



R E S E A R C H

Future Occupational  
Safety and Health  
Research Needs  
and Priorities  
in the Member  
States of the European Union





Future  
Occupational  
Safety and Health  
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and Priorities  
in the Member States of the  
European Union



A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (<http://europa.eu.int>).

Cataloguing data can be found at the end of this publication.

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**Member State Contact Persons/  
National Report Authors**

Austria: Alice Schmatzberger  
Belgium: Marc Heselmans  
Denmark: Gertrud Debois and Per Malmros  
Finland: Erkki Yrjänheikki  
France: Robert Mounier-Vehier  
Germany: Catherine Schlombach  
Greece: Gregory Peloriadis  
Ireland: Andrea Lydon  
Italy: Maria Castriotta and Giuliana Roseo  
Luxembourg: not participating  
Netherlands: Irene Houtman and Sonja Nossent  
Portugal: Joaõ Sousa  
Spain: Jerónimo Maqueda Blasco, Victoria de la Orden Rivera and Marta Zimmermann Verdejo  
Sweden: Bengt Knave  
United Kingdom: Gillian Lowe  
European Agency for Safety and Health at Work: Markku Aaltonen

Dr. Richard Brown from the Health and Safety Laboratory (UK) assisted the Agency in preparation of this report within the framework of the Topic Centre on Research - Work and Health.

Thematic Network Group on Research - Work and Health assisted the Agency in organising and in monitoring the project.



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## FOREWORD

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The European Agency for Safety and Health at Work, established by the Council Regulation n°2062/94 of 18 July 1994, has one key issue to carry out information activities related to occupational safety and health (OSH) research. These activities are implemented with the assistance of its European network of Focal Points, of the Thematic Network Group on Research - Work and Health (TNG/WH) and of the Topic Centre on Research - Work and Health (TC/WH), which consists of a consortium of 10 major OSH research institutes in Europe.

According to the Work Programme of the European Agency, data collection was carried out in the EU Member States in 1998-99 in order to collect and publish up-to-date information on future OSH research needs and priorities, to give an input into the Commission's programmes, to im-

prove collaboration between the Community bodies and the Member States, and to guide occupational safety and health research over the next decade.

The Focal Points organised the data collection in the Member States according to the contribution from the Thematic Network Group on Research - Work and Health. National reports included the viewpoints of the social partners and of all relevant research institutions, whenever possible, according to national practice.

The first draft summary report based on available national reports was finalised in June 1999. The European Agency organised an expert seminar in Bilbao on June 14-15, 1999, where this draft report was discussed. Based on the results of the seminar, the European Agency sent a letter in August 1999 to the DGXII aiming to provide an input to the first evaluation of the 5th Framework Programme.

The Health and Safety Laboratory (HSL), UK, has assisted the European Agency in analysing the data and preparing the draft



summary reports. The work has been carried within the framework of the Agency's Topic Centre on Research - Work and Health. The European Agency for Safety and Health at Work wishes to thank the national Focal Points and Health and Safety Laboratory for their comprehensive work in this project.

The aim of this report is to promote discussion in the Member States about the future European OSH research needs and priorities. The report provides summary results from the data collection from the

Member States and reaches general conclusions about the priorities. The report also aims to give input into the formulation of priorities for future EU research programmes.

April, 2000

European Agency for Safety and Health at Work

## EXECUTIVE SUMMARY

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### Introduction

One of the main tasks of the European Agency for Safety and Health at Work is to support the exchange of information between European Member States. The first such task undertaken by the Agency has been the compilation of data on OSH policy in a report "Priorities and Strategies in Occupational Safety and Health Policy in the Member States of the European Union", published in 1997. This resulted from a questionnaire drawn up by the Thematic Network on National and Community Priorities and Programmes, in co-operation with representatives of all Member States, and completed by the Focal Points. The report contains summaries of national research priorities. However it was felt that more specific information on research needs and priorities was needed at EU level, including on emerging risks. The aim of

the present study was to provide this information and to update the previous study. To this end, data collection on future research needs and priorities was initiated in May 1998.

### Collection of data and national reports

The Focal Points in the Member States organised a data collection on Occupational Safety and Health future research needs and priorities, that included emerging risks, starting in autumn 1998. The aim of the data collection was that the national reports would include the viewpoints of the social partners and all relevant research institutions according to national practice. Member States were given guidance on how to prepare the National Reports in order to obtain similar information from different Member States and to facilitate the compilation of a consensus report. In practice, the level of consultation, content and presentation of the national reports were quite different.

### Degree of consensus

In nearly all cases, the national research organisations were consulted. However, the degree of participation of the social partners varied between Member States. The two sides of industry were usually involved in the data gathering: i.e. they were among those who were sent questionnaires, but they did not always respond. In many cases a special network or committee, including the social partners, was set up to support the activities of the Focal Point. Ideally, this committee was involved in providing data and also reviewing the

national report and a draft of this document.

### **Expert consensus seminar**

The European Agency organised an expert seminar in Bilbao in June 1999 in order to discuss the issues raised by this study of the future OSH research needs and priorities. On the basis of the study and the results of this seminar, it has been possible to draw conclusions for future research actions and priorities, to consider opportunities for European co-operation in the field of OSH research and to give input for EU research programmes.

### **Priority areas**

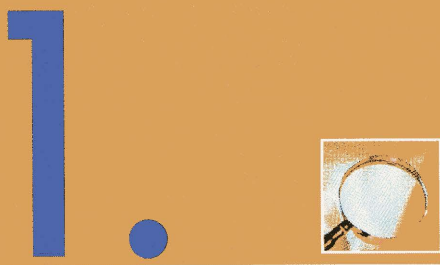
Similar research priorities resulted from the national reports and the expert seminar discussions.

Psychosocial issues, ergonomics and chemical risk factors emerged overall as the top priority areas for future research. Nearly all Member States prioritised these three areas and they featured as priority issues under several categories. Within the field of psychosocial issues emphasis was placed on stress at work. In the area of ergonomics particular priority was given to manual handling / work postures. Regarding, chemical risks, toxic / dangerous chemicals, and particularly carcinogens, were prioritised. In addition, the need for more research into the substitution of chemicals to reduce risks also appeared separately in the top 10 priorities and chemicals were also prioritised under the category of risk assessment.

In the area of safety, the most prominence was given to human factors risks. In the area of physical agents, the most prominence was given to the risk of noise, but electric and magnetic fields were also highlighted.

Issues relating to small and medium-sized enterprises were also ranked highly both under risk management and as a group requiring attention in the category "society and work organisation". In this category "society and work organisation" as well as SMEs, groups such as ageing workers and people with reduced working ability are of particular interest to Member States. With regard to changing work patterns, teleworking emerged as important areas for future research.

Member States also highlighted research needs in the following areas: risk assessment; best practice; benchmarking; learning and competence development; and substitution of dangerous substances.



## BACKGROUND

One of the main tasks of the European Agency for Safety and Health at Work is to support the exchange of information between European Member States. The first such task undertaken by the Agency since its formation in September 1996 has been the compilation of data on OSH policy in a report "Priorities and Strategies in Occupational Safety and Health Policy in the Member States of the European Union", published in 1997 [1]. This resulted from a

questionnaire drawn up in co-operation with representatives of all Member States and completed by the Focal Points. The report contains summaries of national research priorities. However, the 1997 report does not give a complete overview of the Member States, as information on emerging risks is incomplete. More specific information on research needs and priorities was needed at EU level.

The present study aims to update this activity. To this end, data collection on future research needs and priorities was initiated in May 1998, according to the contribution of the second meeting of the Thematic Network Group on Research. In addition to its main priority the other aims of the data collection have been:

- to give a contribution to the development of a priority document for future European research programmes and activities,
- to give an input into the Commission's programmes,
- to improve collaboration between the Community bodies and the Member States,
- to guide occupational safety and health research over the next decade.

