



Professional education and training for sustainable development in SMEs



EUROPEAN FOUNDATION
for the Improvement of Living and Working Conditions

Professional education and training for sustainable development in SMEs

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Mark Hilton and David Smith



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Foreword

Following the Treaty of Amsterdam, the principle of sustainable development has been enshrined as one of the key aims of the European Union. Since the mid-1980s the environment, and subsequently sustainable development, have been pivotal elements of the Foundation's work programmes.

During the period 1997-2000, the particular priority of the Foundation was to develop activities to assist the social partners and policy makers involved in this area at European level and also to address the specific needs of small and medium-sized enterprises (SMEs). The current report is the principal publication to emerge from the project on Professional Education and Training for Sustainable Development relating to SMEs (1997-2000) which was a continuation of research managed by Jørn Pedersen in the previous work programme (1993-1997).

The authors examine the situation of environmental and sustainable development training and education provision in the European Union in what is a synthesis of the main themes to emerge from national reports covering nine member states completed in 1998-2000.

The report looks at existing training structures, institutions and curricula, assesses current training provision and seeks to identify trends at local/regional, national and European level, as well as at social partner level. It is now generally recognised that SMEs have quite specific training needs and requirements which are often different from those of larger companies and the report highlights practical opportunities for innovative measures and initiatives, including how the existing training supply can be made more accessible via new delivery methods such as distance learning and virtual learning.

It is our hope that this report will serve as a useful overview of the current state-of-play in sustainable development and environmental training in the European Union and that its conclusions will serve to inform and stimulate debate about future developments in this area.

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Chapter 1



Introduction

Introduction

This report from the European Foundation for the Improvement of Living and Working Conditions aims to bring together the findings of nine national studies on professional education and training for sustainable development in industrial SMEs which were commissioned by the Foundation over the last two years.¹ The studies cover the following EU Member States: Belgium, Denmark, France, Germany, Italy, Netherlands, Spain, Sweden and the UK. Most of the national studies adopted a combined approach involving some desk research along with case studies to obtain a more detailed understanding. The case studies were based on the following industrial sectors:

- speciality chemicals;
- food and drink;
- printing.

64 companies were interviewed: six German companies in each sector and 46 companies across the other eight countries (an average of just under six per country).

To make the consultation programme easier and to enable sector comparisons, the studies concentrated on key industrial regions in the Member States. Sectors were chosen on the grounds that they:

- are key industrial sectors in all the nine countries studied;
- contain large numbers of SMEs and in some Member States were regarded as essentially ‘SME sectors’;
- have serious issues in terms of the internal and external working environment.

¹ The report describes transnational projects involving organisations from different Member States operating within the same region and otherwise (i.e. in their own distinct regions).

Methodology

In terms of this consolidation report, the work has primarily involved collation of information from the significant body of material contained within the nine national studies (over 1000 pages of text). We have also conducted supplementary research, both desk-based and involving telephone consultations with key organisations and individuals. This supplementary work has been undertaken to meet the requirements of the project specifications (see Objectives below) and in particular has aimed to uncover new training initiatives and to obtain further details of initiatives discussed in several of the national studies.

Supplementary consultations took place with:

- UNICE (EU industry confederation);
- UEAPME (SME confederation);
- ETUC (European trade union confederation);
- Confederation of Finnish Industry and Employers;
- Centre for Cleaner Production Initiatives (Barcelona);
- NUTEK (Sweden);
- Federation of Private Enterprises (Sweden);
- FEDICHEM (Belgium);
- FNV (Dutch Trade Union Federation);
- LO (Danish Trade Union Federation);
- Danish Clerical Workers Union;
- CCOO (Spanish Trade Union);
- The Dutch Ministry for Environment (VROM);
- The ADAPT Support Unit (UK).
- The Open University (UK);
- The Centre for Sustainable Design (UK);
- Dr Ruth Hillary (EMS expert and consultant).

It should be noted that the specifications for the nine national studies placed a clear emphasis on the environmental rather than the social and economic aspects of sustainable development. This is reflected in the consolidated report, although we have tried to draw in additional material relating to occupational health and safety and wider social issues where possible.

When we have referred to ‘environment’ we mean the ‘external’ environment outside the firm, in contrast to the ‘internal’ environment which we have covered through our discussions of company health and safety and other important issues.

Aims and objectives

As noted above the main aim of the report is to bring together the key findings of the nine national studies, illustrating the major issues. There are also a number of specific objectives outlined here:

- identify common success factors and underlying trends and strategies;
- note the role of public authorities, the social partners and SMEs themselves;



- note the relationship between the SD policy debate and practical changes;
- present interesting and successful ‘best practice’ initiatives (that is, those which have led to change) and which particularly deal with:
 - adaptation and mainstreaming of initiatives;
 - supply chain effects, that is, large companies influencing their smaller suppliers/customers;
 - initiatives of the social partners, particularly joint agreements;
 - cross-border co-operation;²
 - SME self-help networks and fora.

The report also aims to provide conclusions and recommendations in relation to possible actions at different levels by different actors, noting the Member State differences and commonalities. It should be noted that this report complements other work undertaken by the European Foundation for the Improvement of Living and Working Conditions (‘the Foundation’) and also other EU organisations (such as CEDEFOP) in the field of training and the environment.

The structure of the report

As far as possible, the report structure follows that of the original national studies. A list of abbreviations provides the full title (and, where appropriate, the English translation) of different titles/terminology used throughout the report.

The chapter entitled *SMEs in their national, social, economic and environmental context* sets SMEs in their national, social, economic and environmental context. The definition of SMEs is covered in greater detail and their economic and social importance is discussed. The key institutions with which SMEs interact are introduced in a sub-section on organisational issues. This is very important as these institutions are discussed at length later in the report in terms of their role in providing sustainable development training. The environmental context in which SMEs operate is also introduced in this section.

The chapter entitled *Education and training frameworks in the case study countries* looks at the overall education and training policies and the operational framework in each of the nine countries. It is clear that the systems in place are very different both between countries and, in certain cases, within the same country. The relevance of this section is that, when discussing the possible transfer of successful sustainable development training initiatives between countries, differing education and training frameworks need to be considered .

The chapter entitled *Education and training requirements of SMEs* examines SME education and training requirements. It collates the findings of the nine national studies and covers four broad issues:

- the requirement that SMEs should develop a better understanding of their own training needs;

² It is appropriate to mention the reports on Training in Environmental Management. Industry and Sustainability: Corporate Environmental and Resource Management and Educational Requirements (European Foundation for the Improvement of Working and Living Conditions, 1996).

- the content of environmental training;
- the arguments as to whether environmental training should create specialists in narrow competencies or staff who possess a broad range of skills (this is the ‘generalisation versus customisation’ argument);
- the important issue of appropriate delivery mechanisms for environmental training.

The chapter entitled *Education and training provision for SMEs* looks at the current provision of environmental training across the nine case study countries. After a short subsection outlining the wide range of training opportunities currently available (and how they have grown substantially over the last decade or so), each of the key providers is examined in turn. As well as general issues relating to each training provider, a large number of case study examples is provided in boxes interspersed throughout the text. These have been taken both from the nine national studies and from the results of supplementary research undertaken for the project.

The chapter entitled *Summary of the discussion and conclusions* provides further discussion and conclusions. The critical issue of whether it is possible to make broad statements as to the training requirements of SMEs, given the sheer variation which exists between them, is examined. The need to identify the training needs of SMEs, how best to engage them (in terms of both course content and means of delivery), targeting training to the right audience and the need for an holistic approach to environmental training are all covered.

The chapter entitled *Concluding remarks and recommendations* briefly summarises the key issues which emerge from the study and then offers closing comments and focussed policy recommendations on the basis of the report’s findings.

Annex 1 is a list of abbreviations used in the report. Annex 2 is a glossary of key terms and definitions. Annex 3 lists the authors of the nine national studies upon which this report is largely based with contact details. Annex 4 provides the project specifications relating to the restricted call for tender notice for this study.

National definitions of an SME

Many different definitions exist for what constitutes a small and medium sized enterprise (SME). The EU developed a widely used definition in 1996,³ in which SMEs are defined as enterprises which have:

- fewer than 250 employees;
- a yearly turnover of less than 40 million Euro *or* a balance of less than 27 million Euro;
- less than 25% of their capital or voting rights in the ownership of a non-SME.

This definition can be broken down further into enterprises which are classed as:

- *micro* (fewer than 10 employees);
- *small* (fewer than 50 employees, a maximum turnover of less than seven million Euro or a maximum balance sheet total of five million Euro);
- *medium* (fewer than 250 employees, a maximum turnover of 40 million Euro or a maximum balance sheet of 27 million Euro).

Spain, Italy and the United Kingdom generally use the EU definition but in the case of Italy and the UK, only in terms of the number of employees. In Sweden, SMEs are classified as firms with 1 to 199 employees and in Denmark, 1 to 99 employees. In both France and Belgium, there is no single official definition but the French study uses a definition of firms with fewer than 500

³ Commission Recommendation of 3 April 1996 concerning the definition of SMEs, (OJ L 107 of 30.4.1996, page 4.)

employees while the Belgian definitions are close to the EU definition.⁴ In Germany, the official definition of the *Institute for Research into Small and Medium-Sized Enterprises* has both quantitative and qualitative elements. The qualitative elements are based on characteristics common to the *Mittelstand* (for example family-ownership and owner-management) but the national study only uses the quantitative elements (500 or fewer employees and a yearly turnover of less than 51m Euro).

The economic and social importance of SMEs

The number of SMEs

SMEs account for more than 99.8% of all enterprises and 73 million jobs (or 66% of total employment) in the EU, so their importance is clear (Eurostat Yearbook, 2000). Table 1 shows the number of SMEs (EU definition) and the amount of employment which they sustain in the nine case study countries. They are shown to be particularly important in Italy and Spain.

Table 1 The importance of SMEs in the nine study Member States (1996)

	BE	DK	FR	DE	IT	NL	SP	SW	UK
No. of SMEs (000s)	516	163	2,318	3,249	3,795	513	2,400	241	3,306
% of total number of firms	99.8	99.3	99.7	99.6	99.9	99.6	99.9	99.6	99.8
Employment in SMEs (000s)	1,561	1,059	10,920	17,344	11,208	3,414	8,649	1,308	11,117
% of total employment	63.7	68.8	67.3	59.7	80.1	60.7	79.8	61.4	55.1

Source: EUROSTAT Yearbook 2000

SMEs and their relationship with larger enterprises

SMEs function both as sub-contractors, suppliers and customers to larger enterprises. The larger firm is generally the customer although in some cases it is the supplier, for example of chemicals. It often has considerable power over the SME, in many cases applying pressure to improve punctuality of deliveries, product quality and environmental performance. Unfortunately there appears to be very little research into the extent of this supply chain phenomenon. While the supplementary research for this report has not identified any EU-wide studies, there is some national information which is useful and a wide range of company-specific examples.

UK survey work, for example, has shown that supply chain pressures are still a minor influence on SME behaviour (Groundwork Trust, 1998). The Centre for Cleaner Production Initiatives in Spain notes that supply chain initiatives in Catalonia are restricted in the main to multi-nationals, particularly in the automotive sector. Conversely a 1997 survey of 84 Environmental Reports from large Dutch companies revealed that 29% made reference to environmental requirements for suppliers (KPMG, 1997). A study undertaken in 1997 by the Confederation of Finnish

⁴ In 1988 20 different definitions were used in Belgium.



Industry ⁵ indicated that the majority of SMEs there expect supply chain pressures to increase (see box below).

SMEs and the environment - partnership in production

In 1997 the Confederation of Finnish Industry and Employers carried out a project called 'Environmental Knowledge and Partnership of SMEs'. It addressed the environmental challenges facing SMEs and it presented models for developing environmental capabilities. 241 companies (employing 10-500 workers) were sent an environmental questionnaire and the results were particularly interesting:

- A third of the companies had improved the environmental characteristics of their products significantly. Slightly over a quarter thought that environmental affairs had had a *great* or *very great* impact on their company image, sales and marketing, production, investment and R&D decisions.
- Half of the respondents believed that in the near future they would enjoy growing benefits from their new corporate image, improved motivation of staff, a growth in market share, better relations with officials and the opening up of new marketing channels.
- 64% of companies felt that supply chain pressures on the company's environmental actions from customers would be greater in three years time.
- SMEs do not simply want their customers to demand greater environmental performance but instead want help and advice.
- Partnership is very important for SMEs – both with customers and local officials.

Source: Confederation of Finnish Industry and Employers (1997)

Overall it appears from the information available that larger firms are now playing a small but significant part, particularly in terms of the adoption by SMEs of an Environmental Management System (EMS), although there may be considerable variation between Member States. It also appears that large companies are playing an increasingly important mentoring role in relation to such topics as eco-design. The chapter on *SME Education and Training Provision* includes some case study examples to illustrate the types of activity under way.

The economic performance of SMEs

In Germany, Italy, Spain, Sweden and Denmark, the total turnover from SMEs is less than might be expected from their position in the economy. The situation in Belgium and France is

⁵ While Finland was not one of the original nine study countries, the results are undoubtedly useful and relevant to other Member States.

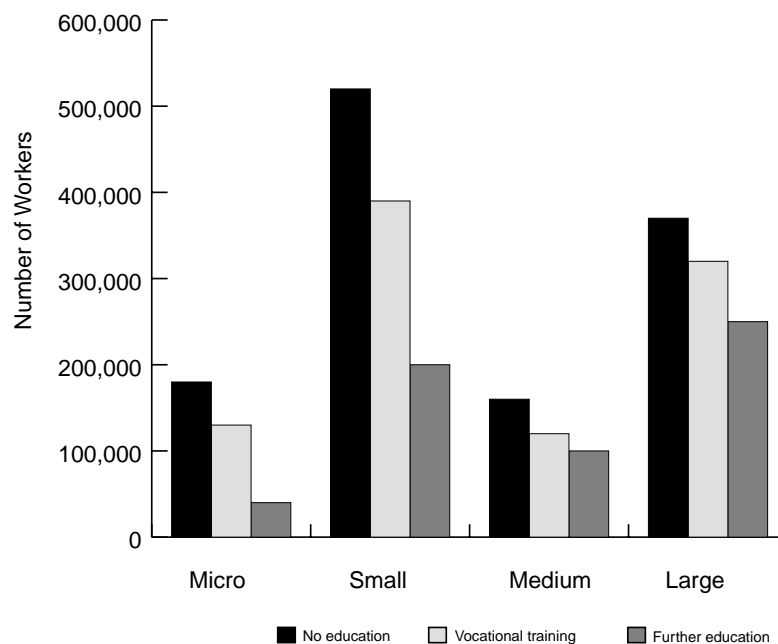
seemingly different. In Belgium, SMEs in Wallonia experienced productivity growth rates twice those of larger companies between 1995 and 1997. In France, SMEs (fewer than 499 employees) contribute to around 41.7% of total turnover with an added value/turn over ratio of 37.2% - significantly greater than larger firms which only achieve 28.5%. However, such aggregate statistics invariably mask a wealth of variation between individual sectors within a country. The UK textiles sector, for example, is far less profitable than the paper sector, while manufacturing SMEs on the whole tend to be less profitable than service sector companies.

The types of people employed in SMEs

SMEs employ a mixture of skilled, semi-skilled and unskilled workers. Micro and small businesses tend to require staff to be flexible and capable of fulfilling a range of different activities (multi-tasking), especially at the clerical and managerial levels. Enterprises which are larger, but still classed as SMEs, have a more managerial and other staff and they often have a much greater degree of functional specialisation, with particular employees focussing on a narrow area of work (for example production, sales, marketing, finance and so on).

The chart which follows (Figure 1) illustrates educational attainment levels according to firm size in Denmark. Many of the trends illustrated do however reflect the general situation across the nine case study countries. In particular, micro and small businesses have a greater proportion of employees with no educational qualifications and fewer employees with a further education background. Several reasons for this have been put forward, including the fact that micro and small enterprises are often owned and staffed by those who have been excluded from the education system and wider labour market. Larger enterprises generally enjoy a higher profile and can offer graduates greater opportunities and higher salaries.

Figure 1 Educational attainment according to firm size in Denmark



Source: Statistics Denmark (1997b), *Generel erhvervsstatistik og handel, Erhvervsbeskæftigelsen 1995*, Danmarks Statistik, Copenhagen. Reprinted on Page 83 of the Danish National Study.

The French national study shows that the level of staff qualifications in smaller firms (20-50 employees) varies according to sector of activity. The share of non-qualified workers is very high in the agri-food, intermediary goods, and retail sectors, while the share of qualified workers is highest in construction (65%) and transport (57.6%). In France larger enterprises (500-1999 employees) tend to employ more managers but, interestingly, the proportion remains small: from 6.4% in the intermediary goods sector to 20.5% in the services sector. Qualified and non-qualified workers are employed in equal proportions in the agri-food sector, where the occupational structure does not seem to depend on the size of firm.

Table 2 Employment distribution in small enterprises (20-50 employees) in France (1992)

	High level managers	Managers level	Intermediary Employees	Other	Qualified workers	Non qualified workers
Agri-food	1.9%	6.4%	12.5%	13.5%	41.9%	23.8%
Intermediary	2.2%	6.9%	12.7%	8.0%	47.5%	22.7%
Equipment	2.2%	11.3%	19.8%	9.3%	46.0%	11.4%
Retail	2.2%	8.6%	11.7%	9.8%	45.6%	22.1%
Construction	2.2%	4.0%	11.5%	5.7%	65.5%	11.1%
Trade	2.0%	10.0%	17.8%	41.9%	21.9%	6.4%
Transport	1.4%	5.4%	10.8%	17.9%	57.6%	6.9%
Services	1.6%	14.1%	25.2%	37.3%	14.4%	7.4%

Source: INSEE, *Employment Structure in 1992* (1995).

Location

In the nine case study countries non-agricultural SMEs tend to be mainly located in or close to urban areas. This is understandable, since businesses seek to locate close to their customers (whether these are consumers or other businesses) to reduce transport costs and maximise their responsiveness to customer needs. The following observations can be made about the dominant geographical concentrations of SMEs in each respective country:

- Belgium: More than 50% of SMEs are located in the region of Flanders.
- Denmark: 61% are located in rural areas, perhaps reflecting the importance of agricultural SMEs, Denmark's compactness and good transport infrastructure.
- France: Major population centres (more than 50,000 inhabitants) plus small towns (less than 10,000 inhabitants) in the vicinity of major urban areas.
- Germany: Major population centres but also regional concentrations in rural areas. Major exporting SMEs are often located near to borders.
- Italy: Industrial SMEs are most prevalent in Industrial Districts which are most common in the North (but not in the traditional industrial cities).
- Netherlands: SMEs are concentrated in the densely populated Randstad conurbation (Amsterdam, Rotterdam, The Hague and Utrecht) as well as other major centres of population.

- Spain: The largest concentrations are in four major Autonomous Communities (Andalucia, Catalonia, Madrid and Valencia) with lesser numbers in Galicia, Castilla-León and the Basque Country.
- Sweden: Mainly in the south of the country and especially in and around the major urban areas of Stockholm, Gothenberg and Malmo.
- United Kingdom: Well distributed in and around the major urban centres in the South East, the West and East Midlands, the North, South-East Wales, Scotland's Central Belt and Northern Ireland.

Health and safety

The available data on the performance of SMEs in relation to workplace health and safety presents a somewhat confusing picture. Some of the data suggests SMEs are lagging behind larger enterprises, certainly in terms of accident prevention. For example, the accident rate in businesses with fewer than fifty employees is around 20% higher than in businesses with between 100 and 1000 employees (European Commission, 1995). Figures quoted in a comparative study carried out by EIRO in 1999 found that in Belgium, accidents at work occur with 50% more frequency in SMEs than in larger companies (EIRO, 1999). Moreover, a 1997 survey on risk assessment indicated only 20% of very small enterprises conducted such an assessment compared with almost 70% of enterprises with 250 or more employees (Zoetermeer, 1998).

However, such aggregate statistics mask a great deal of variation between different sectors. For instance, in Italy the accident rate within SMEs is particularly high in the construction, mining and metallurgy sectors. Inadequate technical, organisational and managerial structures are all cited as possible reasons for this situation⁶. In Belgium, employees in SMEs in the chemicals, metal working and assembly industries have a three times higher chance of suffering a work related accident than their counterparts in larger enterprises in the same sector. Not only is the incidence of accidents higher, but the consequences are worse – according to official figures in Belgium, the degree of severity of accidents is 70% higher in SMEs.

Looking at working conditions as a whole, the Foundation's 1997 survey indicates that, according to the employees questioned, SMEs are no worse in broad terms than all but the largest firms (EFILWC, 1997). Further analysis by the Foundation of the SME category shows that in relation to France, Greece, Sweden and the UK, workers in micro firms (1 to 9 employees) do generally tend to be a little worse off than average, suffering from more physical and psychological health problems, although small firms (10 to 49 employees) are better in this respect than medium-sized firms in all but the UK (EFILWC, 2000). The Fifth Annual Report of the European Observatory for SMEs found that recorded accident and illness rates do not always have a systematic relation to company size. They rise with company size in some countries (for example Austria and Sweden) and fall in other (for example France, Italy and Spain).

⁶ More detailed and disaggregated statistics are needed in this field. Research by the European Foundation for the Improvement of Living and Working Conditions and by the European Health and Safety Agency shows that in most countries information on accident rates etc. does not differentiate by company size.

All the studies agree that psychological and social problems are becoming increasingly significant with many workers having stress-related problems. Dutch research quoted in the EIRO study indicates that the main health and safety issues facing workers in firms with up to 10 employees is stress, with employees most frequently blaming management style (EIRO, 1999).

Finally, it is worth noting that studies have shown that temporary workers, unskilled manual workers and young people are more likely to fall victim to accidents or occupational diseases. This is relevant in so far as evidence presented in Table 2 shows that SMEs tend to have a greater proportion of employees without educational or vocational qualifications.

Threats and opportunities faced by SMEs

SMEs have several characteristics which can give them significant advantages over larger enterprises and mitigate the fact that they do not enjoy economies of scale. In particular, their size and organisational structure can give them considerable operational and strategic flexibility allowing them to respond quickly to changing market needs. This flexibility is thought to be particularly important in the industrial sector given the move from mass production to a flexible production paradigm. This strength is reflected in more and more jobs being created within SMEs. For example, between 1996 and 1998 the German SME sector registered a net increase of 46,000 jobs while large enterprises shed 422,000 jobs.

In France trends show that self-employment is now more popular than employment in new enterprises (77% of new enterprises in 1997 were operated by single entrepreneurs). SMEs in general have a poor survival rate, the '5-year survival rate' in France being only 51%. There are, in fact, a range of threats affecting SMEs. Some of these are specific to particular countries such as the damage being done to British SMEs reliant on export markets by the strength of Sterling. Other threats are specific (or at least more acute) in individual sectors, such as the inability to compete with non-EU imports in the textile industry. Nevertheless, there are several generic threats faced by SMEs which apply to many different types of SMEs across all Member States and various sectors.

