% of employees involved in the programme, environmental management issues are not integrated into each area of the business and there is no obligation on managers to consider these issues in their working areas.

- Front-line employee reluctance to alter how they have performed their work for years is an issue for organisations with a lower percentage of employees involved in the programme and without front-line employee involvement in the programme. Organisations with a lower percentage of employee involvement (less than 5%) tend to experience employee resistance because employees do not see the need for/benefit of the programme and/or are told about the changes that will be made rather than included in the planning of those changes. Therefore it seems that to actively include employees at all levels in the environmental programme, and ensure continual communication of the changes being made, many of these reasons for employee reluctance could be eliminated.

- Organisations with less than 10% of their employees involved in the programme are more likely to implement a programme regardless of employee resistance than organisations with a higher percentage of employee involvement. However, it was noted that a higher percentage of organisations without front-line employee involvement (46.7%) said they would restructure environmental actions based on employee concerns in order to overcome resistance, than organisations with front-line involvement (27.3%). Only organisations with greater than 20% employee involvement and front-line employee involvement said they would allow potential resistors to participate in the programme as a means of overcoming resistance. There is a dependence on communication in most organisations to overcome resistance and ensure employee support for the programme is established and maintained.

A number of techniques were found to have no impact or association with employee involvement in the responding organisations:

- As most of the respondents considered environmental issues in their business strategy, it was difficult to establish a link between this aspect of proactivity and employee involvement.

- Most of the responding organisations have a person responsible for the environmental programme (88.6%). Their job title (whether the title contains the word 'environment' or not) or the portion of time they spend on environmental issues did not have an obvious bearing on the percentage or level of employees involved in the programme.

- Most of the responding organisations had an environmental department, but this did not appear to impact on the overall extent of employee involvement or the involvement of front-line employees.

- Regular training for front-line employees is provided in most cases and does not necessarily increase the likelihood of front-line employee involvement, or the percentage of employees involved overall in the programme.

- Generally, organisations in Group A (greater than 20% employee participation) indicated that a high number of supportive actions (7 to 8) are demonstrated by top management in their organisations. However a high number of supportive actions (6 to 8) was selected by some organisations in Group C and Group D also. It was noted that the organisations experiencing the lowest number of top management supportive actions belong to Groups C and D, where less than 10% of employees are involved in the programme. This indicates that where top management does not demonstrate various support actions, employee involvement could be hampered, but this finding is not conclusive.

These results indicate that organisations with a higher percentage of employee involvement and particularly front-line employee involvement in the environmental programme tend to demonstrate a proactive approach to environmental management by considering the environmental impacts of processes and products and encouraging front-line employees and

middle management to experiment to find solutions to environmental problems. These organisations tend to begin communicating information about the programme to front-line employees at an earlier stage of implementation, provide feedback, use suggestion schemes and facilitate direct communication to senior management and other parts of the organisation in order to encourage upward and downward communication in relation to the environmental programme. However, training seems common place in the responding sample and does not appear to directly impact on the extent of employee involvement.

Those organisations that have achieved front-line employee participation, regardless of the actual number involved, have given greater consideration to the human resources aspect of environmental management by assessing the culture of the organisation, employee attitudes towards the programme and the willingness of employees to accept the programme and participate in it, compared to organisations without front-line employee involvement. These organisations encourage potential resistors to participate in the programme in order to remove barriers to the implementation process. They specifically and successfully addressed personnel issues, by encouraging and facilitating employee participation in the programme, and cultural issues, such as front-line employee attitudes to the programme and conflicts between environmental and other corporate priorities, to a much greater extent than organisations without front-line employee involvement. These organisations are also more likely to include participation in the programme in job descriptions and staff appraisals than organisations without front-line employee involvement.

The existence of environmental teams was not associated with an increase in the percentage of employees involved in the environmental programme. It was noted, however, that the responding organisations generally had one environmental team composed of a limited number of personnel (5 to 10 employees in most cases) from several different departments in the organisation. It is assumed that the employees involved on these teams may have been key representatives (probably at managerial level) from various functions and disciplines within the organisation, brought together to take a multidisciplinary approach to the implementation of the environmental programme. Therefore teams are not being used by the responding sample as a platform to include a wider selection of employees in the implementation of the environmental programme.

Participation in organisations with front-line involvement and a higher level of employee involvement was mostly centred on consultation i.e. objectives and targets were decided in consultation with employees and front-line employees were consulted on the processes they work on in order to identify environmental problems. It was found that where front-line employees were empowered in other areas of the organisation, i.e. can make decisions in their own work areas, front-line employees were more likely to actively participate in the environmental programme. The potential advantage of a middle-up-down management structure for facilitating front-line employee participation was also noted.

The benefits of involving front-line employees in the implementation of the environmental programme to both employee attitudes and the overall environmental performance of the organisations were evident throughout the study. It was found that where an organisation has an environmental team and front-line employees are involved in the environmental programme, it will receive less non-compliances in an environmental audit. More organisations with front-line employee involvement indicated they had reduced their consumption of energy and materials and improved environmental performance compared to organisations without front-line employee involvement.

Organisations with front-line employee involvement in the environmental programme were more likely to experience a change in behaviour of managers and workers, an improved image of the organisation among employees and improved employee morale compared to organisations without front-line employee involvement.

It was also noted that front-line employee reluctance to alter how they have performed their work for years is an issue for organisations with a lower percentage of employees involved in the programme and without front-line employee involvement in the programme. Organisations with a lower percentage of employee involvement (less than 5%) tend to experience employee resistance because employees do not see the need for/benefit of the programme and/or are told about the changes that will be made rather than included in the planning of those changes. Therefore it seems that by actively including employees at all levels in the environmental programme, many of these reasons for employee reluctance could be eliminated.

5.2 Conclusions

The findings of this study indicate that comprehensive involvement of employees (management and front-line employees) at each stage of an environmental programme is not commonplace in Irish-based organisations. Although various organisations in the responding sample have employed several participatory techniques while implementing the environmental programme, it would appear that the concept of employee involvement in environmental management has not fully taken root in the Irish setting.

One reason for this may be the prescriptive nature of the ISO 14001 and IPC Licensing systems, systems to which the majority of the responding sample belong. Unlike EMAS, ISO 14001 and the IPC Licensing system have yet to emphasise and incorporate a requirement to actively include employees at all levels in designing, implementing and managing the environmental programme. Although these systems recognise the role of employees in pollution prevention and carry a requirement to provide training in this regard, the system is not evaluated on the basis of employee participation. Organisations who hold an IPC Licence or participate in the ISO 14001 scheme may be likely to concentrate on fulfilling the technical aspects which these systems prescribe, in order to achieve a compliant audit.

The EMAS system requires participating organisations to address employee participation to a greater extent by actively involving employees through project-based teams. While EMAS encourages a more proactive and progressive style of environmental management, only eight organisations in Ireland participate in this scheme. Therefore, the occurrence of employee participation in environmental management in organisations with voluntary or regulatory environmental systems in place is limited. For those organisations that are unlicensed and uncertified the assumption could be made that they take their lead from those systems most widely known to them, that is ISO 14001 and the IPC Licensing system. As a result, the participatory approach is not the norm in environmental management in Ireland today.

It seems that Irish-based organisations need a driving force to help them to embark on a participatory approach in environmental management and reap the benefits associated with this process. This will require fundamental changes in the voluntary and regulatory

environmental systems that currently exist in Ireland. Only when systems such as ISO 14001 and the IPC licensing system adapt their remit by incorporating employee participatory requirements, will employee participation becomes an innate part of the management of environmental programmes in certified and licensed facilities. Organisations outside of these schemes will then be more likely to emulate their certified and licensed counterparts and take a similar approach. It may also spark business advisory bodies such as IBEC, human resource consultants and environmental consultants to provide more guidance and support to organisations in this regard.

The limited participation of employees in the environmental programmes in the Irish-based organisations studied could also be as a result of a lack of skills and knowledge among environmental professionals in this area. Environmental professionals should be trained at an early stage in their career on the necessity and benefits of employee participation in environmental management and the key techniques that will enable them to embark on this process. When the concept of participation is ingrained in the psyche of environmental professionals, it will naturally be incorporated into their daily co-ordination of the environmental programme's activities.

So while the Irish-based organisations in this study have demonstrated a potential to involve or increase involvement of employees in their environmental programmes, this is unlikely to occur without making the necessary changes internally in an organisation and external to the organisation. Organisations can implement the techniques proven to facilitate participation internally, but a change is also required in the way environmental management systems are designed, promoted and evaluated, in the way environmental professionals are trained and in the level of support available to environmental professionals and organisations who wish to adapt the participatory approach, so that a culture of employee participation in environmental management is fostered and becomes a routine part of how we protect our environment.

5.3 Recommendations

5.3.1 Facilitating Environmental Management through a Participatory Approach

The participation of employees in an environmental programme is essential to ensure that employee resistance is abated, that employee tacit knowledge about the organisation's processes is accessed and that the programme is successfully integrated into all functions of the organisation. This fact is slowly being recognised in recent environmental management literature, as implementation guidelines move away from recommending a mechanistic ISO 14001-style documented management system, and focus more on establishing an interactive and integrated environmental programme through the participation of employees at all levels.

The change management and more recent environmental management literature present a wide range of techniques that can facilitate the inclusion of employees in an environmental programme. The findings of this study confirm that many of these techniques are associated with improved employee involvement, particularly front-line employee involvement, and this is associated with proactive environmental management and can lead to improved environmental performance in the organisation. Therefore when an organisation embarks on a participatory approach to environmental management, it is recommended that as many of the following techniques as possible should be implemented to facilitate the process.

Top management should be firmly committed to ensuring an efficient and effective environmental programme is implemented in the organisation and ensuring employees at all levels are involved in the implementation process. To secure this commitment, top management must be continually reminded of the potential and actual environmental, regulatory and financial benefits of implementing an environmental programme and the proven benefits of employee involvement in ensuring the successful implementation of the programme. Top management must actively demonstrate their commitment through the following supportive actions:

- Signing and sanctioning an environmental policy. This policy must commit to the consideration of the environmental aspects of the organisation's operational processes and outputs and the inclusion of environmental considerations in the business strategy. The

policy must also indicate that the organisation will strive to include employees in the implementation of the environmental programme by:

- Providing financial support
- Participating in setting environmental objectives and targets
- Attending environmental team meetings and training sessions
- Providing support for difficult tactical and operational decisions
- Accepting any organisational changes necessary
- Continually promoting the environmental programme internally and externally
- Forming a senior level environmental steering committee

As most of the organisations in this study had an individual to manage the environmental programme and an environmental department, a definitive link between these aspects and employee involvement was not established. However, current literature advocates that where top management appoints an environmental manager and establishes an environmental department with dedicated personnel, this will demonstrate that they take the programme seriously and are prepared to dedicate substantial resources to ensuring its success. In addition, a dedicated manager for the programme is essential to co-ordinate its implementation and ensure employees are included at each step of the process. This individual should be high in the corporate hierarchy with the authority to make the necessary changes in all areas of the organisation to implement the programme. The environmental manager must also be an influential leader capable of guiding and supporting employees through the participation process.

The support and commitment of middle management (department heads, line managers and supervisors) for the programme is also essential. Middle management support will ensure environmental considerations are included in decision-making and environmental management practices are integrated into each area of the business. This support also ensures that front-line employees will be allowed to participate in the environmental programme by attending training, joining teams, offering suggestions and co-operating with new initiatives. In addition, front-line employees tend to reflect the attitude held by their immediate supervisors, and if they feel their manager is not supportive of the programme, they will not see the need to support it either. Although this study found that middle management support for the

programme did not increase the likelihood of front-line employee involvement occurring, it was found that where middle management support was lacking, front-line employee involvement was limited. To secure middle management support, they also must be continually reminded of the potential and actual benefits of the programme and the commitment from top management to successfully integrate the programme into all aspects of the organisation, through employee participation, as a matter of urgency. It may also be useful to include the consideration of environmental issues in their working area as part of their job performance appraisal or award bonuses for environmental objectives and targets achieved in their area. A suitable incentive/reward scheme should be devised in conjunction with the human resource department.

To achieve a higher percentage of employee involvement in the environmental programme and front-line employee involvement, the organisation will have to give serious consideration to the existing culture and attitudes in the organisation. This involves an assessment of:

- Management and employee attitudes towards the environment in general, environmental issues specific to the organisation, the proposed environmental programme and employee empowerment and involvement in the programme;
- The willingness of management and front-line employees to accept the environmental programme and the changes created in their work area as a result of the programme;
- The systems and structures in place which could facilitate/debilitate employee empowerment and involvement in the programme, for example, the availability of resources; the organisational structure; lines of communication between top management and middle management and between management and front-line employees; the extent of employee empowerment in other areas of the organisation; and, the extent with which departments co-operate and interact with each other.

Not only will this assessment demonstrate a willingness to consider the impact of the programme on employees, it will also identify potential barriers to the implementation process, which may be actively managed and overcome from the outset, thereby reducing delays as the programme proceeds. The change management literature provides guidance on how to assess the culture of an organisation, and should be referred to when embarking on this task. Input from the human resource department may also prove useful.

Communication of information in relation to the programme should begin as early as possible, i.e. when the programme is initiated. In this way, everyone in the organisation understands from the outset why the programme is being implemented, how it will be implemented and the role each will be required to play in implementing it. Environmental training is an essential part of this process. In this setting, employees learn about the programme and how they can participate in it, and they have an opportunity to ask questions and raise issues of concern. Training also provides an opportunity to emphasise the potential benefits of the programme for the organisation and also the personal benefits of participating in the programme; for example, bonuses may be awarded to those actively involved in implementing projects, or participation in the programme may be included in performance appraisals. Again, the human resource department should be consulted in this regard.

The employee participation process will most likely be based on communication and consultation initially. In this study, those organisations with front-line employee involvement and a higher percentage of employees involved in the programme decided objectives and targets in consultation with employees and consulted front-line employees on the processes they work on in order to identify environmental problems. Clear and informal lines of communication between management and front-line employees are therefore essential to ensure that tacit knowledge about operational processes within the organisation is accessed. Employees must be encouraged and facilitated to offer opinions and ideas not only through suggestion schemes but also by direct communication to senior management and other parts of the organisation (open-door policy). Management should actively consult employees about the environmental issues associated with the processes in their area as part of the initial environmental review and on an on-going basis. Environmental training during the planning stages of the programme may be useful to gauge employee opinion on how the programme is designed and will be implemented, so that the programme can be restructured based on their concerns. Regular meetings with employees at all levels and in all areas of the organisation should be held when setting policies and objectives and targets so that every one has a chance to discuss the targets to be achieved in their area. Management must also provide continuous feedback on how the programme is progressing, how employee suggestions are being incorporated into the programme and how employees are contributing to the programme's implementation. This will help to reassure employees that their suggestions and concerns are

recognised and acted upon, that their co-operation and participation in the programme is valued and that the communication process works. It will also sustain employee interest in the programme.

It is important that employee participation extends beyond consultation however. The predominant mechanism for employee involvement in the environmental literature is through environmental teams. Although this study did not establish a link between environmental teams and the percentage of employees involved in the programme, it was found that organisations with environmental teams and front-line employee involvement received less non-compliances in their last environmental audit than organisations without environmental teams. This is probably because the responding organisations generally had one environmental team composed of a limited number of key personnel from various functions and disciplines within the organisation, bringing together their skills and knowledge to find the best solutions to environmental problems. This multidisciplinary approach works well for improving environmental performance, but may not provide an opportunity for a larger number of employees to be involved in the process. Therefore it is recommended that as well as an overall multidisciplinary team to co-ordinate the programme (which should include front-line employee representatives), a separate team should be established for each environmental project undertaken. These teams should include key managerial and front-line personnel in whose area the project will be implemented, and from disciplines that will best facilitate the implementation of the project. This provides the employees involved the opportunity to plan a project, set objectives and targets for that project, implement it and review its progress and outcomes.