The Focal Points in the Member States have organised a data collection on emerging risks, OSH future research needs and priorities, starting in autumn 1998. The aim of the data collection was that the National Reports would include the viewpoints of the social partners and all relevant research institutions according to national practice. The Focal Points prepared the National Reports and forwarded them to the Agency. The full National Reports will also be published individually.



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# 2.

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## METHODOLOGY

# 2.1

## COLLECTION OF DATA AND NATIONAL REPORTS

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- A. Society and Work Organisation (studies on interaction between work, organisation and society);
- B. Management and Technology (studies on control and prevention of risks);
- C. Working Environment and Health (studies on risks and health outcomes).

Member States were asked to prepare the National Reports according to a draft list of contents in order to obtain similar information from different Member States. The suggested structure of the National Reports is given in Annex A.1, the classification of the OSH topics in the data collection sheets is given in Annex A.2 and the classification of the type of European co-operation desired is given in Annex A.3.

In the beginning of the study, the Thematic Network Group on Research developed the Classification Guide for OSH Research Topics, which has a hierarchical structure. The complete list of these topics is found in the table of the Annex E. The classification of these OSH topics was intended to highlight the distinction between research tasks, which explore risks and those, which seek solutions. Thus, the classification includes the following major categories:

# 2.2

## SOURCES AND COLLECTION PROCEDURE

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The Member States were asked to prepare the national reports according to a defined protocol: in practice, a wide variety of responses was obtained.

The level of external consultation by Focal Points varied widely: some Member States did not consult at all, but relied on existing information; others consulted only a narrow range of institutions - in some cases, supplementing this with other information. The degree of feed-back from the consulted organisations also varied widely. Some Member States reported questionnaire fatigue - there seems to be a limit to how far consulted organisations are willing to give time and effort in completing them.

The format of the national reports was also far from consistent. Some were entirely narrative, but others conformed closely to

the data sheet format, making the compilation of the tables in Annex E and F and section 3 somewhat easier. Many Member States generated their own new categories, not wholly consistent with the standard classification. Where such categories occurred frequently, a new "standard" category has been generated, but of necessity these will have lower "scores". It has not always been possible to distinguish between current research programmes and future needs. Where the project consultant has abstracted priority areas according to the standard classification from non-standard categories or narrative description, there is room for misinterpretation. However, Focal Points have had an opportunity to review the earlier drafts of this report.

It should also be mentioned that the number of topic areas selected by individual Member States varied from about 15% to about 80% of the total available (about 175 topics). The simple addition method used here to assess overall priorities is therefore biased towards those that gave a few choices.

Many reports give lists of their own priority areas, according to Annex A.1. These conclusions are presented in section 3.4. In most cases, no order of priority is intended within the list, but in some cases the list is in order of priority. Individual national reports should be consulted for full details.

The returns on the need for European co-operation (also according to Annex A.1) are presented in section 3.5.

A summary of the sources and data collection process, by Member State, is given in



Annex B. A fuller narrative description, also by Member State, is given in Annex D. The individual national reports should be consulted for full details.

# 2.3

## CONSENSUS BUILDING

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In a few cases, the views of the social partners were different from the research organisations.

A summary of the Member State procedures for consensus building is given in Annex C. A fuller narrative description, also by Member State, is given in Annex D. The individual national reports should be consulted for full details.

The aim of the present study was that the national reports would include the viewpoints of the social partners and all relevant research institutions according to national practice.

In nearly all cases, the national research organisations were consulted. However, the degree of participation of the social partners varied between Member States. The two sides of industry were usually involved in the data gathering: i.e. they were among those who were sent questionnaires, but they did not always respond. In many cases a special network or committee, including the social partners, was set up to support the activities of the Focal Point. Ideally, this committee was involved in providing data and also reviewing the national report and a draft of this document.

# 2.4

## SEMINAR AND CONSENSUS BUILDING

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The first draft summary report on the analysis of future OSH needs and priorities in the EU Member States (i.e. an earlier draft of this report) was prepared in June 1999 based on national reports then available. The Topic Centre on Research - Work and Health assisted the Agency in this work.

The European Agency organised an expert seminar in Bilbao on June 14-15, 1999 in order to discuss the draft summary report about the future OSH research needs and priorities. The aims of the seminar were to draw conclusions for future actions and priorities, to promote European co-operation in the field of OSH research and to give input for EU research programmes.

The participants of the seminar were OSH research policy decision-makers and experts from the EU Member States, the Eu-

ropean Commission (DGXII), EU research institutes (Dublin Foundation and Joint Research Centre) and European social partners (TUTB) as well as from the USA (NIOSH).

In the seminar, specific group work was carried out in order to discuss and identify the important future OSH research issues. Four groups worked on the following main topic areas:

- Society and Work Organisation
- Management and Technology
- Risks in Working Environment
- Work-related Health Effects



# 3.1

## RESULTS OF MEMBER STATE RETURNS

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The primary data source used for the compilation of OSH priority areas were the data collection sheets provided by the member States. Relevant OSH topics have been categorised into a standard classification as in Annex A.2 and compiled into the table in Annex E.

As indicated in Annex E, in some cases, a national return has not used the standard classification topics. In these cases, some interpretation has been made by the project consultant in compiling the table in Annex E. If a specified sub-theme is mentioned by a Member State, it is mentioned as such and also assigned to its theme. Sub-themes or themes mentioned less than twice (out of 14 returns) are not included in the tables.

The following tables (sections 3.2 and 3.3) list the overall priorities (Table 1) and the

priorities within main categories (Table 2). Both tables give the priorities at sub-theme level and are extracts from the fuller data at theme, sub-theme and third level category given in Annex E.

For a number of reasons, the data in Annex E and the following tables should be treated with caution. As noted in section 2.2, there is a wide disparity in the level of consultation involved in compiling the Member State returns; these are themselves variable in content, e.g. in the proportion of identified priority topics, and they have been further interpreted by the project consultant. However, they provide the best indicator available of the overall picture, especially if they are seen in parallel with the seminar (sections 2.4 and 3.4) which has been the major mechanism of reviewing the initial conclusions of this study. Small differences in the 'scores' are not significant, and the results should be interpreted only in very general terms, as indicating the priority areas for emerging risks and OSH future research needs, without necessarily assigning relative importance to these topics.

# 3.2

## OVERALL PRIORITIES

As can be seen from Table 1, nearly all Member States gave particular attention to psycho-social issues and ergonomics. In these areas, the main risks seen as priority areas were stress at work and manual handling/ work postures. Particular attention was also given to chemical risks factors, including toxic/ dangerous chemicals and/or carcinogens, and safety risks.

Attention was also given to occupational diseases, especially that caused by psycho-social and ergonomic factors, but combination of factors are also strongly implicated.

Attention was also given to risks in specific activities, as discussed in 3.3.5.

Attention was also given to risk management in SMEs and risk assessment.

Attention was also given to substitution of dangerous chemicals, especially for toxic

chemicals and/or carcinogens and in relation to risk assessment.

Attention was also given to physical risk factors, especially noise and electric/magnetic fields.

Some overlapping of priorities will be noted: e.g. Psycho-social risks appear in their own right as a sub-theme and also as a component of occupational disease, and carcinogens appear in their own right as a sub-theme and also as a component of risk assessment.

Direct comparison with the 1997 "Priorities and Strategies" document [1] is not appropriate, because the basis for data collection was different. However, the main priorities are similar.

Table 1. Overall Priorities

the "Top Ten"	
■	Psycho-social risk factors
■	Ergonomic risk factors
■	Chemical risk factors
	Safety risks
■	Risk management in SMEs
■	Occupational and other work-related diseases
■	Risks in specific activities
■	Risk assessment
■	Substitution of dangerous substances
■	Physical risk factors

Key:  
 ■ = risks mentioned 13 times  
 ■ = risks mentioned 12 times  
 ■ = risks mentioned 11 times  
 ■ = risks mentioned 10 times

# 3.3

## PRIORITIES WITHIN MAIN CATEGORIES

Table 1 lists only the themes of highest priority. Within the main categories, a more detailed priority listing has been elaborated in Table 2.