Most importantly, SMEs lack resources in terms of time, money and competencies. This limits their ability to act strategically, explore new opportunities and even understand new regulation. SMEs also often find it difficult to access sufficient finance or else can only do so on very unfavourable terms (high interest rates, short amortisation periods and so on). Where an SME is not a member of a trade (employer) body and its staff do not belong to trade unions, the company and its staff may not receive adequate support or representation. Barriers to SME progress are discussed further below.

Organisational issues

Affiliations to trade (employer) associations

Numerous associations and federations represent SMEs across Member States. Often individual associations (such as trade associations) work only with enterprises in a single sector and/or in a

particular locality. There are also umbrella organisations which represent the interests of the SME sector as a whole in a country. Examples of such federations are *Confapi* in Italy, which represents about 65,000 enterprises with a total of 1,130,000 employees and *The Spanish Confederation of Small and Medium Sized Enterprises* (Confederación Española de la Pequeña y Mediana Empresa, CEPYME). In France, SMEs are mainly represented by Chambers of Commerce and Industry rather than by industrial federations.

The exact activities undertaken by such associations differs across Member States and between different sectors. In general, however, they provide SMEs with:

- some form of training, advice and information services;
- representation at an institutional level;
- marketing/promotional support at trade fairs/conventions.

Sometimes services are provided free at the point of use but charges such as yearly subscriptions are levied, discouraging the smallest SMEs from membership. In Germany 835,000 businesses belong to one of the 55 Chambers of Crafts. Those businesses which do not belong to one of these Chambers are obliged to be a member of a chamber of trade or industry.⁷ Membership of more than one chamber is in fact usual. In total, over three million enterprises belong to one or more of the 83 German chambers of trade or industry.

In countries such as Germany, Denmark, Sweden the Netherlands and Belgium, industrial associations have important roles in negotiating agreements with government, for example in relation to working conditions and environmental improvement. Several agreements involving the social partners are presented later in this report. In the UK, industrial associations tend to be more defensive, getting less involved in developing such voluntary agreements, although this has begun to change recently as certain sectors (for example paper) attempt to fend off the threat of more formal regulation.

Membership of trade unions

Trade union membership varies considerably across Europe, both between Member States and sectors. The structure of the labour market, the prevailing industrial relations system and other cultural and political factors are key determinants in explaining the variations. In the Scandinavian countries, trade union density is particularly high as a result of the emphasis placed on social welfare, collective bargaining and interest intermediation, which leads to a social partnership approach.⁸ *The Swedish Federation of Trade Unions* (Landsorganisationen i Sverige), which consists of around 50 trade unions, estimates that around 85% of all workers in Sweden are union members.

Statistics on trade union membership among SME employees are very difficult to find. A recent comparative study carried out by the European Industrial Relations Observatory (EIRO) shows

⁷ Revoking this obligation to be a member of a chamber has long been a topic of discussion within Germany.

⁸ This model is broadly applied in the Scandinavian countries and other EU countries including the Netherlands.

that only a minority of countries have accurate data on trade union membership among employees of SMEs (see Table 3 below). Generally speaking, it is clear that trade union membership tends to fall with company size. Various reasons are suggested for these low unionisation rates, notably: the recruitment difficulties faced by trade unions, employer hostility towards trade unions and closer relations between employers and employees in smaller firms.

Table 3 Trade union membership in the case study countries

	B	DK	FR	DE	IT	NL	E	S	UK
Trade union membership (%) (ILO 1995 data)	N/d	80.1	9.1	28.9	44.1	25.6	18.6	91.1	32.9
Trade union membership among SMEs (%)	N/d	87 ¹	N/d	5 ²	N/d ³	16 ⁴	N/d	88 ¹	16 ⁵

Source: ILO (1995); EIRO (1999). N/d means no data.

¹Data for companies under 10 employees; ²Data for companies under 10 employees, 1989 data; ³However, membership is high in areas with a predominance of small firms; ⁴Data for companies under 10 employees, this rises to 24% among companies with between 10-99 employees, 1993 data; ⁵Data for companies under 25 employees, 1997 data.

Worker representation

In most European Union countries there are legislative or generally agreed rules on the collective representation of employees in companies, through works councils, elected employee representatives and trade union representatives. The functions of these various representative structures differ from country to country, reflecting different traditions.

However, as a recent study carried out by EIRO has shown, labour law and other regulations exclude some workers in SMEs from some or all of the provisions on collective representation in over half the countries in the EU. They lay down workforce-size thresholds below which the various representative structures do not apply. The minimum thresholds in the various countries for any kind of collective representation rights to apply are shown in Table 4.

Table 4 Employee size thresholds for collective representation rights and works councils in the case study countries

	B	DK	FR	DE	IT	NL	E	S	UK
Collective representation rights	5 ¹	5	10 ²	5	15	10 ³	6 ⁴	N/t	N/t
Establishment of works council type bodies	100	35	50	N/t	N/t	50	50	N/t	N/t

N/t = No Threshold

¹Or lowest collectively agreed provision. ²Where a majority of employees are in favour. ³Where a majority of employees are in favour. Collective representation may exist in companies falling below this threshold if the employer accepts the existence of such representation. ⁴ Collective representation may exist in companies falling below this threshold if the employer accepts the existence of such representation.

Once the thresholds are cleared, different types of representation may apply to companies with different workforce sizes, with larger companies either acquiring additional structures or

replacing those which apply in smaller firms. Thus, for example, works councils only apply from certain workforce-size thresholds (see above). In smaller firms in these countries, employees are represented by employee delegates of some kind (France and Spain), or trade union delegates/shop stewards (Belgium and Denmark), or ‘mini-works councils’ or personnel meetings (the Netherlands). Workforce size can also determine the resources available to the workers’ representatives, such as paid/unpaid time off for representation activities.

It has to be noted that regardless of the regulations which apply, research has shown that the smaller the workforce, the less likely it is that employee representation exists and/or is effective. For example, in Spain, although workers’ delegates may be elected in all firms with six to 49 employees, this does not occur in most companies with fewer than 31 employees (though the figures in firms with 31-49 employees are similar to those for larger companies); and in Germany, the proportion of establishments with works councils increases from 5% in firms with five to 20 employees, to 45% in those with 21-100 employees and 88% in those with 101-299 employees (EIRO, 1999).

Environmental issues

The environmental performance of industry and associated services

There is not enough space to address all areas of SME environmental performance in this report. Even in terms of one type of pollution (for example air pollution), the environmental load from different types of pollutants (for example CO₂, SO_x, NO_x, Volatile Organic Compounds (VOCs) etc.) and the contribution made by SMEs in each Member State is too complex to be mapped out here.⁹ Nevertheless, Table 5 below gives a cursory indication of the most important environmental threats emanating from the three (SME-dominated) sectors across the EU on which the original nine national studies focused:

Table 5 Key environmental issues for selected sectors

Sector	Key Environmental Issues
Printing	VOCs to air and water, solvent/ink waste, substrate waste, packaging waste, energy.
Food and Drink	Biodegradable effluents to water, sludges, odours, packaging waste, energy.
Speciality Chemicals	Various dangerous and difficult effluents to water, VOCs and acid gases to air, chemical wastes and sludges, packaging waste, energy.

Source: UK national study.

Although individual SMEs may have a small effect on the environment, their cumulative effect, by virtue of their sheer number, can be considerable. SMEs in the manufacturing and processing sectors are certainly responsible for a significant proportion of environmental degradation

⁹ Even if data on it existed, which in many cases it doesn't.

although, as the 1997 KPMG study points out, there is currently very little firm statistical data (KPMG, 1997). Some useful data exists, however. For example, the UK Government has estimated that the SME sector is collectively responsible for 70% of all pollution (Hillary, 1995) while a recent waste survey indicates that more than 50% of commercial and industrial waste comes from SMEs (UK Environment Agency, 2000). The cumulative effects aside, it may only take one polluting SME to do considerable damage in its local environment, for example through a spill of oil into a river.

The number of enterprises adopting an Environmental Management System (EMS) provides a good indication of overall environmental awareness and productivity if not performance. The system developed and promoted by the EU is called the *Environmental Management and Audit System* (EMAS), the other popular international system being ISO14001. Table 6 below shows the number of EMS registered sites across EU Member States.

Table 6 Numbers of registered EMS sites in the EU (approximate)

Member State	EMAS Total	EMAS Services (unofficial)	ISO14001	Total EMAS/ ISO14001	Number of Companies ('000s)	Registration per '000 SMEs
Germany	2,432	310	1,950	4,382	3,261	1.34
Austria	262	29	223	485	243	2.00
Sweden	180	21	1,121	1,301	243	5.35
Denmark	144	7	350	494	164	3.01
UK	112	39	1,014	1,126	3,313	0.34
Spain	56	1	430	486	2,403	0.20
France	36	0	550	586	2,322	0.25
Finland	30	0	347	377	194	1.94
Netherlands	25	0	606	631	516	1.22
Italy	25	0	246	271	3,798	0.07
Belgium	9	0	130	139	518	0.27
Ireland	7	0	96	103	76	1.36
Portugal	2	0	15	17	642	0.03
Luxembourg	1	0	6	7	19	0.37
Greece	1	0	10	11	733	0.02
TOTAL:	3,274	407	7,094	10,416	18,445	0.57

Sources: European Commission and the German Environment Agency (reprinted in ENDS Daily, 11/05/2000), ISO World web site/Swedish certification web site (both July 2000).

It is perhaps not surprising that the leading countries in terms of EMS adoption are Germany, Austria and the Scandinavian countries where environmental concerns occupy a very prominent position in the national consciousness. This often results in governments enacting and enforcing regulatory and other policy instruments which are stricter, more comprehensive and more

progressive. The private sector is more likely to see improvements related to sustainable development as a business opportunity, not simply a burden. Similarly, consumers in these countries tend to be more environmentally aware and therefore more discerning in terms of the products they purchase.

Unfortunately, the EMAS registers do not record the number of employees of registered sites and it is not therefore possible to give concrete details on SME participation in EMAS. The same applies to most national registers although records are kept in Denmark where 50% of ISO14001 registered companies have fewer than 100 employees (Hillary, 2000). Recent surveys, however, have been undertaken. Hillary estimates that of EMAS registrations only 18% (less than 600 companies) across the EU are SMEs while in the UK only 25% of ISO14001 registrations (around 250 companies) are SMEs (Hillary, 2000). The 1997 Spanish survey by the Fundación Entorno found no evidence of any sort of EMS (or for that matter environmental policies) in companies having fewer than 20 staff, while 62.8% of the companies questioned (including larger companies) had no intention of developing an EMS (Fundación Entorno, 1997). One study in Belgium indicated that 70% of SMEs have never even heard of EMAS! (Dubois and Moroncini, 1997).

While the data is sketchy, it is clear that SMEs account for a disproportionately small number of registered sites. This is thought to be largely because the implementation (and in the case of EMAS) the reporting requirements are particularly onerous for smaller enterprises.

Environmental regulation

The nine case study countries have implemented environmental legislation which (with a few exceptions)¹⁰ ensures compliance with EU Directives and addresses national environmental priorities. However, the geographic level (national, regional, sub-regional etc.) at which legislation is enacted (and then also enforced) differs between Member States according to the particular legislation in question and, crucially, the system of governance (federal, unitary and so on).

There are also differences in the level of vigour with which national legislation is enforced. In particular, the use of threshold/consumption limits in several Member States is of crucial importance because they can mean that SMEs are not monitored or required to seek permits for certain industrial processes which have considerable potential to cause pollution. According to the French national report this is the case in France, where the Ministry of Industry inspectors tend not to control SMEs rigorously.

The Dutch have pioneered the use of Voluntary Agreements (VAs) (known as Long Term Agreements (LTAs) or Covenants) as a way of allowing different sectors of the economy to

¹⁰ Examples of (partial) non-compliance include Belgium: Council Directive 91/271/EEC (amended by Directive 98/15/EC) concerning urban waste water; or the United Kingdom: Council Directive 91/676/EEC on the protection of waters against pollution caused by nitrates from agricultural sources.

achieve self-regulation vis-à-vis environmental obligations as laid down in the National Environmental Policy Plan (NEPP). There are now over 100 LTAs affecting numerous areas of the economy and thousands of SMEs, for which the targets are set out in the NEPP. One such VA, the Packaging Voluntary Agreement, is described in the box below. VAs are also used successfully in other Member States including Denmark, France, Germany, Sweden, Portugal and the UK.

The Dutch Packaging Voluntary Agreement

The Packaging Agreement, signed by the Government and the Dutch packaging industry (SVM - The Packaging and Environment Foundation) in 1991, applied to all packaging on the Dutch market, and covers the whole packaging chain (including SME manufacturers but excluding small retailers) for a period of 10 years. The overall objective of the Agreement was to end the landfill of packaging waste by the year 2000. A new Packaging Ordinance came into force in 1997 and an associated VA came in that year.

SVM is essentially a co-ordination organisation. Under the 1991 Agreement it represented 275 companies including raw material suppliers, converters, packer/fillers, distributors/retailers and recyclers. Together these companies represented 60% of the total Dutch trade and industry turnover. The Agreement is wide ranging in that it requires a wide variety of waste prevention, reuse and recycling measures (for example reduced weight, reduced use of PVC, lead and so on, improved recyclability, labelling etc.)

Member companies have to fulfil their obligations either through contracting with private waste management companies or through co-operation with local authorities, for which they have to pay a fee. It is interesting to note that while few SMEs are members of SVM, and hence fall outside the agreement, most companies are already obliged under the Provincial PMV regulations to segregate and arrange for the recycling of their own wastes. The Netherlands had almost achieved its interim objective of a 50% overall recovery rate by 31st December 1995.

Source: Page 63, Dutch National Study.

The Dutch approach is very different from the highly prescriptive and regulated approach adopted in general by some Member States (for example Germany, Spain, UK). While it does allow a sector to formulate a solution tailored to its own individual characteristics, it does not provide for a level playing field and there is a problem of 'free-riding', particularly amongst SMEs. To limit such problems, mandatory fallback conditions are often built in to permits in the Netherlands.

The competency of environmental inspectors is also an important issue.¹¹ The Swedish firms surveyed for the national study maintained that inspectors needed more training to make them aware of the implications of environmental certification and more able to evaluate and regulate the environmental impact of a firm. It does seem that the quality of training provided for environmental inspectors varies across different Member States. For example, certain Member States (such as the Netherlands) provide specific further education courses designed especially for inspectors. That said, similar complaints about inspector expertise are made in the UK even though the Environment Agency has its own in-house training organisation.

¹¹ This issue is not covered in several of the national studies and is only covered in the barest of detail in the remainder.

Fiscal mechanisms to assist SMEs

Numerous schemes are in place across the EU to help SMEs improve their environmental performance. These schemes generally take the form of direct financial subsidies to cover some of the cost SMEs incur in improving their performance, or support and advice on the advantages of implementing such working practices at minimal cost. Some of the education, training and dissemination schemes are discussed further in the next chapter while a review of *SME Support Systems for Sustainable Development* can be found in the Foundation's report of the same name.

Fiscal measures are quite common and varied in their form. In both Denmark and Sweden firms wishing to gain EMS certification can apply for subsidies from the government. The State pays half of all certification-related costs, dramatically reducing the financial burden on SMEs which in many cases stated that they would not have sought certification had they not received such assistance. In Belgium, where the regional authorities are responsible for granting subsidies to firms investing in environmental technologies and research, some interesting schemes are in place to promote job creation and environmental investment. One such programme is the 'Chèque-Formation' scheme in Wallonia, highlighted in the box below:

The 'Chèque Formation' project in Wallonia, Belgium

SMEs or larger companies planning to hire an unemployed person to work on environmental projects within the company such as renewable energy investments, resource management, compliance with legislation, training, or the setting-up of an EMS are entitled to receive a three year reduction (discount) in non-wage labour costs.

Source: Page 27, Belgian National Study.

In Spain, both tax breaks and subsidies are used to encourage firms to adopt more environmentally sustainable practices. The Royal Decree 1594/1997 reduces corporation tax for firms making investments in the environmental protection field. Between 1997 and 1999, the Ministry for Industry and Energy ran the ATYCA Initiative which provided subsidies for firms making environmental investments. As well as encouraging firms through subsidies and other fiscal inducements, in 1997 it implemented a law for the first time in Spain, making an environmental evaluation a basic requirement for obtaining any public contract with the Ministry for the Environment.

Barriers to sustainable development in SMEs.

Numerous barriers exist in relation to SMEs undertaking sustainable development improvements. The following barriers were identified in the UK and Dutch National Studies in relation to environmental improvements:

- lack of time/staff resources;
- lack of financial resources;
- lack of understanding of environmental problems and risks;
- lack of understanding of the potential benefits of improvements;

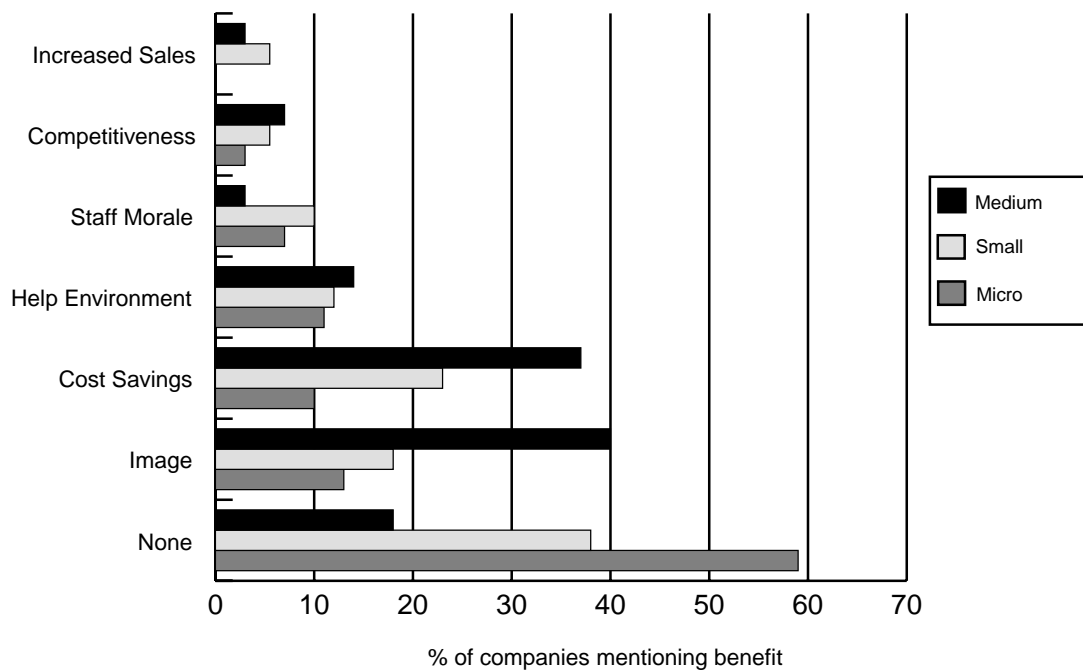


- economic short-termism (a quick payback on resources is required);
- lack of technical expertise/confidence;
- a view that environmental activity is peripheral to the core business;
- initiative fatigue/overload;
- mistrust of other companies in networks/groups.

It is almost certain that nearly all of these issues are important to some extent or other in other Member States. The first two issues are particularly critical. SMEs generally have scarce financial resources and are loath to use them for non-mandatory investments which they do not fully understand and where the payback period is unclear.

In terms of time, managerial staff in smaller SMEs are often thinly spread and required to multi task. They generally have very little time to spend looking at health and safety issues, let alone environmental ones. They certainly have little time to consider what their staff training needs might be and how they might fulfil them. The UK report notes that in some cases SMEs receive so much information about education, training and support that they are bewildered and unable to distinguish what is useful from what is not. The Spanish and Italian studies make similar observations. As a result SMEs can be seriously affected by ‘initiative fatigue’ and are sceptical of any new training and support programmes.

Figure 2 Perceived benefits of improved environmental performance



Source: Groundwork Survey - Small Firms and the Environment (1998)

SME attitudes to, and awareness of, issues from legislation to improvement measures and benefits, are generally poor. Many SMEs still feel that 'environmental' activity is something that is not their responsibility so long as:

- they remain within the law;
- they do not have a very significant environmental impact;
- they have already done what they can to minimise that impact.

The Belgian national study provides some evidence of this, noting a study by the Walloon Business Federation (UWE), which indicates that 84% of industrial SMEs do not feel that they contribute to soil contamination, 44% believe that they do not emit any polluting substances to the air and 23% claim not to produce any solid waste (Union Wallonne des Entreprises, 1997).

In terms of awareness of legislation, Petts, in her study of UK SMEs and environmental compliance notes that the majority of UK SMEs are 'vulnerably compliant', that is, that they do not know enough about legislation to ensure that they are always compliant (Petts, 2000). Pedersen notes that with regard to Danish SMEs, they are often so ignorant of regulations that they are too embarrassed to ask for help (Pedersen, 2000). In terms of awareness of benefits, UK surveys indicate that among small and micro SMEs, only a small proportion of firms are aware of the potential cost savings associated with environmental improvements (see Figure 2 on previous page). The situation appears to be similar but perhaps more extreme in Spain where the vast majority of small companies appear to view environmental protection as extremely costly and of virtually no benefit (Anglada, 2000).



Chapter 3

Education and training frameworks in the case study countries

This section provides a brief overview of the different education and training systems in place in each of the nine case study countries. Information is given for both academic and vocational training, setting the broad context for the following two sections of the report which deal with professional education and training needs and provisions for sustainable development (in the context of the environment). Aside from the national studies, the information for this section was gathered from several other sources, most notably the OECD (OECD, 1995).

Belgium

Under Belgium's federal structure, responsibility for education is left to the linguistic Communities. The educational system is split between the Dutch-speaking (Flemish) Community and the French-speaking Community (with the smaller German-speaking Community falling under the French-speaking Community's responsibilities). The Flemish and the French communities have different (regional) ministers of education, a different education policy and different structures for schools and universities. Brussels has a special status as a bi-lingual capital with two different language communities.

The two systems differ mainly in terms of secondary education. The French-speaking system is organised around two types of education:

1. The new system based on three two-year cycles of either general education, technical education, artistic education or vocational education. Whichever study path is chosen, there are two possible orientations ('degrees of guidance'):
 - the transitional phase (preparation for higher education);
 - the qualification phase (preparation for work) while not excluding higher education as an alternative.

2. The traditional system of two three-year cycles with a clear cut distinction between general and vocation/technical/artistic education. This system is becoming progressively less common than the above one – in 1995 for instance it only covered 3.7 per cent of the total number of students in secondary education.