Although it may not be possible for all front-line employees in the organisation to be involved on a project team, other front-line employees can participate in new projects at a later date, or as Jackson (2000) found, can participate by co-operating with new initiatives devised by the team to improve environmental performance.

To further facilitate the participation process, a number of other issues should be considered:

- Employee involvement is best achieved within a flat, flexible organisational structure where employees at all levels co-operate to propose and implement strategies and solutions

to environmental problems in their own work area. In this study, organisations that achieved front-line involvement and a higher percentage of employee involvement overall in the programme tended to have a middle-up-down management structure, where middle management play an active role in generating ideas and providing workable solutions for implementation in their work area. Organisations without front-line employee involvement in the environmental programme tended to have a top-down management structure. Even though the middle-up-down management structure is still largely controlled by managerial personnel, it has improved the extent of employee participation in the environmental programmes of Irish-based organisations. Therefore a move towards a combined middle-up-down and bottom-up management approach, where middle management work with teams of front-line employees to develop ideas and strategies, is recommended to further facilitate the participatory process.

- This study found that front-line employee involvement is more likely to occur where front-line employees are empowered in other areas of the organisation, for example, where they can make decisions in their own work areas. It is recommended therefore, that an organisation uses any empowerment schemes or team-based initiatives already employed in other areas of the organisation as a base to introduce the concept of participation in the environmental programme with greater ease.
- It is important to maintain a sense of urgency throughout the implementation of the programme in order to maintain momentum. Regular audits should be carried out and where the programme goes off track or performance diminishes; the necessary corrective actions should be taken. Continuous communication of successful projects and targets achieved will improve morale and ensure that constant awareness of the programme is maintained.

Environmental management through participation is not just an issue to be addressed internally in an organisation. Many external bodies have a role to play in promoting the concept of employee participation in environmental management and the techniques which can achieve it. External auditors and regulatory bodies such as the Environmental Protection Agency must require the active and direct participation of employees at all levels in each stage of the implementation of an EMS. When the success of an EMS is measured against the nature and extent of employee involvement in the programme, organisations will be driven towards addressing their human resource issues and implementing the key participatory

techniques which will ensure that employees will accept the programme and willingly co-operate and participate in environmental projects. Over time, a norm will be established where participation becomes a common aspect of the environmental programme in all licensed and/or certified organisations. This could eventually lead to a change in the way uncertified, unregistered and unlicensed facilities operate their environmental programmes as they model their own system on that which is widely used and accepted by other organisations.

This scenario will only be successful if the appropriate support structures are put in place to facilitate organisations to embark on the participatory approach. Business advisory bodies such as IBEC, environmental consultants and human resource consultants must develop programmes to promote the benefits of achieving participation and to educate and guide environmental professionals and organisations in achieving comprehensive involvement of employees at all levels in the environmental programme.

This is an area that should also be addressed by colleges and universities both at undergraduate and postgraduate level, so that environmental professionals are trained in managing the human resource aspects of environmental management and implementing employee participatory techniques at an early stage in their career.

5.3.2 Recommendations for Future Study

Throughout the study it was noted that each of the responding organisations operate in a uniquely different way and no two organisations used the same combination of techniques to implement the environmental programme.

Therefore it is proposed that future research should focus on exploring the impact of the culture of the organisation on employee involvement in an environmental programme in an Irish setting. This study should:

- Develop a methodology to assess the culture of an organisation in relation to environmental management
- Identify the aspects of an organisation's culture which most impact on the success of an environmental programme

- Assess the impact of each of the techniques studied as part of this research on employee and management attitudes towards the environmental programme and their motivation to participate in it.
- Identify those techniques which most effectively overcome resistance and change the culture of the organisation to one that embraces the concept of employee participation as a means of proactively managing their environmental issues.

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APPENDICES

APPENDIX A

Centre for Sustainability
Business Innovation Centre
Institute of Technology, Sligo
Ballinode
Sligo

15th August 2005

mcdonnell.pamela@itsligo.ie
Tel: [redacted]

Dear Sir/Madam,

I am undertaking an M.Sc by Research with the Institute of Technology, Sligo to examine the human resource aspects of environmental management and the role of change management techniques in facilitating the implementation of an environmental programme.

As part of this research, I am conducting a survey of organisations based in Ireland to determine:

- the variety of environmental management techniques currently used in Irish-based organisations
- the advantages and pitfalls experienced by these organisations as they manage their environmental affairs
- the role of employees at all levels in facilitating the implementation of an environmental programme

The attached questionnaire may be answered by organisations **with or without an environmental programme**. It asks you to respond to a series of statements and questions by simply ***ticking the appropriate box***. In some cases you may be asked to give further detail in the spaces provided. I would be very grateful if you could take some time to complete the questionnaire and return it to me in the enclosed self-addressed envelope, **regardless of how much or little information you can provide** by **16th September 2005**. I assure you that any identifiable information provided will be handled in a confidential manner.

If you would like information in relation to this study or on the questionnaire itself, please do not hesitate to contact me at the above address, email and phone numbers.

My thanks in advance for your participation,

Yours Sincerely,

Pamela McDonnell

Environmental Management Practices in Ireland

Questions 1 to 17 may be answered by organisations with or without a formal environmental programme in place. Questions 18 to 48 are aimed at those with an environmental programme in place or in development in their organisation.

Please answer the following questions as fully as you can.

Q1. What is your job title?

_____

Q2. Please state:

(a) Your organisation's sector _____

(b) The products/services you supply _____

(c) The annual turnover of your organisation (*if available*) _____

Q3. Is your organisation part of a multinational organisation?

Yes ☐ No ☐ Don't know ☐

Q4. How many employees are there within your organisation?

< 10 ☐ 10-24 ☐ 25-50 ☐ 51 - 100 ☐

101 – 150 ☐ 151 – 200 ☐ 201 – 250 ☐ > 250 ☐

Q5. In general, which of the following approaches most applies to your organisation:

Top management create defined ideas and strategies, which are directly put into action by middle management ☐

Top management provide a vision, which is translated into a workable solution by middle management ☐

Middle management provide ideas and strategies which are accepted or rejected by top management for implementation ☐

Middle management work with teams of frontline employees to develop ideas and strategies for top management approval ☐

Work teams consisting primarily of front line employees develop ideas and strategies for direct implementation in their own work area, with support from top management ☐

Q6. (a) Do frontline employees have the power to make decisions affecting their own work areas?

Yes ☐ No ☐ Don't know ☐

(b) If yes, please give an example

_____

_____

Q7. (a) Does your organisation have a communications strategy?

Yes ☐ No ☐ Don't know ☐

(b) If yes:	*Yes*	*No*	*Don't Know*
Is the strategy actively managed?	☐	☐	☐
Does the strategy have objectives and targets?	☐	☐	☐
Are the communication needs of the organisation assessed?	☐	☐	☐
Is the overall strategy regularly assessed?	☐	☐	☐
Is the strategy used to facilitate the communication of environmental issues?	☐	☐	☐

(c) Who coordinates/controls the communication strategy? _____

Q8. Does your organisation strive to promote a learning culture?

Yes ☐ No ☐ Don't know ☐

Q9. (a) Has your organisation any of the following?

	In Place	*In Development*	*No*	*Don't Know*
IPC Licence	☐	☐	☐	☐
EMAS	☐	☐	☐	☐
ISO 14001	☐	☐	☐	☐
An uncertified EMS	☐	☐	☐	☐
Other code of environmental practice (*Please specify*) _____	☐	☐	☐	☐

(b) For those you have indicated as 'In Place', please state how long they have been in place in your organisation? _____

(c) For those you have indicated as 'In Development', please indicate what has been achieved to date in each case

(d) What motivated your organisation to develop these systems?

Q10. (a) Does your organisation intend implementing any of the systems listed in question 9(a) above?

Yes ☐ No ☐ Don't know ☐

(b) If yes, please state the systems you intend to implement and the factors motivating your organisation to do so

Q11. If your organisation has an environmental programme, or is intending to implement one, indicate the main driver for this programme

CEO	☐	Top Management	☐
Environmental Manager	☐	Quality/Health and Safety Department	☐
Other (*please specify*) _____			☐

Q12. Does your organisation have:

A dedicated environmental department	☐
An environmental, health and safety (EHS) department	☐
An integrated environmental, health and safety and quality department	☐
A health and safety department only	☐
A quality department only	☐
A quality and health and safety department	☐
None of the above	☐

Q13. Which of the following best describes your organisation's approach to environmental issues?

Environmental problems are not addressed	☐
Emissions are treated before release to ensure regulatory compliance	☐
Operational process are modified to improve the quality of emissions and/or ensure that emissions remain below regulation limits	☐
Products are designed to minimise their environmental burden during the product's lifecycle	☐

Q14. Are environmental considerations included in new business contracts and plans?

Yes	☐	No	☐	Don't know	☐

Q15. Are environmental considerations included in your organisation's strategic planning process?

Yes	☐	No	☐	Don't know	☐

Q16. (a) Does the organisation have a written environmental policy?

Yes	☐	No	☐	Don't know	☐

(b) If yes, does the environmental policy indicate that it will strive to include its employees in managing environmental issues?

Yes	☐	No	☐	Don't know	☐

Q17. To what extent are environmental issues managed/considered in each of the following areas?

	Active consideration		*Given some consideration*		*Not considered*
Production/operations	1	2	3	4	5
Marketing/sales	1	2	3	4	5
Accounting/finance	1	2	3	4	5
Product development	1	2	3	4	5
Public relations	1	2	3	4	5
Purchasing	1	2	3	4	5
Human resources	1	2	3	4	5
Facilities/maintenance	1	2	3	4	5
General administration	1	2	3	4	5

The following questions are aimed at those with an environmental programme in place or in development in their organisation

Q18. (a) Is there an individual in the organisation specifically responsible for the environmental programme?

Yes ☐ No ☐ Don't know ☐

(b) If yes, what is their job title? _____

(c) Has this person any other responsibilities apart from those directly associated with the environmental programme (e.g. Health and Safety, quality, operations etc)

Yes ☐ No ☐ Don't know ☐

(d) If yes, please detail: _____

_____

(e) Approximately what % of this person's time is spent on environmental issues?

<25% ☐ 25-50% ☐ 50-75% ☐ 75-100% ☐

(f) Who does this person report to? _____

(If available, please include the organisational structure chart, clearly indicating where the environmental manager is located on it)

(g) Has this person any influence in decisions regarding operational processes and changes to these processes?

Yes ☐ No ☐ Don't know ☐

(h) Does this person:

Perform all environmental tasks themselves ☐

Primarily delegate environmental tasks to environmental staff or an environmental team, maintaining control over their input and output ☐

Take a facilitative role and assist environmental teams to perform their own environmental projects ☐

Q19. (a) If there is no individual with specific responsibility for environmental management, are any environmental activities/monitoring activities carried out in the organisation?

Yes ☐ No ☐ Don't know ☐

(b) If yes, who coordinates or carries out these activities? _____

_____

(c) Who does this person report to? _____

_____

Q20. If more than one person is employed to carry out environmental tasks, please list their responsibilities:

Q21. (a) How has top management demonstrated support for the environmental programme?

Financial support ☐

Signing and sanctioning an environmental policy ☐

Involved in setting environmental objectives and targets ☐

Attendance at environmental team meetings/training sessions ☐

Formation of a senior level environmental steering committee ☐

Providing support for difficult tactical and operational decisions ☐

Accepting any organisational changes necessary ☐

Continually promoting the environmental programme internally and externally ☐

Top management do not contribute in any way to the environmental programme ☐

Other (*please specify*) _____ ☐

(b) What resources are committed by top management to the environmental programme?

Minimal resource commitment ☐ Budgets for problems as they occur ☐

Consistent yet minimal budget ☐ Generally sufficient funding ☐

Variable funding, superseded by operational requirements ☐

Open-ended funding ☐ Other _____ ☐

Q22. (a) Has your organisation established environmental objectives and targets?

Yes ☐ No ☐ Don't know ☐

(b) If yes, are objectives and targets:

Decided by management and communicated to employees ☐

Decided by management and not communicated to employees ☐

Decided in consultation with employees ☐

(c) How many objectives and targets have been set since the initial development of the programme?

_____

(d) How many of these have been successfully achieved?

_____

(e) Why do you believe these objectives and targets have been achieved?

Strong commitment from top management ☐

Strong commitment from middle management ☐

Strong commitment from employees ☐

Policy places strong emphasis on continual improvement ☐

Environmental budget may be reduced if not fully expended annually there is continuous incentive to achieve objectives and targets ☐

Objectives and targets are developed to be achieved in the short term ☐

Other (*please specify*) _____

_____

_____

(f) For those objectives and targets that were not achieved, why do you believe they were not achieved?

No commitment from top management ☐

No commitment from middle management ☐

No commitment from employees ☐

Insufficient budget ☐

Objectives and targets are developed to be achieved in the long term ☐

Objectives and targets were unrealistic ☐

Other (*please specify*) _____

_____

(c) Is progress towards attaining these objectives and targets monitored?

Yes ☐ No ☐ Don't know ☐

Q23. (a) When did you start communicating information about the programme to the following groups?

	Top Management	*Middle Management*	*Front-line employees*
As soon as the programme was initiated	☐	☐	☐
During planning	☐	☐	☐
During implementation	☐	☐	☐
After programme was implemented	☐	☐	☐

(b) How do you raise awareness/communicate information about the environmental programme to the following groups?

	Top Management	*Middle Management*	*Front-line employees*
Posters	☐	☐	☐
Newsletter	☐	☐	☐
Emails	☐	☐	☐
Website	☐	☐	☐
Reports	☐	☐	☐
Departmental meetings	☐	☐	☐
Annual general meetings	☐	☐	☐
Environmental training	☐	☐	☐
Induction training	☐	☐	☐
Presentations	☐	☐	☐
Other _____	☐	☐	☐
Not applicable	☐	☐	☐

(c) How often is information about the organisation's environmental performance provided to the following groups?

	Top Management	*Middle Management*	*Front-line employees*
Daily	☐	☐	☐
Weekly	☐	☐	☐
Monthly	☐	☐	☐
Quarterly	☐	☐	☐
Biannually	☐	☐	☐
Annually	☐	☐	☐
Never	☐	☐	☐
Other _____	☐	☐	☐

Q24. (a) In the environmental management context, do you use staff suggestion schemes?

Yes ☐ No ☐ Don't know ☐

(b) Are the suggestions made by staff used to select environmental initiatives for implementation?

Yes ☐ No ☐ Don't know ☐

(c) Are rewards offered for useful suggestions made?

Yes ☐ No ☐ Don't know ☐

(d) If yes, what rewards are offered?

_____

_____

Q25. (a) Are employees encouraged/facilitated to communicate environmental ideas directly to other parts of the organisation?

Yes ☐ No ☐ Don't know ☐

(b) Are employees encouraged/facilitated to communicate environmental ideas directly to senior management?

Yes ☐ No ☐ Don't know ☐

(c) If you have answered yes to part (a) and/or (b) above, please indicate how this communication is facilitated?

Q26. (a) Have you assessed the organisations culture before or during implementation of an environmental programme?

Yes ☐ No ☐ Don't know ☐

(b) Have you ever assessed employee willingness or readiness to accept the environmental programme?

Yes ☐ No ☐ Don't know ☐

(c) Have you ever assessed employee and/or management attitudes to the environmental programme?

Yes ☐ No ☐ Don't know ☐

(d) If yes, how was this done?

Q27. Indicate the level of difficulty you have experienced in your organisation trying to convince the following to accept an environmental management programme and take it seriously?

	Easy		*Some Difficulty*		*Extreme Difficulty*
CEO	1	2	3	4	5
Top Management	1	2	3	4	5
Department Heads/Managers	1	2	3	4	5
Supervisors/Line Managers	1	2	3	4	5
Production Staff	1	2	3	4	5
Maintenance Staff	1	2	3	4	5
Administration Staff	1	2	3	4	5
Purchasing Staff	1	2	3	4	5
Contractors	1	2	3	4	5
Suppliers	1	2	3	4	5

Q28. (a) Have any departments/sections in your organisation tried to opt out of cooperating with the requirements of the environmental programme?