If a specified third-level theme is mentioned by a Member State, it is mentioned as such and also assigned to its sub-theme. Sub-themes or third-level themes mentioned less than six times (out of 14 returns) are not included in the analysis (but appear in Annex E).

### 3.3.1 Society and work organisation

It can be concluded from Table 2 that there are some groups such as ageing workers and people with reduced working ability that are of particular concern.

With regard to changing work patterns, teleworking has materialised as a high impact area.

Small and medium-sized enterprises also have a high profile.

Table 2. Priorities within themes

14 A. Society and work organisation

	Small and medium-sized enterprises
■	Cost/benefit studies of OSH
■	Cost analysis of OSH, costs of accidents and diseases
■	Subcontracted labour
■	Ageing workers
■	People with reduced working ability
■	Tele-working
■	Self-employed
■	Organisation cultures
■	Temporary workers
■	Young workers

Priorities within themes (cont.)

14 B. Management and technology

	Risk assessment
	Risk management in SMEs
	Substitution of dangerous substances
■	New safe products, production methods, processes and equipment (for prevention of risks due to ergonomic, safety, biological, physical or psychological risk factors)
■	OSH management systems, certification of OSH management, integration in other management systems
■	Best practices, benchmarking
■	Learning and competence development, training methodologies
■	Accident prevention
■	Workplace health promotion, methods for occupational health services
■	Risk communication and perception
■	Management and worker participation
■	Machinery, plant safety and mechanical handling (e.g. the assessment of risks associated with the operation, service and maintenance of machinery and plant)

14 C.1 Risks in working environment

■	Psychosocial risk factors
■	Ergonomic risk factors
■	Chemical risk factors
■	Safety risks
	Physical risk factors
■	Biological risk factors

12 C.2 Health effects

■	Occupational and other work-related diseases
■	Occupational accidents

10 C.3 Specific topics

	Risks in specific activities
n	Development of methodologies

Key:  
 n = the number of Member States which paid particular attention to one or more risks in a certain category  
 ■ = risks mentioned 12-13 times  
 ■ = risks mentioned 10-11 times  
 ■ = risks mentioned 8-9 times  
 ■ = risks mentioned 6-7 times



### 3.3.2 Management and technology

In terms of safety and health management, the impact of the European Framework Directive in requiring companies to have available the results of a risk assessment is still being felt, as the highest priority is given to risk assessment. Also, the integration of the assessment into an OSH management system (including also quality control and environmental issues), certification and prevention, are seen as important. Stress is also laid on external assistance, e.g. learning from others (best practice, benchmarking) and learning and competence development.

In terms of technological development, the main advantage is seen to be the opportunity to use new products, production methods, processes and equipment as a means of reducing or eliminating risks, or, in the case of chemicals, to use substitution as a way of eliminating risk, or replacing it with a lesser one.

### 3.3.3 Risks in the working environment

Subjects in this category achieved the highest overall scores, and have already been discussed in section 3.2.

### 3.3.4 Health effects

The relatively high scores in this category reflect increasing awareness that it is important to focus on both health and safety aspects in the prevention of occupational risks.

Within the health effects area, psychosocial issues and ergonomics feature prominently, as in the overall priorities sec-

tion (3.2). Similarly, there is concern about diseases caused by combinations of occupational exposures, including complex combinations caused by new technology.

### 3.3.5 Specific and other topics related to working environment and health

Risks in specific activities are included in this category, and relate to economic sectors according to the NACE statistical classification [2]. The results are incomplete in the national reports, and so are relegated to Annex F. Agriculture, manufacturing, construction, transport and health / social work receive particular attention.

Only one national return registered an interest in the special occupational groups category (C.3.1.2), according to the ISCO classification [3]. Denmark identified home care workers (51), drivers (83 or 93), construction workers (93), blacksmiths (93), slaughterhouse workers (92), rail, road and shunting workers (93), wood manufacturing workers (92 or 74), steel rolling mill and foundry workers (72) and chemical industry workers (93).

# 3.4

## CONCLUSIONS OF MEMBER STATE RETURNS

The priorities given in Table 3 are the Member States' own view of the local priorities. They are usually a sub-set of the list, which has been summarised in Annex 2. In most cases, no order of priority within the list is intended. In most cases, the descriptions of categories follows the Classification Guide for OSH Research Topics. Some new descriptors are used, which are often combinations of standard topics.

Not surprisingly, since the source data is basically the same, the overall picture is similar to that presented in Tables 1 and 2. However, Table 3 indicates some variability across the EU.

Table 3. Member State priority areas

<b>Austria</b>	
■	economic aspects of OSH
■	wood dust
■	OSH safety and health management
■	stressors at work
■	musculoskeletal disorders
<b>Belgium</b>	
■	reliability of people in complex situations
■	stress
■	violence and harassment
■	major accidents/ risk of complexity
■	fire/explosion
■	electric/ magnetic fields (mobile phones)
<b>Denmark</b>	
■	risks in the working environment
■	changing work patterns
■	safety and health management
■	fatal accidents
■	occupational cancer and brain damage
■	injuries to children and young people
■	injuries caused by heavy lifting and monotonous work
■	hearing injuries
■	injuries due to psychosocial factors
■	diseases due to poor indoor climate
<b>Finland</b>	
■	development of products, services and organisations
■	monitoring and control of production and other OSH risks
■	psychosocial functioning of work organisations
■	maintenance and promotion of work ability and capacity
■	OSH risks and loading factors
■	OSH care services
<b>France</b>	
■	prevention in man-technical systems interaction
■	risk management: collective and personal protective equipment and clean processes
■	safety management
■	musculoskeletal disorders
■	asbestos/ carcinogenic fibres
■	dangerous substances (such as glycol ethers)
■	dose-effect relationships for industrial pollutants
■	electromagnetic fields

### Member State priority areas (cont.)

#### Germany

- changing work environments
- psychosocial changes
- musculoskeletal diseases

#### Greece

- detailed list given in standard categories (see Annex E)

#### Ireland

- detailed list given in standard categories (see Annex E)

#### Italy

- cancer due to occupational disease
- training programmes
- carcinogens and chemical substances
- noise and electromagnetic fields
- risks from biological agents
- stress
- accident prevention and epidemiology
- hospital-related risks

#### The Netherlands

- psychosocial risks
- special risks groups (e.g. chronically ill)
- effects of legislation/ govt. policy
- economic aspects of OSH
- changing work patterns
- clean and safe production
- OSH management
- health effects due to chemical and biological exposure
- OSH risk assessment

#### Portugal

- Risk assessment
- Risk management in SMEs
- Clean and safe production and products
- Toxic and/or dangerous substances
- Ergonomic risk factors
- Physical risk factors
- Biological risk factors
- Safety risks
- Health effects
- Some economic sectors

#### Spain

- work organisation in SMEs
- risk management in SMEs
- temporary workers
- cost analysis of OSH, costs of accidents and disease
- risks related to machine safety
- work organisation
- repetitive movement
- design of workstations/ work area/ work equipment
- risk assessment related to the topic

#### Sweden

- detailed list given in standard categories (see Annex E)

#### United Kingdom

- musculoskeletal disorders
- psychosocial factors
- links between chemical exposure and ill health
- operator and environmental exposure to pesticides
- biological and physical agents (e.g. noise and vibration)
- safety of computer systems controlling hazards
- improved plant design

# 3.5

## NEED FOR EUROPEAN CO-OPERATION

Table 4 lists the Member States' views on the needs for co-operation at the European level in relation to the OSH research. The need identified most frequently (but not necessarily the most important) is the organisation of joint research (as the UK notes, when "added value" can be demonstrated over undertaking the research nationally). Next most frequently identified, but closely related, are the establishment of networks and the organisation of seminars and conferences.