The Flemish system follows the same secondary education path (general, technical, artistic or vocational), except for the absence of the two phases mentioned above and the split between the traditional system and the new system.

Higher education in both Communities includes non-university education (3 to 4 years), university level education given at *haute école* or special institute (at least 4 years) in and university education (from a *candidature* to a doctorate). Vocational education in the French Community includes social promotion schools funded by the Community and sometimes the ESF, aimed at helping young people and adults to acquire new skills or develop their skills possibly at ISCED levels 3 to 6 (upper secondary to university level) as well as special training for job-seekers.

Denmark

The Danish education system is underpinned by the universal right to and requirement for, at least nine years' education. After nine years of compulsory education, students are essentially faced with two choices. Those students wishing to go to university or to another institution of higher education generally proceed to upper secondary education which is an academic study path concentrating on core subjects (maths, Danish, foreign languages etc.). The other choice is vocational training and education. According to the Danish national study, this often consists of either a commercial or technical/trade-based education, and combines theory and practical training. Such a study path still gives access to more advanced courses of study such as engineering.

The administration of the Danish education system is largely the responsibility of the municipalities or the counties. However, decisions on the basic curriculum, overall budget of the education system and important administrative decisions (such as entrance requirements for higher education) are made centrally.

There is an strong tradition of adult education and continuing training. The scope and depth can vary a great deal – from only one lesson a week for a short period to full-time courses lasting more than a year. There is a wide range of programmes for adults who want to learn general subjects such as Danish, mathematics, history and languages etc. These take place at single subject centres (VUC). There are also many examples of vocationally oriented continuing training for both unskilled and skilled workers. These take place at AMU centres (adult vocational training centres) which are located throughout the country. Often the courses which they offer are in response to the specific needs of local firms.



France

The education system in France has two components: initial education and further education and training. Initial education is almost totally financed by the Ministry of National Education. The establishments providing education are either public, private ‘within contract’ (that is, financed by the State) or private ‘outside of contract’.

As soon as a pupil reaches 16 years old it is possible to begin working towards a profession through the CAP (*Certificat D’Aptitude Professionnelle*) or BEP (*Brevet d’Etudes Professionnelles*) in vocational lycées (high schools) or in technical lycées. However the majority of young French people (around 80%) choose a more academic route, through the *Baccalauréat*. Although the Baccalauréat was devised to prepare students for academic higher education, a vocational option was created in 1985 (secretarial, accountancy, industrial design etc.) to allow students to follow technical higher education (two years degrees offered in high-schools or universities, such as the *Brevet de Technicien Supérieur (BTS)*, *Diplôme Universitaire Technologique (DUT)* or simply to enter employment. Access to university is still possible either after a technical baccalauréat or a BTS/DUT. It is also possible to take additional more advanced engineering or business qualifications after a first degree.

Vocational training falls under regional responsibility. Training on offer includes:

- Apprenticeship training at a *Centre de Formation des Apprentis (CFA)*. These are run by trade chambers, chambers of commerce, industry/vocational companies, vocational lycées or regional authorities. They are aimed at students who have completed compulsory education and who wish to learn a trade. Students are partly employed by a trainer and attend courses at the CFA. Upon completion students are awarded a vocational Baccalauréat, short (technician) higher education diploma, or an engineering diploma.
- Adult education which is funded by the State, regional authorities or business. Since 1971 companies have been obliged by law to train their staff and must allocate 1.4% of total wage cost to adult training. Companies must develop a training plan for their employees and contribute to further education training organisations. These organisations then redistribute the money to finance the approved training. Training generally follows market demand and can last anything from 2 days to a year. Where a person is unemployed, further education will be part-financed (0-95%) by the National Funds for Employment (*le Fonds National pour l’Emploi*) whilst an internship in a company can also be arranged. Training that lasts for more than 8 months can be accredited with a diploma while a certificate is awarded for other types of training. One of the main providers (funded by the regions and the state) is the *National Association for Adult Vocational Training (AFPA)*.¹²

Germany

Germany’s federal system confers responsibility for education to the *Länder* (Federal States) which means that there are instances of slight differences in the systems in place do exist.

¹² The National Institute for the Environment and Industrial Risks (INERIS) also offers adult training.

Nevertheless, the broad structures in place do not differ considerably and, as in several other Member States, there is a clear distinction made between academic and vocational training.

In early 1996 there were 159 universities and 173 technical colleges in Germany, with a significant amount of variation in terms of their entrance requirements and the courses and qualifications on offer. The difference between universities and technical colleges is that the latter tend to be more practically orientated (with a period of work experience generally undertaken) and have slightly shorter course lengths. Distance learning has a long tradition in Germany and there are currently 185 different organisations offering a total of 753 courses.

The vocational training system in Germany is well established. It is based on the notion of a *dual system* where training is both 'on-the-job' and at specialised vocational training colleges. The overwhelming majority of school leavers who have not chosen the university or technical school path, enter the vocational training system (around 70 per cent of the age group). They attend between eight and sixteen hours of lessons each week at a vocational college. This complements the practical training which they receive at their place of work or in training workshops. In the school year 1995-1996 around 1.7 million young people attended over 3,200 vocational colleges.

Further education occupies a particularly important position in German society. A 1994 study showed that around 40% of the population or almost 20 million people had participated in some form of it. In 1995 the 1,004 adult education centres offered almost 500,000 courses and 79,000 individual events. Course costs are generally met by the private sector, the Federal Institute for Labour, the public purse or the participants themselves.

The Netherlands

In 1997 there were almost 169,000 students attending the 13 different universities located throughout the Netherlands. Smaller towns also have at least one Higher Education Institute (HEI) in the form of a college or high school. In addition, the Open University, based in Heerlen, offers distance learning courses in law, the social sciences, arts subjects, economics, management and administrative science, and engineering and natural sciences.

There is a strong history of vocational education and training running in parallel with the more traditional academic side. From the age of 16, students can opt for an Initial Vocational Training (IVT) route or an apprenticeship, with the latter typically involving 80% practical work and 20% academic study. Older students follow Continuing Vocational Training (CVT) programmes including part-time senior vocational education (MBO), part-time higher vocational education (HBO), Open University and entrepreneurial education and training.

In the early 1990s, Sectoral Consultation Committees for Education and Business, which included social partners, were set up to assess occupational needs for senior vocational education and to assist with curriculum development. Partly as a result of this work, a new innovative system, the Short Term Vocational Education Programme (STVEP) has been operational since



August 1997. Unfortunately, information is as yet unavailable on how the STVEP is working in practice.

In order to improve the efficiency of education and training provision, the government also recently established multi-sectoral Regional Training Centres to replace older institutions covering just one area of vocational training and to merge public institutions providing vocational training with those providing different types of adult education. The mergers were concluded in 1997 and there are now 61 regional training centres, replacing over 500 vocational schools and 300 adult education organisations.

Italy

After eight years of compulsory education, Italians enter the upper secondary phase where they have three broad choices of courses:

- classical, scientific and teacher training (4-5 years);
- technical training (5 years);
- vocational training (2-5 years).

On completion of the five year course, students take an examination for the *Diploma di Maturità* which grants admission to university. Those students who wish to follow a vocational study path have a broad range of courses on offer:

Industry	Agriculture	Services
• Building construction	• Agricultural and environmental issues	• Corporate management
• Electrical engineering	• Agricultural industry	• Tourist management
• Telecommunications	• Agriculture/tourism	• Catering services
• Mechanics		
• Fashion design		
• Chemistry and biology		

In the academic year 1998-1999 there was a total of 1,573,052 students at Italian universities.¹³ In addition, *Nettuno* offers a wide range of distance learning courses through a variety of different media. *Nettuno* was founded in 1992 and is a consortium of 30 universities and other bodies (such as well known companies like Telecom Italia, RAI, IRI and the Italian Manufacturers' Association, *Confindustria*).

The Italian university system is currently undergoing reform which, it is hoped, will be concluded by the end of the academic year 2000-2001. The new system will grant universities a

¹³ A further 103,650 students were undertaking postgraduate diplomas which last 2/3 years and include practical work experience.

considerable degree of organisational and managerial responsibility and will structure university degree courses as follows:

- first level degrees (L) which will last three years and will contain a significant element of professional training.
- specialised degrees (LS) which will last two years and will conclude with the awarding of a specialised degree;
- doctorate studies/Postgraduate Specialised Degrees which will last one or two years.

Spain

In Spain there are 62 universities, 47 of which are public and 15 private. In the academic year 1998-1999, these universities had a total of 1,552,372 enrolled students (47% male and 53% female). Spain also has a distance learning university, the *Universidad Nacional de Educación a Distancia* (UNED), which awards the same types of qualifications as other Spanish universities and uses the same kinds of teaching media as other European distance learning institutions. In 1998-1999 UNED had a total of 134,752 enrolled students.

The Spanish education system underwent significant change in 1990 when a new framework law was introduced which overhauled many aspects of the system. This is known mainly by its acronym *LOGSE* (Ley Orgánica de Ordenación General del Sistema Educativo), and it introduced several important changes. Firstly, the age to which education is compulsory was raised from 14 to 16 years, secondly, the vocational training system was dramatically overhauled and thirdly the environment was integrated into provisions at all levels. In terms of vocational training, the Spanish National Plan identifies three main categories:

Initial vocational training ('Formación profesional reglada') is aimed mainly at young students wishing to take up a particular profession. There are two levels of training: intermediate ('ciclos formativos de grado medio') and advanced ('ciclos formativos de grado superior'). Both of these types of courses last around 15 months with between 1,300 and 2,000 hours of actual contact time (the exact amount depending on the particular course). At present, there are 22 different professions in which both intermediate and advanced level training are available (an on-the-job training component is now also a requirement).¹⁴ The courses take place at either public or private vocational training centres – with quality standards being assured by the public authorities.

Continued vocational training ('Formación profesional continua') is aimed at the employed. It is intended to allow workers to adapt to changes in their job content through improving their

¹⁴ These include agricultural activities, maritime and fishing activities, printing, commerce and marketing, communication, image and sound, construction and building repair, electronics, mechanical manufacturing, catering and tourism, cosmetics and beauty, food manufacturing, IT, carpentry, vehicle maintenance, chemistry, health, social, cultural and community services, leather and textiles and glass and ceramics.

abilities and qualifications, to give them more social mobility¹⁵ and to smooth over difficulties encountered during the implementation of the EU's Internal Market or through economic restructuring.

Occupational vocational training ('Formación profesional ocupacional') is intended to give unemployed people the qualifications required by industry, enabling them to find a job. Each year the National Employment Institute (INEM)¹⁶ plans a programme of courses based on a plan drawn up by the ministry of Labour and Social Affairs. The objectives are based on analyses of training needs in different regions and industries by INEM's occupational monitoring unit, by analyses of employers' recruitment preferences over the last three years and trends among those looking for a job following training. In addition, there is a vocational training programme for people between the ages of 16 and 20 who have not completed compulsory education. Different programmes exist to cater for the students' characteristics and expectations but they are all aimed at preparing the individual to enter certain professions. The courses last from 26 to 30 hours a week and last from between 24 and 70 weeks.

Sweden

The Ministry of Education and Science (MoES) has overall responsibility for almost all aspects of education in Sweden. MoES draws up regulations and guidelines, based on the broad overall direction of education policy as established by Parliament. However, a considerable amount of day-to-day power still rests with authorities at the local level. Although they follow central guidelines in terms of the national curricula and syllabi, the local authorities have control over administration and the allocation of public funds. Vocational training takes place at *högskolar* or vocational training colleges.

16 to 19 year olds go to upper secondary school which since 1970 has been divided into about 25 different lines (*linjer*) and some 500 specialised courses (*specialkurser*). Most lines are practical/vocational study paths of two years' duration. There are however five three-year lines which exist to allow preparation for university level studies. The specialised courses range in duration from a week to a couple of years and provide vocational education in a wide variety of different fields.

Around 30 per cent of young people who have finished upper secondary level schooling go on to higher education. The role of the State in higher education was limited by a radical reform of the system introduced in the 1993 Higher Education Act. Universities now have much more freedom in terms of finance, the organisation of study and the range of courses on offer. There is however greater pressure on them to be more responsive to the needs of students and to offer increased freedom of choice over study routes. It is also noteworthy that the higher education population contains a relatively large number of mature students.

¹⁵ *Social mobility*: the ability to be more mobile in the labour market and therefore also the capability to better one's social standing.

¹⁶ Or by the various *Autonomous Communities* with devolved power in this area.

United Kingdom

Academic qualifications include Higher National Certificates (HNCs) and Diplomas (HNDs), undergraduate degrees (BA/BSc.) and postgraduate qualifications (MA/MSc./PhD). In England, 130 universities and colleges of higher education receive public funds to provide higher education. These are the main providers of degree courses, diplomas and other, mainly academic, qualifications. Universities and colleges are autonomous bodies, responsible for managing their own financial, administrative and academic affairs, including curricula, admissions and examinations. Universities award their own degrees and most colleges award degrees validated by universities.

The Open University (with its base in Milton Keynes) offers many distance learning courses including degrees, in the main for mature students and those wanting to retrain. These are taught through the use of TV programmes, video and audio cassettes, residential schools and, increasingly, the Internet. 65 per cent of higher education students and 60 per cent of further education students are aged over 21. Adults may resume their education at any age, and have access to a wide range of further and higher education courses, including appropriate short courses. Access courses facilitate the admission to undergraduate courses for mature students or those with non-traditional or non-formal qualifications.

The most important vocational qualifications are National Vocational Qualifications (NVQs)¹⁷ which have been designed to improve standards in all aspects of the working environment. NVQs are offered by numerous organisations in the private sector (for example trade associations) and the public sector (for example colleges) and cover over 500 occupations including everything from office jobs, such as administration and accountancy, through to hands-on jobs such as polymer extrusion or food preparation. NVQ standards have to be approved by the National Council for Vocational Qualification while qualifications are awarded by independent bodies, the most important being City and Guilds and British Technology Education Council (BTEC).

¹⁷ Known as Scottish Vocational Qualifications (SVQs) in Scotland.



Chapter 4

Education and training requirements of SMEs

This section looks at the principal education and training requirements of SMEs in the environmental field. The findings of the nine national studies, upon which this section is largely based, were derived from interviews with the case study companies that were undertaken for those reports.¹⁸ Each of these companies were active in one of the following three industrial sectors:

- speciality chemicals;
- food and drink;
- printing.

While the case study work indicates what SMEs think they need, this does not always coincide with what they actually need, that is, what they would benefit from. This situation results from the fact that many SMEs neither fully understand the opportunities and threats that face them nor conduct any self-analysis to identify competency weaknesses.

Training needs analysis

The UK, Italian and Spanish national studies stress the lack of formal *Training Needs Analysis* (TNA) within SMEs and particularly within micro-sized SMEs. Of the UK case study companies consulted, none had carried out any formal training needs analysis for the company as a whole, although four of the six did have general staff development/training plans. Crucially, only one company had environmental objectives as part of its training plans. In the Italian study, only two

¹⁸ A total of 64 companies were analysed - 18 of which were in Germany.

of the case study companies reported that they undertook some sort of needs survey. The remainder did not even identify this as something that they were planning in the near future. In Italy, it seems, training needs analysis is something which is often only considered within the framework of implementing an Environmental Management System.

It is almost certain that this lack of training needs analysis is replicated across other Member States although the other studies did not address this issue directly. A major aspect of encouraging more environmentally sustainable practices within industry must therefore be based around awareness raising. As the Spanish study notes, firms must be educated as to what their environmental training needs are, *before* being encouraged to proceed with the training itself.

Topic coverage

If companies are to move towards sustainability, and at the same time benefit commercially from implementing change, then they require competencies (skills and knowledge) in many, if not all, of the following areas:

- regulatory requirements (for example environment and health and safety law);
- impact assessment (environmental and social);
- monitoring, auditing and analysis techniques;
- cleaner technologies;
- management systems (for example EMAS, ISO14001, OHSAS 18001);
- eco-efficiency techniques;
- eco-design and purchasing;
- ‘green’ accounting and investment appraisal.

The Italian study provides an indication of the main thematic areas in which firm managers are currently attending environmental courses. They are, in order of importance: regulation, environmental impact assessment and waste management. In addition, attendance at courses on Environmental Management Systems also seems to be increasing. In contrast, fewer resources are being devoted to courses on eco-efficiency, eco-design etc.

In certain Member States the future need for education and training is closely linked to the environmental certification process. Firms attempting to gain certification, whether it be EMAS, ISO14001 or another standard, want to have key employees with a knowledge of these systems. The need for certification-related education and training is certainly an important driver in Scandinavia, the UK and Germany. In Scandinavia in particular, whether or not a firm is environmentally certified is increasingly being used as a criterion in awarding contracts by both the public and private sectors. Some SMEs are therefore experiencing supply chain pressures and feel obliged to adopt EMSs or take other SD-related measures.

The Swedish case study companies claimed that training in the following specific areas would be particularly useful:

- knowledge about waste cycles and material consumption (to inform potential customers of their environmental credentials);
- general knowledge about environmental issues and the bigger picture in terms of production and consumption cycles;
- the impact of EMS certification on work routines, for example in terms of the extra procedures and administration required.

The Belgian study notes that 65% of SMEs want better information on environmental regulation and only 32% are interested in EMS training, although it should also be noted that 70% of the companies surveyed had not even heard of EMAS (UWE, 1997).

Generalisation versus customisation

In terms of staff competencies, the Danish and Swedish case study companies pointed towards a need for environmental *generalists* rather than *specialists*, i.e. it is the breadth of knowledge of staff which is important in this regard. The implication is therefore that training should be relatively simple and broad-based. This is in many ways understandable, as the level of environmental awareness amongst SMEs is at present often very low as already discussed.

The Swedish study notes that general business and further education courses could usefully contain a significant environmental component. This would potentially have several advantages. Firstly, it would encourage those people or SMEs who would not entertain the idea of a training course solely based on the environment to gain at least some knowledge in the field. Secondly, it would allow the environment to be considered in a holistic and integrated fashion and would make many mutually beneficial linkages with other aspects of the firm's operations, such as product quality, resource use efficiency and health and safety, more readily apparent.

The Belgian and UK reports note that companies are more interested in staff having core business competencies rather than environmental competencies. As a result they often expect environmental managers also to have technical, engineering and good communication skills for example. In many cases SMEs have multi-tasking staff that have been given the environmental role in addition to their 'core' role. Flemish companies (of all sizes) are obliged to obtain the services of a part-time environmental co-ordinator to deal with all their legal environmental obligations (such as permits and taxes). These have to undergo continuous training in an institution acknowledged by the government. These persons clearly need both general knowledge and technical knowledge relevant to the firm's production processes.

In terms of vocational training courses for existing SME staff, the consensus is that most courses need to be 'customised' to the needs of individual firms or at least to the needs of the individual industry sector. Several firms interviewed in the Danish case studies stressed this point, arguing that course providers need to make their courses more relevant to the firm's operations.¹⁹ This

¹⁹ One of the Danish case study companies even went as far as to say that educational institutions themselves often lack competence in the environmental field and thus have very little to offer SMEs in this area.

was echoed by firms interviewed in Italy which complained about courses being excessively abstract. The feeling amongst them was that only training initiatives which are specifically tailored to a particular industrial sector or geographical area can effectively respond to the needs which exist.

SMEs are so overloaded with competing demands on their employees' time that if they do not feel that education and training provision is directly relevant and beneficial to their immediate needs then they are unlikely to be willing to allow their staff to attend. In particular, as is stressed in the Spanish national study, SMEs are not interested in courses which are overly theoretical and far removed from the day-to-day realities of their operations. It is widely understood that many SMEs have been deterred from entering into any sort of future education or training commitments by past negative experiences (not necessarily just in the environmental sphere), when training has not been seen to have had any kind of value for the firm's operations.

To summarise, one can say that many staff would benefit from a general appreciation of environmental and wider SD issues, and hence that generic training can be useful. It has to be emphasised, however, that those with specific environmental and/or OHS responsibilities, while not needing specialist degrees, do need quite specific, detailed and practical information across a range of topics.

Appropriate delivery mechanisms

The nine national studies convey the impression that if environmental education and training is to appeal to SMEs and succeed in encouraging them to adopt more sustainable working practices then the exact way in which it is provided is likely to be as important as the content. In particular, the following factors were identified as being particularly important in terms of SME participation:

- delivery format;
- the provider;
- duration of training;
- location;
- cost.

Delivery format

The method of delivery employed is a critical factor in determining the success of any form of training, irrespective of whether it is environmentally or SD-related or not. Different approaches can be used including:

- self help information (paper guides, CD ROM, internet, videos etc.);
- seminars and workshops;
- distance/open learning;
- telephone helplines;
- on-site training and support.



Survey work in the UK has shown that the most popular media are paper guides/newsletters, telephone helplines and on-site advice, with over 60% of companies questioned preferring these methods (Groundwork, 1998). Local seminars and IT self-help material were also considered useful by a significant number of firms. The least popular format was the national conference which is seen as being of little relevance to locally-focused SMEs. Trade journals and other commercial publications are also popular providers of information. All six of the UK case study companies claimed that they had accessed such material.

It is important that the method of delivery suits both the subject area and the trainee. New interactive ICT technologies such as the Internet and digital television offer enhanced possibilities for distance and open learning for SMEs. In particular, such technologies offer the scope for more flexibility in training provision, allowing students to drop in and out of the learning environment to suit their particular circumstances at that moment and to benefit from a high level of support through mechanisms such as on-line tutoring.

Preferred training providers

With regards to environmental support in the UK, the 1998 Groundwork Survey (as noted in the UK national study) produced some worrying results with 38% of SMEs and 57% of micro-sized SMEs having never had contact with a support body or initiative of any kind. The two most regularly mentioned support bodies were local (municipal) authorities and the Environment Agency (see table 7), although these only accounted for 16% and 12% of companies respectively. Less than 2% mentioned the Environmental Technology Best Practice Programme (ETBPP), the UK’s flagship eco-efficiency programme aimed largely at SMEs!

Table 7 SMEs relationships with support bodies in the UK

Organisation	Support body approached/ considered for environmental assistance	Support body SME had ‘other’ regular contact with
Local Authorities	16/15	68
Environment Agency	12/10	<5
Dept. of Environment	7/9	<5
Health and Safety Executive	6/7	<5
Environmental Consultancies	5	<5
Business Links	<5	43
Chamber of Commerce	<5	52
Trade Associations	<5	53
Local University/College	<5	44
Regional Government Offices	<5	33
Federation of Small Business	<5	23
Business in the Community	<5	21

Source – Smith, Kemp and Duff (2000), data from 1998

When prompted as to which support bodies they had direct contact with for general business matters, over 40% had such contact with local authorities, chambers of commerce (and Training Enterprise Companies), trade associations, Business Links (the 'one stop shop' for advice in England) and local universities/colleges. In all but the local authority case, however, less than 5% had or would consider using them to provide environmental advice, perhaps because there is not an obvious connection or the organisations in question do not market their services well.