Yes ☐ No ☐ Don't know ☐

(b) Has this hampered the progress of the programme?

Yes ☐ No ☐ Don't know ☐

Q29. Are middle managers/supervisors:

Less supportive of environmental issues than other functions ☐

Equally supportive of environmental management as other functions ☐

More supportive of environmental management than other functions ☐

Q30. What do you believe are the main reasons middle management may be reluctant to accept changes made in an organisation as part of an environmental management programme? (Please indicate the extent with which you agree or disagree with the following statements based on your experience)

	Strongly Disagree		*Neither Agree Nor Disagree*		*Strongly Agree*
They feel their position is threatened or they might lose some control in their work area	1	2	3	4	5
They perceive the programme as requiring additional time and work	1	2	3	4	5
They do not want to spend their limited budget in the environmental area	1	2	3	4	5
They do not see the need for/benefit of the programme	1	2	3	4	5
They do not understand the programme due to a lack of communication	1	2	3	4	5
Most of their peers resist the change, and individuals are pressurised to do the same	1	2	3	4	5
There is no incentive to include environmental issues in their decision-making	1	2	3	4	5
Fear of blame if programme does not succeed in their area	1	2	3	4	5
Previous attempts to make environmental changes in the organisation have failed and managers believe that any new attempts will fail also	1	2	3	4	5

PTO

Managers are told about the changes that will be made rather than included in the planning of those changes	1	2	3	4	5
The organisation is going through a period of change already, and further changes due to environmental activities are not welcomed	1	2	3	4	5
Managers recognise that the changes are not fully supported by top management and do not see why they should invest any time in the new programme either	1	2	3	4	5

Other (*please specify*)

Q31. What do you believe are the main reasons employees may be reluctant to accept changes made in an organisation as part of an environmental management programme? (Please indicate the extent with which you agree or disagree with the following statements based on your experience)

	Strongly Disagree		*Neither Agree Nor Disagree*		*Strongly Agree*
They feel their position is threatened when changes are made to their work procedure	1	2	3	4	5
Employees are reluctant to alter how they have performed their work for years	1	2	3	4	5
They perceive the programme as requiring additional time and work	1	2	3	4	5
Employees do not see the need for/benefit of the programme	1	2	3	4	5
Employees do not understand the programme due to a lack of communication	1	2	3	4	5
Most of their peers resist the change, and individuals are pressurised to do the same	1	2	3	4	5
Previous attempts to make environmental changes in the organisation have failed and employees believe that any new attempts will fail also	1	2	3	4	5
Employees are told about the changes that will be made rather than included in the planning of those changes	1	2	3	4	5
The organisation is going through a period of change already, and further changes due to environmental activities are not welcomed	1	2	3	4	5
Employees recognise that the changes are not fully supported by top management and do not see why they should invest any time in the new programme either	1	2	3	4	5

Other (*please specify*)

Q32. (a) Have any of the following been used to assist in overcoming employee resistance to a new environmental programme?

	Yes	No	Don't Know
Implement the programme regardless of resistance from employees	☐	☐	☐
By restructuring environmental actions based on employee concerns	☐	☐	☐
By providing training/information seminars to make employees aware of the programme, explain why they are necessary and try to alleviate fears	☐	☐	☐
By continually providing updates to the staff involved as the programme progresses	☐	☐	☐
By allowing potential resistors to participate in designing the programme so they become committed to it	☐	☐	☐
Ensuring visible support is provided by top management to indicate how important the changes are	☐	☐	☐
By providing incentives to cooperate	☐	☐	☐

(b) If incentives were/are provided, please indicate what incentives were/are provided:

Q33. (a) Do you have an environmental training programme in your organisation?

Yes ☐ No ☐ Don't know ☐

(b) If yes, does the training programme have its own objectives and targets?

Yes ☐ No ☐ Don't know ☐

(c) What type of training is provided to each of the following groups?

	Top Management	*Middle Management*	*Front-line employees*
General environmental awareness training	☐	☐	☐
Specific environmental training for those working in particular areas	☐	☐	☐
Training is not provided	☐	☐	☐
Other _____	☐	☐	☐

(d) Please list the main items covered in any environmental training programme provided

(e) How long is a typical training session? _____

(f) How often is training provided to the following groups?

	Top Management	*Middle Management*	*Front-line employees*
Training provided once when environmental programme was initiated in the organisation	☐	☐	☐
During employee induction	☐	☐	☐
Monthly	☐	☐	☐
Quarterly	☐	☐	☐
Biannually	☐	☐	☐
Annually	☐	☐	☐
Every 2-5 years	☐	☐	☐
Training is not provided	☐	☐	☐
Other _____	☐	☐	☐

(g) Please estimate the number of person days of training given each year

_____

(h) Please estimate the percentage of your organisation's employees who have received environmental training to date

_____

(i) Who coordinates the training programme:

Environmental manager ☐ Member of environmental team/staff ☐

Member of HR ☐ External consultant ☐

Other internal member(s) of staff (*please specify*) _____ ☐

(j) Who carries out the training:

Environmental manager ☐ Member of environmental team/staff ☐

Member of HR ☐ External consultant ☐

Other internal member of staff (*please specify*) _____ ☐

(k) Are environmental training needs of various groups assessed?

Yes ☐ No ☐ Don't know ☐

(l) If yes, who carries out this assessment?

_____

(m) Are sufficient financial and organisational resources provided by top management to ensure a successful training programme?

Yes ☐ No ☐ Don't know ☐

(n) Are supervisors/line managers/middle management supportive of employees attending training?

Yes ☐ No ☐ Don't know ☐

(o) How do you ensure employees attend the training provided?

(p) Is the effectiveness of the training programme assessed after implementation?

Yes ☐ No ☐ Don't know ☐

(q) If yes, who carries out this assessment?

_____

Q34. Roughly how many people from the following groups are involved in:

	Top Management	*Middle Management*	*Front-line employees*
Performing the initial environmental review	—	—	—
Setting objectives and targets for the programme	—	—	—
Choosing projects for implementation	—	—	—
Implementing specific environmental projects	—	—	—
Reviewing progress of each project	—	—	—
Communicating environmental results and successes	—	—	—
Managing the overall programme	—	—	—

Q35. (a) Are there any environmental teams to deal with particular aspects of company-wide activities and to suggest, coordinate and implement a program for environmental improvement?

There are no green teams in this organisation ☐

Green teams were used in the past but not any more ☐

There is one green team consisting of members of the environmental department only ☐

There is one green team consisting of members from several departments in the organisation ☐

There is a green team in each department looking at environmental activities in their own areas ☐

Green teams consisting of members of management only ☐

Green teams consist of members from all levels in the organisation ☐

Other_____ ☐

(b) If green teams are used, how many people approximately are on a green team in your organisation?

<5 ☐ 5-10 ☐ 10-15 ☐ >15 ☐

(c) How are team members recruited?

Suitable people are identified and persuaded to join ☐

Call is made for volunteers ☐

Key people are obliged to join ☐

(d) Who coordinates the development of these teams? _____

(e) Are middle management generally willing to join teams to address organisational or departmental environmental issues?

Yes ☐ No ☐ Don't know ☐

(f) Are non-management staff encouraged to get involved in environmental team-based initiatives?

Yes ☐ No ☐ Don't know ☐

(g) Do supervisors/middle management allow non-management staff the opportunity to be involved in environmental team-based initiatives?

Yes ☐ No ☐ Don't know ☐

(h) Are non-management staff willing to join teams to address organisational or departmental environmental issues?

Yes ☐ No ☐ Don't know ☐

(i) Do green teams have a high turnover of personnel?

Yes ☐ No ☐ Don't know ☐

(j) Are team members trained so they have the skills necessary to carry out environmental projects and operate efficiently as a team?

Yes ☐ No ☐ Don't know ☐

(k) Do green teams have the influence and authority to change operational systems in the organisation in order to fulfil environmental management goals?

Yes ☐ No ☐ Don't know ☐

(l) How often do environmental teams meet?

Every day	☐	Once a month	☐
Several times a week	☐	Several times a year	☐
Once a week	☐	Once a year	☐
Several times a month	☐	Other_____	☐

(m) Do the environmental teams have their own set of objectives and targets (other than the organisation's environmental objectives and targets?

Yes ☐ No ☐ Don't know ☐

(n) Has the/each environmental team a sufficient budget with which to perform its tasks?

Yes ☐ No ☐ Don't know ☐

Q36. (a) Are employees (at any level) who are not part of a green team given the opportunity to participate in the environmental programme?

Yes ☐ No ☐ Don't know ☐

(b) Have frontline employees (not middle managers or supervisors) ever been consulted about the processes they work on in order to gain an insight of any environmental problems in their area?

Yes ☐ No ☐ Don't know ☐

(c) If yes, please give an example

_____

_____

(d) Are frontline employees encouraged to experiment to find solutions to environmental problems?

Yes ☐ No ☐ Don't know ☐

(e) Are managers encouraged to experiment to find solutions to environmental problems?

Yes ☐ No ☐ Don't know ☐

(f) In your opinion, if front-line employees were more involved in the implementation of the environmental programme, would the process

	Yes	No	Don't know
Move faster	☐	☐	☐
Move slower	☐	☐	☐
Have no impact	☐	☐	☐

(g) Would the organisation consider giving lower level employees more responsibility and authority in the environmental programme to facilitate the acceptance of a new programme?

Yes ☐ No ☐ Don't know ☐

(h) Is participation in environmental issues integrated into job descriptions and staff appraisal systems?

Yes ☐ No ☐ Don't know ☐

(i) If yes, please give an example of how this is done

_____

_____

Q37. (a) How often is the environmental programme:

Audited internally? _____ **By whom?** _____

Audited by an external party? _____ **By whom?** _____

(b) Who reviews the results of the audits? _____

(c) How many non-conformances were detected in your most recent audit?

_____

Q38. If the environmental programme is not fulfilling its original goals and objectives, and progress is diminishing, what action do you take?

_____

_____

Q39. How do you make changes in the organisation resulting from the environmental programme a part of the organisation's everyday activities?

_____

_____

Q40. How do you maintain management and employee interest in the environmental programme?

_____

_____

Q41. (a) Is regular feedback given to employees on the effectiveness of environmental improvement action or issues that arise?

Yes ☐ No ☐ Don't know ☐

(b) If yes, please indicate the nature and frequency of feedback

_____

_____

Q42. Has the HR department ever been involved with change management issues as a result of changes in processes and procedures which take place due to environmental management activities?

Yes ☐ No ☐ Don't know ☐

Q43. This question consists of 4 parts. Treat each part as a separate question.

On the following page is a list of 29 potential barriers or delays to the successful implementation of an environmental programme in an organisation. Please answer the following 4 questions in the appropriate column.

(a) In column A, indicate the issues which have created the greatest delays or set-backs in the implementation of an environmental strategy or programme in your organisation (*Tick all relevant answers*)

(b) In column B, indicate the issues you find most difficult to address during the implementation of an environmental programme in your organisation (*Tick all relevant answers*)

(c) in column C, indicate the issues you have specifically addressed during the implementation of an environmental programme (*Tick all relevant answers*)

(d) In column D, indicate the issues you have successfully addressed during the implementation of an environmental programme (*Tick all relevant answers*)

PTO

	A *(Delays)*	B *(Difficult to address)*	C *(specifically addressed)*	D *(successfully addressed)*
Lack of top management support	☐	☐	☐	☐
Lack of supervisory support	☐	☐	☐	☐
Front-line employee response/attitude	☐	☐	☐	☐
Lack of personnel to implement EMS	☐	☐	☐	☐
Lack of expertise to fully implement the programme	☐	☐	☐	☐
No sense of urgency established	☐	☐	☐	☐
Poor leadership	☐	☐	☐	☐
Leaders lack of influence over operations	☐	☐	☐	☐
Lack of financial resources	☐	☐	☐	☐
Lack of planning	☐	☐	☐	☐
Poor communication between environmental personnel and other areas	☐	☐	☐	☐
Lack of awareness of environmental goals and/or expected outcome	☐	☐	☐	☐
Lack of awareness of programme's progress	☐	☐	☐	☐
Employee involvement not encouraged	☐	☐	☐	☐
No incentive provided to employees to participate in environmental strategies	☐	☐	☐	☐
Necessary training not provided	☐	☐	☐	☐
No guidance or support provided to employees to cope with changes in their daily routines	☐	☐	☐	☐
Workplace politics/conflict	☐	☐	☐	☐
Conflicts between environmental and other corporate priorities	☐	☐	☐	☐
Successes are slow to achieve	☐	☐	☐	☐
Successes not recognised	☐	☐	☐	☐
Departments opting out	☐	☐	☐	☐
Waning support from management	☐	☐	☐	☐
Waning support from employees	☐	☐	☐	☐
Monitoring progress and audits	☐	☐	☐	☐
Programme implementation going off track	☐	☐	☐	☐
Regressing to the old ways of operation	☐	☐	☐	☐
Implementation of corrective action to put programme back on track	☐	☐	☐	☐
Incorporating environmental strategies into every day activities/culture	☐	☐	☐	☐

Q44. For those aspects you selected as 'successfully addressed' (column D, Q43 above), please outline how you achieved this. (*Attach additional page if necessary)*

Q45. For those aspects you 'specifically address' (column C, Q43 above), but were unsuccessful in doing so, please outline your experiences. (*Attach additional page if necessary)*

Q46. (a) In your experience of implementing an environmental programme in your organisation, what part of the implementation process was key to its success?

(b) In your experience of implementing an environmental programme in your organisation, what actions (or lack thereof) can be detrimental to the entire process?

Q47. Which of the following advantages have you realised to date as a result of implementing an environmental programme in your organisation?

The non-existence of fines and sanctions	☐	Compliance with legislation	☐
Optimisation in the use of resources	☐	Improved public image	☐
Improved image among employees	☐	Cost savings	☐
Improvement in the training of personnel	☐	Targets are set AND met	☐
Increased market opportunities/competitiveness	☐	Improved staff involvement	☐
Waste reduction and reduced waste costs	☐	Pollution prevention	☐
Reduced consumption of energy and materials	☐	Enhanced corporate image	☐
Safer storage of substances & materials	☐	Less environmental risk	☐
Change in behaviour of managers and workers	☐	Improved customer relationships	☐
Viewed more favourably by the regulator	☐	Improved employee morale	☐
Improved environmental performance	☐	Improved internal procedures	☐
Viewed more favourably by the financial sector	☐	Increased productivity	☐
Written procedures introduced structure into the company that was not previously there			☐
Improved environmental awareness among employees	☐	Improved community relationships	☐
Improved knowledge of programme among employees	☐		

Q48. In your opinion, to what degree does your environmental programme reduce environmental risk?