Funding is identified less frequently, and conventional means of disseminating information - researcher mobility and publications, are identified least frequently. Internet applications are also in the least frequent category, perhaps because the Internet is a relatively new development and universal access to the web is not yet the norm.

Table 4. Need for European Co-operation

<b>Austria</b>	
■	all factors except funds for co-operation
<b>Belgium</b>	
■	exchange of research data
■	establishment of co-operation funds
■	organisation of joint projects
<b>Denmark</b>	
■	creation of networks
■	promoting funds for co-operation
■	organisation of seminars (including joint educational activities and doctoral courses)
■	organisation of joint projects
<b>Finland</b>	
■	creation of networks
<b>France</b>	
■	basic research (health at work, psycho-social effects...)
■	electromagnetic waves effects on workers (needs for co-operation should be directed to these research priorities)
<b>Germany</b>	
■	exchange of information / co-operation on future research
■	improve Internet
■	organisation of seminars/ conferences
■	creation of (common) databases
■	organisation of joint research projects
■	funds for co-operation (from EC)
<b>Greece</b>	
■	Internet applications
■	creation of databases
■	funds for co-operation
■	organisation of joint research programmes
■	organisation of seminars/conferences
■	promoting the transfer of researchers within/ outside the EU
<b>Ireland</b>	
■	creating networks for exchange of information
■	organisation of joint research projects
■	preparing publications
■	creation of databases
■	developing Internet

Need for European Co-operation  
(cont.)

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Italy

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- organisation of joint research projects
  - exchange of research data
  - creation of networks
  - organisation of seminars and conferences
  - creation of databases
  - promoting funds for co-operation
  - developing Internet
  - preparing publications
- 

The Netherlands

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- exchange of information, networks
  - joint research projects
  - organisation of seminars and conferences
  - creation of databases
  - promoting funds for co-operation
  - developing Internet sites
- 

Portugal

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- seminars and conferences organisations
  - organising joint research projects
  - mobility of researchers
  - preparing publications
  - creating networks for exchange of information
  - promoting funds for co-operation
  - creating and updating databases
- 

Spain

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- publications
  - development of joint projects
  - establishment of seminars
- 

Sweden

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- European co-operation or research initiatives are welcome
- 

United Kingdom

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- activity at the EU level should only take place where 'added value' can be clearly demonstrated, e.g. through better co-operation at the commissioning stage
  - funds for co-operation
-

# 3.6

## RESULTS OF SEMINAR

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The European Agency organised an expert seminar in Bilbao on June 14-15, 1999 in order to discuss the draft summary report about the future OSH research needs and priorities. It was stated that within the 5<sup>th</sup> Framework Programme of the European Commission the term 'environment' should be expanded to make it explicit that it covers also the 'work environment'. This implies that the word "occupational" should be added to the "Environmental" in the Programme on "Quality of Life and Management of Living Resources" and into the Programme of "Sustainable Development". Also, into item "Public Health" of the Programme "Quality of Life and Management of Living Resources" should be added "Occupational Health"

It was also stated that OSH issues related to society and work organisation should be more visible in the 5<sup>th</sup> Framework Pro-

gramme. It should put more emphasis on psycho-social risk factors and their health effects, which are more or less absent now. Also ergonomic risk factors and their health effects should be emphasised. In safety and health management, particular research focus should be on small and medium sized enterprises.

The following specific areas were identified to be relevant for future research actions. These topics are not in any order of priority.

- Changing Working Patterns and Changes in Labour Force (e.g. teleworking, subcontracted labour, self-employed, ageing workforce);
- Clean and Safe Production and Products (e.g. substitution of dangerous substances);
- Safety and Health Management systems (e.g. risk management in SMEs, best practices, benchmarking);
- Psychosocial and Ergonomic risk factors and their health effects (e.g. stress at work, repetitive strain injuries, low back pain);
- Chemical and Biological risk factors and their health effects (e.g. risk due to low dose long term chemical exposures, effects of chemical exposures in combinations with other risk factors, health effects of carcinogens);
- Development of methodologies (e.g. research in practical solutions including standard setting, intervention methods, development of efficient training programmes and new ways to disseminate knowledge on prevention).





# 4.



## CONCLUSIONS

The national reports and the expert seminar discussion produced similar sets of conclusions. Ten overall priorities have been identified, each mentioned by at least two thirds of Member States as future research priorities (see Table 1). The areas covered show that there is a strong interest in health as well as safety aspects in the prevention of occupational risks. The main conclusions are summarised below.

1. Psychosocial issues, ergonomics and chemical risk factors emerged overall as the top priority areas for future research. Nearly all Member States prioritised these three areas and they featured as priority issues under several categories. Within the field of psychosocial issues emphasis was placed on stress at work. In the area of ergonomics particular priority was given to manual handling/ work postures. Regarding, chemical risks, toxic/ dangerous chemicals, and particularly carcinogens, were prioritised. In addition, the need for more research into the substitution of chemicals to reduce risks also appeared separately in the top 10 and chemicals were also prioritised under the category of risk assessment.
2. The next most frequently mentioned priority concerned safety risks (particularly human factors) followed by risk management in Small and Medium-Sized Enterprises. SMEs were also ranked high in the category about priorities in particular groups and work organisational issues. Mentioned by two-thirds of Member States were: occupational and other work-related diseases; risks in specific activities (risk management in SMEs was also mentioned here); risk assessment; chemical substitution; and physical risk factors.
3. In the field of occupational and other work-related diseases once again respondents identified the need for more research into problems caused by psychosocial and ergonomic factors, as well as those caused by exposure to a



- combination of factors including complex combinations resulting from the introduction of new technologies. Among physical risk factors, noise and electric/magnetic fields appeared to be of particular interest.
4. Research priorities relating to risk management and risk assessment featured prominently. As mentioned above risk assessment relating to dangerous chemicals and carcinogens is of particular interest as is managing chemical risks through substitution of less harmful substances. Risk management in SMEs has been referred to. Other risk management areas highlighted included integrated OSH management systems, certification and competence issues.
  5. In the specific category of society and work organisation, as well as SMEs mentioned above, there are some groups such as ageing workers and people with reduced working ability that are of particular interest to the Member States. With regard to changing work patterns, teleworking and subcontracting emerged as important areas for future research. The self-employed were highlighted in addition in the expert seminar.
  6. Regarding technological development, Member States highlighted research needs in the field of the development and use of new products, production methods, processes and equipment to eliminate or reduce risks. The interest in the substitution of chemicals has also been referred to.
  7. Member States concluded that the major need for co-operation at the European level was the organisation of joint research projects and programmes.

## REFERENCES

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## ANNEXES

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### ANNEX A. METHODOLOGY OF DATA COLLECTION

#### *A.1 Structure of National Report*

- A. Introduction
  - aim of the national data collection
  - writer(s) of the report and main partners involved in the process
  - other relevant information for production
  - detailed contact information on the report provider
- B. Description of the national data process
  - collection procedure of the data
  - analysis of the data
  - original data sheets
  - other relevant information
- C. Consensus procedure for setting the priorities
  - descriptions of the involvement of the social partners in the consensus procedure
  - other relevant information

- D. Conclusions
  - main conclusions
  - presentation of the most important research priorities in a country
  - summary of the need for European co-operation
- E. Annexes
  - data collection sheets
  - other relevant information.

#### *A.2 Classification used in Data Collection Sheets*

For the data collection sheets, Member States were asked to identify OSH topics in the following classification (main categories):

- A. Society and Work Organisation
  - A.1 Changing working patterns
  - A.2 Changes in labour force
  - A.3 Particularly sensitive risk groups
  - A.4 Economic aspects of OSH
  - A.5 Other topics related to society and work organisation
- B. Management and Technology
  - B.1 Clean and safe production and products
  - B.2 Safety and Health Management
- C. Working Environment and Health
  - C.1 Risks in working environment
  - C.2 Health effects
  - C.3 Specific topics related to working environment and health
  - C.4 Other topics related to working environment and health

Within each of the main categories, a sub-division is made to priorities within themes. See Annex E for full details.