Interestingly the UK case study work noted that trade/research associations and government authorities (including the Environment Agency) were the most likely sources of environmental information and advice (four out of six companies). Most other providers had been used by only one of the six companies while none had any contact with the trade unions. While this is a small sample, the result ties in with a survey by the UK Advisory Committee on Business and the Environment (ACBE) which found that 60% of respondents cited the trade associations as the most important source of information with the Government department and agencies some way behind at 20%.

The Netherlands report indicated that the case study companies had used their respective trade associations, the regional innovation centre, business clubs (for example Industry Circle of Breedewie) and Chambers of Commerce, consultants (in relation to voluntary agreements) and municipal authorities (re certain aspects of regulation). None had used the regional BMDs (industrial environmental services) or the environmental support available from the trade unions (for example the FNV). Trade associations also play an important part in Italy where all of the case study companies interviewed had attended courses or seminars organised by their respective trade associations. Some of these provisions were criticised, however, for being too formal and unimaginative in approach. The German report indicated that the most popular providers of training and support were the Chambers of Commerce, trade associations and consultants.

The issue over preferred providers is one of a) clarity over their role and b) credibility in terms of their ability to provide practical help. In terms of the latter this means understanding the sector and being able to speak the business language that SMEs want to hear. For this reason trade (employer) associations are an important source of health, safety and environmental education and training in all Member States. Often education and training provision is linked in with those areas in which the trade association is most often called upon to give advice.

Trade unions also have a role in providing environmental education and training for SMEs although seemingly much less so in the UK and France than in most of the other Member States studied, particularly Belgium, Denmark, Germany and Spain. In Belgium, trade unions tend to collaborate with the trade associations to provide workers with sector-specific environmental training. In 1991, the Belgian Chemical Industry Federation (FEDICHEM) signed an agreement of common understanding with five major Belgian trade unions (FGTB, SETCA, CSC, LBC and CGSLB) on the need for environmental training with an emphasis on health and safety, in enterprises in the chemicals sector. While the agreement did not itself involve any environmental training, there is a definite feeling that it acted as a catalyst and led to more initiatives being organised by both FEDICHEM and the trade unions themselves.

As noted above, government departments or regulatory agencies are certainly an important source of environmental education and training for SMEs, mostly with regard to aspects of environmental compliance. One should note, however, that SMEs do not always have a good and trusting relationship with their regulatory authorities and hence may not want to get involved in initiatives led by the regulators, particularly for fear of exposing themselves to prosecution.

External consultants are also used by SMEs, though their services are often seen as being very expensive and not necessarily appropriate. However, this does not seem to be the case in Germany where the case study companies all made use of consultants. In Italy, consultants are used frequently by firms introducing Environmental Management Systems, though often their role is more to develop internal capacity for addressing the issues raised. The Italian report stresses that it is often difficult for SMEs to evaluate correctly the quality, reliability and suitability of training courses organised by external consultants. The point is made that greater certification of training providers and courses might result in a better and more transparent system allowing SMEs greater confidence in accessing training.

It is noticeable that traditional educational establishments (universities, colleges etc.) are not seen as important training partners for SMEs in respect to the provision of technical and business related information. Very few of the case study companies in the nine countries considered, seemed to have any sort of formal links with educational institutions. The UK's main distance learning body, the *Open University*, was however listed as a source of education and training by at least one of the UK case study companies. In most cases academics are regarded with some suspicion as they are not regarded as practical enough in their approach.

Finally it is important to note that internally-organised education and training is a popular means of improving environmental competencies and understanding in SMEs. It is particularly important in the smallest (micro-sized) SMEs where it is often the dominant (or only) means of training. Such training is often very informal and generally consists of internal seminars and workshops, one key member of staff acting as the trainer.

Timing and duration

The demands on SMEs means that they are not willing or able to release staff to training courses which are of any length (for example a few days). The Spanish national study makes the point that the length of a course is more of an issue to SMEs than the cost of it (though the two issues are related insofar as longer courses also tend to be more expensive). Demands on the time of employees are particularly severe in micro-sized SMEs.

The Swedish national report suggests that training courses should ideally last between 2 to 3 hours and one day and that they should be organised on a modular basis. Modular courses, where the training is provided in small chunks with the pace being varied to suit the ability and the workloads of the staff concerned, are often viewed favourably by both the employee and employer. The Spanish report suggests that SMEs prefer courses which last between 2 to 8 hours a week and are held a couple of days per week, preferably in the afternoon. The French study

suggests that specialised courses should last 2 to 5 days, while more general training for staff (employees rather than managers) should be offered on a more flexible basis and over a longer time span. Such an example is the seven month part-time staff training course offered by the Association pour la Formation Professionnelle des Adultes (AFPA).

Courses can also be offered during the evening which is ideal for full time workers who wish to improve their skills but whose employers are unwilling/unable to grant them day release to attend classes. Furthermore, SMEs suggest that training courses should be put on during times of the year where SMEs are less busy, something that tends to vary from sector to sector but is generally in the summer months.

The location of courses

The constraints placed on the resources available to SMEs means that training courses need to take place in close proximity to the firm's location. This is because of both the travel costs and time involved in attending courses further afield. The ideal situation is often for the training course or support meeting to take place on the actual premises of the SME, a popular option as noted earlier.

Cost

The cost of education and training provision is a critical issue. If courses are expensive, which in SME terms may be more than perhaps 100 Euros, small companies will not participate in them. There is even an argument that they need to be provided free of charge if significant numbers of SMEs are to be persuaded to allow their employees to attend. Experience in the UK has shown that demand for education and training amongst SMEs drops away dramatically as soon as any kind of charging is introduced.



Chapter 5

Education and training provision for SMEs

This chapter examines the vocational education and training currently on offer to SMEs across the nine case study countries, indicating the range of courses on offer from the key training providers. The state remains a key provider in all of the case study countries, both in terms of organising training schemes and in financing those organised by others. The key providers include:

- institutes of higher education;
- vocational training establishments;
- local authorities and regulatory authorities;
- trade (employer) organisations;
- trade unions;
- business support networks;
- large enterprises;
- commercial training providers.

Each of these is covered in turn, with a description of the training that each provides and its relative importance as a provider in different Member States. Numerous examples of innovative and good practice initiatives are described where appropriate.

The range of environmental courses on offer

There has been a noticeable increase over the last fifteen years in the provision of education and training relating to the environment, and to a lesser extent, wider sustainable development issues. The growth has manifested itself as a dramatic increase in the amount and variety of education and training provision. The UK, for example, had no environmental vocational qualifications

until the late 1990's when the following courses were added to the UK's National Vocational Qualification (NVQ) system:

- environmental management;
- waste management operations;
- sewage and water treatment supervision;
- energy efficiency.

Certain other Member States, such as the Netherlands and Germany, have many more. The following extract from the German National Study could equally apply to a number of other Member States:

'The opportunities for further vocational training offered are numerous and diverse, and encompass all levels from skilled workers, master craftsmen to those at the managerial level. There are hundreds of establishments active in running environmentally-relevant programmes and courses. They vary considerably according to their size, organisers, financing, range of themes and length of course. Alongside trade associations, chambers of commerce and trade unions, independent course providers are becoming increasingly prevalent.' (page 107, German National Study)

A diverse range of courses covering a variety of environmental media and competencies are on offer in each country. Table 8 below provides an indication of the choice available in Italy. Presumably not all courses are available in all areas and some target different audiences, but nevertheless the breadth of choice is clear. It should be noted that as in many EU countries, occupational health and safety (OHS), environmental management/planning and environmental technologies and techniques are amongst the most prevalent. In terms of OHS, this reflects the long-standing commitment to regulation and improvement in this area across the EU. Environmental management has certainly been driven by the development of EMAS and ISO14001 while the most technically oriented courses are driven by the need for abatement solutions and cleaner technologies.

It is worth noting that in terms of 'support' in general, the Foundation's study on *SME Support Systems for Sustainable Development* (2000) indicated that while there are many EMS and eco-efficiency support initiatives, there are very few initiatives on eco-design or more integrated approaches to sustainable development, for example involving occupational health and safety, quality etc.

In some countries, such as the UK and Spain, environmental courses tend to focus very strictly on external environmental matters without much regard for other aspects of sustainable development such as occupational health and safety, employee inclusion etc. In other Member States, such as Denmark and Sweden for example, environmental training is often focused more on the internal working environment with a strong emphasis on worker involvement.

It is also the case that few of the regular (non-environmental) vocational courses properly integrate environmental issues into their curricula. Manufacturing science courses, for example,



which may place a lot of emphasis on quality, productivity and health and safety, generally pay little attention to eco-efficiency matters or eco-design considerations. This is quite a serious problem in that sustainable development requires a holistic approach with environmental and social considerations integrated with the normal commercial aspects of business.

Table 8 Environmental courses and study areas on offer in Italy

Study areas	Number of Courses	Percentage
Water	51	3.8
Agriculture	272	20.1
Air	4	0.3
Nature preservation	119	8.8
Ecology	2	0.1
Environmental education	43	3.2
Energy	25	1.8
Management and planning	137	10.1
Hygiene and health	23	1.7
Environmental impact	25	1.8
Environmental regulations	12	0.9
Quality and certification	39	2.9
Waste	74	5.5
Noise	3	0.2
Occupational and environmental health & safety	204	15.1
Environmental technologies and techniques	101	7.5
Land use planning	43	3.2
Environmental tourism	125	9.2
Urban planning	35	2.6
Urban environmentalism	104	7.7
TOTAL:	1441	106.5*

Source: Ministry of the Environment – ISFOL (reprinted on Page 43 of the Italian National Study)

* The total percentage is over 100 because a small number of courses cover more than one study area and are therefore counted twice.

Higher education institutions

Higher education institutes such as universities and certain colleges in the EU generally provide the more ‘academic’ courses at diploma, undergraduate and postgraduate levels, generally through full-time courses for school-leavers and the unemployed. These qualifications can often be obtained by those in business through part-time and distance learning courses while some academic universities and colleges also offer short vocational training courses.

Academic courses

The nine national studies confirm that higher education institutions offer a wide variety of academic courses in the environmental and, to a much lesser extent, the broader sustainable development field. There are both explicitly environmental courses and ones where environmental themes are a component, both at an undergraduate and postgraduate level. Postgraduate courses such as taught masters are often designed for students with a good level of knowledge within a scientific discipline. While such courses are available in all nine case study countries, Spain probably offers the fewest courses, in part due to a lack of appropriate staff. This problem is recognised by the Spanish authorities and capacity building initiatives are in place. It is also worth noting that provisions vary within Member States, with courses being more common in some regions than in others.

An example of a course from Sweden

The University of Umeå in Sweden offers a flexible four year undergraduate environmental science degree with the following components:

Year 1: Chemistry, physiology and ecology.

Year 2: The effects of environmental problems (both on humans and on the surrounding environment).

Year 3: Social effects of environmental problems on transport, agriculture and foodstuffs.

Year 4: A review of public administration and environmental regulation.

In addition, a number of courses (for example ecology, chemical inspection, human toxicology and, since 1997, environmental auditing and environmental management) are offered to participants seeking to gain specialist knowledge.

Source: Page 67, Swedish National Study

Engineering and natural science departments are the most common providers, but economics, business studies, management and planning departments also offer courses in certain instances. In Germany 58% of environmental courses are offered within engineering faculties, with the figures for natural science and economics faculties 17% and 7% respectively. 21% of university degree courses in biology offer an environmental component with the figures for engineering and economics degrees 19% and 10% respectively. A Spanish example of a technically-based course is given in the box on page 42 below. In Belgium, environmental courses are mainly offered by science faculties and engineering schools at undergraduate level. Postgraduate courses, for example masters courses concerning environmental management, local sustainable development and human ecology, are also open to non-scientists.

The university faculty which organises an environmental course (or an environmental module within a course) obviously has a large bearing on the topics covered. For instance, you would not generally expect an environmental course within an economics department to analyse in detail the environmental effects of different manufacturing processes whereas this might be an



important part of an environmental component of an engineering course. The Spanish study goes further, noting that environmental provisions in Spanish universities often depend more on the individual lecturer's interests than considered course design based on perceived student/industry needs. This can also be the case in the UK where some universities want to provide popular environmental courses but do not have the staff to deliver what is required.

In certain Member States, such as the Netherlands (see box below) and the UK, environmental courses are often organised across faculties, drawing expertise and insights from a range of different subject areas (for example engineering, economics, biological sciences, planning etc.) to meet the specific needs of students and businesses alike. In other Member States however it seems that there are barriers to the effective provision of multidisciplinary environmental courses within universities.

The Spanish National Study makes the point that although the structure of the Spanish university system would seem to favour it, very little is being currently being done to achieve multi-disciplinary provision. This seems to be the case in France and Belgium as well where a single subject approach is generally taken. That is, the environment is dealt with in terms of technology and engineering, policy and economics, ecology and conservation and so on, but not as an integrated package. Higher education in France tends, in fact, to be focused mainly on environmental risk and safety.

Environmental courses at the University of Twente, the Netherlands

The University of Twente (UT) is an important academic institution with approximately 6,000 undergraduate students. It offers an undergraduate, multidisciplinary course in *Environmental Technology* which generally lasts four years. UT also offers nine postgraduate programmes in technological design. These are two year programmes tailored to the need in industry for highly qualified engineers able to control all aspects of the production process from research to production (and therefore relevant in terms of cleaner production and waste minimisation).

UT contains the *Centre for Clean Technology and Environmental Policy (CTSM)*, an interfaculty institute for environmental studies created in 1988. CTSM is the key environmental research establishment in the Overijssel region of the Netherlands. It runs two post-graduate environmental programmes which have specifically been designed for the unemployed:

- Master of Environmental Business Administration
- Environmental Public Management

Source: Page 81, Dutch National Study.

On a related point there also seems to be relatively little integration of environmental considerations into regular courses, although this appears to be something that is beginning to happen. Two examples are given in the box below.

Integration of the environment into regular courses

Chalmers University of Technology in Sweden is an interesting example as it is one of the few institutions where an environmental dimension is a compulsory part of any degree. Students have to take a minimum number of courses in environmental science and also a certain number of courses in which environmental issues are a component.

In Spain, UNED, the National University of Distance Education, is running a masters course aimed at university graduates in a number of different areas: engineering, social sciences, natural sciences and human sciences. The aim is to equip participants with the necessary skills to teach environmental subjects or to become otherwise involved in the environmental education field.

Source: *Swedish National Study*, page 67 and *Spanish National Study*, page 47.

It should finally be noted that some universities provide further academic courses for people in work through distance learning. Key institutions in this area include both dedicated distance learning bodies, such as the UK's Open University, France's *Centre National d'Enseignement à Distance* (CNED) or Spain's *Universidad Nacional de Educación a Distancia* (UNED), and conventional academic institutions. In France, CNED offers an on-line environmental vocational training scheme called PROTEEN (*Produits de Formation en Environnement*) in association with other vocational training organisations. This scheme is particularly innovative because it is run solely over the Internet and participants are asked to submit topics of interest for forthcoming training modules. PROTEEN is aimed specifically at people in employment and it is often the case that all of the participant's course fees are met by their employer. Another example of a distance learning course (from Germany) is given in the box below.

Applied environmental science (University of Koblenz-Landau)

This postgraduate degree is aimed at scientists and technical administration/engineering personnel in public authorities, industry and engineering companies. The entrance requirement stipulates that applicants must be educated to degree level. In addition, those applicants who do not have a degree in a scientific or engineering subject must also first complete an access course. The course can either be completed on a full-time basis (2 years duration) or on a part-time basis (between 3 and 4 years duration). The yearly cost of the course is €1,585.

Source: Page 114-115, *German National Study*.

University vocational courses

Many universities and academic colleges also run more vocational courses for business. In Sweden for example, the universities of Gothenburg and Lund offer a wide range of courses which can be taken as introductory courses:

- waste and its effect on the environment;
- emissions;
- natural resources management;

- the natural cycle;
- environmental impact analysis;
- environmental auditing;
- environmental planning.

These courses typically last between six and twelve months and involve two to four hours of contact time per week. The University of Lund offers courses in environmental certification, environmental auditing and environmental communication. These are aimed at staff of both SMEs and larger firms. A good example of a modular part-time course from Germany is given in the box below. Good examples can also be found in the Netherlands. The *Hogeschool IJsseland* in the Overijssel region of the Netherlands, for example, offers a part time senior vocational degree in Environmental Technology which, whilst having a duration of four years, only involves evening classes, thereby making it suitable for people who work during the day.

Modular course in environmental protection at the University of Koblenz-Landau

This further education course aims to impart specialised knowledge in different areas of environmental science. The course is targeted at people educated to degree level who wish to improve their knowledge in these areas without committing themselves to an examination-based course. There are no entry requirements, participants can start at any time and the self-study modules can be undertaken in any order. Each module requires about forty hours of study and includes 'checkpoint' questions to enable the participant to assess their understanding of the issues. There is no external assessment of a student's performance and on completion only a standard certificate of participation is issued. Each module costs between €205-307 depending on its size.

Source: Page 115, *German National Study*.

Although these courses are undoubtedly very useful to SMEs, there are relatively few examples of courses and programmes being tailored specifically to meet the needs of SMEs. A good example of such a course from Italy is given below, however. This course is interesting in that it covers a wide range of topics in a reasonably integrated fashion, although it should be noted that it does not address social and economic factors, such as health and safety, job security, equity and so on. It is therefore not truly a sustainable development course per se.

An SME-specific course on the sustainable enterprise from Italy

Luiss Management, a subsidiary of Luiss Guido Carli University, offers a course on '*Sustainable enterprises: culture, organisation and tools for environmental management*' designed specifically for SMEs organised in co-operation with the Ministry of the Environment. The course lasts eight days and is structured around 5 in-depth seminars and workshops:

Environment: restrictions and opportunities

- sustainable development;
- European and national environmental policies for SMEs;
- environmental law: regulations and special financial assistance;
- new voluntary instruments: EMAS Regulation, ISO 14001, Ecolabels.

Environmental Management System (EMS)

- environmental analysis of product-processes, facilities, organisation;
- planning EMS;
- personnel selection, training and management of human resources. EMS roles and expertise;
- Environmental auditing;
- integrated quality management of environment, health and safety.

Instruments for eco-efficiency

- efficient water management. water recycling
- efficient energy use. energy analysis and feasibility studies;
- waste and raw material recycling;
- packaging planning;
- paints and solvents.

Verifying instruments

- planning and management of the working and external environmental information system;
- analysis and control of environmental risks;
- identification and analysis of environmental impact: life cycle analysis and eco-balance;
- environmental accounting.

Communication instruments

- environmental communication: targets and contents;
- ecolabels for 'green' products;
- EMAS regulation: environmental statement and logo use;
- environmental reporting.

Source: Page 34-35, Italian National Study.

In the UK some universities have also developed SME-specific courses and centres. Birmingham University, for example, has a specific Working with Local Industry programme involving courses, workshops and seminars, now run through its Centre for Environmental Research and Technology (CERT). The course is very practical and oriented towards regulation and cost saving. The key here has been developing contacts with local businesses over a long period of time and offering low cost and carefully targeted material that involves the local authorities and the environment agency. The course leads to a diploma or an MSc.

Working with local industry - Birmingham University (UK)

The programme involves a series of one-day seminars plus work-based exercises and involves SME staff from management and the shopfloor. The programme content includes:

- packaging regulations;
- local authority regulation;
- continuous improvement for environmental management;
- waste and energy - management and minimisation;
- waste discharge and pollution control;
- environmental auditing, objective and target setting.

Source: Page 41-42, UK National Study.



State-funded vocational training establishments

Courses for school leavers and the unemployed

The nine national studies provide several interesting examples of innovative courses run by state vocational colleges for school leavers and the unemployed, although these courses do appear to be the exception rather than the rule. A good example from Denmark is given in the box below.

Hjørring Technical College, Denmark

Hjørring Technical College offers a certified environmental co-ordinator course in collaboration with a private consulting agency. The course is principally aimed at unemployed people with a higher education and aims to equip them to identify a firm's environmental impacts and then draw up goals/action plans for the firm's environmental activities. The course is relatively broad in its scope and covers areas such as quality and environmental control, environmental mapping, the working environment and environmental regulation. It consists of 16 weeks theory and 10 weeks practical training, where participants work on actual problems within an actual firm. Local firms have been particularly eager to get trainees at the end but at the start there has been a shortage of sufficiently motivated and qualified course participants. Hjørring Technical College is therefore considering opening up the course to a broader range of people or else offering it as part of a package to local firms who can then send one or more of their staff on it.

Source: Page 105-6, Danish National Study.

A similar initiative exists in Belgium, where unemployed graduates of higher education are trained to become a state recognised eco-advisor (*eco-conseillers*). This initiative is described in more detail in the box below:

The training of eco-conseillers in Belgium

The Eco-Conseil Institute in Namur, Belgium offers a full time, one year environmental training course which is aimed at unemployed higher education graduates. The first six months of the course involve a large number of guest speakers instructing the participants on a broad range of environmental topics and engaging them in interactive group discussions. There are also a number of on-site visits to local businesses, where the practical application of the classroom material can be viewed. On top of the environmental training, participants also receive at least 300 hours of communication training. After an initial period of time where course participants all follow the same curriculum, there is some opportunity to specialise – essentially between courses which relate to private businesses and those which are tailored towards the needs of local authorities.

The second half year consists of an internship within either a private company or local authority. At the end of the year, participants have to pass an exam, after which they receive a certificate acknowledging their status as an *Eco-conseiller* (Environmental Advisor). A new law to be introduced in 2001, will mean local authorities will receive a subsidy of 500,000 BEF (€12,400) per year for employing an Eco-conseiller full time.

The programme has run for some ten years in which time around 300 people have qualified as Eco-conseillers. Over 90% of these have been successful in finding permanent full time employment. Only a handful of these have actually entered employment in an SME but several more are directly involved with assisting small businesses in the environmental field through working for chambers of trade or provincial authorities. The programme is jointly funded by FOREM and the Government of Wallonia. Despite its success, there is still only capacity for 30-35 people to participate each year.

Source: Page 40, Belgian National Study and an interview with Jean-Yves Marrion (Institut Eco-Conseil, Namur).

In Germany, 16 to 19 year-old school leavers not planning to attend university face a system of formal classroom-based vocational training which runs in parallel with work experience within a firm. This system also has an environmental component, although interestingly, it is often the employer and not the vocational training provider who is primarily responsible for setting environmental learning targets. Nevertheless, training in various specific environmental competencies is available, as noted in the example in the box below.