No Protection	☐	Minimal Protection	☐
Moderate protection	☐	Comprehensive protection	☐

Participant Details (Optional)

Q: If you would like to receive information about the results of this study, or if you are willing to be contacted to further facilitate the study, please complete the following sections

Respondents Name: _____

Telephone no: _____ Email: _____

Organisation name: _____

Address: _____

Web Address: _____

Parent Company (if applicable): _____

Thank you for completing this questionnaire

APPENDIX B

Appendix B Overall response frequencies to questionnaire

No.	Question	Frequencies (percentages based on total reply of 38 organisations)												
1	Job title	*Valid Reponses*	*Missing*											
		37 (97.4%)	1 (2.6%)											
2a	*Organisation's sector*	*Pesticide, pharmaceutical and veterinary products*	*Chemical*	*Food and Drink*	*Wood, paper, textiles and leather*	*Electronics, computers and circuit boards*	*Engineering*							
		5 (13.2%)	11 (28.9%)	14 (36.8%)	4 (10.5%)	3 (7.9%)	1 (2.6%)							
2b	Products/services supplied	*Valid Reponses*	*Missing*											
		37 (97.4%)	1 (2.6%)											
2c	Annual turnover of organisation	*Valid Reponses*	*Missing*											
		10 (26.3%)	28 (73.7%)											
3	Multinational?	*Yes*	*No*	*Don't know*	*Missing*									
		26 (68.4%)	11 (28.9)	0 (0%)	1 (2.6)									
4	Number of employees/size of organisation	*<10*	*10-24*	*25-50*	*51-100*	*101-150*	*151-200*	*201-250*	*>250*	*Missing*				
		2 (5.3%)	1 (2.6%)	7 (18.4%)	4 (10.5%)	6 (15.8%)	4 (10.5%)	3 (7.9%)	10 (26.3)	1 (2.6%)				
	(Organisation's size)	*Micro (<10 employees)*	*Small (10-49 employees)*		*Medium (50-249 employees)*				*Large (>250 employees)*	*Missing*				
		2 (5.3%)	8 (21.1%)		17 (44.7%)				10 (26.3%)	1 (2.6%)				
5	Management approach	*Top-down*	*Middle-up-down (a)*	*Middle-up-down (b)*	*Middle-up-down & bottom-up*	*Bottom-up*	*Missing*							
		13 (34.2%)	14 (36.8%)	4 (10.5%)	4 (10.5%)	1 (2.6%)	2 (5.3%)							
6a	Do front-line employees have the power to make decisions affecting their own work areas?	*Yes*	*No*	*Don't know*	*Missing*									
		23 (60.5%)	13 (34.2%)	0 (0%)	3 (5.3%)									
6b	Example of decisions made by front-line employees	*Valid Reponses*	*Missing*											
		19 (50%)	19 (50%)											
7a	Communication strategy?	*Yes*	*No*	*Don't know*	*Missing*									
		28 (73.7%)	6 (15.8%)	2 (5.3%)	2 (5.3%)									
7b	If yes, is the strategy actively managed?	*Yes*	*No*	*Don't know*	*Missing*									
		25 (65.8%)	3 (7.9%)	0 (0%)	10 (26.3%)									
	% of those with a communications strategy	89.3%	10.7%	0%										

	Does the strategy have objectives and targets?	Yes	No	Don't know	Missing									
		21 (55.3%)	4 (10.5%)	2 (5.3%)	11 (28.9%)									
	% of those with a communications strategy	75.0%	14.3%	7.1%										
	Are the communication needs of the organisation assessed?	Yes	No	Don't know	Missing									
		21 (55.3%)	4 (10.5%)	2 (5.3%)	11 (28.9%)									
	% of those with a communications strategy	75.0%	14.3%	7.1%										
	Is the overall strategy regularly assessed?	Yes	No	Don't know	Missing									
		23 (60.5%)	4 (10.5%)	0 (0%)	11 (28.9%)									
	% of those with a communications strategy	82.1%	14.3%	0%										
	Is the strategy used to facilitate the communication of environmental issues?	Yes	No	Don't know	Missing									
		20 (52.6%)	5 (13.2%)	2 (5.3%)	11 (28.9%)									
	% of those with a communications strategy	71.4%	17.9%	7.1%										
7c	Who coordinates/controls the communication strategy?	Valid Reponses	Missing											
		22 (57.9%)	16 (42.1%)											
8	Does your organisation strive to promote a learning culture?	Yes	No	Don't know	Missing									
		28 (73.7%)	3 (7.9%)	1 (2.6%)	6 (15.8%)									
9a	Does your organisation have:	IPC licence in place	IPC licence in development	EMAS in place	EMAS in development	ISO 14001 in place	ISO 14001 in development	Other code of environmental practice	Missing					
		20 (52.6%)	0 (0%)	2 (5.3%)	0 (0%)	24 (63.2%)	2 (5.3%)	0 (0%)	1 (2.6%)					
9b	How long has system been in place	Valid Reponses	Missing											
		29 (76.3%)	9 (23.7%)											
9c	For systems in development, what has been achieved to date	Valid Reponses	Missing											
		4 (10.5%)	34 (89.5%)											
9d	Motivations for developing environmental systems	Valid Reponses	Missing											
		27 (71.1%)	11 (28.9%)											
10a	Does the organisation intend inplementing any of the environmental systems?	IPPC licence	EMAS	ISO 14001	Uncertified EMS	Other code of environmental practice								
		0 (0%)	0 (0%)	2 (5.3%)	0 (0%)	0 (0%)								

10b	Motivations for intending to develop environmental systems	*Valid Reponses*	*Missing*											
		4 (10.5%)	34 (89.5%)											
11	Main driver for the environmental programme	*CEO*	*Top Management*	*Environmental Manager*	*Quality/Health and Safety Department*	*Other*	*Missing*							
		4 (10.5%)	12 (31.6%)	10 (26.3%)	2 (5.3%)	3 (7.9%)	7 (18.4%)							
12	Environmental Structure	*Dedicated Environmental dept*	*EHS dept*	*Integrated EHS and Quality Dept*	*Quality department only*	*Health and Safety dept only*	*Quality, health and safety dept*	*None of the above*	*Other*	*Missing*				
		2 (5.3%)	*10 (26.3%)*	*13 (34.2%)*	*1 (2.6%)*	*0 (0%)*	*1 (2.6%)*	*2 (5.3%)*	*2 (5.3%)*	*7 (18.4%)*				
13	Approach to environmental issues	*Env problems are not addressed*	*Emmissions treated before release*	*Operational processes modified*	*Products designed to minimise env burden*	*Operational processes AND products modified*	*Missing*							
		0 (0%)	6 (15.8%)	17 (44.7%)	7 (18.4%)	4 (10.5%)	4 (10.5%)							
14	Are environmental considerations included in new business contracts and plans	*Yes*	*No*	*Don't know*	*Missing*									
		28 (73.7%)	3 (7.9%)	3 (7.9%)	4 (10.5%)									
15	Are environmental considerations included in strategic planning process	*Yes*	*No*	*Don't know*	*Missing*									
		30 (78.9%)	2 (5.3%)	2 (5.3%)	4 (10.5%)									
16a	Written environmental policy	*Yes*	*No*	*Don't know*	*Missing*									
		34 (89.5%)	2 (5.3%)	0 (0%)	2 (5.3%)									
16b	Does policy indicate it will strive to include employees in managing environmental issues	*Yes*	*No*	*Don't know*	*Missing*									
		23 (60.5%)	5 (13.2%)	1 (2.6%)	10 (26.3%)									
	% of those with environmental policy	67.6%	14.7%											
17	To what extent are env issues managed/considered in each of the following areas	Production/ operations	Marketing/ sales	Accounting/ finance	Product development	Public relations	Purchasing	Human Resources	Facilities/ maintenance	General administration				
	(Frequencies)	36 (94.7%)	33 (86.8)	36 (94.7%)	35 (92.1%)	34 (89.5%)	36 (94.7%)	33 (86.8)	36 (94.7%)	37 (97.4%)				
	(Mean)	1.76	2.91	3.00	2.03	2.06	2.56	2.91	1.86	2.86				
	(Standard deviation)	0.80	1.18	1.20	1.01	1.07	1.11	1.10	0.80	0.89				
	(Description)	Active/ample consideration	Ample/some consideration	Given some consideration	Active/ample consideration	Ample consideration	Ample/some consideration	Given some consideration	Ample consideration	Given some consideration				
18a	Individual responsible for the environmental programme	*Yes*	*No*	*Don't know*	*Missing*									
		33 (86.8%)	1 (2.6%)	0 (0%)	4 (10.5%)									

18b	Job title of person responsible for environmental programme	*Valid Reponses*	*Missing*											
		33 (86.8%)	5 (13.2%)											
18c	Has this person other responsibilities?	*Yes*	*No*	*Don't know*	*Missing*									
		27 (71.1%)	6 (15.8%)	0 (0%)	5 (13.2%)									
	% of those with an env manager	81.8%	18.2%											
18d	Other responsibilites	*Valid Reponses*	*Missing*											
		27 (71.0%)	11 (28.9%)											
18e	% of time spent on environmental issues	*<25%*	*25-50%*	*50-75%*	*75-100%*	*Missing*								
		12 (31.6%)	12 (31.6%)	4 (10.5%)	6 (15.8%)	4 (10.5%)								
	% of those with an env manager	36.4%	36.4%	9.1%	18.2%									
18f	Who does this person report to?	*Valid Reponses*	*Missing*											
		32 (84.2%)	6 (15.8%)											
18g	Has this person influence regarding operational processes and changes to these processes	*Yes*	*No*	*Don't know*	*Missing*									
		31 (81.6%)	2 (5.3%)	0 (0%)	5 (13.2%)									
	% of those with an env manager	93.9%	6.1%											
18h	Does this person	*Perform all env tasks themselves*	*Delegate tasks to env staff/team*	*Facilitate and assist teams to carry out their own projects*	*Missing*									
		8 (21.1%)	17 (44.7%)	8 (21.1%)	5 (13.2%)									
	% of those with an env manager	24.2%	51.5%	24.2%										
19a	Where no individual responsible for programme, are any env monitoring activities carried out?	*Yes*	*No*	*Don't know*	*Missing*									
		2 (5.3%)	0 (0%)	0 (0%)	36 (94.7%)									
19b	Who cordinates/carries out these activities	*Valid Reponses*	*Missing*											
		2 (5.3%)	36 (94.7%)											
19c	Who does this person report to?	*Valid Reponses*	*Missing*											
		2 (5.3%)	36 (94.7%)											
20	List of responsibilities of any other people employed to carry out env tasks	*Valid Reponses*	*Missing*											
		15 (39.5%)	23 (60.5%)											

Appendix B

21a	Top management support for the environmental programme	*Financial support*	*Signing env policy*	*Setting obj and targets*	*Attending env team meetings/ training*	*Formation of senior level steering committee*	*Support for difficult tactical decisions*	*Accepting any changes necessary*	*Promoting env prog internally and externally*	*Top do not contribute in any way*	*Other*	*Missing*		
		31 (81.6%)	32 (84.2%)	29 (76.3%)	23 (60.5%)	12 (31.6%)	21 (55.3%)	21 (55.3%)	20 (52.6%)	0 (0%)	4 (10.5%)	4 (10.5%)		
21b	Resources committed by top management	Minimal resource commitment	Budgets for problems as they occur	Consistent yet minimal budget	Generally sufficient funding	Variable funding superceded by operational requirements	Open-ended funding	Other	Missing					
		1 (2.6%)	9 (23.7%)	2 (5.3%)	15 (39.5%)	5 (13.2%)	2 (5.3%)	0 (0%)	4 (10.5%)					
22a	Environmental objectives and targets	*Yes*	*No*	*Don't know*	*Missing*									
		30 (78.9%)	2 (5.3%)	1 (2.6%)	5 (13.2%)									
22b	Objectives and targets are:	*Decided by mngmt, communicated to employees*	*Decided by mngmt, not communicated to employees*	*Decided in consultation with employees*	*Missing*									
		20 (52.6%)	3 (7.9%)	8 (21.1%)	7 (18.4%)									
	% of those with objectives and targets	66.0%	10.0%	26.4%	23.3%									
22c	How many objectives and targets set	*Valid Reponses*	*Missing*											
		27 (71.1%)	11 (28.9%)											
22d	How many objectives and targets have been successfully achieved?	*Valid Reponses*	*Missing*											
		27 (71.1%)	11 (28.9%)											
22e	Why have objectives and targets been achieved?	*Strong commitment from top*	*Strong commitment from mid mngmt*	*Strong commitment from employees*	*Policy emphasises continual improvement*	*Env budget may be reduced if not fully expended*	*Obj and targets developed to be achieved in the short term*	*Other*	Missing					
		16 (42.1%)	15 (39.5%)	13 (34.2%)	18 (47.4%)	0 (0%)	3 (7.9%)	1 (2.6%)	11 (28.9%)					
	% of those with objectives and targets	53.3%	50.0%	43.3%	60.0%	0%	10.0%	3.3%						
22f	For those objectives and targets that were not achieved, why do you believe they were not achieved?	*No commitment from top*	*No commitment from mid mngmt*	*No commitment from employees*	*Insufficient budget*	*Obj and targets developed to be achieved in the long term*	*Obj and targets were unrealistic*	*Other*	Missing					
		3 (7.9%)	2 (5.3%)	1 (2.6%)	8 (21.1%)	9 (23.7%)	6 (15.8%)	5 (13.2%)	16 (42.1%)					
	% of those with objectives and targets	10.0%	6.7%	3.3%	26.7%	30.0%	20.0%	16.7%						
22g	Is progress towards attaining objectives and targets monitored?	*Yes*	*No*	Don't know	Missing									
		29 (76.3%)	0 (0%)	0 (0%)	9 (23.7%)									
	% of those with objectives and targets	96.7%	0%	0%										

23a	When did you start communicating information about the programme to top management?	*When programme initiated*	*During planning*	*During implementation*	*After programme implemented*	*Missing*								
		22 (57.9%)	5 (13.2%)	0 (0%)	1 (2.6%)	10 (26.3%)								
	When did you start communicating information about the programme to middle management?	*When programme initiated*	*During planning*	*During implementation*	*After programme implemented*	*Missing*								
		15 (39.5%)	12 (31.6%)	0 (0%)	0 (0%)	11 (28.9%)								
	When did you start communicating information about the programme to fromt-line employees?	*When programme initiated*	*During planning*	*During implementation*	*After programme implemented*	*Missing*								
		5 (13.2%)	8 (21.1%)	12 (31.6%)	2 (5.3%)	11 (28.9%)								
23b	How is information about programme communicated to top management?	*Posters*	*Newsletters*	*Emails*	*Website*	*Reports*	*Departmental meetings*	*Annual general meetings*	*Environmental training*	*Induction training*	*Presentations*	*Missing*		
		6 (15.8%)	3 (7.9%)	16 (42.1%)	4 (10.5%)	19 (50.0%)	11 (28.9%)	15 (39.5%)	11 (28.9%)	11 (28.9%)	11 (28.9%)	6 (15.8%)		
	How is information about programme communicated to middle management?	*Posters*	*Newsletters*	*Emails*	*Website*	*Reports*	*Departmental meetings*	*Annual general meetings*	*Environmental training*	*Induction training*	*Presentations*	*Missing*		
		8 (21.1%)	6 (15.8%)	19 (50.0%)	5 (13.2%)	18 (47.4%)	17 (44.7%)	10 (26.3%)	15 (39.5%)	17 (44.7%)	13 (34.2%)	6 (15.8%)		
	How is information about programme communicated to front-line employees?	*Posters*	*Newsletters*	*Emails*	*Website*	*Reports*	*Departmental meetings*	*Annual general meetings*	*Environmental training*	*Induction training*	*Presentations*	*Missing*		
		15 (39.5%)	8 (21.1%)	7 (18.4%)	6 (15.8%)	10 (26.3%)	12 (31.6%)	6 (15.8%)	21 (55.3%)	25 (65.8%)	14 (36.8%)	6 (15.8%)		
23c	How often is information about environmental peformance communicated to top management?	Daily	Weekly	Monthly	Quarterly	Biannually	Annually	Never	Other	*Missing*				
		2 (5.3%)	1 (2.6%)	15 (39.5%)	5 (13.2%)	1 (2.6%)	4 (10.5%)	0 (0%)	4 (10.5%)	6 (15.8%)				
	How often is information about environmental peformance communicated to middle management?	Daily	Weekly	Monthly	Quarterly	Biannually	Annually	Never	Other	*Missing*				
		3 (7.9%)	6 (15.8%)	13 (34.2%)	4 (10.5%)	1 (2.6%)	1 (2.6%)	0 (0%)	5 (13.2%)	6 (15.8%)				
	How often is information about environmental peformance communicated to front-line employees?	Daily	Weekly	Monthly	Quarterly	Biannually	Annually	Never	Other	*Missing*				
		3 (7.9%)	7 (18.4%)	11 (28.9%)	3 (7.9%)	2 (5.3%)	1 (2.6%)	1 (2.6%)	4 (10.5%)	6 (15.8%)				
24a	Staff suggestion schemes	*Yes*	*No*	*Don't know*	*Missing*									
		15 (39.5%)	15 (39.5%)	1 (2.6%)	7 (18.4%)									
24b	Are suggestions made by staff used to select environmental initiatives?	*Yes*	*No*	*Don't know*	*Missing*									
		18 (47.4%)	5 (13.2%)	2 (5.3%)	13 (34.2%)									
24c	Are rewards offered for useful suggestions made?	*Yes*	*No*	*Don't know*	*Missing*									
		7 (18.4%)	18 (47.4%)	1 (2.6%)	12 (31.6%)									