### *A.3 Classification of Type of European Co-operation*

Member States were also asked to indicate the type of European co-operation desired:

- creation of networks
- organisation of seminars/conferences
- promoting mobility of researchers
- organisation of joint research projects
- funds for co-operation
- drafting publications
- creation of databases
- Internet applications

## **ANNEX B. SUMMARY OF SOURCES AND DATA COLLECTION PROCEDURE BY MEMBER STATE**

### *B.1 Austria*

- most sectors consulted but only limited response. Identified 5 key topics without setting priorities within the list
- data combined with previous survey to give more representative response
- covers 20% of the all research topics in the Classification Guide

### *B.2 Belgium*

- only university departments were consulted and only limited response
- covers about 30% of the all research topics in the Classification Guide without setting priorities
- data interpreted by experts from government OSH departments

### *B.3 Denmark*

- government bodies, university departments, hospitals and social partners were consulted but only limited response
- covers about 80% of the all research topics in the Classification Guide

### *B.4 Finland*

- governmental, university and independent research institutes, together with funding bodies, the social partners and insurance bodies were consulted with an excellent response rate
- identified about 20% of the all research topics in the Classification Guide

### *B.5 France*

- national report consists of summary of 1998 internal colloquium and the research programme priorities of three main OSH research centres
- data combined with previous survey to give more representative response
- covers about 10% of the all research topics in the Classification Guide

### *B.6 Germany*

- (federal) governmental and regional research institutes, together with funding bodies, the social partners and insurance bodies were consulted

- includes a comprehensive list of priority areas comprising about 40% of the all research topics in the Classification Guide

#### *B.7 Greece*

- universities, hospitals and scientific associations were consulted
- results of previous survey were evaluated and integrated with the responses of the research bodies to give more representative national report - covers about 15% of the all research topics in the Classification Guide

#### *B.8 Ireland*

- no indication of who has been consulted
- return lists about 50 standard topics (about 30% of the all research topics in the Classification Guide)

#### *B.9 Italy*

- national and regional public bodies, research institutes, employer organisations and trade unions were consulted
- results of previous survey [1] were evaluated and included with the responses of the above organisations
- also included were views of meetings of a national network, the ISPELS 1998-2000 Activity Plan, the National health Plan 1998-2000, research priority areas mentioned in the Special Fund for Accidents of the Ministry of Labour and some excerpts from an Italian parliamentary report on the OSH situation

- covers about 50% of the all research topics in the Classification Guide

#### *B.10 The Netherlands*

- public and independent bodies, employer organisations and trade unions were consulted
- interviews were supplemented by published documents on national OSH research
- results were discussed at a seminar of representative organisations
- covers about 10% of the all research topics in the Classification Guide

#### *B.11 Portugal*

- public and independent bodies, employer organisations and trade unions were consulted, but only limited response
- covers about 15% of the all research topics in the Classification Guide

#### *B.12 Spain*

- public and independent bodies, employer organisations and trade unions were consulted, with good response
- specific questionnaires on network of researchers and prioritisation sent as well as Agency questionnaire
- national report gives priorities both for on-going research and future needs
- major priority areas are indicated in order of priority

- covers about 15% of the all research topics in the Classification Guide

#### *B.1.3 Sweden*

- public (national and local) and independent bodies, employer organisations and trade unions were consulted, but no indication of the response rate
- comments on priorities given for each major category (A.1 etc.)
- identified virtually all of the standard topics at the lower level (A.1.1 etc.) without setting priorities within the list

#### *B.1.4 United Kingdom*

- national report compiled from 'Fore-sight' panel reports as regards OSH research implications
- implications listed under six sector-based categories (e.g. information technology)
- UK view on current key national OSH issues given in narrative form
- covers about 15% of the all research topics in the Classification Guide without setting priorities
- additional topics added from Trades Union Council consultation

### **ANNEX C. SUMMARY OF CONSENSUS BUILDING PROCEDURE BY MEMBER STATE**

#### *C.1 Austria*

- information on research priorities has been gathered from government, social

partners and scientific institutes (present study) and insurance companies (previous study)

- data combined by Focal Point or project consultant, but no direct discussion to reach consensus between partners

#### *C.2 Belgium*

- attempted to discuss results with social partners, but latter objected to questionnaires being sent only to university departments

#### *C.3 Denmark*

- the returned data collection sheets were analysed and conclusions were drawn by the Focal Point. The draft national report was sent to the members of the Danish Committee, which is composed of representatives of central employers' and employee's organisations. The committee members had no comments on the draft national report

#### *C.4 Finland*

- special expert working group consisting of research and funding institutes. Also collaborating network of national Focal Point includes representatives of the social partners. Specific meetings (including a seminar) have been set up between these partners to establish consensus

#### *C.5 France*

- it is not clear from the national report who, apart from the organising govern-

ment ministry, were involved in the colloquium

- the social partners are members of the administrative boards of the OSH research institutions reported on, and hence influence the priority guidelines developed by those institutes

#### *C.6 Germany*

- special network set up for national collaboration with the Agency. Network includes the social partners and the insurance companies
- representatives of the network were included in those surveyed. Returned forms analysed and summarised by Focal Point

#### *C.7 Greece*

- special tripartite committee set up to support the activities of the Focal Point
- tripartite committee asked to comment on conclusions of previous survey. Data combined with results of questionnaire and re-appraised by committee

#### *C.8 Ireland*

- no indication of involvement of social partners

#### *C.9 Italy*

- the whole national network of the Agency was consulted. Network includes the social partners
- representatives of the network were included in those surveyed. Returned

forms analysed and summarised by the Italian experts of the Thematic Network Group on Research and the Focal Point and discussed in two meetings of the network

#### *C.10 The Netherlands*

- representatives of the social partners were included in those surveyed and in a dedicated seminar
- a dedicated consultation concerning the final draft of the national input resulted in full commitment of the social partners

#### *C.11 Portugal*

- the social partners have been involved in the initial strategy discussion, the data collection and in the final analysis

#### *C.12 Spain*

- the social partners have been involved in establishing the research priorities

#### *C.13 Sweden*

- special tripartite network set up to support the activities of the Focal Point

#### *C.14 United Kingdom*

- the Trades Union Congress and the Confederation of British Industry were consulted as representing the social partners, but only the TUC responded substantively

## ANNEX D. DETAILS OF SOURCES, COLLECTION PROCEDURE AND CONSENSUS BUILDING BY MEMBER STATE

### D.1 Austria

The Agency questionnaire was sent to bodies concerned with OSH, including government, the social partners, (different) insurance companies and scientific institutes. Only a limited response was obtained, in spite of reminders and only 5 specific topics were identified as priority areas.

To give a more comprehensive view, the supplied data was combined with on previous data obtained from the General Accidents Insurance Institution (GAI). The combined data, however, did not follow the Classification Guide and so has been interpreted by the project consultant.

### D.2 Belgium

The Agency questionnaire was sent to Belgian university departments involved in OSH. Thirty questionnaires were sent; only seven departments replied. In view of this limited response, a panel of experts produced a general document based on the replies received from the university departments and on their own ideas. The experts on the panel came from the departments concerned with occupational health and medicine and with safety at work (*Administratie van de arbeidshygiëne en -geneeskunde and Administratie van de arbeidsveiligheid*) at the Federal Ministry of Employment and Labour (*Federaal Ministerie van Tewerkstelling en Arbeid*).

The draft report was presented to the two sides of industry at a meeting in March 1999 of the Executive Office of the Supreme Council for Prevention and Protection at Work (*Hoge Raad voor preventie en bescherming op het werk*). At this meeting, representatives of the employers' organisations and trade union federations regretted the approach adopted, whereby only research institutes had been asked for their opinions, and they didn't wish to express their opinion. The Belgian response must therefore be regarded as reflecting those responding positively from the university departments and those reflecting the meaning of a panel of field professionals.

The summary provided by the Belgian Focal Point was in the agreed categories of the Classification Guide.