The Vocational Academy of Baden-Württemberg (Karlsruhe, Germany)

The Vocational Academy of Baden-Württemberg in Karlsruhe offers technology/engineering students a specialism in *Environmental and Radiation Protection*. The first vocational qualification (engineering assistant) is reached after two years during which the students have spent half of their time in the academy and half in a place of work. The second vocational qualification is equivalent to a degree and is reached after a further year with the time again divided equally between the academy and place of work. A dissertation constitutes the final qualification at the end of this year.

Basic subjects studied include physics, chemistry, mathematics, process engineering, electronic engineering, measurement and control technology, as well as measurement technology related specifically to radioactive and environmental protection. In addition, radiobiology, radiation-protection measurement technology, nuclear technology and safety at work are all covered.

Source: Page 110 (Main Report) and Page 49 (Annex 8), Germany National Study.

In France, school leavers seeking a vocationally-oriented environmental education have several options. They can opt for a *Certificat D'Aptitude Professionnelle* (CAP) in Waste Management or Water Quality, a *Brevet d'Etudes Professionnelle* (BEP) in Chemical Industrial and Water Treatment, Radioactive Waste, Rural Environmental Planning or a *Professional Baccaulaureate* in Hygiene and Environment.

An upper degree in environmental chemistry in Spain

This course is aimed at developing the skills to organise and manage environmental protection resources and measures, to inspect and control facilities, to analyse environmental samples and to devise and implement solutions. It is aimed at young people aged between 16 and 20. The course is organised at the national level by the Ministry of Education but the different regions have influence over the precise content and can adapt the content to meet their particular local requirements.

- modules (Contact Hours):
- organisation and management of environmental protection (160 hours);
- control of atmospheric emissions (128 hours);
- control of wastes (160 hours);
- purification of waters (256 hours);
- chemical safety and industrial hygiene (128 hours);
- labour environment relations (64 hours);
- on-the-job training (440 hours);
- training and labour orientation (64 hours);

Total hours of training: 1400 hours

Source: Page 44, Spanish National Study



Courses for SME staff

Many vocational establishments across the EU also provide carefully designed courses for SME staff. In Belgium for example, the *Flemish Institute for the Self Employed* (VIZO) organises vocational training in environmental consulting in Ghent and Brugge. The Flemish legal obligation for SMEs to hire an environmental co-ordinator requires the provision of continuous vocational training with a minimum of 30 hours per year organised in universities and private institutes. Special subsidies are provided to enable SMEs to offer this training to their staff, for example their HSE co-ordinator. Vocational training offered includes pollution prevention and control, environmental management and specialised courses if desired. Similarly, the French state-run AFPA offers an environmental co-ordinator course which follows a practical problem-solving and hands-on approach. An example of such a course from Sweden is described below.

An environmental co-ordinators course from Sweden

An innovative environmental course, involving local SMEs, is offered in Aneby Kommun in Sweden. It aims to train people to be able to co-ordinate all the environmental aspects of business operations. The course is divided into three modules:

Module 1: general environmental problems (their origin and possible solution), the local Agenda 21, ecology and resource planning.

Module 2: concrete examples of environmental activities in firms, for example environmental management, environmental auditing and environmental communication.

Module 3: the organisational and managerial problems of environmental management.

The course is based on both theory and practical training with local firms. During the practical part of the course, participants learn how to solve actual environmental problems in a firm. The course is extremely popular, but lately there has been a shortage of qualified applicants.

Source: Page 70, *Swedish National Study*.

In Italy, during the academic year 1996/97, a total of 264 environmental courses were offered by 130 Vocational Training Schools in the three sectors of agriculture, industry and services. It is worth noting, however, that the distribution of environmental training courses in Italy is extremely uneven, with over 70% of such courses being held in the south of the country. This is somewhat surprising since the north of Italy contains the country's industrial heartlands and is therefore where one would expect the need for environmental training to be greatest. It seems the reason for this imbalance is the fact that much of the funding for environmental courses comes from the European Social Fund (ESF) and the poorer regions (such as much of Southern Italy) are eligible for much greater amounts of ESF support. The Spanish national report indicates that this is also an important issue in Spain, environmental training provision being unevenly distributed.

Finally it is important to note that the national studies have identified few vocational courses relating to the training of shopfloor staff. The UK report notes that shopfloor staff are often seen as having little relevance in terms of environmental issues. This is not the case, however, in many

other Member States. In the Netherlands, for example, the Apeldoorns College runs an MBO course on Environmental Techniques for Operators which is specifically aimed at shopfloor staff and only requires 12 lessons. It is also worth noting that demand for this type of training is likely to become more important in Denmark now that new legislation concerning the Involvement of Employees in Preventative Environmental Work in Polluting Enterprises (which requires employee access to relevant information and training) has been passed (see Danish Confederation of Trade Unions, 2000).

ECOFORMA transnational project

The original ECOFORMA project, developed by the French speaking Professional Training Institute of Brussels (IBFFP) in 1996 organised environmental training workshops for both managers and employees on environmental legislation, clean technologies, management issues, project and action identification and internal information dissemination methods. An interesting transnational approach between France, Scotland and the IBFFP is a development of the project, funded by the EU ADAPT programme. This project has set up a distance learning web site providing environmental information to workers in particular, rather than just managerial staff. This flexible learning process is intended to allow workers to consult the web site during working hours or at any other time.

Source: ADAPT Support Unit, ECOTEC Research and Consulting Ltd, Birmingham, UK

Local authorities and regulatory authorities

Regional and local authority schemes

In most parts of the EU, regional and local authorities play a significant role in both regulating business and supporting it. The two roles could easily be in conflict and such arrangements rely on long-standing relationships and mutual trust. In some cases local authorities merely play a co-ordinating role (see Networks below) while in other cases they actually provide training and support. In Belgian Wallonia, local authority staff are trained by the Eco-Conseil Institute to become eco-advisors and provide environmental information to companies and the public. The box below provides an example of a very successful programme in France.

Training environmental co-ordinators in France

The initiative 'Bretagne Environment +' in Brittany is led by the DRIRE (regional ministry for industry) and the regional authority, to provide free training for one member of an SME's staff to become an 'environmental co-ordinator' and learn how to carry out an environmental assessment of the company. The results have been very positive:

- 2500 SMEs attended the training, 545 environmental co-ordinators were trained
- 90 environment-related jobs were created
- 18 MEUR invested in clean technologies
- 60 SMEs were about to apply for ISO14000 certification

Source: Page 97 & 128, French National Study.

In Denmark local authorities have been involved in a number of projects to improve their capabilities with regard to providing advice. The KURS project (1993-4), which was initiated by

NALAD (the national association of local authorities) and funded by the Danish EPA and the authorities themselves, looked at how authorities could improve their services to SMEs. It resulted in new approaches, for example focusing on better dissemination of information on cleaner production techniques, and new instruments, including sector specific guides and training courses for managers and employees, subsidised consultancy advice and so on.

The LACE project – facilitating EMAS in SMEs

From 1995 to 1997, NALAD in Denmark, the central association of authorities in Greece (KEDKE) and various local authorities including the Borough of Sutton in London, were involved in a LIFE project called LACE (Local Authorities helping Companies implement EMAS). The project was supported by the Commission and the Danish EPA and involved SMEs in it to allow testing of the tools developed. These included:

- a guidance document for local authorities wishing to support SMEs;
- a manual and promotional material on EMAS for SMEs.

Workshops were held in Denmark, Greece and the UK for SMEs, while a final conference was held in Brussels for local authorities. The project was successful in that it demonstrated that local authorities could encourage SMEs to adopt EMAS and interact with them to assist them through the process. The approach was shown to be appropriate in a variety of Member States.

Pedersen, C. (2000), Local Authorities in Dialogue with SMEs, in 'Small and Medium-sized Enterprises and the Environment – Business Imperatives', Greenleaf-Publishing.

Danish, Greek and UK authorities have more recently been involved in a transnational LIFE project to allow them to better support SMEs in the uptake of EMAS (see the box above). In addition, a LIFE project in Belgium has been helping SMEs (and larger companies) with eco-design work (see box below).

Eco-design support initiative in Belgium

The local authority of West-Vlaanderen, with various partners including the Flemish Institute of Technological Research (VITO), is running a LIFE project to identify ecodesign opportunities in 50 companies (a combination of large companies and SMEs) and support them in eco-design implementation. The project uses the Dutch *PROMISE* methodology:

- Step 1 – Planning;
- Step 2 – Reference Product Selection;
- Step 3 – LCA Analysis (use of EcoScan tool);
- Step 4 – Identification of Feasible Options;
- Step 5 – Development of Alternative Concept.

Source: Design for Sustainable development - Support Systems for SMEs, A Report by ECOTEC for the European Foundation for the Improvement of Living and Working Conditions (October 2000)

Regulatory agency schemes

The role of national and regional regulatory agencies in providing education and training on the environment seems to be rather limited although there are examples from certain Member States. As with local authorities there can be a conflict of interest, so initiatives often aim only to inform

businesses of their legal obligations and how they can be met. Some agencies, however, do get involved in wider activities.

In Italy, the regional environmental protection agencies (ARPA) offer training services, while in the UK the Environment Agency (EA) is directly involved in running waste minimisation schemes and other business support initiatives. These activities are often run in partnership with other institutions and bodies. In Denmark, the national regulatory agencies, such as the EPA, do not appear to have offered training courses themselves but have instead referred businesses to an appropriate provider. There are some exceptions though, such as the Occupational Health Service (BST) which is working with the dyestuffs and varnishing industry in Copenhagen. It is working with firms, most of which are SMEs, to help them to tailor their training to meet regulatory obligations. A good example from the French national report is given in the box below.

Regulatory support from the French Energy and Waste Agency ADEME

In France, the Energy and Waste Agency ADEME, with the partnership of the National Federation of Chambers of Commerce and Industry, has developed a self-help or guidance document, to enable both managers and employees to discover the benefits and opportunities of an EMS. Based on a hands-on approach, the book is designed to improve environmental awareness and responsibility and help the company to assess its environmental impact, and to give guidance on how to address it. The steps are very similar to an ISO14000 certification process.

ADEME is also working in partnership with the Provence Alpes Côte d'Azur Regional Council and Chamber of Commerce and Industry (CRCI), to offer free 'environmental diagnosis' to SMEs. This can lead to company-specific training on EMS and other subjects. This training takes the form of a company-level project tailored to the specific issues of managers, with concrete solutions to problems. Workshops for participating SMEs are organised to promote exchange of experiences.

Source: Page 81, French National Report.

Other publicly-supported programmes

It is worth noting the importance of the transnational *Leonardo da Vinci* programme in the vocational training sphere.²¹ Leonardo, now in a second phase (2000-2006), has a broad objective of implementing EU vocational training and lifelong learning policies. In this context, it supports the development of policies and innovative action in the Member States, by promoting projects involving transnational partnerships which contain different organisations with an interest in training. Several of these projects involve environmental training in which staff of SMEs are involved.

Across Europe there are many publicly-funded SME support projects. The UK has a wide range of such projects including the nationally organised Environmental Technology Best Practice Programme (ETBPP) and around 50 regional/local waste minimisation schemes. The Netherlands has a very successful national scheme called the Cleaner Production Programme which is run through regional centres (see box below).



The UK's Environmental Technology Best Practice Programme (ETBPP)

Since 1995, the Government-funded Environmental Technology Best Practice Programme (ETBPP) has been a major player in the environmental education and training field in the UK through the provision of:

- self-help good practice guides, case studies, computer disks;
- workshops and seminars;
- an environment and energy (telephone) helpline;
- on-site consultancy advice (for SMEs only).

Importantly, all services are free. There are now over 200 guides and case studies covering everything from solvent use in the printing sector to investment appraisal. In terms of the workshops and seminars, half-day events are held on specific subjects at various regional venues around the country. Recent events have covered water use in the speciality chemicals sector and packaging minimisation. It is estimated that the ETBPP is helping UK businesses to achieve savings of around €173 million each year. The helpline has been able to offer advice and information to over 150,000 callers and in 1998 over 300 SMEs took advantage of free on-site counselling visits.

Source: Page 44, UK National Study.

Clean Production Programme 2 (the Netherlands)

In the Netherlands the CPP 2 provides eco-efficiency support and is particularly focused on SMEs. The programme operates through regional innovation centres (Sinthens) and the Company Environmental Agencies (BMDs) and while it is mainly an information dissemination programme, also offers limited consultancy advice. CPP 1, which ran until 1995, was very successful, with over 9,000 SMEs being given advice, 4,500 through regional meetings, 3,000 through activities undertaken in the various industry sectors and 1,800 through obtaining individual advice. The results indicate that the programme reached a very broad spectrum of SMEs. The success of CPP 1 can at least in part be attributed to the co-operation between the Senter, BMDs and other organisations including trade bodies and unions.

Source: Design for Sustainable Development: SME Support Systems for Sustainable Development (2000), European Foundation for the Improvement of Living and Working Conditions.

Similar eco-efficiency schemes are known to run at the regional level in Germany (for example, *Effizienz-Agentur Nordrhein-Westfalen*), Austria (for example, *ÖkoProfit* in Linz) and Spain (for example, the *Centre for Cleaner Production Initiatives*) (Hilton, 2000). Spain also has a central 'foundation' which provides support and training (see box below).

**The Environment and Enterprise Foundation
(‘Fundación Entorno, Empresa Y Medio Ambiente’)**

The *Fundación Entorno, Empresa y Medio Ambiente* was established in 1995 as a non-profit organisation (foundation) that aims to contribute to the process of integrating environmental issues at the management level of enterprises. The Foundation receives financial backing from the public sector (through the *Sociedad Estatal de Participaciones Industriales* - a state-owned holding company designed to support ailing industrial sectors) and several large Spanish private enterprises.

The Foundation's main objectives include the following:

- providing businesses with updated information on opportunities provided by eco-industries;
- facilitating access to capacity building and benchmarking programmes, organised by the Foundation, especially those which focus on the implementation of Environmental Management Systems;
- undertaking environmental research projects and programmes;
- serving as a platform for those enterprises wishing to make their environmental achievements visible to a wider (social) audience;
- collaborating in all the above-mentioned objectives with enterprises in Latin American and the developing world.

The Foundation currently offers training through workshops, internal courses within specific companies, conferences and seminars for enterprises wishing to implement an EMS. The Foundation is also engaged in formulating distance learning material. Related to this, the 'Fundación Entorno' is responsible for a very interesting training programme called the 'Environment-SME Initiative' (*Iniciativa Entorno-Pyme*) which is specifically designed for Spanish SMEs. It aims to encourage SMEs to introduce an EMS and is offered free of charge (it is jointly financed by the Spanish Ministry of Industry and Energy and the ESF). By 1998, around 400 Spanish SMEs had taken part in this programme having drawn up and signed an environmental commitment.

Source: Page 51-2, Spanish National Report.

The UK and France also have interesting student-placement schemes. The UK Student Force for Sustainability, for example, is one of several UK schemes which co-ordinates and subsidises the placement of environmental science and management graduates in companies, including SMEs. The aim is that benefits accrue to both the SME and the student. At low cost, the SME gains theoretical knowledge on areas such as EMS and waste auditing plus an extra pair of hands to conduct various investigations, usually with the support of company staff. The student gets an insight into the way businesses work and can hopefully gain an insight into the practical application of his or her theoretical competencies. These schemes typically involve hundreds of students nationally at any one time and often lead to permanent jobs for the students involved, their salaries generally being easily covered by the yearly savings made at the company through eco-efficiency work.

The UK also has an important new open and lifelong learning initiative, the University for Industry (Ufi), a major new initiative for open and distance learning in the UK. It basically functions as a broker and commissioning body for learning products. Through its operating 'brand' known as LearnDirect, UFI aims to bring training and education into the workplace and the home, through the Internet, a telephone helpline and a network of regional *hubs* which are expected to co-ordinate local learning activities. SMEs are a crucial target audience for UFI's products, the environment being a particular theme.



The University for Industry (UFI) and the Environment

UFI has selected environmental training for SMEs and individuals as a priority area, together with business skills training for suppliers of environmental goods and services. The whole essence of UFI is that learning should be available to those who want it 'any time, any place and anywhere' and that 'the learner controls the learning experience'. Essentially it will be Internet-based, to reduce costs and allow the tracking of the 'learning experiences' of individual customers. UFI is currently being funded by the UK Government's Department for Education and Employment (DfEE), however, its operating structure is that of a private company (UFI Ltd.) and it will charge for its learning products. It is hoped that it will become financially self-sustaining by 2004.

Source: ADAPT/UFI Dissemination Meeting at the DfEE, Sheffield, UK, 9th June 2000.

Trade (employer) organisations and chambers of commerce

Trade (employer) organisations

A large number of trade (sector or employer) organisations are active in providing training in the nine study countries. As noted earlier it is just such practical, sector-specific advice that SMEs want, although one has to note that provisions may not exist at the local or even regional level. In some cases, however, the sector and its trade body are regionally concentrated or clustered, this being the case in Italy and the UK in certain sectors (for example textiles and ceramics).

In Belgium, several employer sector associations provide their members with specific environmental training and information through their own training centres. One such example is the Chemical Industry Federation which employs six qualified persons to give tailored advice in the specific environmental areas of the chemical sector: dangerous chemicals and their transport, packaging, security, labelling and environmental legislation. The metal federation *Fabrimetal* also employs three advisors to provide specific advice to their members on clean technologies, legislation and security. In addition, UWE (Walloon Union of Employers) has set up a training centre (EPM) to offer individual and confidential advice to SMEs and organises environmental management courses for managers twice yearly.

In the Netherlands the Chemical Industry sector (VCI) has set up a non profit company providing free advice to SMEs (CHEMSERVE) during the preparation of their company environmental plan (required by all voluntary agreements and linked to the environmental permit system in this case) EEA, 1997. The company environmental plan lists the in-house measures the company will implement in order to contribute to meeting the sector targets. The transnational ADEGE project, led by the French plastics industry, has been supporting the uptake of EMS in the sector in France, Germany and the UK, with experiences being shared as the project progresses.

ADEGE – EMS support for the plastics sector in France

ADEGE (*Action de Développement de la Gestion Environnementale*) aims to assist SMEs in the plastics sector to adopt ISO14001. The project was initiated by the Plastic Manufacturers Federation and is being implemented through *Plasturgie Services*, its business support arm. ADEGE 1, which began in 1995, assisted almost 100 SMEs while ADEGE 2, which is funded through the EU ADAPT programme, aims to assist 300 SMEs. The programme works in two main ways:

- collective activities, where firms are brought together for seminars, allowing them to ask questions, share experiences, ideas and so on;
- company-specific on-site work where consultants work with the relevant staff to help develop the Environmental Management System.

Throughout the programme (12 to 18 months for most companies) the relevant member of staff benefits from several days of methodological training. He or she is also advised on how to train other members of staff and is given relevant training material including video cassettes and guidance documents. By October 1999, 196 enterprises had participated in the programme and 5 had obtained ISO 14001. The key benefits identified by the majority of participants included:

- better understanding of regulation;
- better management of waste (for example segregation and sale);
- better understanding of environmental risk;
- an improved image with clients;
- better relations with the regulator; and
- staff involvement in a global approach.

The programme is moving on to deal with other industrial sectors and to involve companies in the UK and Germany through the transnational aspects of ADAPT.

Source: Design for Sustainable Development: SME Support Systems for Sustainable Development (2000), European Foundation for the Improvement of Living and Working Conditions.

The Association of the Chemical Industry (Verband der Chemischen Industrie e.V)

The Association of the Chemical Industry (VCI) represents the economic interests of the chemical industry. Of its 65 employees, around 15 are involved in the environmental sphere. Since 1990, the VCI has offered environmental courses and these now account for about 50% of its total training provision. Courses are aimed in particular at middle and higher ranking staff in SMEs engaged in the chemicals industry. Importantly, it also offers courses designed specifically for SMEs which are intended to take into account their special operating conditions and constraints. Courses generally last one or two days and are organised around workshops and seminars. The courses generally deal with skills and methods relevant to a particular issue but also general awareness raising in relation to overall environmentally-relevant themes.

Source: Page 117, German National Study.

In Denmark, the Graphics Industry Employers' Organisation has encouraged many firms to become environmentally certified. This has been achieved in part through offering firms training courses. One course, *Environmental Management – A Good Start* is a particularly interesting example and is outlined below. It should also be stated that this particular employers' organisation is also prepared to design individual courses to meet the needs of specific member firms.

Danish graphics industry - 'Environmental Management – A Good Start'

This course is designed for management level staff and other key employees. It gives participants an insight into three different environmental certification standards: ISO14001, EMAS and the Nordic Swan (eco-product) Label. The course deals with the following areas:

- environmental policy;
- setting environmental goals;
- the functioning of EMS;
- environmental auditing and reporting.

Several details of the way in which this course is offered show the employers' organisation to be particularly innovative and forward thinking. Firstly, prior to each course, environmental data is collected from each of the participating firms and then used in the actual course – making the material used particularly relevant to the actual participants. Secondly, the employers' organisation has undertaken an *ex post* assessment of the course's impact. 23% of participating firms subsequently decided to embark on ISO14001 or EMAS certification, 38% applied for a Swan label and 27% decided to implement environmental improvements in another way.

Source: Page 108, Danish National Study.

In general the large umbrella federations which operate at the national level delegate responsibility for training provision to their member (i.e. sector) organisations. In Italy, FITA (The Federation of Industries, Professional Services and High-Tech Service Industries) is one national umbrella organisation which does organise training at the national level (in quality management, the environment and health and safety). FITA consists of 46 professional associations and 96 local divisions representing 20,000 enterprises. In particular, FITA organises training courses for assessors/auditors of environmental management systems and for people to verify whether voluntary agreements in the environmental field are being met.

It is also worth noting that many sector research organisations provide wider training and support to their members. This is important in the UK where bodies such as the Shoe and Affiliated Trade Research Association (SATRA), the Paper Industries Research Association (PIRA) and the Food and Drink Research Association provide various information leaflets, guides, courses and workshops, some aimed at awareness raising, others at improving competencies. To give another example, The Swedish Institute for Food and Biotechnology offers a range of courses on a number of different subjects. There is a two-day course on life cycle analysis and a range of other courses in which the environment is a component (for example food chemistry, microbiology and product development). Charges are generally levied for the courses on offer.

Chambers of commerce

Chambers of Commerce (CoC) also have a role in providing environmental training, though evidence from Germany at least, suggests that the importance attached to the environment differs between individual chambers with some offering training courses and others not. The same is true in Spain, however the Gipuzkoa CoC has developed a postgraduate course in environmental management. It is noteworthy because it is designed specifically for managers and technical staff of SMEs. The course, which can accept a maximum of 15 students at any one time, involves a total of 56 hours of training in relation to waste and pollution prevention and control and EMS. In Belgium, the Walloon Union of Employers (UWE) promotes best environmental practices and clean technologies in SMEs through the advice of six advisors based in local chambers of commerce.