24d	Rewards offered	*Valid Reponses*	*Missing*											
		7 (18.4%)	31 (81.6%)											
25a	Are employees encouraged/facilitated to communicate environmental ideas directly to other parts of the organisation?	*Yes*	*No*	*Don't know*	*Missing*									
		22 (57.9%)	18 (21.1%)	1 (2.6%)	7 (18.4%)									
25b	Are employees encouraged/facilitated to communicate environmental ideas directly to senior management?	*Yes*	*No*	*Don't know*	*Missing*									
		25 (65.8%)	5 (13.2%)	1 (2.6%)	7 (18.4%)									
25c	How is this communication facilitated	*Valid Reponses*	*Missing*											
		24 (63.2%)	14 (36.8%)											
26a	Assessment of organisations culture before or during implementation of environmental programme	*Yes*	*No*	*Don't know*	*Missing*									
		7 (18.4%)	20 (52.6%)	3 (7.9%)	8 (21.1%)									
26b	Assessment of employee readiness or willingness to accept the environmental programme	*Yes*	*No*	*Don't know*	*Missing*									
		7 (18.4%)	24 (63.2%)	0 (0%)	7 (18.4%)									
26c	Assessment of employee and/or management attitudes to the environmental programme	*Yes*	*No*	*Don't know*	*Missing*									
		8 (21.1%)	23 (60.5%)	1 (2.6%)	6 (15.8%)									
26d	How is assessment carried out?	*Valid Reponses*	*Missing*											
		8 (21.1%)	30 (78.9%)											
27	Level of difficulty tyring to convince the following to accept the environmental programme:	*CEO*	*Top mngmt*	*Dept heads/managers*	*Supervisors/line managers*	*Production staff*	*Maintenance staff*	*Administration staff*	*Purchasing staff*	*Contractors*	*Suppliers*			
	(Frequencies)	30 (78.9%)	30 (78.9%)	30 (78.9%)	29 (76.3%)	30 (78.9%)	27 (71.0%)	30 (78.9%)	30 (78.9%)	28 (73.7%)	28 (73.7%)			
	(Mean)	1.73	1.87	2.3	2.48	2.47	2.44	2.3	2.5	2.96	2.89			
	(Standard deviation)	0.94	0.82	0.92	0.99	0.82	0.93	0.75	0.78	1.17	0.96			
	(Description)	Easy/very little difficulty	Easy/very little difficulty	Very little difficulty	Very little difficulty	Very little difficulty	Very little difficulty	Very little difficulty	Very little/some difficulty	Very little/some difficulty	Very little/some difficulty			
28a	Have any departments/sections tried to opt out of cooperating with the requirements of the environmental programme?	*Yes*	*No*	*Don't know*	*Missing*									
		7 (18.4%)	24 (63.2%)	1 (2.6%)	6 (15.8%)									
28b	Has this hampered the progress of the programme?	*Yes*	*No*	*Don't know*	*Missing*									
		7 (18.4%)	9 (23.7%)	0 (0%)	22 (57.9%)									

29	Are middle managers/supervisors:	*Less supportive of env issues than other functions*	*Equally supportive of env mngmt as other functions*	*More supportive of env mngmt than other functions*	*Missing*									
		10 (26.3%)	20 (52.6%)	3 (7.9%)	5 (13.2%)									
30	Main reasons middle management are reluctant to accept changes made as part of the environmental programme	Position threatened	Perceive extra time and work	Don't want to spend limited budget on env area	Don't see need for/benefit of programme	Don't understand prog due to lack of communicati on	Pressurised by peers to resist prog	No incentive to include env issues in decision making	Fear of blame if prog fails in their area	Previous env initiatives have failed, believe new attempts will fail also	Managers not included in planning of changes	Period of change in org already, further change not welcomed	Changes not fully supported by top	Other
	(Frequencies)	24 (63.2%)	26 (68.4%)	26 (68.4%)	25 (65.8%)	26 (68.4%)	26 (68.4%)	26 (68.4%)	25 (65.8%)	26 (68.4%)	26 (68.4%)	26 (68.4%)	26 (68.4%)	2 (5.2%)
	(Mean)	2.33	3.85	3.04	2.8	2.5	2.19	2.96	2.28	2.35	2.58	2.54	2.46	
	(Standard Deviation)													
	(Description)	Slightly disagree /Neither agree nor disagree	Slightly agree	Neither agree nor disagree/ strongly disagree	Neither agree nor disagree/slightly disagree	Neither agree nor disagree	Slightly disagree	Neither agree nor disagree/slightly disagree	Slightly disagree/ neither agree nor disagree	Slightly disagree/ strongly disagree	Neither agree nor disagree/ strongly disagree	Neither agree nor disagree/ strongly disagree	Slightly disagree/ neither agree nor disagree	
31	Main reasons employees are reluctant to accept changes made as part of the environmental programme	Position threatened	Reluctant to alter how they have performed their work for years	Perceive extra time and work	Don't see need for/benefit of programme	Don't understand prog due to lack of communicati on	Pressurised by peers to resist prog	Previous env initiatives have failed, believe new attempts will fail also	Employees not included in planning of changes	Period of change in org already, further change not welcomed	Changes not fully supported by top	Other		
	(Frequencies)	28 (73.7%)	29 (76.3%)	29 (76.3%)	29 (76.3%)	28 (73.7%)	28 (73.7%)	28 (73.7%)	28 (73.7%)	28 (73.7%)	28 (73.7%)	1 (2.6%)		
	(Mean)	2.39	3.55	3.72	2.97	2.79	2.57	2.32	3.04	2.61	2.54			
	(Standard deviation)													
	(Description)	Slightly disagree	Slightly agree	Slightly agree	Neither agree nor disagree	Neither agree nor disagree	Neither agree nor disagree	Slightly disagree	Neither agree nor disagree/ slightly agree	Neither agree nor disagree/ Slightly disagree	Neither agree nor disagree			
32a	Have any of the following been used to assist in overcoming employee resistance to change	Implement prog regardless of resistance	Restructure env actions based on employee concerns	Provide training/info to alleviate fears	Update staff continually as prog progresses	Allow potential resistors to participate	Ensure visible support from top	Provide incentives						
	Yes	7 (18.4%)	12 (31.6%)	23 (60.5%)	21 (55.3%)	14 (36.8%)	20 (52.6%)	7 (18.4%)						
	No	14 (36.8%)	13 (34.2%)	3 (7.9%)	4 (10.5%)	14 (36.8%)	5 (13.2%)	19 (50.0%)						
	Don't know	6 (15.8%)	3 (7.9%)	2 (5.3%)	3 (7.9%)	0 (0%)	2 (5.3%)	2 (5.3%)						
	Missing	10 (26.3%)	10 (26.3%)	10 (26.3%)	10 (26.3%)	10 (26.3%)	11 (28.9%)	10 (26.3%)						
32b	Incentives provided	*Valid Reponses*	*Missing*											
		4 (10.5%)	34 (89.5%)											
33a	Environmental training programme	*Yes*	*No*	*Don't know*	*Missing*									
		25 (65.8%)	7 (18.4%)	0 (0%)	6 (15.8%)									

33b	Does training programme have its own objectives and targets	*Yes*	*No*	*Don't know*	*Missing*									
		13 (34.2%)	9 (23.7%)	1 (2.6%)	15 (39.5%)									
	% of those with a training programme	52.0%	36.0%	4.0%										
33c	What type of training is provided to top management	*General env awareness training*	*Specific training for those working in particular areas*	*Training is not provided*	*Other*	*Missing*								
		23 (60.5%)	5 (13.2%)	1 (2.6%)	3 (7.9%)	9 (23.7%)								
	% of those with a training programme	92.0%	20.0%	4.0%	12.0%									
	What type of training is provided to middle management	*General env awareness training*	*Specific training for those working in particular areas*	*Training is not provided*	*Other*	*Missing*								
		22 (57.9%)	14 (36.8%)	1 (2.6%)	3 (7.9%)	9 (23.7%)								
	% of those with a training programme	88.0%	56.0%	4.0%	12.0%									
	What type of training is provided to front-line employees	*General env awareness training*	*Specific training for those working in particular areas*	*Training is not provided*	*Other*	*Missing*								
		20 (52.6%)	24 (63.2%)	1 (2.6%)	3 (7.9%)	9 (23.7%)								
	% of those with a training programme	80.0%	96.0%	4.0%	12.0%									
33d	Main items covered in training programme	*Valid Reponses*	*Missing*											
		23 (60.5%)	15 (39.5%)											
33e	Length of typical training session	*Valid Reponses*	*Missing*											
		26 (68.4%)	12 (31.6%)											
33f	How often is training provided to top management	*Once when env programme was initiated*	*During employee induction*	*Monthly*	*Quarterly*	*Biannually*	*Annually*	*Every 2-5 years*	*Training is not provided*	*Other*				
		10 (26.3%)	13 (34.2%)	0 (0%)	1 (2.6%)	0 (0%)	10 (26.3%)	3 (7.9%)	1 (2.6%)	6 (15.8%)				
	% of those with a training programme	40.0%	52.0%	0%	4.0%	0%	40.0%	12.0%	4.0%	24.0%				
	How often is training provided to middle management	*Once when env programme was initiated*	*During employee induction*	*Monthly*	*Quarterly*	*Biannually*	*Annually*	*Every 2-5 years*	*Training is not provided*	*Other*				
		7 (18.4%)	19 (50.0%)	0 (0%)	2 (5.3%)	1 (2.6%)	10 (26.3%)	3 (7.9%)	0 (0%)	6 (15.8%)				
	% of those with a training programme	28.0%	76.0%	0%	8.0%	4.0%	40.0%	12.0%	0%	24.0%				
	How often is training provided to front line employees	*Once when env programme was initiated*	*During employee induction*	*Monthly*	*Quarterly*	*Biannually*	*Annually*	*Every 2-5 years*	*Training is not provided*	*Other*				
		6 (15.8%)	22 (57.9%)	0 (0%)	3 (7.9%)	2 (5.3%)	8 (21.1%)	6 (15.8%)	0 (0%)	5 (13.2%)				
	% of those with a training programme	24.0%	88.0%	0%	12.0%	8.0%	32.0%	24.0%	0%	20.0%				

33g	Person days of training given each year	*Valid Reponses*	*Missing*											
		14 (36.8%)	24 (63.2%)											
33h	Percentage of employees that have received training to date	*Valid Reponses*	*Missing*											
		26 (68.4%)	12 (31.6%)											
33i	Who coordinates training programme?	Environmental manager	Member of environmental team/staff	Member of HR	External consultant	Other internal member of staff	Env mngr & HR	Env mngr and external consultant	Member of env staff and HR	Env mngr and member of env staff	Env mngr, env staff, HR and consultant	Missing		
		10 (26.3%)	3 (7.9%)	2 (5.3%)	0 (0%)	5 (13.2%)	5 (13.2%)	1 (2.6%)	2 (5.3%)	4 (10.5%)	1 (2.6%)	5 (13.2%)		
	% of those with a training programme	40.0%	12.0%	8.0%	0%	20.0%	20.0%	4.0%	8%	16.0%	4.0%			
33j	Who carries out training?	Environmental manager	Member of environmental team/staff	Member of HR	External consultant	Other internal member of staff	Env mngr & HR	Env mngr and external consultant	Member of env staff and HR	Env mngr and member of env staff	Env mngr, env staff, HR and consultant	Env mngr, env staff and consultant	Missing	
		6 (15.8%)	6 (15.8%)	1 (2.6%)	0 (0%)	3 (7.9%)	2 (5.3%)	6 (15.8%)	1 (2.6%)	5 (13.2%)	1 (2.6%)	2 (5.3%)	5 (13.2%)	
	% of those with a training programme	24.0%	24.0%	4.0%	0%	12.0%	8.0%	24.0%	4%	20.0%	4.0%	8.0%		
33k	Are environmental training needs assessed?	*Yes*	*No*	*Don't know*	*Missing*									
		22 (57.9%)	3 (7.9%)	1 (2.6%)	12 (31.6%)									
	% of those with a training programme	88.0%	12.0%	4.0%										
33l	Who carries out this assessment?	*Valid Reponses*	*Missing*											
		19 (50.0%)	19 50.0%)											
33m	Are sufficient financial and organisational resources provided by top management for training programme	*Yes*	*No*	*Don't know*	*Missing*									
		25 (65.8%)	2 (5.3%)	2 (5.3%)	9 (23.7%)									
	% of those with a training programme	100.0%												
33n	Are supervisors/line managers/middle managers supportive of employees attending training?	*Yes*	*No*	*Don't know*	*Missing*									
		25 (65.8%)	3 (7.9%)	1 (2.6%)	9 (23.7%)									
	% of those with a training programme	100.0%												
33o	How do you ensure employees attend training?	*Valid Reponses*	*Missing*											
		26 (68.4%)	12 (31.6%)											
33p	Is the effectiveness of the training programme assessed after training?	*Yes*	*No*	*Don't know*	*Missing*									
		15 (39.5%)	13 (34.2%)	1 (2.6%)	9 (23.7%)									
	% of those with an env training programme	60.0%												

33q	Who carries out this assessment?	*Valid Reponses*	*Missing*											
		14 (36.8%)	24 (63.2%)											
34	How many people are involved in the following activities	*Valid Reponses*	*Missing*											
		31 (81.6%)	7 (18.4%)											
35a	Environmental teams	There are no green teams	Green teams were used in the past but not any more	One green team - env dept staff only	One green team - members from seversl departments	Green team in each department	Green team consists of management only	Green teams consist of members from all levels	Other					
		12 (31.6%)	2 (5.3%)	3 (7.9%)	14 (36.8%)	2 (5.3%)	2 (5.3%)	3 (7.9%)	2 (5.3)					
35b	Number of people on environmental teams	<5	5-10	10-15	>15									
		9 (23.7%)	11 (28.9%)	1 (2.6%)	0 (0%)									
	% of those with env team(s)	42.9%	52.4%	4.8%	0%									
35c	How are environmental team members recruited?	Suitable people identified and persuaded to join	Call is made for volunteers	Key people obliged to join										
		10 (26.3%)	8 (21.1%)	9 (23.7%)										
	% of those with env team(s)	47.6%	38.1%	42.9%										
35d	Who coordinates environmental teams?	*Valid Reponses*	*Missing*											
		16 (42.1%)	22 (57.9%)											
35e	Are middle management willing to join environmental teams?	*Yes*	*No*	*Don't know*	*Missing*									
		15 (39.5%)	5 (13.2%)	1 (2.6%)	17 (44.7%)									
	% of those with env team(s)	71.4%	23.8%	4.8%										
35f	Are non-management staff encouraged to join teams?	*Yes*	*No*	*Don't know*	*Missing*									
		18 (47.4%)	3 (7.9%)	0 (0%)	17 (44.7%)									
	% of those with env team(s)	85.7%	14.3%	0%										
35g	Do supervisors/middle management allow non-management the opportunity to be involved in environmental teams?	*Yes*	*No*	*Don't know*	*Missing*									
		20 (52.6%)	2 (5.3%)	1 (2.6%)	15 (39.5%)									
	% of those with env team(s)	95.2%	9.5%	4.8%										
35h	Are non-management staff willing to join teams?	*Yes*	*No*	*Don't know*	*Missing*									
		17 (44.7%)	3 (7.9%)	2 (5.3%)	16 (42.1%)									
	% of those with env team(s)	81.0%	14.3%	9.5%										
35i	Do green teams have a high turnover of personnel?	*Yes*	*No*	*Don't know*	*Missing*									