### D.3 Denmark

The data collection was organised and analysed by the National Working Environment Authority, which is also the Danish Focal Point. A survey was conducted, using the questionnaires, among Danish government bodies, university departments and hospitals involved in OSH. 68 questionnaires were sent; replies were received from ten bodies, including the National Working Environment Authority. The government's priorities were added to the priority areas identified by the ten respondents in order to give a more representative and comprehensive picture of Danish research priorities. The summary return identified about 90 key topics under new descriptors. The return also included a list of topics according to the Classification Guide, resulting in about 80% of the

standard topics being identified. In addition, Denmark identified C1, A1 and B2 as major priority areas (in order of priority) according to the classification, and seven priority areas under new descriptors. An annex contains about 45 further priority areas at a more detailed descriptor level, with reasons for the choices.

The social partners are members of the Danish committee for the national collaboration with the Agency. This committee has been kept informed about the project and asked to contribute to the data collection and to the drafts of the national report. It has also been given an opportunity to see a draft version of this report.

#### *D.4 Finland*

The Agency questionnaire was sent to 22 separate institutes and organisations in the field of occupational safety and health. Among these institutes there were specialised research institutes as well as the departments of certain universities the main funding organisations in this field in Finland. The most important and representative social partners were also included in the data collection survey. Altogether three employer organisations and three employee organisations were approached. The questionnaire was also sent to three important training and information centres in Finland.

Out of 22 approached institutes and organisations replies were received from 20 bodies.

The data from the questionnaire was analysed and summarised technically by

the experts of the Department for Occupational Safety and Health at the Ministry. The most frequently proposed needs and priorities were regarded as main conclusions of this national survey. In addition to these main conclusions certain institutes and organisations proposed some additional needs and priorities which were regarded relevant and important for their purposes and needs.

The preparatory work for the Finnish national report has been completed in the close collaboration with the representatives of the main research institutes in the field of occupational safety and health in Finland as well as with the funding organisations of this kind of research and the representatives of social partners. In order to achieve consensus, specific meetings (including a seminar) were set up between these partners, including the insurance companies. These meetings have influenced both the Finnish return and an early draft of this report.

#### *D.5 France*

The French national report consists of a summary of a colloquium organised in 1998 by the national Ministry of Employment and Solidarity and entitled "Ten years of research in the field of health and safety at work". The main topics discussed were accidents at work and occupational diseases.

The national report also contains a synopsis of the research priorities of the three main national OSH research agencies, i.e. INRS (*Institut national de recherche et de sécurité*), ANACT (*Agence nationale pour*



*l'amélioration des conditions de travail*) and INSERM (*Institut national de le santé et de la recherche*).

To give a more comprehensive view, the project consultant combined the supplied data with previous data obtained from the member state. This was the country report in the series: *Priorities and strategies in OSH policy in the member states of the European Union* [1]. In the case of France, the country report also draws heavily on the existing and future work plans of the institutions mentioned above, but is in greater detail. In both reports, the supplied data, did not follow the Classification Guide and so has been interpreted by the project consultant.

#### D.6 Germany

A survey was conducted, using the questionnaires, among the national network which included German federal and regional agencies, and insurance companies involved in OSH. There is no indication of the response rate. The summary return identified about 100 key topics. Although it was categorised in major groups (A, B, C), this data did not follow the Classification Guide at lower classification levels and so has been interpreted by the project consultant, resulting in about 40% of the standard topics being identified. In addition, Germany identified major priority areas within the list (as narrative text).

The social partners are members of the German network for the national collaboration with the Agency. This committee has been kept informed about the project and asked to contribute to the data collection.

#### D.7 Greece

The Agency questionnaire was sent to all institutions and bodies, public and private, which, according to available data, carry out or finance OSH research - universities, technological institutes, hospitals, scientific associations, chambers of commerce, etc. It was also sent to the most representative employees and employers organisations. Because of the slow response, only forms collected from the research bodies have been used.

In order to get a more representative picture, and to enable to social partners to be involved, the results of the earlier study *Priorities and strategies in OSH policy in the member-states of the European Union* [1] were presented to the Tripartite Committee. This committee comprises the Hellenic Ministry of Labour and Social Affairs and representatives of unions and management, and supports the activities of the Focal Point.

Combining the above information, a national report was then prepared by the Centre for Occupational Health and Safety (COHS) of the Hellenic Ministry together with the Hellenic Institute for Occupational Health and Safety (HIOHS). The national report, and also a draft version of this report, have been seen and approved by the Tripartite Committee.

#### D.8 Ireland

There is no indication of who has been consulted in the preparation of the national report. The report lists about 50 standard topics (about 30% of those available) as titles and classification number.

### D.9 Italy

The Italian national report was compiled by the *Istituto Superiore per la Prevenzione e la Sicurezza del Lavoro* (ISPESL), the main national OSH research public Institute. It comprises an analysis based on official sources, as well as on the results obtained from replies to direct consultation of all OSH stakeholders. In each priority, descriptors corresponding to the standard classification have been listed.

The sources considered can be broken down into four types:

The first is based on the results of the 1997 study [1].

The second is based on the data provided as replies to the Agency questionnaire, sent to governmental bodies, both at national and regional level, research institutes and universities, employers' organisations, trade unions and professional organisations.

The third was data supplied directly from the meetings of the Italian network.

The fourth was data from governmental sources, including the National Health Plan (1998-2000) approved by the Italian Parliament, the Special Fund for Accidents of the Ministry of Labour and Social Security (1999 research topics), the Italian Parliamentary report ("Smuraglia") on labour safety and hygiene, and the ISPESL institute's own 3-year plan (1998-2000).

Thus the social partners have been involved in directly supplying data (and also indirectly via for example their contribu-

tion to the ISPELS 3-year plan) and also in the consultation processes connected with drawing up the national report.

### D.10 The Netherlands

A search was undertaken by TNO Work and Employment, for relevant and recent documents published within the area of occupational health and safety. In total, 30 reports and articles were studied.

Also, an interview was held with thirty relevant organisations covering a broad spectrum of interests and using the Agency questionnaire and subject/topic list as a major source. This topic list was supplemented with topics that were considered relevant on the basis of the document analysis.

The preliminary results from the document review and interviews were discussed at a seminar held with representatives of those consulted, and the results of the whole study are described in a report presented to the Ministry of Social Affairs and Employment in the Netherlands (report is in Dutch). The social partners approved the final version of the national report.

In the conclusions of their national report, the Netherlands identified A, B, and C as major priority areas (in order of priority) according to the Classification Guide, and seven priority areas at a lower classification level. In addition, the Dutch Ministry of Social Affairs and Employment has identified two further priority areas. Detailed justification for the priority areas was given, from which the project consultant has identified about 20 specific priority areas according to the Classification Guide.

The Netherlands report is based on input from a very wide range of interested parties, including the social partners.

#### *D.11 Portugal*

The data collection was organised and analysed by *the Instituto de Desenvolvimento e Inspeção das Condições de Trabalho* (IDICT) and an initial strategy was worked out by IDICT in collaboration with the Focal Point, the social partners and a representative of the Agency.

The Agency questionnaire was sent to all institutions and bodies, public and private, which, according to available data, carry out OSH research - public research institutions, ministries, universities, scientific associations, etc. It was also sent to representatives of the social partners. However, because of the slow response, only forms collected from the research bodies have been used.

The final report indicates the responses from five respondents, each according to the Classification Guide; these have been collated into one list by the project consultant, resulting in about 25 entries. The Portuguese report selects ten categories as top priority areas.

The social partners have been involved in the initial strategy discussion, the data collection and in the final analysis.

#### *D.12 Spain*

The data collection was organised and analysed by *the Instituto Nacional de Seguridad e Higiene en el Trabajo* (INSHT). The strategy adopted was to supplement

the Agency questionnaire with two further questionnaires designed to assess research priorities and to identify new teams of researchers with a view to the promotion of networking.