Cross-border co-operation between Chambers of Commerce, and of course local authorities and other bodies, in neighbouring regions can be helpful in disseminating environmental best practice. An example is given in the box below and further examples of cross-border co-operation are available elsewhere in the report (such as the Ecoforma initiative mentioned later in the report).

The 'Green Thursdays' LIFE project for chambers of commerce

A joint environmental information dissemination action named 'Green Thursdays' (Jeudis Verts) has been put together by three chambers of commerce in Luxembourg (CCI du Grand Duché de Luxembourg), Belgium (CCIFB) and France (CCI de Meurthe-et-Moselle) under the EU LIFE programme. 'Jeudis Verts' is aimed at small companies and consists of conferences around selected environmental themes for example greener insurance, banking and accounting. Other actions include the development of a cross-border guide on environmental legal requirements for local companies.

Source: Page 52, Belgian National Study.

Trade unions

Whereas employer organisations predominantly target managers within companies, trade unions naturally also tend to cover shopfloor workers and hence offer the potential to stimulate 'bottom-up' rather than 'top-down' activities. Unfortunately the nine national studies indicate that provision of environmental by trade unions is extremely variable. In some countries such as Denmark, Germany, the Netherlands and Spain, unions are an important source of such training, while in others, such as the UK and perhaps also France and Belgium, unions are still relatively inactive in this area. It is worth noting that training provided by trade unions has traditionally focused on the working environment, linked into more general health and safety training, although this has changed in some Member States during the 1990s as the examples below indicate.

The Dutch report, for example, highlights various eco-awareness courses and guides from the early 1990s involving the FNV (the Netherlands Federation of Trade Unions), the CNV (The

Christian Unions Federation) and other sector unions (for example the Food Processing Workers Union) many of which are still continuing today. In Germany the large metalworking union, IG Metall, runs a range of different environmental training courses for its members, although none are specifically designed for SMEs. Workers and middle managers are the main participants in these courses. The German study notes that the German Trade Union Federation (DGB) also has a training facility where six of the 143 staff work on environmental issues. A further example from Belgium is given in the box below.

A union environmental training initiative in Belgium

The RISE (Réseau Intersyndical de Sensibilisation à l'Environnement) project, initiated by the Belgian workers' unions CSC and FGTB specifically targets workers' awareness in terms of environmental issues and aims at promoting social dialogue in this domain. Actions include:

- an HSE training course for newly elected union representatives;
- the production of an environmental guide for workers' representatives;
- environmental information and awareness raising programmes;
- a technical and methodological support/advice service;
- pilot environmental projects in several Walloon companies to promote best practice and behavioural changes.

Source: Page 54, Belgian National Report.

A new initiative in Denmark (see box below) is attempting to take environmental training into new areas by a) training clerical workers and b) addressing such issues as green purchasing and green accounting alongside regular environmental management topics.

Training clerical workers for sustainable development in Denmark

The Danish Clerical Workers Union recently began an innovative pilot project to improve the competencies of its members with regard to environmental and wider sustainable development issues. One training course has been designed to provide general information while other courses have been designed to deal with more specific issues, namely:

- OHS and environmental management;
- green accounting;
- green purchasing.

The courses are all short, requiring only a few days attendance each, but still cover key issues, methods and tools. The Green Purchasing course (which is yet to be run) will also involve a brief project in the worker's company. Feedback from the course attendees has so far been good and next year the full project will come on line, potentially involving a high proportion of the union's 370,000 members. While the union has in the past had some difficulty gaining the co-operation of employers, the new Danish law on Employee Involvement in Preventative Environmental Work in Polluting Enterprises²¹ now makes it mandatory to provide employee training of this kind.

Source: Danish Clerical Workers Union (Anne Hoff), Personal Communication (October, 2000)

²¹ Act. 369 (June 2, 1999) amending the Environmental Protection Act to cover Integrated Prevention and Pollution Control and Consultation of Employees.

In Spain, one of the two main unions (CCOO) conducts many awareness raising activities in the fields of health, safety and environment, covering for example, covering renewable energy sources, hazardous wastes, use of toxic chemicals, Environmental Management Systems and cleaner processes and products. Some of their activities involve other unions and transnational partners. A recent and innovative project called SAT (Health, Environment and Work) has been conducted with the support of DGXIII and has involved trade unions from the UK and Sweden (see box below).

The SAT initiative in Spain

SAT is a methodology for workers to identify environmental risks at the workplace. Given the knowledge and experience that workers already have, only basic information and training is necessary in order to motivate them and assist them in detecting risks and acting upon them. The methodology is similar to the evaluation of occupational health and safety risks, which is already familiar to most workers, but changing the parameters are changed to look for toxic substances, water or air pollution, energy and material consumption etc. rather than hazards solely of relevance to workers.

Pilot work involved one risk item in several companies in three key sectors in the Basque region, namely: toxic substances in hotels, organic solvents in machinery manufacture and pesticides use in agriculture. Short training courses were carried out on-site with the support of other trade unions and IHOBE (Basque Technical Institute). These were aimed primarily at shop stewards so as to offer a 'multiplier' effect, cascading the information down to other members. Information was provided to all workers in the form of newsletters, posters and a CD-ROM. School children were involved to try and get messages across to their parents using pesticides in agricultural jobs.

Workers' knowledge was tested before and after the project to assess its effectiveness, an increased level of awareness being clear, particularly in those subject to the specific OHS risk in question. Overall, workers showed increased concern for the external environment. Posters were judged to be the most effective ongoing information tool.

Source: CCOO (Estefania Blount), Personal Communication, October 2000.

Trade unions are in certain instances linking up to provide joint environmental training programmes. For example, in Italy an agreement is under discussion between the Italian General Confederation of Workers (CGIL), the Italian Confederation of Trade Unions (CISL) and the Italian Workers Union (UIL) to create a National Body for Environmental Training ('Ente nazionale formazione ambientale'). It is also worth noting that the Danish Confederation of Trade Unions (LO) has recently proposed a joint EU initiative to develop worker competencies in the external environmental field. Some of the key points are described in the box below.

Danish LO proposal for an EU initiative on environmental competence development

The proposed EU programme aims to:

- promote interplay between authorities, enterprises, consumers and citizens;
- promote mobility between the research and training institutes and businesses;
- promote capacity development in enterprises and institutes;
- help develop the market for green products through improving awareness and competence;



- promote democracy in environmental decision-making;
- contribute to transferring environmental competencies across the EU;
- contribute to the EU being an environmental front-runner.

The programme suggests four key areas of work:

- general capacity building;
- supply chain activities;
- integration of health, safety and environment;
- use of environmental reporting.

Source: *Development of Environmental Competence, LO, June 2000.*

Joint initiatives of the social partners

As well as separate trade (employer) association and trade union initiatives, there are a number of very good examples of joint initiatives involving both parties. This is encouraging given that initiatives ideally need the co-operation of managers and shopfloor workers to be fully effective. Three examples of joint initiatives (from Germany, Spain and Italy respectively) are given below.

An environmental training initiative involving the social partners in Germany

GIBUCI* is a training initiative in Germany involving the social partners in the chemicals industry. It was set up in 1987 by the Federal Employers Association of the Chemicals Industry and the Chemicals, Paper and Ceramics Union. Their target audience is members of works councils and youth representatives (who are then meant to disseminate their knowledge throughout the firm).

Since 1987, over 70 different events have been held at which 1,800 different works councils members have been informed about various different environmental issues. These events have sought to present the issues discussed from the perspective of not just the firm or the union but also the regulatory authorities and politicians. Since 1988, GIBUCI has also organised environmental training courses. These generally do not assume any prior knowledge and take place over four half-day sessions. They are organised for firms of all sizes but are sector-specific.

*Gesellschaft zur Information von Betriebsräten über Umweltschutz in der chemischen Industrie.

Source: *Page 118-9, German National Study.*

The Optima programme in Spain

The OPTIMA ('Optimisation of Procedures and Industrial Techniques for Environmental Improvement') programme is an interesting environmental training initiative in Spain. It is promoted by trade unions and employers' associations with the financing of the European Social Fund. This programme has several different components:

- information and awareness campaigns in the places of work aimed at both managerial and shopfloor staff;
- identification of new training requirements, according to the different environmental needs of specific production processes;

- design and management of training courses designed to improve workers' abilities and skills for the new environmentally clean production processes;
- international co-operation with different agents (employers' associations, trade unions, administrations, research centres and universities), mainly to facilitate the exchange of environment-related information.

Source: Page 54, Spanish National Report.

In Denmark at present the social partners are working together to establish the best way forward with regard to meeting the requirements of the new law on Employee Involvement in Preventative Environmental Work in Polluting Enterprises.²² As noted earlier, this not only requires employee consultation and participation, but also appropriate training to build staff competencies (see box on LO and Clerical Workers initiative above). It should also be noted that there will be a compulsory advisory scheme for SMEs, similar in nature to that currently employed for OHS. The Danish Confederation of Trade Unions has also proposed a Green Business Development Group, including the social partners and other organisations such as the Environmental Council for Cleaner Products, to advise on 'Green Policy'. The group's activities would cover everything from eco-taxes and environmental reporting to technology and market development.

In terms of the social aspects of Sustainable Development it is worth noting the important CCC-PME (Common Contractual Framework SME) project which has involved the two key EU social partners (UEAPME for the employers and ETUC/CES for the trade unions) in examining the Role of Social Dialogue in the Development of Training for Young People in European SMEs (UEAPME et al, 1997). The project, which has been funded by the Leonardo Da Vinci programme, focused on the mobility of young workers. It examined current conditions and identified priority areas, obstacles and proposals for improvements. Various case studies illustrated specific issues and good practice.

Joint working between social partners, regulatory authorities and government in the Italian textile industrial district of Prato

In 1999, CONSER (Consorzio Servizi del Macrolotto Industriale di Prato) a utility/services co-operative company, contacted the Italian Ministry of the Environment and the Italian body responsible for EMAS about carrying out a project for the introduction of EMAS and broader environmental improvements in a major industrial park called Macrolotto. The park houses 301 enterprises and employs a total of 3,500 workers and is located in the Italian textile industrial district of Prato.

The aim of the project is both to improve the environmental performance of enterprises through the introduction of EMAS and also to develop a more general environmental awareness and culture in SMEs. The project was initiated because of a realisation that SMEs (and especially

²² Act. 369 (June 2, 1999) amending the Environmental Protection Act to cover Integrated Prevention and Pollution Control and Consultation of Employees.



those operating in an industrial district) are often unable to undertake environmental improvements on their own and that an approach targeting the entire cluster of firms is therefore necessary.

In September 1999 an agreement realising the project was signed between CONSER, the Ministries of Environment and Industry, National and Regional Environmental Protection Agencies (ANPA and ARPA Toscana), the EMAS Section of the Italian Ecolabel-Ecoaudit Committee, the region of Tuscany, unions (CGIL, CISL, UIL) and other local authorities and institutions. The project is now at the stage where actual training provision is being organised. At a seminar held on July 17 2000, the unions were given the task of formulating training. This involves informing workers about how environmental management systems work and their impact on company operations. Importantly, the training is specifically tailored to small businesses engaged in the textile sector.

Source: Page 50, Italian National Study.

Commercial and not-for-profit training providers

There is a large number of commercial providers of environmental training across all the case study countries. It seems that many of the courses organised by such providers are linked to helping firms to gain EMS certification although many also provide training and consultancy in health and safety, eco-efficiency etc. The Swedish and UK national reports, however, suggest that SMEs do not always regard commercial providers of training very highly, in the main because their services are often too expensive and not always appropriate. In addition, commercial training providers often do not specialise in one industry and so are felt to lack the necessary level of in-depth expertise. There is an example in the box below, however, from Sweden that involves a sectorally-focused company.

Example of commercial course provider in Sweden

Institutet för Mediateknik (Sweden) works solely with companies in the graphics industry and offers courses for staff at both the managerial and shopfloor levels. At present, it offers four different courses:

- general environmental problems - the impact of printing works on the environment and certification and its implications for employees' work.
- environmental auditing – environment-related auditing techniques, environmental regulation, and the relationship between auditing and other environmental activities (mainly certification).
- encouraging environmentally-friendly purchasing – environmental chemistry and product information and the impact of certification on purchasing activities.
- deciding whether to become certified – aimed at giving management the necessary information to decide whether or not they should become certified (pros and cons of certification, environmental strategy and the firm's practical approach to and organisation of environmental activities).

Source: Page 73, Swedish National Study.

In some cases commercial providers get together to improve their services and their impact. To give an example, ACLIMA is an association of private sector environmental enterprises in the Basque Country in Spain. Many of its 63 members provide environment training and a large number of them provide a full range of eco-services. The association arranges training courses for ACLIMA members (aimed in part at increasing their internal capacity to provide training themselves) and other Basque companies. The range of topics addressed has included:

- environmental legislation;
- Environmental Management Systems;
- integrated quality, health and safety and environmental management systems.

It is also important to mention the not-for-profit or NGO sector which makes a very significant contribution to environmental training. In the UK, for example, the network of Groundwork Trusts provides environmental training in most of the old industrial regions of England and Wales, often making use of EU Structural funds. Courses are often aimed at SMEs and are generally recognised by professional associations such as the Institute of Environmental Management and Assessment (IEMA) in the UK. Not-for-profit organisations also often provide subsidised consultancy services, offering advice on such things as eco-efficiency, recycling etc.

Networks and support centres

Business support networks have a varying level of importance across different Member States and across different industrial sectors. They can be organised nationally, regionally/locally or within a particular trade sector. They can be extremely useful for providing consistent and co-ordinated training and advice at the regional and local level, often acting as a 'gateway', disseminating information to firms and, where necessary, referring those firms to appropriate providers. They can also be used to allow the exchange of information and experiences amongst firms locally.

National networks

Nationally organised networks seem relatively rare although they exist for example in the UK and the Netherlands. In the UK, the Business Link network acts locally as a 'one stop shop' or gateway for SMEs. The service deals with all sorts of business issues and uses advisors who can give advice on matters directly or refer companies to other practitioners. Unfortunately environmental services are not a mandatory element of the service, so coverage varies from one area to another. This leads to the 'gateway' role being undertaken by others in many areas.

In the Netherlands there is a national network of regional innovation centres (*Sintheta*) and industry environmental agencies (BMD) which give advice to SMEs in various industrial sectors on eco-efficiency, environmental technology and innovation. They have played a pivotal role in the implementation of the very successful Cleaner Production Programmes in the Netherlands.



Regional/local networks and support centres

Successful schemes aimed at encouraging SMEs to adopt more sustainable working practices are often regionally or locally orientated. As noted earlier, SMEs generally prefer local provisions as they are easily accessible and should involve people they know and trust. Most Member States have regional or local schemes involving training and support. In the UK, for example, there are around fifty local/regional voluntary waste minimisation initiatives in operation at present, each involving typically ten to thirty companies, many of them SMEs. Regional/local eco-support centres are also popular with good examples in the UK (for example Wales Environment Centre), Spain (Centre for Cleaner Production Initiatives), Ireland (Clean Technology Centre) and Greece (see box below).

The Cleaner Production Centre for Greek SMEs (Greece)

CPC was established in September 1994 in Athens. A total of 83,000 ECUs were provided for the establishment and initial year operation of the CPC. 50% was provided by the European Foundation for Living and Working Conditions and 50% by Greek national sources (Ministry of Urban Planning, Environment and Public Works, National Research Centre 'Demokritos', CPC partners). To date CPC has developed training seminars, a library, an Internet network, a quarterly newsletter, sectoral studies and lectures. Additionally, it prepares funding proposals for cleaner production programmes.

Source: The European Foundation's Report, SME Support Systems for Sustainable Development (2000)

Local and regional networks are, however, also very common. For example, NUTEK in Sweden, under the auspices of its Environmental Management in Small Companies project, has established local and regional networks to encourage SMEs to adopt an EMS. Each network has been run by a co-ordinator who has arranged workshops and consultancy support for the companies in question. Another very good example of a local network-based support project is the Filton Econet from the UK (see box below).

Filton Econet - Safety, Health and Environment (SHE) services for small businesses

Filton Econet is an ADAPT-funded (ESF) project run by Filton College in Bristol. It aims to improve training in SHE across a range of different SMEs and has developed a significant body of course materials for piloting, and a broad range of services for SMEs, including:

- access to a regional environmental management network (EMN) with both face-to-face and on-line networking;
- tailored 'supplier partnership' services to help reinforce positive supplier-customer relationships;
- access to a structured seminar programme;
- a free SHE audit and training needs assessment;
- a 'Lifeline' support package, including several visits per year by specialist advisers;
- a wide range of SHE short courses in underpinning knowledge, leading to vocational assessment;
- 'bite-sized' modular vocational assessment;
- support in setting up an EMS;
- awareness-raising events;
- access to a resource centre, telephone help-line and Internet/Intranet (with an informative website).

The project hopes to attract SMEs' interest in environmental training as part of health and safety audit and training. Econet has moved away from the classic consultancy 'top-down' model of generic, off-the-shelf assistance, opting instead for a more tailored advisory, audit and training package that empowers the SME and its employees. Another attractive aspect for local SMEs is the project's 'one-stop shop' approach to information, training and advice. One of the most innovative aspects of the project is the development of a flexible *Practitioner's Passport System (PPS)* which enables individuals to demonstrate their understanding of SHE issues. These generic transferable skills are well suited to enhancing employees' mobility.

Econet has also managed to establish a productive working relationship with both the Health and Safety Executive and other agencies. It has found that health and safety officers are keen to learn about basic environmental skills, so that they can offer complementary environmental advice during their visits, which helps to reinforce environmental awareness in SMEs.

Source: ADAPT Support Unit, Birmingham, UK.

Networks quite naturally involve partnerships which often include local authorities, industry (employer) associations, chambers of commerce, not-for profit groups and so on, in order to bring together the necessary range of competencies to influence and support SMEs. This is the case in Wallonia, Belgium for example, where these entities have come together under the lead of the public Eco-Conseil Institute, to organise environmental awareness-raising seminars for local SMEs. In Italy an interesting sector-based partnership support model has developed in relation to the regional/local Industrial Districts or 'clusters' there. The box below describes the *Club dei Distretti* model. This has significant relevance from a policy perspective because of the success of the Industrial Districts themselves which has prompted other regions across Europe to attempt to recreate them.

The Italian industrial districts and the Club dei Distretti

An Industrial District is a spatially concentrated group of firms (many of whom are SMEs) which are often engaged in a single or interrelated industries. There is a high level of interaction between firms but this interaction is not governed solely by standard forms of agreement such as legal contracts because there is also a significant element of trust between actors. The Industrial District concept emerged from Italy where such complex interrelationships exist between firms (and also other local actors) in a number of different areas (with the most high-profile probably being those in Emilia Romagna). Examples of clusters within Italian Industrial Districts are Biella and Prato (textiles) and Busto Arsizio (Machine Tools).

The *Club dei Distretti* is an association of various bodies (trade associations, Chambers of Commerce, trade unions, service centres etc.) operating in Italian industrial districts. The main aims of Club dei Distretti include:

- promoting exchanges of information among various production systems;
- promoting initiatives aimed at supporting the development of local productive systems;
- promoting relationships between industrial districts and institutional bodies.

Source: Page 7, Italian National Study.

It is also worth noting that SMEs can be brought together to help themselves. Business Clubs, either of general form or specifically aimed at sustainable development, are common in the UK, Germany and Scandinavia for example, monthly meetings being held to disseminate information and share experiences. Other forms of network exist, however. In the UK, for example, the regional Staffordshire Business Environment Network (SBEN) has been set up by local companies with some public support to offer a telephone helpline and referrals service. Membership costs very little and local businesses, such as lawyers and consultants, give some time free to help their local colleagues. The German national report mentions a self help-network of 40 firms in the Rheinland Pfalz region while the box below describes an interesting project in Sweden which has involved SMEs co-operating to develop a joint EMS.

The Hackefors district joint EMS

In the Hackefors industrial district in Linköping Sweden, SMEs have got together, with the help of the local university and a consultant, to develop a joint ISO14001 system. The 90 companies on the industrial park were already members of the local business association and had developed a joint waste collection, sorting and disposal system in 1996. 30 companies, mostly micro SMEs, then formed the Hackefors Environment Group (HEG) to jointly develop an EMS. A steering group of 7 environmental co-ordinators and a consultant develop all the relevant documentation and help each of the firms to set objectives and gain certification. While still separately audited, by acting together to implement the system the firms have obtained economy of scale benefits, an estimated 50% cost saving, and have learned from each other. The model is now being used elsewhere in Sweden.

Source: Ammenberg et al in Greener Management International, Issue 28 (Winter 1999).

One possible barrier to local and regional networks is that SMEs are often very protective of their commercial confidentiality and are therefore sometimes unwilling to engage in such networks where details of their working practices might emerge. This has been noted as a barrier in the UK where competition is often fierce between local companies.

Large companies (supply chain activities)

Medium and large companies are often in a very influential position when it comes to persuading their suppliers, and to a lesser extent their SME customers, to improve their performance. There are examples in several of the national studies of large enterprises offering environmental training and mentoring to their suppliers. This is often linked in with them encouraging (or even requiring) suppliers to adopt an Environmental Management System, although some initiatives also relate to such issues as working conditions and eco-design. It is worth noting that green purchasing pressures, and legislation such as the EU Packaging Directive, are also requiring greater supply chain interaction.

While it appears that no formal studies have been undertaken in relation to supply chain activities, it appears from the national reports that activity is far from uniform, with only a small number of companies leading the way in particular countries and particular sectors. Well-known

examples in the EU include Volvo, BMW, Rover and Jaguar in the automotive sector and IKEA, B&Q (a UK home improvement retailer), and J Sainsbury (one of four large UK food retailers) in the retail sector. As noted earlier, despite the range of supply chain activities in the UK, studies have shown that customer pressures are still not major drivers of action in UK SMEs.

IKEA, the Swedish-based furniture and home improvements multinational, is a good example of a company that takes great care to 'control' the activities of its 2300 suppliers. It does this through a network of 40 purchasing offices world-wide. One of the first measures taken was to ensure that all suppliers respect national and relevant UN/ILO conventions regarding working conditions. Having adopted an environmental policy in 1991, the company is now encouraging and assisting its suppliers with regard to eco-design, making use of life cycle concepts to do so.

Environmental training for VW's component suppliers

Since 1997, VW has run a series of environmental seminars and workshops for its component suppliers. So far there have been about 20 different events attended by about 250 company representatives. Seminars and workshops have been organised on the following themes:

- environmental policy, management and organisation;
- information on materials – the responsibilities of the supplier;
- carrying out specialist auditing;
- recycling of cars;
- introducing EC eco-audit procedures in practice.