		2 (5.3%)	15 (39.5%)	3 (7.9%)	18 (47.4%)									
	% of those with env team(s)	9.5%	71.4%	14.3%										
35j	Are team members trained so they have the skills necessary to carry out environmental projects and operate as a team?	*Yes*	*No*	*Don't know*	*Missing*									
		16 (42.1%)	5 (13.2%)	0 (0%)	17 (344.7%)									
	% of those with env team(s)	76.2%	23.8	0%										
35k	Do green teams have the influence and authority to change operational systems in the organisation in order to fulfil environmental management goals?	*Yes*	*No*	*Don't know*	*Missing*									
		18 (47.4%)	3 (7.9%)	0 (0%)	17 (44.7%)									
	% of those with env team(s)	85.7%	14.3%	0%										
35l	How often do environmental teams meet?	Every day	Several times a week	Once a week	Several times a month	Once a month	Several times a year	Once a year	Other	Missing				
		1 (2.6%)	0 (0%)	2 (5.3%)	1 (2.6%)	9 (23.7%)	6 (15.8%)	2 (5.3%)	2 (5.3%)	15 (39.5%)				
	% of those with env team(s)	4.8%	0%	9.5%	4.8%	42.9%	28.6%	9.5%	9.5%					
35m	Do environmental teams have their own set of objectives and targets	*Yes*	*No*	*Don't know*	*Missing*									
		6 (15.8%)	14 (36.8%)	1 (2.6%)	17 (44.7%)									
	% of those with env team(s)	28.6%	66.7%	4.8%										
35n	Have env teams sufficient budget in which to perform its tasks	*Yes*	*No*	*Don't know*	*Missing*									
		9 (23.7%)	9 (23.7%)	2 (5.3%)	18 (47.4%)									
	% of those with env team(s)	42.9%	42.9%	9.5%										
36a	Are employees at any level who are not part of of a green team given the opportunity to participate in the environmental programme?	*Yes*	*No*	*Don't know*	*Missing*									
		22 (57.9%)	4 (10.5%)	1 (2.6%)	11 (28.9%)									
36b	Have front-line employees ever been consulted about the processes they work on in order to gain an insight of any environmental problems in their area?	*Yes*	*No*	*Don't know*	*Missing*									
		21 (55.3%)	5 (13.2%)	1 (2.6%)	11 (28.9%)									
36c	Example of consultation with front-line workers	*Valid Reponses*	*Missing*											
		19 (50.0%)	19 (50.0%)											
36d	Are front-line employees encouraged to find solutions to environmental problems?	*Yes*	*No*	*Don't know*	*Missing*									
		9 (23.7%)	13 (34.2%)	4 (10.5%)	12 (31.6%)									
36e	Are managers encouraged to experiment to find solutions to environmental problems?	*Yes*	*No*	*Don't know*	*Missing*									
		20 (52.6%)	5 (13.2%)	1 (2.6%)	12 (31.6%)									

36f	If front-line employees were more involved in the implementation of the nevironmental programme would the process :	Move faster	Move slower	Have no impact	Don't know									
		16 (42.1%)	2 (5.3%)	3 (7.9%)	6 (15.8%)									
36g	Would the organisaiton consider giving lower level employees more responsibility and authority in the environmental programme to facilitate acceptance of the programme?	*Yes*	*No*	*Don't know*	*Missing*									
		17 (44.7%)	7 (18.4%)	2 (5.3%)	12 (31.6%)									
36h	Is participation in environmental issues integrated into job descriptions and staff appraisal systems?	*Yes*	*No*	*Don't know*	*Missing*									
		11 (28.9%)	11 (28.9%)	3 (7.9%)	13 (34.2%)									
36l	Example of environmental issues and participation in job descriptions	*Valid Reponses*	*Missing*											
		7 (18.4%)	31 (81.6%)											
37a	Audits	*Valid Reponses*	*Missing*											
		33 (86.8%)	5 (13.2%)											
37b	Who reviews the results of the audits?	*Valid Reponses*	*Missing*											
		31 (81.6%)	7 (18.4%)											
37c	How many non-conformances were detected in the last audit?	*Valid Reponses*	*Missing*											
		24 (63.2%)	14 (36.8%)											
38	If progress is diminishing, what action is taken?	*Valid Reponses*	*Missing*											
		23 (60.5%)	15 (39.5%)											
39	How are changes resulting from the environmental programme made a part of the organisation's every day activities?	*Valid Reponses*	*Missing*											
		17 (44.7%)	21 (55.3%)											
40	How is employee and management interest in the programmme maintained?	*Valid Reponses*	*Missing*											
		24 (63.2%)	14 (36.8%)											
41a	Feedback to employees on efffectiveness of environmental improvements	*Yes*	*No*	*Don't know*	*Missing*									
		22 (57.9%)	8 (21.1%)	0 (0%)	8 (21.1%)									

41b	Nature and frequency of feedback	*Valid Reponses*	*Missing*											
		21 (55.3%)	17 (44.7%)											
42	Has HR been involved in change management issues associated with environmental management activities	*Yes*	*No*	*Don't know*	*Missing*									
		7 (18.4%)	15 (39.5%)	5 (13.2%)	11 (28.9%)									
43a	Delays	*Valid Reponses*	*Missing*											
		21 (55.3%)	17 (44.7%)											
43b	Difficult to address	*Valid Reponses*	*Missing*											
		20 (47.4%)	18 (47.4%)											
43c	Specifically addressed	*Valid Reponses*	*Missing*											
		20 (47.4%)	18 (47.4%)											
43d	Successfully addressed	*Valid Reponses*	*Missing*											
		20 (47.4%)	18 (47.4%)											
44	How were aspects successfully addressed	*Valid Reponses*	*Missing*											
		9 (23.7%)	29 (76.3%)											
45	Unsuccessfully addressed aspects	*Valid Reponses*	*Missing*											
		3 (7.9%)	35 (92.1%)											
46a	Part of implementation process key to programme success	*Valid Reponses*	*Missing*											
		10 (26.3%)	28 (73.7%)											
46b	Actions or lack tereof that were detrimental to the entire process	*Valid Reponses*	*Missing*											
		10 (26.3%)	28 (73.7%)											
47	Advantages	*Valid Reponses*	*Missing*											
		26 (68.4%)	12 (31.6%)											
48	Perception of protection against environmental risk?	*No protection*	*Minimal protection*	*Moderate protection*	Comprehensive protection									
		0 (0%)	4 (10.5%)	14 (36.8%)	11 (28.9%)									

Q43: Issues which have created delays in implementation, were difficult to address, specifically addressed or successfully addressed by the responding organisations

	(a) Delays	(b) Difficult to address	(c) Specifically addressed	(d) Successfully addressed
Total Valid Response	*21*	*20*	*20*	*20*
Lack of top management support	2 (9.5%)	3 (15.0%)	4 (20.0%)	9 (45.0%)
Lack of supervisory support	6 (28.6%)	5 (25.0%)	4 (20.0%)	7 (35.0%)
Front-line employee response/attitude	2 (9.5%)	2 (10.0%)	5 (25.0%)	3 (15.0%)
Lack of personnel to implement EMS	8 (38.1%)	7 (35.0%)	7 (35.0%)	7 (35.0%)
Lack of expertise to fully implement the programme	7 (33.3%)	4 (20.0%)	4 (20.0%)	6 (30.0%)
No sense of urgency established	3 (14.3%)	5 (25.0%)	7 (35.0%)	6 (30.0%)
Poor leadership	2 (9.5%)	0 (0%)	3 (15.0%)	3 (15.0%)
Leaders lack of influence over operations	2 (9.5%)	4 (20.0%)	5 (25.0%)	2 (10.0%)
Lack of financial resources	7 (33.3%)	3 (15.0%)	5 (25.0%)	7 (35.0%)
Lack of planning	4 (19.1%)	1 (5.0%)	4 (20.0%)	5 (25.0%)
Poor communication between environmental personnel and other areas	3 (14.3%)	2 (10.0%)	7 (35.0%)	5 (25.0%)
Lack of awareness of environmental goals and/or expected outcome	2 (9.5%)	3 (15.0%)	7 (35.0%)	5 (25.0%)
Lack of awareness of programme's progress	5 (23.8%)	2 (10.0%)	4 (20.0%)	7 (35.0%)
Employee involvement not encouraged	0 (0%)	2 (10.0%)	2 (10.0%)	4 (20.0%)
No incentive provided to employees to participate in environmental strategies	4 (19.1%)	4 (20.0%)	2 (10.0%)	3 (15.0%)
Necessary training not provided	3 (14.3%)	1 (5.0%)	7 (35.0%)	6 (30.0%)
No guidance or support provided to employees to cope with changes in their daily routines	0 (0%)	2 (10.0%)	3 (15.0%)	4 (20.0%)
Workplace politics/conflict	5 (23.8%)	4 (20.0%)	1 (5.0%)	3 (15.0%)
Conflicts between environmental and other corporate priorities	6 (28.6%)	1 (5.0%)	4 (20.0%)	5 (25.0%)
Successes are slow to achieve	4 (19.1%)	6 (30.0%)	4 (20.0%)	4 (20.0%)
Successes not recognised	1 (4.8%)	2 (10.0%)	6 (30.0%)	8 (40.0%)
Departments opting out	4 (19.1%)	2 (10.0%)	2 (10.0%)	2 (10.0%)
Waning support from management	3 (14.3%)	3 (15.0%)	3 (15.0%)	2 (10.0%)
Waning support from employees	0 (0%)	3 (15.0%)	2 (10.0%)	2 (10.0%)
Monitoring progress and audits	3 (14.3%)	1 (5.0%)	7 (35.0%)	6 (30.0%)
Programme implementation going off track	4 (19.1%)	3 (15.0%)	5 (25.0%)	4 (20.0%)
Regressing to the old ways of operation	3 (14.3%)	3 (15.0%)	4 (20.0%)	3 (15.0%)
Implementation of corrective action to put programme back on track	2 (9.5%)	1 (5.0%)	5 (25.0%)	4 (20.0%)
Incorporating environmental strategies into every day activities/culture	3 (14.3%)	1 (5.0%)	5 (25.0%)	8 (40.0%)

Q47 Advantages realised by the responding sample as a result of implementing an environmental programme.

Advantages			
Compliance with legislation	23 (60.5%)	Improved internal procedures	13 (34.2%)
Waste reduction and reduced waste costs	22 (57.9%)	Cost savings	12 (31.6%)
Pollution prevention	22 (57.9%)	Targets are set AND met	12 (31.6%)
Less environmental risk	21 (55.3%)	Improvement in the training of personnel	11 (28.9%)
Improved environmental awareness among employees	21 (55.3%)	Change in behaviour of managers and workers	11 (28.9%)
Improved environmental performance	20 (52.6%)	Written procedures introduced structure into the company that was not previously there	11 (28.9%)
Reduced consumption of energy and materials	17 (44.7%)	Improved staff involvement	11 (28.9%)
Safer storage of substances & materials	16 (42.1%)	Optimisation in the use of resources	10 (26.3%)
Improved image among employees	16 (42.1%)	Increased market opportunities/competitiveness	7 (18.4%)
Improved knowledge of programme among employees	15 (39.5%)	Improved community relationships	7 (18.4%)
The non-existence of fines and sanctions	13 (34.2%)	Improved customer relationships	6 (15.8%)
Viewed more favourably by the regulator	13 (34.2%)	Improved employee morale	6 (15.8%)
Improved public image	13 (34.2%)	Increased productivity	6 (15.8%)
Enhanced corporate image	13 (34.2%)	Viewed more favourably by the financial sector	3 (7.9%)

APPENDIX C

Appendix C

1. Sectors Characterised by Size and System

	Sector					
	Pesticides, pharm. and vet. Products	**Chemical**	**Food and drink**	**Wood, paper, textiles and leather**	**Electronics, computers and circuit boards**	**Engineering**
Size						
Micro			1 (7.1%)	1 (25.0%)		
Small		5 (45.5%)	2 (14.3%)		1 (33.3.0%)	
Medium	4 (80.0%)	5 (45.5%)	4 (28.6%)	2 (50.0%)	1 (33.3%)	1 (100%)
Large	1 (20.0%)	1 (9.1%)	7 (50.0%)	1 (25.0%)		
Missing					*1 (33.3%)*	
Total	*5 (100%)*	*11 (100%)*	*14 (100%)*	*4 (100%)*	*3 (100%)*	*1 (100%)*
Environmental system						
IPC & ISO in place		4 (36.4%)	6 (42.9%)	1 (25.0%)		
IPC and ISO in develoment	1 (20.0%)			1 (25.0%)		
IPC and uncertified EMS in place	1 (20.0%)	4 (36.4%)				
IPC and uncertified EMS in development	1 (20.0%)					
EMAS & ISO						1 (100%)
ISO only	1 (20.0%)	2 (18.7%)	4 (28.6%)	1 (25.0%)	3 (100%)	
Uncertified EMS only			1 (7.1%)			
No licence or certified or uncertified EMS			1 (7.1%)	1 (25.0%)		
Uncertified EMS in development		1 (9.1%)	1 (7.1%)			
EMAS & IPC & ISO in development	1 (20.0%)					
Missing			*1 (7.1%)*			
Total	*5 (100%)*	*11 (100%)*	*14 (100%)*	*4 (100%)*	*3 (100%)*	*1 (100%)*

Note: % values indicate the % within each sector that are a particular size or have a particular environmental system

Appendix C

2. Environmental Systems in Organisations of Various Sizes

	Size of Organisation				
Environmental system	**Micro**	**Small**	**Medium**	**Large**	**Missing**
IPC & ISO in place		2 (28.6%)	2 (11.8%)	7 (70.0%)	
IPC and ISO in development			2 (11.8%)		
IPC and uncertified EMS in place		3 (42.9%)	1 (5.9%)	1 (10.0%)	
IPC and uncertified EMS in development			1 (5.9%)		
EMAS & ISO			1 (5.9%)		
ISO only	1 (50.0%)	1 (14.3%)	7 (41.2%)	1 (10.0%)	1 (100.0%)
Uncertified EMS only				1 (10.0%)	
No licence or certificate or uncertified EMS	1 (50.0%)	1 (14.3%)			
Uncertified EMS in development			2 (11.8%)		
EMAS & IPC & ISO in development			1 (5.9%)		
Missing					
Total	*2 (100.0%)*	*7 (100.0%)*	*17 (100.0%)*	*10 (100.0%)*	*1 (100.0%)*

Note: % values indicate the % within each size group that have a particular environmental system

Appendix C

3. Number of Top Management Personnel Involved in Various Stages of the Environmental Programme in the Responding Organisations

Organisation No.	Performing initial review	Setting objectives & targets	Choosing projects	Implementing projects	Reviewing projects	Communicating results	Managing programme
1	25	0	3	3	0	3	3
2	0	5	5	1	1	1	1
3	1	1	1	1	1	1	1
5	2	2	2	2	2	0	1
7	2	2	2	0	1	1	1
9	5	0	5	0	0	0	0
10	5	5	5	2	0	1	1
11	8	8	4	0	0	0	2
12	0	0	2	2	0	0	0
13	6	6	6	6	6	6	1
14	1	1	1	1	1	1	1
15	10	10	10	0	10	1	1
16	2	2	2	2	2	2	2
17	8	8	8	8	3	1	1
19	0	0	0	0	0	0	0
20	0	0	0	0	1	0	0
21	1	1	1	1	1	1	1
22	7	7	0	0	7	0	0
23	1	1	1	1	1	1	1
24	6	6	6	6	6	2	2
25	1	1	1	0	1	1	1
28	4	4	4	4	4	0	0
29	1	0	1	0	1	0	1
31	2	1	1	1	1	1	1
32	1	1	0	all	various	various	1
33	0	0	0	0	0	0	0
34	3	2	2	2	2	2	2
35	3	6	6	1	6	1	2
36	3	3	3	0	3	1	3
37	4	4	4	3	2	2	2
38	0	0	0	0	0	0	1

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4. Number of Middle Management Personnel Involved in Various Stages of the Environmental Programme in the Responding Organisations