The questionnaires were sent selectively to all institutions and bodies, public and private, which, according to available data, carry out, finance, or otherwise influence OSH research - public research institutions, technology centres, universities, insurance companies, etc. The research priority questionnaire was also sent to representatives of the social partners.

The final report indicates the priorities in three ways. (I) The topics investigated in ongoing research are prioritised by major category (C>> A > B) and by 'thematic branch' (a sub-set of 19 of the standard categories) - A.1 and B.2 are clear leaders. (II) The future topics for OSH research are prioritised, using all standard categories. (III) The overall priorities are given in a list of 25 of the Classification Guide topics. This last list has been used as the basis of the summary return (see Annex E).

The social partners have been involved in establishing the research priorities.

#### *D.13 Sweden*

The data collection was organised and analysed by the Swedish National Board of Occupational Safety and Health, which is also the Swedish Focal Point. A special tripartite network has been set up to support the activities of the Focal Point.

The national report contains details of the emerging risks and other relevant research

topics, classified according to the Classification Guide, but only down to the level A.1 (except for C.1, which is at the level C1.1). Within each category, information is given on the basis for the importance of the topic. Within each category, priority topics at the lower classification level are given, but nearly all available topics have been selected.

The involvement of the social partners was assured by including them in the network assisting the Focal Point.

#### *D.14 United Kingdom*

The UK national report was organised by the Research Strategy Unit in co-operation with the UK Focal Point, both of which are located in the Health and Safety Executive. UK interpreted the aim of the exercise as identifying medium term (3-5 years) occupational health and safety issues, which may require research.

Following discussion with the UK Focal Point in October 1998, a very limited external consultation exercise was carried out to cover the social partners and the Northern Ireland Health and Safety Agency (not part of HSE). Two 'umbrella' bodies, the Trades Union Congress (TUC) and the Confederation of British Industry (CBI), were consulted to cover the interests of the social partners. The Health and Safety Commission (HSC; parent of HSE) has a number of tripartite advisory committees covering all major sectors of employment.

A study commissioned by HSE was used as a background document. This study examined the 16 UK Foresight panel reports for

their OSH implications and has identified the important drivers for OSH research in the medium term.

The UK also reported that a consultation exercise on OSH research priorities for the EU's Fifth Framework Programme, carried out in 1996, sent to over 100 intermediaries, trade associations and professional bodies, yielded very few substantive responses to questions similar to those asked in this exercise.

The HSE's non-nuclear research programme is published annually. This was used to identify current UK priorities. HSC/HSE funds the bulk of the OSH research in the UK.

Rather than suggesting priorities, the UK used information gathered from the UK Foresight panels to show a number of trends, which might require OSH research in the medium term.

ANNEX E. SUMMARY OF MEMBER STATE PRIORITIES BY COUNTRY

	Member States giving priority													Total			
	A	B	DK	FI	F	D	GR	IR	I	NL	P	E	S		UK		
<b>A. SOCIETY AND WORK ORGANISATION</b>																	
A.1 Changing working patterns	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	14
A.1.1. Tele-working		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	7
A.1.2. Home working			*			*	*						*				4
A.1.3. Temporary workers			*		*	*	*	*	*	*	*	*	*	*	*	*	6
A.1.4. Self-employed			*	*	*	*	*	*	*	*	*	*	*	*	*	*	6
A.1.5. Subcontracted labour	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	8
A.1.6. Alternative working hours, shift work			*	*			*						*	*	*	5	
A.1.7. Small and medium-sized enterprises			*	*	*	*	*	*	*	*	*	*	*	*	*	*	10
A.1.9. Organisation cultures			*	*	*	*	*	*	*	*	*	*	*	*	*	*	6
A.1.10. Others, Flexiworkers	*							*	*	*	*	*	*	*	*	*	3
A.2 Changes in labour force		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	8
A.2.1. Ageing workers		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	8
A.2.2. Gender-related issues			*		*			*	*	*	*	*	*	*	*	*	5
A.3 Particularly sensitive risk groups		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	9
A.3.1. Young workers	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	6
A.3.2. People with reduced working ability	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	8

	Member States giving priority													Total		
	A	B	DK	FI	F	D	GR	IR	I	NL	P	E	S		UK	
A.3. Particularly sensitive risk groups (cont.)																
A.3.3. Pregnant women			•							•					•	3
A.3.4. Migrant workers			•				•		•	•					•	5
A.4. Economic aspects of OSH	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	12
A.4.1. Cost analysis of OSH, costs of accidents and diseases	•	•														9
A.4.2. Cost/benefit studies of OSH	•	•														9
A.4.3. Incentives, other instruments	•		•												•	3
A.5. Other topics related to society and work organisation			•						•	•					•	3
<b>B. MANAGEMENT AND TECHNOLOGY</b>	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	14
B.1. Clean and safe production and products	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	13
B.1.1. New safe products, production methods, processes and equipment (for prevention of risks due to ergonomic, safety, biological, physical or psychological risk factors)																9
B.1.2. Substitution of dangerous substances	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	10
B.1.2.1. Toxic and/or dangerous substances			•						•	•					•	6
B.1.2.2. Carcinogenic substances	•		•						•	•					•	8
B.1.2.3. Neurotoxic substances		•	•												•	5
B.1.2.4. Allergenic substances			•												•	3
B.1.2.5. Genotoxic and/or hazardous substances of reproduction			•												•	2
B.1.2.6. Risk assessment related to the topic			•	•	•	•	•	•	•	•	•	•	•	•	•	7

	Member States giving priority													
	A	B	DK	FI	F	D	GR	IR	I	NL	P	E	UK	Total
B.1. Clean and safe production and products (cont.)														
B.1.3. Engineering integrity and materials (e.g. integrity of engineering components and structures in pressure systems; design of engineering structures)							*	*	*				*	4
B.1.4. Electrical and control systems engineering (e.g. expert systems; safety related control systems; electrical safety of machines and electrical installations)					*	*	*	*	*				*	5
B.1.5. Machinery, plant safety and mechanical handling (e.g. the assessment of risks associated with the operation, service and maintenance of machinery and plant)			*		*	*	*	*	*				*	7
B.1.6. Civil engineering, structures and construction (e.g. structural integrity of permanent and temporary structures; occupational health and safety in the construction industry)							*	*	*				*	4
B.1.7. Environmental Technologies									*				*	3
B.1.8. Waste treatment					*				*				*	3
B.2. Safety and Health Management	*	*	*	*	*	*	*	*	*	*	*	*	*	13
B.2.1. Risk assessment	*	*	*	*	*	*	*	*	*	*	*	*	*	11
B.2.2. Risk communication and perception	*	*	*	*	*	*	*	*	*	*	*	*	*	7
B.2.3. OSH management systems, certification of OSH management, integration in other management systems	*	*	*	*	*	*	*	*	*	*	*	*	*	8
B.2.4. Risk management in SMEs	*	*	*	*	*	*	*	*	*	*	*	*	*	10
B.2.5. Accident prevention	*	*	*	*	*	*	*	*	*	*	*	*	*	7
B.2.6. Workplace health promotion, methods for occupational health services	*	*	*	*	*	*	*	*	*	*	*	*	*	7