Source: Page 120-1, *German National Study*.

Major German companies seem particularly active in developing (environmental) training provision which is frequently offered to sub-contractors. The car manufacturer Volkswagen has even established a 100 per cent owned subsidiary, *Volkswagen Coaching Gesellschaft*, to coordinate and organise the company's global training provision (see box above). All of its training activities are at least in theory open to staff of other organisations and companies. In addition, Volkswagen has developed a training programme specifically targeted at the staff of its component suppliers.

The Rover Cars EMS supply chain initiative

In 1991, the UK car manufacturer Rover established a pilot scheme to introduce an environmental management scheme (BS7750) into six of its major suppliers. This was achieved in part through training workshops run by Rover. The pilot scheme was a success, with the six suppliers all making savings of between €17,300 and €173,300. Rover has subsequently started to encourage all 700 first tier suppliers to adopt ISO14001 or EMAS. About two-thirds of these firms began the process towards accreditation. Rover provided the following assistance:

- on-site ISO14001 workshops;
- guidance material;
- on-site 'mentoring' with the assistance of Coventry Council's environmental advice services team.

The project has subsequently moved onto second tier suppliers, using first tier suppliers to assist in workshops and dissemination networks.

Source: *UK National Study*, Pages 19, 46 & 56.



Another form of supply chain activity involves the large material or chemicals supplier providing training and support to an SME customer. The German national study gives an example of a chemicals supplier training an SME twice a year in the use of its hazardous cleaning chemicals. Chemicals suppliers also get involved in waste minimisation advice and support and even 'shared savings' contracts where they stand to gain from reductions in chemicals use.



Chapter 6

Summary of the discussion and conclusions

It is clear from the national studies that SMEs are far from being a homogenous group. They clearly differ enormously in terms of what they do (sector), where they operate (and thus how they are regulated), who owns them and, of course, size. This can vary from the one-person firm to the medium-sized firm of 249 staff, located on several different sites and active in several different countries. Their influences and motivations are varied and numerous and relate to both internal and external factors.

The nine national studies show some significant differences between Member States. For example, Dutch and Scandinavian SMEs are perhaps more aware of the issues and the benefits of improvements than their counterparts in Spain, Italy and the UK. They are also perhaps more used to collaborating with local authorities and regulatory bodies than SMEs in Germany or the UK. SMEs in the UK are very unlikely to be involved with trade union activities, unlike small firms in many other EU Member States.

It is therefore clear that there cannot be one single best type of training provision that will suit all SMEs across all sectors and in all Member States. Account has to be taken of the particular circumstances that apply.

Barriers and problems

While there are many types of SMEs, with cultural and sectoral differences, the nine national studies provide a remarkably consistent picture of the problems and barriers that small SMEs in particular face and of their general motivations. Firstly, small and micro companies have very little time and money to spend on areas that are often perceived to be peripheral to the business,

that is, not directly related to making money. While larger SMEs may have a dedicated environmental or HSE manager, most SME staff have to multi-task, environmental and/or health and safety roles often being additional to their primary role (for example production related) and with very limited time allocated to them.

Secondly, SMEs, and in particular small and micro firms, have generally very poor awareness of everything from the details of legislation to the potential benefits of, say, waste minimisation and eco-design. They seldom have a clear understanding of education, training and support provisions and their worth. Thirdly, multi-tasking staff in small firms seldom have the competencies that are necessary to deal with all but the most straightforward tasks, such as waste disposal. The knowledge and skills required for more demanding areas such as eco-efficiency work, green purchasing, green accounting, environmental and social reporting etc. are rarely present.

Fourthly, after compliance, profit is clearly the most important motivator. Furthermore environmentally-related investments are generally only appraised in terms of the obvious and direct benefits (for example reduced waste disposal costs) rather than those that are less tangible and harder to quantify (for example reduced staff absenteeism, improved productivity). Investment, of even a little time or money, requires clear justification with a quick payback guaranteed.

To summarise, most small SMEs in the EU have resource problems, are poorly informed, lack necessary competencies and see things almost exclusively from a short-term commercial perspective. These characteristics alone determine much of what training and support provision there needs to be. Despite the fact that we now know much about the problems and barriers that SMEs face, there are still problems as several of the national studies point out, provisions often being:

- too numerous and poorly co-ordinated;
- too abstract and impractical;
- too general or not focused on real needs;
- poor or superficial in quality terms;
- poorly targeted and promoted;
- not explicit enough about benefits.

These issues are addressed further below. It is finally important to note what appears to be quite uneven geographical coverage of initiatives across the EU. In several Member States, a significant proportion of the funding for such initiatives comes from the EU's Structural Funds (mainly the ESF) and the poorer regions are eligible for larger amounts of assistance than other important, but wealthier, industrial regions. This can lead to an imbalance, with supply not corresponding with demand and need.



Training needs

As the German National Study points out (based on a rigorous analysis of the information gleaned from the case study companies), the demand for education and training activities is positively correlated with a wide range of factors, mostly related to the sector and the culture and size of the company. Essentially the key factors include:

Sector

- tight legislative standards;
- powerful customers and/or consumers;
- environmentally 'sensitive' goods and processes.

Company culture/systems

- commitment to continuing staff education;
- formal delineation of environmental responsibility within the firm;
- high status for 'environment' within the firm;
- the presence of a quality system or EMS (or intention to gain certification);
- an outward-looking approach;
- clear objective setting;
- pursuit of farsighted strategies.

Unfortunately many of these factors are often missing in SMEs, particularly the smaller ones. As noted earlier, awareness of the bigger environmental picture, let alone sustainable development ideas is generally poor. Consequently awareness of true needs (as opposed to perceived needs) is generally poor.

The nine national reports, and other work for the Foundation (SME Support Systems), have shown that most SMEs need a wide range of competencies in the environmental and wider sustainable development field. Their perception of their needs, however, is far more limited and in general related mainly to regulation, EMS and (in some cases and countries) eco-efficiency rather than such important topics as eco-design, green purchasing, integrated HSEQ systems etc.

One has to accept, however, that small and micro SMEs are limited in what they can achieve internally. As already noted, multi-tasking is common in most SMEs, so we cannot expect staff to be specialists. Most SMEs will have little use for staff with extensive knowledge of environmental economics or hydrology for example, these being specialist subjects only of real relevance to consultancies, large companies or regulatory bodies. SMEs do, however, need staff with a good understanding of the practical areas of most concern to industrial SMEs, that is, regulation, EMS, auditing, waste minimisation, energy efficiency, eco-design etc.

The need for qualifications in these areas is of secondary importance to possession of the specific competencies, qualifications only being of relevance when recruiting new staff as opposed to training existing ones (a known quantity). On the subject of recruitment it is worth

noting that most smaller firms recruit first for core skills (for example engineering) and second for the 'add-on' environmental skills, in some cases even when looking for an environmental co-ordinator. In many cases recruitment is from within.

The background research for the UK *University for Industry* programme (UFI), based on ADAPT projects in the UK, provides further interesting insights into some problems and preferences. There is evidence, for example, that there is a difference between the training wishes of employers and those of staff. Employees tend to want to improve the range of skills they possess from the perspective of improving their job prospects (often outside their current firm) whereas employers want their staff to improve their skills so that they can carry out their existing role more effectively. Some firms therefore do not want any kind of accreditation-based training for fear of losing staff who can show more visibly the range of skills that they possess.

It is clear then that most SMEs need help with their training needs analysis (TNA) before appropriate training responses can be formulated. This TNA clearly needs to be conducted by people who understand the sustainable development issues, the potential training provisions and the company, particularly in the context of its sector. Ideally it needs to involve various stakeholders including employees at all levels, customers, suppliers etc. As noted above, providers also have to be mindful of the fact that because SMEs are so different, they cannot always be offered standard, off the shelf training products. In many cases tailored solutions are required. Constantly engaging SMEs in this way can also benefit the training provider. It should not only help provide up-to-date knowledge of the firm in question, but also help identify market trends.

Design of provision

Given the problems that SMEs face it is clear that they want training and support to be:

- practical, simple and concise;
- sector or preferably company specific;
- flexible;
- low cost;
- accessible locally, preferably on site.

SMEs like information that relates directly to their specific circumstances and is of high quality and substance. They dislike information which is excessively theoretical and which cannot easily be related to their day-to-day operations. They like courses to be flexible and modular so that they can dip in and out, taking 'bite-sized' pieces (a few hours at a time) as they see fit and as their workload permits.

This last point is critical, and provision must be designed such that it can be changed at short notice. If, for example, an intensive seminar and workshop approach is seen as too difficult for a particular SME then the training provider must be able to provide a less intensive approach (for example self-teach programmes) to keep the SME involved.



Breadth, depth and integration

Ideally companies want to have employees who are sufficiently well trained to be able to handle issues raised internally and externally, without having to use outside assistance. This is a possibility in larger SMEs, however it becomes increasingly difficult as staff numbers decrease. One can say, therefore, that while the breadth of topics should remain much the same irrespective of company size, the depth of training should be reduced as company size reduces. In this way the relevant member of staff gains a general understanding of most of the issues, and where to get help, rather than detailed knowledge which may be never used.

This takes us onto the issue of integration. Given that most staff are employed primarily to undertake roles not directly related to the environment, it makes sense to integrate environmental aspects into regular courses, for example relating to industrial design, engineering, accounting, marketing etc. It appears that this is only happening slowly with very few examples of such provisions being noted in the national studies.

Topic coverage

In terms of topic coverage, there is perhaps still too much emphasis on regulation and EMS (EMAS and ISO14001). While an EMS offers a useful framework, it offers no guarantee of environmental improvement. The study has shown that, while some initiatives are now trying to get SMEs to take on board such topics as eco-efficiency, eco-design, green purchasing and green accounting, there is too little emphasis in these areas. There is also little evidence of training and support initiatives covering integrated approaches (for example covering health, safety, quality and environment) or 'sustainable manufacturing' approaches (for example based on renewable resources).

There is also little evidence of initiatives that are designed to deal with the wider sustainable development issues, although there are a few projects dealing with certain social issues such as employee involvement (democratisation of the workplace) and mobility. Furthermore it should be noted that environmental training provisions are being increasingly provided not just to meet environmental goals but also as a tool to address social and economic problems. The numerous environmental training projects which are part-funded by the ESF (through ADAPT) only emphasise this point. It has to be said, however, that training provision is somewhat behind the wider sustainable development debate.

In sustainable development terms, what is really required is a balanced and integrated approach that takes into account all aspects as appropriate. Having said that, fully integrated concepts can be complex and off-putting for SMEs, most of which are still far from conversant with concepts such as waste minimisation which have been around for over twenty years. While it is important to introduce new and often difficult concepts into SMEs, this has to be done very gradually, one issue at a time, slowly building up a complete and holistic picture.

The delivery medium

The means of delivery is clearly as important as the actual content of training materials. It is therefore important to look at the types of delivery mechanisms which most appeal to SMEs. The

evidence from the nine national studies suggests that SMEs across Europe like self-help material, such as paper guides and IT tools (for example on CD ROM or disk), and easy-access information such as that available through the Internet and telephone helplines. They also like local workshops and, better still, on-site support. They do not like national conferences.

The Internet – a panacea in terms of accessible learning?

The Internet offers real potential for providing low-cost information in a flexible and accessible way. However there are numerous problems. Many people across the EU are still unfamiliar with the Internet and are not sufficiently confident to use it as a platform for learning. As such, many people will first need education and training in how to use the Internet itself. Furthermore, many SMEs do not have Internet access and, despite falling costs, do not have the resources to purchase the computer hardware and internet services. One also has to note that, as with any other provision, web sites have to be carefully designed for the target group. This can be costly although evidence from Scotland suggests that even tailored web products can be less expensive than might originally be thought, the costs of developing 10 hours of interactive learning material being estimated at around €45,000.

Hybrid learning solutions can often be more successful than concentrating on one particular medium. For instance, a learning package utilising the Internet could also offer more traditional literature which the recipient might be more comfortable with.

Targeting and staff involvement

Training and support provision needs to be carefully designed and it is clearly important to understand the target group. According to several of the national studies, however, not enough attention is being paid to this issue. In particular, environmental training provision is currently being targeted at too narrow a range of staff within SMEs, mainly middle and senior management, and also in a haphazard fashion, potentially missing the key people. The nine national studies indicate that there is a need to provide both a) specialist training of certain members of staff, general mid-level managers, who can act as co-ordinators and hopefully enthusiastic ‘champions of the cause’²³ and b) awareness raising on general and specific practical issues for all staff including those on the shopfloor. In other words provision should be both top-down and bottom-up (grass roots).

In terms of the former, while the limited managerial resources of most SMEs do not allow functional specialisation, it is useful to allow one staff member to build up his or her competency and get a more complete picture. This staff member can then act as a co-ordinator and as a trainer. The French and Italian studies in particular emphasise the importance of internal ‘top-down’ training and dissemination. Clearly the use of an internal trainer is attractive to SMEs in that it offers cheap, flexible and carefully focussed training. There are clearly important implications for the external provider who has to now train the trainer, not just impart knowledge concerning the subject matter.

²³ ‘Champions of the cause’ are those who are willing to actively support an initiative in the workplace and are often people with a personal commitment to the issue in question.



When choosing this co-ordinator one should ideally choose someone who can act as a champion of the cause, that is, someone who:

- has a personal commitment to environmental and SD issues;
- has influence with senior managers;
- understands the various aspects of the company's operations;
- has, or can gain, the respect and co-operation of those on the shopfloor;
- is a good communicator and motivator;
- has sufficient resources allocated (time, extra staff).

While there is certainly a role for the environmental co-ordinator in the larger SME, there is a danger that the environment is then seen as separate from the company's regular activities. Environment, and for that matter, social and ethical issues, should also be integral to other functions within firms, for example procurement of goods and services, accounting and finance, design and marketing etc. It is interesting in this respect that the Clerical Workers Union in Denmark is now addressing some of these wider issues by making its members aware of the part they can play, for example in relation to green purchasing and green accounting.

Several of the national studies mention the lack of environmental training offered to non-managerial staff within SMEs and in particular those on the shopfloor. While such staff are often told of their legal responsibilities, particularly in relation to OHS, they are seldom involved in the improvement process. This is unfortunate since shopfloor staff are a) often in a good position to make constructive suggestions in relation to processes and procedures and b) need to take ownership of new approaches if they are to be fully effective.

While it is good to see that the trade unions in several Member States are taking a lead in this area, it appears that much more needs to be done, particularly in countries with less active trade unions. Works councils and shop stewards offer a good route in, although one has to accept that such approaches will not be available in the majority of smaller SMEs. In this respect there is something to be said for trying to reach workers a) through the staff development/HR mechanisms and b) through their children.

In terms of the former, staff development processes can be used to encourage or even pressure workers into making use of awareness training, internally or externally. Systems, such as the UK Investors in People standard, can be useful in this respect. Some Member State initiatives now target children, educating them in terms of the eco-responsibilities that workers have so that they in turn can help to raise the awareness of their parents. Such issues could, of course, be included alongside more general environmental and SD education within national curricula.

Promotion and delivery

Promotion

No matter how good the training and support material, it has to be carefully promoted and delivered to be effective. A major problem faced by organisations seeking to encourage greater

take-up of environmental training in SMEs is the attitude prevalent within such firms. Many SMEs feel threatened by the prospect of having to reach higher standards, whether related to the environment, OHS or other issues. They see the cost of improvements, whether involving process investments or just staff time, as a burden. It is indeed true that many SMEs are in a financially precarious position and implementing 'end of pipe' pollution abatement processes can have an impact on the competitiveness of a business.

Study after study has shown, however, that environmental and wider SD improvements, for example related to eco-efficiency, actually save companies money and offer various other indirect benefits. The end result is often not simply improved environmental performance but also better quality products, manufactured in a more cost-effective, healthy and safe manner. As the UK national study puts it:

'...in the better firms, where modern management techniques are employed, environmental considerations are simply one aspect of total quality management and operational efficiency, being integrated into the whole company ethos and into almost every role and aspect of decision making.'

Given that most SMEs are driven primarily by profit, the promotion of initiatives must go to considerable lengths to highlight the commercial benefits of environmental and wider SD improvements. Non-commercial benefits (environmental or social) can then be promoted as secondary benefits once the main commercial message has got through. The aim, of course, is to make SMEs actually want to take part in initiatives and to make them see eco-issues as integral to good business practice. Some additional points, relating to the engagement of SMEs, from the UFI programme are given in the box below.

The language used here is also important. Many SMEs are turned off by the word 'environment' and don't understand the term 'sustainable development' it is far better to use language that they can relate to. It may be better to use the words 'process efficiency' rather than 'eco-efficiency' or 'waste minimisation' for example. Similarly it may be better to talk about 'product design optimisation' rather than 'eco-design'.

Ways of appealing to SMEs – the experience of the UK's UFI

- It is vital that you appeal to SMEs' immediate needs (support also often has to be free).
- SMEs are most interested in training support which helps them to meet their statutory obligations (health and safety regulations, food hygiene etc.);
- Training providers *either* have to build up a stable working relationship with an SME over time or analyse in depth what the company's particular needs actually are (so as to ensure the training provided is suited to its needs);
- SMEs have to be treated as consumers of the 'learning product' – if they like the product then they will come back for more;
- Offering a 'tempter' (for example a free training course) to encourage SMEs to take up further training initiatives can often be productive;
- It sometimes works if you can get one firm to champion the issue of training in an area – causing other firms to follow suit;
- It is important that SMEs are involved in the design process when training provisions are being formulated.

Source: An ADAPT/UFI Dissemination Meeting at the Department for Education and Employment, Sheffield, UK, 9 June 2000.



One should also note that while it is important to involve key middle managers, clerical and shopfloor staff in initiatives, in terms of promotion it will generally be necessary to target the key decision-maker at senior level. Without his or her commitment nothing is likely to happen. This commitment will generally rely on a clear justification based on the business benefits of the training or support to be provided.

In terms of 'selling' eco-support schemes to regional policy makers, it is also important to note that job creation can often go hand in hand with environmental improvement, whether in relation to 'defensive' employment to meet regulatory requirements or, more positively, to allow eco-efficiency and design opportunities to be exploited. This message is certainly now getting across in the UK and in other countries including Spain. A recent Spanish study identified environmental services as an area where there is likely to be significant job creation in the future and so more attention is being given to producing environmentally-qualified personnel from vocational training establishments as well as more traditional universities (Fundación CIREM et al, 2000).

Credibility and quality

SMEs like to deal with providers that they know and respect, people whom they know will give them practical and focused training and advice. For this reason the national studies make it clear that the trade (employer) associations are perhaps the most important single provider of vocational training and support. In Germany the Chambers of Commerce also play a very important role, membership of these organisations being obligatory for most companies. In some Member States, such as Denmark and France, the local authorities and other regulators also play an important and direct role. In terms of workers, the trade unions are key in several Member States.

What all of these organisations have in common in their respective countries is credibility and good working relationships with their constituents. They are seen to understand the position of small businesses and their specific problems and needs. For the converse reasons, SMEs tend not to be very enthusiastic about either academics or private sector consultants. Academic training provision is frequently considered to be excessively impractical or abstract while private sector consultants are often thought to be too expensive and not always effective.

Credibility, of course, should reflect quality of provision. Unfortunately, on the ground, delivery of environmental training can be quite poor, often despite strong national policy and strategy statements. In some cases the material itself can be at fault, for example it can be too superficial, while on other occasions the staff involved may be the problem. The latter problem is documented in both the German and Spanish national studies. The German report, for example, indicates that environmental training in vocational schools still has a relatively low status and teaching staff are frequently inadequate, being out of touch with the subject and/or modern teaching methods. This is also a problem in the UK and Spain where courses frequently reflect the interests and competencies of the training staff rather than the needs of the SMEs they are trying to assist.

To ensure high standards of support and training, and to give confidence to SMEs selecting services, accreditation of individuals and courses is useful. In the UK, for example, the Environmental Auditors Registration Association (EARA – now part of IEMA) and the Chartered Institute for Water and Environmental Management (CIWEM) provide such accreditation where strict standards are met. There may even be merit in having national registers of accredited advisors, although the criteria used have to be carefully determined. Trainers and other support providers really need strong practical experience, particularly in the relevant sector/s, and good communication skills as well as competencies in the subject area. Being able to speak the business language should be a pre-requisite.

Retired staff from industry and environmental bodies can be used to bring extensive experience at relatively low cost (that is, acting as volunteers). At the other end of the spectrum, newly qualified graduates can be used to help firms carry forward improvement projects. While such young people rarely have much business or sectoral experience, they should (if chosen carefully) have good and recent subject knowledge, for example in relation to EMS or waste minimisation. As such they can offer an extra pair of hands to gather and analyse data and to explore the costs and benefits of improvement options. In this way the company gets a low cost (volunteer-oriented) resource that complements the firm's knowledge of its own business and processes. Often this leads to companies making significant improvements while saving enough money to give the graduate a full time job. It should be emphasised that such graduate placement schemes are best used to supplement, rather than replace, expert mentoring.

Regional co-ordination, partnerships and networks

This report, and the nine national studies, highlight the fact that there is a very large number of environmental training initiatives, many aimed specifically at SMEs and their staff. These initiatives are, however, often uncoordinated in terms of the way they are designed and the way they are promoted. The sheer number of training and support initiatives, combined with the limited time and resources of SMEs, leads to considerable confusion over which organisation does what and what is worth accessing: a combination of information overload and initiative fatigue.

There is certainly a greater need in some Member States for a) a reduction in the number and duplication of initiatives and b) better regional co-ordination in terms of the design of the initiatives and their promotion and delivery. This implies the need for strategic fora and preferably partnerships involving, for example:

- regional development agencies;
- regional/local government;
- regulatory bodies;
- trade (employer) organisations;
- trade unions;
- not-for-profit groups;
- higher education institutes;



- large/influential local companies;
- local consultants and experts.

In order for a partnership to work the players need to define their level of competence, and thus their potential in terms of their roles and responsibilities in terms of topic coverage and the nature of support provided. It is also important to identify the potential for geographical and sectoral coverage. Overall this process should allow any gaps to be identified and delivery to be effectively and efficiently organised. Besides providing relevant expertise, partners can also provide resources in the form of time and funding. In some cases support can be channelled through key ‘gatekeeper’ organisations such as large companies and local authorities, in order to cascade ideas down a supply chain or through a local network so as to provide a multiplier effect.

In the Dutch model of environmental training and support much emphasis is placed on the use of regional vocational training centres and regional intermediaries in the form particularly of the Industrial Environmental Agencies (BMD) and the innovation centres (Sintens). In addition the social partners, through trade (employer) associations and trade unions, are expected to play a major part, the former through helping to provide guidance (for example handbooks, workshops etc.) and the latter through informing shopfloor staff of their role. Local authorities are expected to support activities within their area while consultants and others (for example universities) provide additional assistance to companies. Central government provides motivation and funding. The roles of some of these organisations is summarised below in Table 9 according to De Bruijn and Lulofs (2000).