Organisation No.	Performing initial review	Setting objectives & targets	Choosing projects	Implementing projects	Reviewing projects	Communicating results	Managing programme
1	0	0	10	10	1	0	10
2	0	1	3	6	1	1	1
3	1	1	1	1	1	1	1
5	3	3	3	3	3	2	2
7	4	4	2	4	0	0	0
9	0	2	2	3	1	1	1
10	5	5	5	5	1	2	1
11	2	2	2	2	2	2	2
12	5	5	5	5	2	0	2
13	8	8	8	8	8	8	3
14	4	4	4	4	4	4	4
15	8	8	8	8	8	8	1
16	2	2	2	2	2	2	2
17	0	as required	as required	as required	1	1	2
19	8	8	4	4	4	1	1
20	1	1	1	1	1	1	1
21	3	3	3	3	3	3	3
22	1	1	1	1	1	1	1
23	1	1	1	1	1	1	1
24	0	0	0	0	0	1	1
25	1	3	1	3	1	1	1
28	0	0	0	0	0	0	0
29	1	1	0	1	1	1	1
31	0	0	0	0	0	1	0
32	3	4	0	all	various	various	4
33	2	4	4	4	4	0	1-2
34	1	2	2	2	2	2	2
35	12	5	5	5	5	5	5
36	4	4	4	4	4	2	2
37	4	4	4	4	0	0	0
38	1	1	1	1	1	1	1

Appendix C

5. Number of Front-line Employees Involved in Various Stages of the Environmental Programme in the Responding Organisations

Organisation No.	Performing initial review	Setting objectives & targets	Choosing projects	Implementing projects	Reviewing projects	Communicating results	Managing programme
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	1	1	1	1	1	1	1
5	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0
10	0	0	0	120	0	0	0
11	0	0	0	0	0	0	0
12	0	0	0	6	0	0	0
13	5	5	5	5	5	5	1
14	0	0	0	5	5	5	5
15	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0
17	0	As required	0	If on project team	If on project team	0	3
19	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0
21	0	0	0	0	2	0	0
22	0	0	0	0	0	0	0
23	1	0	0	0	0	0	0
24	0	0	0	0	0	0	0
25	0	0	0	all	0	0	1
28	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0
32	8	4	0	all	various	various	4
33	0	0	5	5	5	1	0
34	1	2	2	2	2	2	2
35	8	0	0	0	0	0	0
36	0	0	0	0	0	0	0
37	2	3	0	9	0	0	0
38	0	0	0	0	0	0	0

Appendix C

6. Deciding Objectives and Targets in the Responding Organisations

Group	Org Ref. No.	Objectives and targets decided by management and communicated to employees	Objectives and targets decided by management and not communicated to employees	Objectives and targets decided in consultation with employees	No objectives and targets	Unknown
A	17#	?				
	32#			?		
	25#	?				
	10#		?			
	37#			?		
	3#	?				
	21#*			?		
B	35#			?		
	1	?				
	36			?		
	23#					?
C	11	?				
	33#			?		
	29			?		
	9		?			
	13#		?			
	2	?				
	15	?				
	14#	?				
	7		?			
	31					?
	12#	?				
D	19	?				
	22	?				
	38				?	
	20				?	
	16	?				
	24	?				
	34#	?				
	5			?		
	28	?				

Appendix C

7. Communication of Environmental Information to Employees in the Responding Organisations (Group A and B)

Group	Communication		Top Management	Middle Management	Front-line employees
A	Started	When programme initiated	**6/7**	**4/7**	1/7
		During planning	1/7	2/7	**3/7**
		During implementation			1/7
		After implementation			1/7
		Unknown		1/7	1/7
	How often?	Daily	1/7	**2/7**	**2/7**
		Weekly	1/7	1/7	1/7
		Bi-monthly	1/7	1/7	1/7
		Monthly	**3/7**	**2/7**	
		Quarterly	1/7	1/7	1/7
		Bi-annually			**2/7**
		Annually			
		Rarely			
		Never			
B	Started	When programme initiated	**2/4**		
		During planning	1/4	**2/4**	1/4
		During implementation			1/4
		After implementation			
		Unknown	1/4	**2/4**	**2/4**
	How often?	Daily			
		Weekly		**2/4**	**2/4**
		Bi-monthly			
		Monthly	1/4	1/4	1/4
		Quarterly	**2/4**	1/4	1/4
		Bi-annually			
		Annually	1/4		
		Rarely			
		Never			

Appendix C

8. Communication of Environmental Information to Employees in the Responding Organisations (Group C and D)

Group	Communication		Top Management	Middle Management	Front-line employees
C	Started	When programme initiated	**7/11**	**5/11**	3/11
		During planning	2/11	**5/11**	2/11
		During implementation			**5/11**
		After implementation			
		Unknown	2/11	1/11	1/11
	How often?	Daily		1/11	
		Weekly		2/11	**5/11**
		Bi-monthly			
		Monthly	**7/11**	**4/11**	3/11
		Quarterly	2/11	2/11	1/11
		Bi-annually			
		Annually			
		As required	1/11	1/11	1/11
		Rarely	1/11	1/11	1/11
		Never			
D	Started	When programme initiated	**5/9**	**4/9**	1/9
		During planning	1/9	**3/9**	1/9
		During implementation			**4/9**
		After implementation	1/9		1/9
		No Communication	1/9	1/9	1/9
		Unknown	1/9	1/9	1/9
	How often?	Daily			1/9
		Weekly	1/9		
		Bi-monthly			
		Monthly	**3/9**	**5/9**	**4/9**
		Quarterly			
		Bi-annually	1/9	1/9	
		Annually	**2/9**	1/9	1/9
		Never	1/9	1/9	2/9
		Unknown	1/9	1/9	1/9

Appendix C

9. The Level of Difficulty Experienced Trying to Convince Various Groups of Staff to Accept an Environmental Programme. (Average Rating in Each Group of Organisations)

Indicate the level of difficulty experienced trying to convince the following to accept an environmental programme.	Group A	S.D Group A	Group B	S.D Group B	Group C	S.D Group C	Group D	S.D Group D
CEO	2	1.134 (n=6)	4	1.000 (n=4)	2	0.823 (n=10)	2	0.756 (n=8)
Top Management	3	0.488 (n=7)	3	0.816 (n=4)	4	0.675 (n=10)	4	0.991 (n=8)
Department heads/managers	4	0.787 (n=7)	3	0.816 (n=4)	4	0.816 (n=10)	4	0.707 (n=8)
Supervisors/line managers	2	1.265 (n=6)	3	0.500 (n=4)	3	0.994 (n=10)	4	0.535 (n=8)
Production staff	3	1.113 (n=7)	2	0.500 (n=4)	3	0.675 (n=10)	3	0.926 (n=8)
Maintenance staff	2	1.304 (n=5)	3	0.000 (n=4)	2	0.726 (n=9)	3	1.126 (n=8)
Administration staff	2	0.816 (n=7)	2	0.577 (n=4)	2	0.632 (n=10)	3	0.916 (n=8)
Purchasing staff	3	1.069 (n=7)	3	0.577 (n=4)	3	0.632 (n=10)	4	0.744 (n=8)
Contractors	3	1.033 (n=6)	2	1.258 (n=4)	3	1.252 (n=10)	3	1.291 (n=7)
Suppliers	3	0.756 (n=7)	2	1.000 (n=3)	3	0.943 (n=10)	3	1.329 (n=6)

Indicate the level of difficulty experienced trying to convince the following to accept an environmental programme.	Organisations with front-line involvement	S.D	Organisations without front-line involvement	S.D
CEO	2	0.994 (n=14)	2	0.941 (n=15)
Top Management	2	0.825 (n=14)	2	0.799 (n=15)
Department heads/managers	2	0.961 (n=14)	3	0.828 (n=15)
Supervisors/line managers	2	1.013 (n=13)	3	0.961 (n=15)
Production staff	2	0.994 (n=14)	3	0.617 (n=15)
Maintenance staff	2	0.853 (n=12)	3	0.864 (n=14)
Administration staff	2	0.663 (n=14)	2	0.834 (n=15)
Purchasing staff	2	0.825 (n=14)	3	0.724 (n=15)
Contractors	3	0.877 (n=13)	4	1.222 (n=14)
Suppliers	3	0.852 (n=14)	3	0.900 (n=12)

1= Easy
2= A little difficulty
3= Some difficulty
4=A lot of difficulty
5= Extreme difficulty

Appendix C

10. The Main Reasons Middle Management are Reluctant to Accept Changes Made as Part of the Environmental Programme (Average rating in each group of organisations)

What are the main reasons middle management are reluctant to accept changes made as part of the environmental programme?	Group A	S.D Group A	Group B	S.D Group B	Group C	S.D Group C	Group D	S.D Group D
Feel position is threatened/will lose control in work area	2	1.155 (n=3)	3	1.155 (n=3)	2	0.916 (n=8)	3	1.408 (n=8)
Perceive programme as requiring additional time and work	5	0.577 (n=3)	5	1.732 (n=4)	4	1.202 (n=9)	4	1.356 (n=8)
Do not want to spend limited budget in environmental area	3	1.528 (n=3)	4	1.291 (n=4)	3	1.424 (n=9)	2	1.808 (n=8)
Do not see need for/benefit of programme	3	1.528 (n=3)	2	1.258 (n=4)	3	1.069 (n=8)	3	1.282 (n=8)
Do not understand programme due to lack of communication	3	2 (n=3)	3	1.291 (n=4)	3	0.833 (n=9)	2	0.641 (n=8)
Most of their peers resist change and individuals are pressurized to do the same	2	1.155 (n=3)	3	1.732 (n=4)	2	1.054 (n=9)	2	0.641 (n=8)
No incentive to include environmental issues in decision-making	3	1.528 (n=3)	3	0.816 (n=4)	3	1.225 (n=9)	4	1.195 (n=8)
Fear of blame if programme does not succeed in their area	2	1.155 (n=3)	2	2.082 (n=4)	2	1.394 (n=9)	2	1.069 (n=8)
Previous attempts to make environmental change have failed and managers believe new attempts will fail also	2	1.155 (n=3)	2	0.817 (n=4)	3	1.323 (n=9)	3	1.309 (n=8)
Told about changes rather than included in the planning of those changes	3	1.528 (n=3)	3	0.817 (n=4)	3	1.509 (n=9)	2	1.126 (n=8)
Organisation going through period of change already, further change due to environmental activities not welcome	3	1.528 (n=3)	2	1.258 (n=4)	3	1.269 (n=9)	2	0.991 (n=8)
Managers recognise that changes are not fully supported by top management and do not see why they should invest any time in programme either	2	1 (n=3)	3	1.291 (n=4)	3	1.167 (n=9)	2	1.488 (n=8)

What are the main reasons middle management are reluctant to accept changes made as part of the environmental programme?	Organisations with front-line involvement	S.D	Organisations without front-line involvement	S.D
Feel position is threatened/will lose control in work area	3	1.188 (n=7)	2	1.151 (n=14)
Perceive programme as requiring additional time and work	4	1.225 (n=8)	4	1.320 (n=15)
Do not want to spend limited budget in environmental area	3	1.236 (n=8)	3	1.767 (n=15)
Do not see need for/benefit of programme	2	1.014 (n=18)	3	1.269 (n=15)
Do not understand programme due to lack of communication	3	1.424 (n=8)	3	0.743 (n=15)
Most of their peers resist change and individuals are pressurized to do the same	2	0.782 (n=8)	2	1.163 (n=15)
No incentive to include environmental issues in decision-making	2	1.130 (n=8)	3	1.113 (n=15)
Fear of blame if programme does not succeed in their area	2	0.926 (n=7)	2	1.447 (n=15)
Previous attempts to make environmental change have failed and managers believe new attempts will fail also	2	0.833 (n=18)	3	1.280 (n=15)
Told about changes rather than included in the planning of those changes	2	1.202 (n=8)	3	1.291 (n=15)
Organisation going through period of change already, further change due to environmental activities not welcome	3	1.509 (n=8)	2	1.125 (n=15)
Managers recognise that changes are not fully supported by top management and do not see why they should invest any time in programme either	2	1.118 (n=8)	3	1.265 (n=15)

1= Strongly disagree
2=Slightly disagree
3= Neither agree nor disagree
4=Slightly agree
5= Strongly agree

Appendix C

11. The Main Reasons Front-line Employees are Reluctant to Accept Changes Made as Part of the Environmental Programme (Average rating in each group of organisations)

What are the main reasons front-line employees are reluctant to accept changes made as part of the environmental programme?	Group A	S.D Group A	Group B	S.D Group B	Group C	S.D Group C	Group D	S.D Group D
Feel position is threatened when changes made to their work procedure	2	0.983 (n=6)	4	1.708 (n=4)	2	0.886 (n=8)	2	1.202 (n=9)
Reluctant to alter how they have performed their work for years	3	1.673 (n=6)	3	2.062 (n=4)	4	0.886 (n=8)	4	0.866 (n=9)
Perceive programme as requiring additional time and work	4	1.169 (n=6)	3	2.062 (n=4)	4	1.061 (n=8)	4	1.302 (n=9)
Do not see need for/benefit of programme	2	1.506 (n=6)	3	1.291 (n=4)	3	0.835 (n=8)	4	0.882 (n=9)
Do not understand programme due to lack of communication	3	1.761 (n=6)	2	0.957 (n=4)	3	1.035 (n=8)	3	0.972 (n=9)
Most of their peers resist change and individuals are pressurized to do the same	2	1.095 (n=6)	3	1.708 (n=4)	2	1.126 (n=8)	3	1.167 (n=9)
Previous attempts to make environmental change have failed and managers believe new attempts will fail also	2	0.983 (n=6)	2	0.816 (n=4)	2	1.408 (n=8)	3	1.118 (n=9)
Told about changes rather than included in the planning of those changes	3	1.225 (n=6)	3	1.291 (n=4)	3	1.309 (n=8)	4	1.093 (n=9)
Organisation going through period of change already, further change due to environmental activities not welcome	3	1.033 (n=6)	2	1.258 (n=4)	3	1.061 (n=8)	3	1.394 (n=9)
Employees recognise that changes are not fully supported by top management and do not see why they should invest any time in programme either	3	1.225 (n=6)	2	0.500 (n=4)	3	1.389 (n=8)	3	1.481 (n=9)

What are the main reasons front-line employees are reluctant to accept changes made as part of the environmental programme?	Organisations with front-line involvement	S.D	Organisations without front-line involvement	S.D
Feel position is threatened when changes made to their work procedure	2	0.965 (n=12)	2	1.234 (n=15)
Reluctant to alter how they have performed their work for years	3	1.404 (n=12)	4	1.100 (n=15)
Perceive programme as requiring additional time and work	4	1.165 (n=12)	4	1.387 (n=15)
Do not see need for/benefit of programme	3	1.165 (n=12)	3	1.082 (n=15)
Do not understand programme due to lack of communication	2	1.311 (n=12)	3	1.033 (n=15)
Most of their peers resist change and individuals are pressurized to do the same	2	1.055 (n=12)	3	1.387 (n=15)
Previous attempts to make environmental change have failed and managers believe new attempts will fail also	2	0.793 (n=12)	3	1.298 (n=15)
Told about changes rather than included in the planning of those changes	2	1.084 (n=12)	3	1.345 (n=15)
Organisation going through period of change already, further change due to environmental activities not welcome	2	0.888 (n=12)	3	1.302 (n=15)
Employees recognise that changes are not fully supported by top management and do not see why they should invest any time in programme either	2	1.045 (n=12)	3	1.309 (n=15)

1= Strongly disagree
2=Slightly disagree
3= Neither agree nor disagree
4=Slightly agree
5= Strongly agree

Appendix C

12. Overcoming Resistance to the Environmental Programme (Responses given in each group)

Have the following been used to assist in overcoming resistance to the environmental programme?	Group A (n=5)		Group B (n=4)		Group C (n=8)		Group D (n=9)	
	Yes	No	Yes	No	Yes	No	Yes	No
Implement programme regardless of resistance form employees	0	4	0	1	3	3	5	3
Restructure environmental actions based on employee concerns	1	2	2	2	3	5	4	3
Provide training/information seminars to make employees aware of the programme, explain why it is necessary and alleviate fears	4	0	4	0	7	1	6	2
Continually provide updates to the staff involved as the programme progresses	4	0	3	0	5	2	7	1
Allow potential resistors to participate in designing the programme so they become committed to it	4	1	1	3	4	4	3	6
Ensure visible support is provided by top management to indicate how important the changes are	4	0	3	1	5	2	6	1
Provide incentives to cooperate	1	4	1	3	1	6	3	5

Have the following been used to assist in overcoming resistance to the environmental programme?	Organisations with front-line involvement (n= 11)		Organisations without front-line involvement (n=15)	
	Yes	No	Yes	No
Implement programme regardless of resistance form employees	2	6	4	6
Restructure environmental actions based on employee concerns	3	6	7	6
Provide training/information seminars to make employees aware of the programme, explain why it is necessary and alleviate fears	10	0	11	3
Continually provide updates to the staff involved as the programme progresses	10		9	3
Allow potential resistors to participate in designing the programme so they become committed to it	8	3	4	11
Ensure visible support is provided by top management to indicate how important the changes are	10	0	8	4
Provide incentives to cooperate	4	7	2	11

Appendix C

13. Percentage of Organisations in Each Group that Found the Following Aspects Created Delays in the Implementation of the Environmental Programme

Aspects creating delays in the implementation of the programme	Group A (%) (N=5)	Group B (%) *(N=4)*	Group C (%) *(N=9)*	Group D (%) *(N=5)*	Organisations with front-line involvement (%) *(N=11)*	Organisations without front-line involvement (%) *(N=13)*
Lack of top management support	0.0	0.0	22.2	0.0	9.1	7.7
Lack of supervisory support	0.0	0.0	44.4	40.0	9.1	38.5
Front-line employee response/attitude	0.0	0.0	22.2	0.0	9.1	7.7
Lack of personnel to implement EMS	40.0	25.0	33.3	20.0	18.2	38.5
Lack of expertise to fully implement the programme	20.0	25.0	44.4	0.0	27.3	23.1
No sense of urgency established	20.0	0.0	11.1	20.0	9.1	15.4
Poor leadership	0.0	0.0	11.1	0.0	0.0	7.7
Leaders lack of influence over operations	0.0	0.0	22.2	0.0	0.0	15.4
Lack of financial resources	40.0	25.0	33.3	20.0	45.5	15.4
Lack of planning	20.0	0.0	22.2	0.0	9.1	15.4
Poor communication between environmental personnel and other areas	0.0	0.0	11.1	40.0	18.2	7.7
Lack of awareness of environmental goals and/or expected outcome	20.0	0.0	11.1	20.0	18.2	7.7
Lack of awareness of programme's progress	20.0	25.0	33.3	0.0	27.3	15.4
Employee involvement not encouraged	0.0	0.0	0.0	20.0	0.0	7.7
No incentive provided to employees to participate in environmental strategies	20.0	0.0	33.3	0.0	9.1	23.1
Necessary training not provided	20.0	0.0	22.2	0.0	9.1	15.4
No guidance or support provided to employees to cope with changes in their daily routines	0.0	0.0	0.0	20.0	0.0	7.7
Workplace politics/conflict	0.0	0.0	22.2	60.0	9.1	30.8
Conflicts between environmental and other corporate priorities	20.0	25.0	33.3	0.0	18.2	23.1
Successes are slow to achieve	20.0	25.0	11.1	20.0	27.3	7.7
Successes not recognised	20.0	0.0	0.0	0.0	9.1	0.0
Departments opting out	20.0	25.0	11.1	20.0	9.1	23.1
Waning support from management	0.0	0.0	33.3	0.0	0.0	23.1
Waning support from employees	0.0	0.0	0.0	0.0	0.0	0.0
Monitoring progress and audits	40.0	0.0	0.0	40.0	18.2	15.4
Programme implementation going off track	20.0	25.0	11.1	40.0	18.2	23.1
Regressing to the old ways of operation	0.0	0.0	22.2	20.0	9.1	15.4
Implementation of corrective action to put programme back on track	0.0	0.0	11.1	20.0	0.0	15.4
Incorporating environmental strategies into every day activities/culture	20.0	25.0	11.1	0.0	18.2	7.7

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14. Percentage of Organisations in Each Group that Found the Following Aspects were Difficult to Address in the Implementation of the Environmental Programme

Aspects which were difficult to address in the implementation of the programme	Group A (%) (N=5)	Group B (%) (*N=4*)	Group C (%) (*N=9*)	Group D (%) (*N=5*)	Organisations with front-line involvement (%) (*N=11*)	Organisations without front-line involvement (%) (*N=13*)
Lack of top management support	0.0	0.0	22.2	20.0	9.1	15.4
Lack of supervisory support	0.0	25.0	11.1	60.0	9.1	30.8
Front-line employee response/attitude	0.0	25.0	0.0	20.0	0.0	15.4
Lack of personnel to implement EMS	60.0	50.0	11.1	20.0	45.5	15.4
Lack of expertise to fully implement the programme	20.0	50.0	11.1	0.0	27.3	7.7
No sense of urgency established	20.0	50.0	11.1	20.0	27.3	15.4
Poor leadership	0.0	0.0	0.0	0.0	0.0	0.0
Leaders lack of influence over operations	20.0	50.0	11.1	0.0	18.2	15.4
Lack of financial resources	20.0	0.0	22.2	0.0	18.2	7.7
Lack of planning	20.0	0.0	0.0	0.0	9.1	0.0
Poor communication between environmental personnel and other areas	0.0	25.0	0.0	20.0	9.1	7.7
Lack of awareness of environmental goals and/or expected outcome	20.0	25.0	11.1	0.0	18.2	7.7
Lack of awareness of programme's progress	0.0	0.0	11.1	20.0	9.1	7.7
Employee involvement not encouraged	0.0	25.0	0.0	20.0	0.0	15.4
No incentive provided to employees to participate in environmental strategies	0.0	25.0	22.2	20.0	0.0	30.8
Necessary training not provided	20.0	0.0	0.0	0.0	9.1	0.0
No guidance or support provided to employees to cope with changes in their daily routines	0.0	50.0	0.0	0.0	9.1	7.7
Workplace politics/conflict	20.0	50.0	11.1	0.0	18.2	15.4
Conflicts between environmental and other corporate priorities	0.0	0.0	11.1	0.0	0.0	7.7
Successes are slow to achieve	40.0	25.0	11.1	40.0	27.3	23.1
Successes not recognised	20.0	25.0	0.0	0.0	9.1	7.7
Departments opting out	20.0	0.0	11.1	0.0	9.1	7.7
Waning support from management	0.0	25.0	22.2	0.0	0.0	23.1
Waning support from employees	20.0	25.0	0.0	20.0	9.1	15.4
Monitoring progress and audits	0.0	0.0	0.0	20.0	0.0	7.7
Programme implementation going off track	20.0	0.0	11.1	20.0	18.2	7.7
Regressing to the old ways of operation	20.0	50.0	0.0	0.0	18.2	7.7
Implementation of corrective action to put programme back on track	0.0	0.0	11.1	0.0	0.0	7.7
Incorporating environmental strategies into every day activities/culture	20.0	0.0	0.0	0.0	9.1	0.0

15. Percentage of Organisations in Each Group that Found the Following Aspects were Specifically Addressed in the Implementation of the Environmental Programme

Aspects which were specifically addressed in the implementation of the programme	Group A (%) *(N=5)*	Group B (%) *(N=4)*	Group C (%) *(N=9)*	Group D (%) *(N=5)*	Organisations with front-line involvement (%) *(N=11)*	Organisations without front-line involvement (%) *(N=13)*
Lack of top management support	20.0	0.0	22.2	20.0	27.3	7.7
Lack of supervisory support	20.0	0.0	33.3	0.0	27.3	7.7
Front-line employee response/attitude	20.0	25.0	22.2	0.0	36.4	0.0
Lack of personnel to implement EMS	20.0	25.0	22.2	40.0	36.4	15.4
Lack of expertise to fully implement the programme	20.0	25.0	11.1	20.0	27.3	7.7
No sense of urgency established	40.0	25.0	22.2	40.0	36.4	23.1
Poor leadership	20.0	25.0	0.0	20.0	9.1	15.4
Leaders lack of influence over operations	40.0	25.0	0.0	40.0	36.4	7.7
Lack of financial resources	80.0	0.0	11.1	20.0	36.4	15.4
Lack of planning	40.0	0.0	11.1	20.0	27.3	7.7
Poor communication between environmental personnel and other areas	40.0	0.0	33.3	40.0	27.3	30.8
Lack of awareness of environmental goals and/or expected outcome	40.0	0.0	22.2	60.0	27.3	30.8
Lack of awareness of programme's progress	40.0	25.0	0.0	20.0	18.2	15.4
Employee involvement not encouraged	20.0	0.0	11.1	0.0	18.2	0.0
No incentive provided to employees to participate in environmental strategies	20.0	0.0	0.0	20.0	9.1	7.7
Necessary training not provided	40.0	25.0	22.2	20.0	27.3	23.1
No guidance or support provided to employees to cope with changes in their daily routines	20.0	0.0	11.1	20.0	18.2	7.7
Workplace politics/conflict	20.0	0.0	0.0	0.0	9.1	0.0
Conflicts between environmental and other corporate priorities	20.0	0.0	11.1	40.0	18.2	15.4
Successes are slow to achieve	20.0	25.0	22.2	0.0	9.1	23.1
Successes not recognised	40.0	0.0	22.2	20.0	27.3	15.4
Departments opting out	20.0	0.0	0.0	20.0	9.1	7.7
Waning support from management	40.0	0.0	0.0	20.0	18.2	7.7
Waning support from employees	20.0	0.0	11.1	0.0	9.1	7.7
Monitoring progress and audits	40.0	50.0	22.2	20.0	36.4	23.1
Programme implementation going off track	20.0	50.0	0.0	20.0	18.2	15.4
Regressing to the old ways of operation	20.0	25.0	11.1	20.0	18.2	15.4
Implementation of corrective action to put programme back on track	20.0	50.0	0.0	20.0	18.2	15.4
Incorporating environmental strategies into every day activities/culture	40.0	25.0	11.1	20.0	36.4	7.7

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16. Percentage of Organisations in Each Group that Found the Following Aspects were Successfully Addressed in the Implementation of the Environmental Programme

Aspects which were successfully addressed in the implementation of the programme	Group A (%) *(N=5)*	Group B (%) *(N=4)*	Group C (%) *(N=9)*	Group D (%) *(N=5)*	Organisations with front-line involvement (%) *(N=11)*	Organisations without front-line involvement (%) *(N=13)*
Lack of top management support	20.0	25.0	44.4	60.0	36.4	38.5
Lack of supervisory support	20.0	25.0	33.3	40.0	36.4	23.1
Front-line employee response/attitude	20.0	0.0	22.2	20.0	36.4	0.0
Lack of personnel to implement EMS	60.0	0.0	22.2	20.0	45.5	7.7
Lack of expertise to fully implement the programme	40.0	0.0	22.2	40.0	45.5	7.7
No sense of urgency established	40.0	0.0	33.3	0.0	36.4	7.7
Poor leadership	20.0	0.0	11.1	20.0	27.3	0.0
Leaders lack of influence over operations	20.0	0.0	11.1	0.0	18.2	0.0
Lack of financial resources	80.0	25.0	22.2	0.0	45.5	15.4
Lack of planning	40.0	25.0	11.1	0.0	27.3	7.7
Poor communication between environmental personnel and other areas	60.0	0.0	22.2	0.0	45.5	0.0
Lack of awareness of environmental goals and/or expected outcome	40.0	0.0	22.2	20.0	36.4	7.7
Lack of awareness of programme's progress	80.0	25.0	11.1	20.0	54.5	7.7
Employee involvement not encouraged	40.0	0.0	22.2	0.0	36.4	0.0
No incentive provided to employees to participate in environmental strategies	20.0	0.0	11.1	20.0	27.3	0.0
Necessary training not provided	60.0	0.0	22.2	0.0	45.5	0.0
No guidance or support provided to employees to cope with changes in their daily routines	20.0	0.0	33.3	0.0	27.3	7.7
Workplace politics/conflict	20.0	0.0	11.1	20.0	18.2	7.7
Conflicts between environmental and other corporate priorities	40.0	50.0	0.0	20.0	36.4	7.7
Successes are slow to achieve	20.0	25.0	22.2	0.0	27.3	7.7
Successes not recognised	20.0	0.0	44.4	40.0	36.4	23.1
Departments opting out	20.0	0.0	11.1	0.0	18.2	0.0
Waning support from management	20.0	0.0	11.1	0.0	18.2	0.0
Waning support from employees	20.0	0.0	11.1	0.0	18.2	0.0
Monitoring progress and audits	40.0	0.0	33.3	20.0	45.5	7.7
Programme implementation going off track	20.0	0.0	22.2	0.0	18.2	7.7
Regressing to the old ways of operation	20.0	25.0	11.1	0.0	27.3	0.0
Implementation of corrective action to put programme back on track	40.0	0.0	11.1	20.0	36.4	0.0
Incorporating environmental strategies into every day activities/culture	80.0	0.0	33.3	20.0	63.6	7.7

Appendix C

17. The Percentage of Organisations in Each Group that Experienced Various Advantages as a Result of Implementing the Environmental Programme

Advantages	Group A (%) *(N=7)*	Group B (%) *(N=4)*	Group C (%) *(N=9)*	Group D (%) *(N=6)*	Organisations with front-line involvement (%) *(N=13)*	Organisations without front-line involvement (%) *(N=13)*
The non-existence of fines and sanctions	42.9	75.0	55.6	33.3	46.2	53.8
Optimisation in the use of resources	14.3	25.0	22.2	83.3	30.8	38.5
Improved image among employees	85.7	50.0	55.6	33.3	69.2	46.2
Improvement in the training of personnel	42.9	0.0	55.6	50.0	46.2	38.5
Increased market opportunities/competitiveness	42.9	25.0	33.3	16.7	53.8	7.7
Waste reduction and reduced waste costs	85.7	75.0	88.9	83.3	84.6	84.6
Reduced consumption of energy and materials	100.0	50.0	55.6	50.0	84.6	46.2
Safer storage of substances & materials	57.1	50.0	66.7	66.7	46.2	76.9
Change in behaviour of managers and workers	42.9	50.0	55.6	33.3	53.8	38.5
Viewed more favourably by the regulator	42.9	25.0	66.7	33.3	30.8	61.5
Improved environmental performance	85.7	75.0	88.9	66.7	84.6	76.9
Viewed more favourably by the financial sector	14.3	25.0	11.1	0.0	15.4	7.7
Written procedures introduced structure into the company that was not previously there	42.9	25.0	55.6	16.7	38.5	38.5
Improved environmental awareness among employees	71.4	75.0	77.8	100.0	69.2	92.3
Improved knowledge of programme among employees	57.1	75.0	66.7	50.0	61.5	61.5
Compliance with legislation	85.7	75.0	88.9	83.3	76.9	92.3
Improved public image	57.1	50.0	66.7	33.3	46.2	61.5
Cost savings	42.9	75.0	44.4	33.3	46.2	46.2
Targets are set AND met	42.9	50.0	22.2	66.7	53.8	30.8
Improved staff involvement	42.9	75.0	44.4	16.7	53.8	30.8
Pollution prevention	85.7	75.0	100.0	66.7	84.6	84.6
Enhanced corporate image	57.1	75.0	44.4	33.3	53.8	46.2
Less environmental risk	85.7	75.0	77.8	83.3	69.2	92.3
Improved customer relationships	28.6	25.0	33.3	16.7	30.8	23.1
Improved employee morale	14.3	50.0	22.2	16.7	30.8	15.4
Improved internal procedures	57.1	25.0	66.7	33.3	53.8	46.2
Increased productivity	42.9	0.0	11.1	33.3	38.5	7.7
Improved community relationships	14.3	50.0	33.3	16.7	23.1	30.8