Table 9 The role of Dutch network organisations in the support model

	Motivating	Supporting	Pressurising
Trade Association	X	X	X
Local Authority	X	X	X
Regional Agency	BMD	X	X
Trade Unions	X		
Consultants etc.		X	
Central Government	X	X (financial)	

This network approach appears to be very successful. De Bruijn and Lulofs (2000) note that 92% of companies questioned were familiar with the terminology, 62% in possession of the guidance material, 54% had attended support meetings/workshops and 43% had implemented some action with the support of the network. The researchers note that 55% of companies overall had initiated some action. The Italian Club dei Distretti model, which provides support in key industrial districts (industry clusters) also involves key partners including local authorities, employer associations, trade unions etc.

At the local level, SMEs themselves, with a little help from other organisations, can form networks revolving around green business clubs, joint EMS initiatives etc. There can be

commercial confidentiality barriers, however, which make SMEs unwilling to participate in initiatives with other SMEs where important aspects of their operations will be examined.

Sectoral approaches and joint initiatives

Sectoral approaches, driven by trade (employer) organisations, provide the type of sector-specific approach that SMEs want to see. Sector-based approaches, for example to introduce a sector-specific EMS or to meet the requirements of voluntary agreements, have been particularly successful in the Netherlands, and are even pursued in very small and micro SMEs (for example the branch code approach). Sectoral approaches can also mesh with regional and local initiatives, providing specific training and tools for key sectors in that region which can be used by local providers.

Supply chain initiatives, however, are potentially the most effective approach, particularly where large companies provide support rather than just applying pressure. Supply chain mentoring can be particularly effective where the supplier network is reasonably accessible, that is, predominantly within the same region. There is something to be said, therefore, for supporting large companies to support their supply chains, so long as these large companies are accountable and properly monitored.

It should be noted that in some Member States there are now joint social partner initiatives which seem to be helpful in that they bring a more coherent and consensual approach suitable for companies as a whole. As such they can train, motivate and empower those on the shopfloor as well as those in management and clerical jobs. In other words they offer a useful way of bringing top-down and bottom-up measures together, avoiding the potential conflicts that can otherwise occur.

SMEs as providers of environmental services

SMEs can also play an explicit environmental role through their provision of focused environmental products and services (so-called ‘Eco-industries’). In this way they can act as a motor for environmental improvements – utilising the operational flexibility so characteristic of SMEs to identify and then fill potentially profitable niches at the local level in the fast developing environmental services market.

The areas of work in which such Eco-SMEs could operate are numerous and diverse but it is to be hoped that they will fill current gaps in expertise and service provision in many of the key areas identified in this report (for example waste minimisation, energy efficiency, eco-design, green purchasing and green accounting). It is also to be hoped that such new businesses will provide integrated environmental services, that is, also encompassing topics such as health and safety, quality management and so on. In summary, the overarching aim should be for new Eco-SMEs established across Europe to prosper and become not only agents of environmental improvement but also providers of jobs and income for the regions in which they operate.



Chapter 7

Concluding remarks and recommendations

The importance of SMEs to the economy of the European Union is considerable. They account for the overwhelming number of businesses and a significant proportion of both overall output and employment. Furthermore, as one of the key drivers of the global economy, the importance of SMEs is increasing. In certain sectors, while the environmental impact of each individual SME is small, their cumulative impact is considerable. In other sectors, factors such as the nature of the production process and the materials used, or the sensitive location of the SME, mean that the environmental impact of a single firm can be significant.

SMEs are, however, not an homogenous group. They differ in particular in relation to what they do (sector), the context in which they operate (economic, policy, cultural etc.) and their size, small and micro SMEs being somewhat different to medium-sized SMEs. While SMEs largely experience the same barriers and respond to the same motivations, vocational training provisions have to be flexible and tailored to meet quite specific needs.

The report shows that education and training provisions differ quite significantly across the Member States and in certain instances even between different regions of the same Member State. Even in the more proactive countries, environmental education and training (let alone training in relation to wider social issues) is a relatively new concept, only coming to the fore in the last couple of decades. Our understanding of best practice is therefore still developing and it is clear that several regions and Member States could benefit from the types of initiatives being undertaken in others.

Overall it is evident that there is no simple way to improve the environmental and wider sustainable development performance of SMEs through training and education. We can say,

however, that future strategies must be carefully planned and co-ordinated if they are to make any discernible impact, combining a range of pressurising, motivating and supporting elements. In terms of the education and training provisions themselves, one can say with a reasonable degree of confidence that future provisions should:

- be low cost;
- be practical, simple and concise;
- be sector and preferably company specific and based on clear needs assessment;
- be wide-ranging, in terms of topic coverage and the competencies developed, certainly going beyond regulation and EMS;
- be multi-topic, and if possible integrated, to provide the bigger SD picture;
- be very flexible, for example modular, making use of distance learning etc.;
- be available through a range of preferred formats (paper guides, telephone helplines etc.);
- be part of a regionally co-ordinated programme involving key partners and/or be part of sectoral initiatives involving key partners;
- be promoted making the most of the commercial benefits;
- target key decision-makers;
- be delivered locally and preferably on-site;
- make use of 'gatekeepers', those with good local relationships and influence, particularly in large companies;
- make use of credible and high quality local organisations and staff;
- make use of supply chain mentors where possible;
- make use of retired mentors and new graduates where possible;
- involve key management and clerical staff covering a range of functions, not just those with obvious environmental responsibilities such as waste;
- involve shopfloor workers and their representatives.

In addition we would make the following recommendations which may best be undertaken at the transnational/EU level:

- identification and categorisation of the key environmental and SD competencies required in SMEs;
- further detailed analysis to establish the cost-effectiveness of existing and developing approaches, in relation to these competencies;
- further research to gain a better understanding of the role and potential for supply chain initiatives;
- better *ex ante* assessment of training initiatives, in the context of national, regional and sectoral provisions, to ensure that best practice is being followed.
- better *ex post* assessment of training which has been undertaken, so as to refine our understanding of best practice and its application;
- greater support for transnational working and other forms of best practice dissemination;
- guidance for Member State to ensure high and consistent standards across the EU, which provide the necessary competencies in the most cost-effective manner.



We would also make the following recommendations which may be best undertaken at the Member State/regional level:

- Encourage and support the establishment of clearly branded provider networks, with regional and local nodes, to improve co-ordination and clarity for SMEs. These networks would involve key regional partners (for example local authorities, regional development agencies, NGOs, large companies etc.) and sectoral partners (for example employer associations and trade unions) and offer a one-stop-shop for SMEs.
- Encourage and support the activities of the social partners, particularly with regard to:
 - trade (employer) association sectoral programmes;
 - trade union programmes for members;
 - supply chain initiatives and partnerships;
 - joint initiatives.
- Increase the use of policy instruments (regulatory, economic, voluntary etc.) to ensure:
 - better uptake of suitable vocational training in the environmental field among SMEs;
 - improved worker involvement in improvement initiatives in SMEs.
- Encourage greater awareness and use of standards for training and trainers and the use of national registers of appropriate individuals.
- Encourage greater integration of environmental and SD issues into regular mainstream vocational courses and school curricula.
- Put in place national strategies for vocational training and support in the field of environment and sustainable development. These would ensure such things as:
 - proper coverage of a wide range of themes and topics;
 - geographical coverage proportionate to need;
 - proper regional co-ordination, with comprehensive partnerships and clarity of roles;
 - appropriate standards and registers of accredited courses and trainers;
 - consistent use of best practice across the regions.




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Annex 1

Abbreviations

ACLIMA	Asociación Cluster de Industrias de Medio Ambiente de Euskadi (Association of Basque Environmental Enterprises)
ADEGE	Action de Développement de la Gestion Environnementale
ADEME	Agences Départementales pour l'Environnement et la Maîtrise de l'Energie
AFPA	Association pour la Formation Professionnelle des Adultes
AMU	Arbejdsmarkedsuddannelserne (AMU Centres: Labour Market Training Centres in Denmark)
ANPA	Agenzia Nazionale per la Protezione dell'Ambiente (Italian Environmental Protection Agency)
ARPA	Agenzia Regionale per la Prevenzione e Protezione Ambientale (Italian Regional Environmental Protection Agency)
BMD	Bedrijfsmilieudienst (Industry Environmental Agencies, the Netherlands)
BST	Bedriftssundhedstjeneste (Occupational Health Service, Denmark)
CEDEFOP	Centre Européen pour le Développement de la Formation Professionnelle (European Centre for the Development of Vocational Training)
CCOO	Comisiones Obreras (Spanish Labour (trade union) Confederation)
CFA	Centre de Formation des Apprentis
CGIL	Confederazione Generale Italiana del Lavoro (Italian General Confederation of Workers)
CGSLB	Centrale générale des Syndicats libéraux de Belgique (Belgian Trade Union)
CISL	Confederazione Italiana Sindacati Lavoratori (Italian Confederation of Workers' Trade Unions)
CIWEM	Chartered Institute of Water and Environmental Management (UK)
CONSER	Consorzio Servizi del Macrolotto Industriale di Prato (A 'Limited Liability Services Co-operative' operating in the Macrolotto Industrial Park in Prato).
CNED	Centre National d'Enseignement à Distance (French National Distance Learning Body)

CSC	Confédération des Syndicats Chrétiens de Belgique (Belgian Confederation of Christian Unions)
DfEE	Department for Education and Employment
DGB	Deutsche Gewerkschaftsbund (German Trade Unions Federation)
DRIRE	Directions Régionales de l'Industrie, de la Recherche et de l'Environnement (Regional Industry, Research and Environmental Authority, France)
EIRO	European Industrial Relations Observatory
EMAS	Environmental Management and Audit Scheme
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPM	Entreprises-Perfectionnement-Management (Belgian training initiative)
ESF	European Social Fund
ETBPP	Environmental Technology Best Practice Programme (UK)
ETUC	European Trade Union Confederation
EU	European Union
FEDICHEM	Fédération des Industries Chimiques de Belgique (Belgian Chemical Industry Federation)
FGTB	Fédération Générale des Travailleurs de Belgique (Belgian Trade Union)
FNV	Netherlands Trade Union Federation
FITA	Federazione Italiana Industrie e Servizi Professionali e del Terziario Avanzato (Federation of Professional Industry & Service Organisations)
FOREM	Public employment and training organisation in the French and German-speaking regions of Belgium
GIBUCI	Gesellschaft zur Information von Betriebsräten über Umweltschutz in der chemischen Industrie (Environmental Information Society for Works Councils in the Chemicals Industry) IBFFP Institut Bruxellois Francophone pour la Formation Professionnelle (Professional Training Institute of Brussels)
ICT	Information and Communication Technology
IEMA	Institute of Environmental Management and Assessment (UK)
ILO	International Labour Organisation
INEM	Instituto Nacional de Empleo (Spanish National Institute for Employment)
INERIS	Institut National de l'Environnement et des Risques (French National Institute for the Environment and Industrial Risks)
ISCED	International Standard Classification of Education
ISO	International Standards Organisation
IT	Information Technology
KEDKE	Kentriki Enosi Dimon Kai Kinotiton Ellados (Central Association of Municipalities and Communes in Greece)
LACE	Local Authorities helping Companies implement EMAS (Danish/Greek/UK joint environmental initiative)
LBC-NVK	Landelijke Bedienden Centrale – Nationaal Verbond voor Kaderpersoneel (Flemish Trade Union of Clerical and Managerial Staff)
LO	Udarbejdet af Landsorganisationen I Danmark (Danish Confederation of Trade Unions)
LOGSE	Ley Orgánica de Ordenación General del Sistema Educativo (Spanish Framework Education Law)



LTA	Long Term Agreements (Dutch term for Voluntary Agreements)
MBO	Middelbaar Beroepsonderwijs (Intermediate Vocational Training, the Netherlands)
MoES	Ministry of Education and Science (Sweden)
NALAD	National Association of Local Authorities in Denmark
NUTEK	Swedish National Board for Industrial and Technical Development
OECD	Organisation for Economic Co-operation and Development
OHS	Occupational Health and Safety
OPTIMA	Optimización de Procesos y Técnicas Industriales para la Mejora Ambiental (Optimisation of Procedures and Industrial Techniques for Environmental Improvement – Spanish initiative involving the social partners)
PET	Professional Education and Training
R&D	Research and Development
RISE	Réseau Intersyndical de Sensibilisation à l'Environnement (Belgium, Inter-union Network for Environmental Adjustment)
SD	Sustainable Development
SETCA	Syndicat des Employés, Techniciens et Cadres (Belgian Trade Union)
SME	Small and Medium Sized Enterprise
TNA	Training Needs Analysis
UEAPME	Union Européenne de l'Artisanat et des Petites et des Moyennes Entreprises (European Association of Craft, Small and Medium-sized Enterprises)
UFI	University for Industry (UK)
UIL	Unione Italiana Del Lavoro (Italian Workers' Union)
UN	United Nations
UNED	Universidad Nacional de Educación a Distancia (Spanish National Distance Learning University)
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICE	Union of Industrial and Employers' Confederations of Europe
UWE	Union Wallonne des Entreprises (Walloon Business Federation, Belgium)
VA	Voluntary Agreements
VCI	Vereniging van de Nederlandse Chemische Industrie (The Dutch Chemical Industry Association)
VITO	Vlaams Instituut voor Technologisch Onderzoek (Flemish Institute for Technological Research)
VIZO	Vlaams Instituut voor Zelfstandig Ondernemen (Flemish Institute for the Self-Employed)



Annex 2

Glossary of terms

ADAPT	An EU Community Initiative, funded by the ESF, aimed at helping the workforce respond to industrial change, and promoting growth, employment and the competitiveness of companies. 4,000 projects were funded between 1995 and 1999 – many of these involved SMEs and some had an environmental theme.
Cleaner Technology	Process equipment that inherently leads to reduced resource use and emissions which are less harmful to people and the environment, including end-of-pipe equipment where this allows the reuse of a resource such as effluent or hot gases.
Distance Learning	Learning that takes place via postal correspondence or electronic media, linking instructors and students who are not together in a classroom.
Eco-Design	The approach to the creation (through design and specification) of products that are inherently more resource-efficient and less damaging to people and the environment, through their life-cycle as a whole, than ‘normal’ (typical) products.
Eco-efficiency	More resource-efficient and less damaging means of operating, in relation to ‘normal’ (typical) manufacturing and business practices. As used here the term relates to processes rather than products and encompasses process optimisation (waste minimisation/energy efficiency), reduced use of toxic materials and the adoption of ‘cleaner technology’.
Eco-industries	The following types of activities: <ul style="list-style-type: none">• clean technologies;• waste minimisation and recycling;• nature & landscape protection;• ecological renovation of urban areas;• and with a broader definition, also: resource management;• renewable energy.
EMAS	An Environmental Management System with an overall objective of promoting continuous environmental performance improvements in industrial activities by committing sites to evaluate and improve their environmental performance and provide relevant information to the public. The scheme has been open for participation by companies since April 1995.
Environmental Management System	A management tool enabling an organisation to control the impact of its activities, products or services on the environment. It makes possible a structured



	<p>approach to setting environmental objectives and targets, to achieving these and to demonstrating that they have been achieved.</p>
European Social Fund (ESF)	<p>The EU's main tool for the development of human resources and the improvement of the workings of the labour market. It supports measures to prevent and combat unemployment and to develop human resources. The ESF aims to promote a high level of employment, equality between men and women, sustainable development and economic and social cohesion.</p>
Free-riding	<p>Taking advantage of a particular agreement or service while not meeting your own obligations (financial or otherwise) for its upkeep.</p>
Green Procurement	<p>The purchasing of goods and services that are more resource-efficient and less damaging to people and the environment, through their life-cycle as a whole, than 'normal' (typical) goods and services.</p>
Industrial Districts	<p>Spatially concentrated groups of enterprises and related institutions (for example trade associations) engaged in single or interrelated industries. A high level of interaction and trust occurs between actors. Popularised by the Italian region of Emilia Romagna but other regions in Europe also display characteristics of the Industrial District.</p>
International Standard Classification for Education	<p>A classification, developed by UNESCO, used by countries and international agencies as a means of compiling internationally comparable statistics on education.</p>
Initiative Fatigue	<p>The characteristic, faced by many enterprises (especially SMEs) of having been so overwhelmed with previous initiatives (in whatever sphere) that they find it difficult to motivate themselves to participate in future ones. This is especially common when past initiatives have failed to deliver the promised advantages or when the enterprise has limited administrative/managerial resources.</p>
ISO14001	<p>An Environmental Management System (EMS) standard, introduced in October 1996, and with worldwide popularity. Meeting its requirements demands objective evidence which can be audited to demonstrate that the EMS is operating effectively in conformance with the standard.</p>
LIFE	<p>An EU financial instrument in the environmental sphere, dating back to 1992. Co-funding is available for three major areas of action: the environment and nature protection in EU Member States and environmental projects in selected non-EU states (mainly in the Mediterranean).</p>
Objective 1 Regions	<p>Those regions of the EU which receive the largest amount of Structural Funds support because of their low income levels (per capita GDP less than 75% of the EU average) or particularly disadvantageous geographical situation (extremely remote or thinly populated). 83.25 million inhabitants of the EU (or just over 22% of the total population the EU) live in Objective 1 areas.</p>
Professional Education and Training (PET)	<p>Training which is in some way linked to employment. It can mean training for people who are already employed or training aimed at allowing people (for example the unemployed) to enter employment. Similarly, it can refer to training which is specific to a particular profession (for example hygiene awareness in the food and drink industry) or training which is more generic and aimed at increasing those skills which are relevant to a whole range of different professions (for example basic information technology). PET has the same meaning as <i>vocational training</i> and the two terms are often used interchangeably.</p>
Small and Medium Sized Enterprise (SME)	<p>There are various definitions, however as a simplification, and in EU terms, an SME is a company with less than 250 employees.</p>
Structural Funds	<p>EU funds aimed at contributing to the achievement of economic and social cohesion in the European Union. Resources are targeted at actions which help bridge the gaps between the more and the less developed regions and which promote equal employment opportunities between different social groups. There are four Structural Funds:</p> <p style="padding-left: 40px;">The European Regional Development Fund</p>

	<p>The European Social Fund The European Agricultural Guidance and Guarantee Fund The Financial Instrument for Fisheries Guidance</p>
Sustainable Development	<p>‘Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (WCED, 1987.).²⁴ Sustainable development therefore comprises environmental, social and economic dimensions.</p>
Training Needs Analysis	<p>The systematic analysis of skills required in a company’s business plan, or set by the business strategy, against the available skills in the workforce. A training needs analysis highlights the gaps (in skills) where training should occur to meet the business objectives.</p>
Voluntary Agreement	<p>An agreement between a public institution (for example national or local government) and business (association or individual company) to achieve a certain environmental target or implement certain agreed measures.</p>
Waste Minimisation	<p>The reduction of resource wastage (materials, water, energy etc.) at source, i.e. within the process or at least on the premises where it has occurred.</p>
Works Council	<p>Groups of workers in an enterprise with responsibility for negotiating with the management on areas affecting working conditions. In many Member States they are a requirement in firms above a certain size and have a legally defined status.</p>

²⁴ The WCED was chaired by Gro Harlem Brundtland (former Norwegian Prime Minister) and consequently the report is also known as the Brundtland Report.



Annex 3

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Consolidated report

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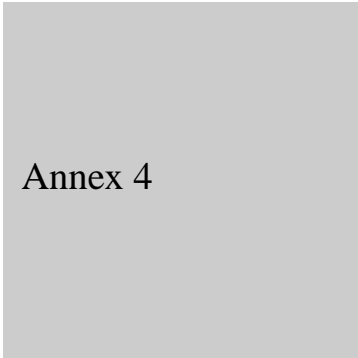
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Executive summaries of the national studies can be found on the European Foundation website, at the following URL:

<http://www.eurofound.ie>. (listed under the Working Conditions work area).

Full copies of the national studies are available upon request in Adobe PDF format from John Hurley at: john.hurley@eurofound.ie

Annex 4



Project specifications

Project No.: 0206

Contract No.: 00-3030-3

Title of project: Professional Education and Training for Sustainable Development relating to SMEs – Consolidated Report

The purpose of the work is to bring together the main findings of the nine national studies (Belgium, France, Germany, Denmark, Sweden, The Netherlands, United Kingdom, Spain, Italy), illustrating the major issues associated with the developments on professional education and training for sustainable development relating to SMEs. An assessment and a comparative analysis of the findings of the national studies undertaken should lead to conclusions on possible action at different levels by different actors.

The consolidated report should on the one hand list interesting successful initiatives which have led to change and on the other hand show common factors which have led to taking off those successful initiatives. Trends should be identified and underlying strategies detected: is the change to professional education and training for sustainable development in SMEs an isolated phenomenon, a generalised one, an overall project, or can one only speak about a case by case phenomenon adapted to a specific situation? Education and training systems have followed the transformation of society, from an industrial to a service one, do they follow the demands for sustainable development of SMEs? SMEs public authorities and social partners' dimension in the process of change should be noted. The relationship between the sustainable development policy debate and the realisations of practical changes in the field of professional education and training for SMEs should be analysed, taking into account the responsibilities of the different actors at different levels.

The consolidated report should put specific emphasis on the presentation of examples of best practice:

- How isolated experience leads to changes adapted to a particular situation.
- How initiatives have had a 'spread around' effect to competitors in the field.
- How initiatives in big companies have a 'knock-on effect' on SMEs used by companies in the outsourcing process.
- Point to particular (preferably joint) initiatives of the social partners: joint agreements, nature of the agreements, voluntary ones and their implementation (specify the different levels and contexts).

- Point to cross-border co-operation/initiatives/ examples as support systems for SMEs.
- Have SMEs established a discussion forum for sustainable development in order to come to common solutions of problems related to education and training?

The report should conclude with brief policy recommendations.

European Foundation for the Improvement of Living and Working Conditions

Professional education and training for sustainable development in SMEs

Luxembourg: Office for Official Publications of the European Communities

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Price (excluding VAT) in Luxembourg: EUR 20



Professional education and training for sustainable development in SMEs

It is generally recognised that SMEs have specific training needs and requirements which are often different from those of larger companies. This report examines the current provision of environmental and sustainable development training in these firms, based on national studies carried out in nine EU Member States which focused on the chemicals, food and drink, and printing sectors. The authors highlight practical opportunities for innovative measures and initiatives, showing how existing training can be made more accessible via new delivery methods such as distance learning and virtual learning. Finally the report identifies trends at local/regional, national and European level and puts forward recommendations for future action by the different actors, including the social partners.

Price (excluding VAT) in Luxembourg: EUR 20

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