	Member States giving priority														
	A	B	DK	FI	F	D	GR	IR	I	NL	P	E	S	UK	Total
B.2. Safety and Health Management (cont.)															
B.2.7. Multidisciplinary services								*	*	*	*				4
B.2.8. Management and worker participation	*	*	*		*	*		*	*	*				*	7
B.2.9. Best practices, benchmarking	*	*	*					*	*	*	*			*	8
B.2.10. Economic aspects at company level		*	*	*		*		*				*		*	5
B.2.11. Learning and competence development, training methodologies	*	*	*	*		*		*	*	*	*			*	9
B.2.12. Influence of EC Framework Directive									*	*	*		*	*	4
B.2.13. New strategies in OSH prevention and control									*				*	*	3
B.3. Other topics related to management and technology		*							*						2
<b>C. WORKING ENVIRONMENT AND HEALTH</b>	*	*	*	*	*	*	*	*	*	*	*	*	*	*	14
C.1. Risks in working environment	*	*	*	*	*	*	*	*	*	*	*	*	*	*	14
C.1.1. Psychosocial risk factors	*	*	*	*	*	*	*	*	*	*	*	*	*	*	13
C.1.1.1. Stressors at work	*	*	*	*	*	*	*	*	*	*	*	*	*	*	10
C.1.1.1.1. Work organisation	*	*	*						*			*	*	*	5
C.1.1.1.2. Work load	*	*	*									*	*	*	3
C.1.1.1.3. Monotonous work		*	*		*							*	*	*	4
C.1.1.1.4. Violence at work	*	*	*		*			*				*	*	*	6
C.1.1.1.5. Bullying	*	*	*		*			*				*	*	*	5
C.1.1.1.6. Sexual harassment			*										*	*	2



	Member States giving priority													Total			
	A	B	DK	FI	F	D	GR	IR	I	NL	P	E	S		UK		
C.1.1. Stressors at work (cont.)																	
C.1.1.1.7. Influence and control			*														2
C.1.1.1.8. Risk assessment related to the topic	*	*	*					*	*			*	*	*			6
C.1.1.1.9. Others, stress		*											*				2
C.1.1.2. Stress related to risk of unemployment	*	*	*		*			*	*				*				4
C.1.2. Ergonomic risk factors	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	13
C.1.2.1. Heavy lifting	*	*	*			*		*	*			*	*				7
C.1.2.2. Repetitive movement	*	*	*							*	*		*				6
C.1.2.3. Monotonous work		*	*			*		*				*	*	*	*	*	6
C.1.2.4. Manual handling	*	*	*			*		*	*	*	*	*	*	*	*	*	8
C.1.2.5. Work postures	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	8
C.1.2.6. Cognitive ergonomics		*	*			*		*			*	*	*				5
C.1.2.7. Vision ergonomics (VDU work and related issues)	*	*	*			*		*			*	*	*	*	*	*	5
C.1.2.8. Design of work stations/work area/work equipment	*	*	*			*		*			*	*	*	*	*	*	5
C.1.2.9. Risk assessment related to the topic	*	*	*			*		*			*	*	*	*	*	*	5
C.1.3. Safety risks	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	12
C.1.3.1. Risks related to machine safety	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6
C.1.3.2. Major accident hazards	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6
C.1.3.3. Risks of complexity in technological systems	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6

	Member States giving priority													Total		
	A	B	DK	FI	F	D	GR	IR	I	NL	P	E	S		UK	
C.1.3. Safety risks (cont.)																
C.1.3.4. Human factors related to safety	•					•	•					•	•	•	•	7
C.1.4. Chemical risk factors																
C.1.4.1. Toxic/dangerous chemicals	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	13
C.1.4.2. Carcinogens	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	9
C.1.4.3. Genotoxic and mutagenic substances			•			•										8
C.1.4.3. Genotoxic and mutagenic substances			•			•										5
C.1.4.4. Neurotoxic substances	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	6
C.1.4.5. Irritants (incl. airways and skin)			•			•										5
C.1.4.6. Respiratory and skin sensitisers			•			•										5
C.1.4.7. Substances damaging to the reproductive system						•										4
C.1.5. Physical risk factors																
C.1.5.1. Noise	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	10
C.1.5.2. Vibrations	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	9
C.1.5.3. Indoor climate			•			•										5
C.1.5.4. Illumination			•			•										4
C.1.5.5. Highflow temperatures		•														3
C.1.5.6. Electric and magnetic fields	•	•				•	•	•	•	•	•	•	•	•	•	8
C.1.5.7. Radiofrequency radiation	•	•				•	•	•	•	•	•	•	•	•	•	6
C.1.5.8. Infra-red radiation															•	2

	Member States giving priority														
	A	B	DK	FI	F	D	GR	IR	I	NL	P	E	S	UK	Total
C.1.5. Physical risk factors (cont.)															
C.1.5.9. Ionising radiation													*	*	3
C.1.5.10. Fire/explosion		*						*			*		*	*	5
C.1.6. Biological risk factors			*	*				*	*	*		*	*	*	9
C.1.6.1. Viruses			*										*	*	2
C.2. Health effects		*	*	*				*	*	*		*	*	*	12
C.2.1. Occupational accidents		*	*						*	*		*	*	*	5
C.2.2. Occupational and other work-related diseases	*	*	*				*	*	*	*		*	*	*	10
C.2.2.1. Diseases caused by psychosocial risk factors (see code C.1.1.)		*	*				*	*	*	*		*	*	*	7
C.2.2.2. Diseases caused by ergonomic risk factors (see code C.1.2.)		*	*				*	*	*	*		*	*	*	8
C.2.2.3. Diseases caused by chemical risk factors (see code C.1.4.)		*	*				*	*	*	*		*	*	*	6
C.2.2.4. Diseases caused by physical risk factors (see code 1.5.)							*	*	*	*		*	*	*	4
C.2.2.5. Diseases caused by biological risk factors (see code 1.6.)							*	*	*	*		*	*	*	5
C.2.2.6. Diseases caused by combinations of occupational exposures, incl. complex combinations caused by new technology		*	*	*	*	*	*	*	*	*		*	*	*	10
C.2.2.7. Other work-related diseases			*						*	*		*	*	*	2
C.2.3. Unemployment and health									*	*		*	*	*	2
C.2.4.1. Delayed/chronic effects	*				*				*	*		*	*	*	3
C.3. Specific topics related to working environment and health		*	*	*			*	*	*	*		*	*	*	10

	Member States giving priority														
	A	B	DK	FI	F	D	GR	IR	I	NL	P	E	S	UK	Total
C.3. Specific topics related to working environment and health (cont.)															
C.3.1. Risks in specific activities	*	*	*			*	*	*	*		*	*		*	10
C.3.1.1. Economic sectors (NACE Classification on 2-digit level) Services, Construction, Education, Repair of Motor Vehicles, Public Administration, Health services	*	*	*			*	*	*	*		*	*		*	8
C.3.2. Development of methodologies	*	*	*					*	*				*	*	6
C.3.2.1. Intervention studies			*	*		*							*		4
C.3.2.2. Exposure assessment (e.g. standardised methods, microbiological exposure control)	*	*			*	*		*	*				*	*	6
C.3.2.3. Standard setting (TLV, MAC, etc.)						*		*	*				*	*	4
C.3.2.4. Inter-disciplinary studies		*	*					*	*				*		4
C.3.2.5. Others			*					*	*						2
C.4. Other topics related to working environment and health									*	*			*	*	2
C.4.1. Research on practical use of research								*	*				*	*	2

**ANNEX F. MEMBER STATE PRIORITIES BY AREA OF ECONOMIC ACTIVITY**  
**Classification according to NACE Rev. 1, 1993 [2]**

	Member States giving priority													
	A	B	DK	FI	F	D	GR	IR	I	NL	P	E	S	UK
<b>A - B:</b>														
Agriculture, Hunting, Forestry and Fishing														
01 Agriculture, Hunting and related service activities														
02 Forestry, logging and related service activities														
05 Fishing, Operation of Fish Hatcheries and Fish Farms; Service activities incidental to fishing														
<b>C - D:</b>														
Mining, Quarrying and Manufacturing														
10 Mining of Coal and Lignite, Extraction of Peat														
11 Extraction of Crude Petroleum and Natural Gas; Service activities incidental to Oil and Gas extraction, excluding surveying														
12 Mining of Uranium and Thorium Ores														
13 Mining of Metal Ores														
14 Other Mining and Quarrying														
15 Manufacture of Food Products and Beverages														
16 Manufacture of Tobacco Products														
17 Manufacture of Textiles														
18 Manufacture of Wearing Apparel, Dressing and Dyeing of Fur														
19 Tanning and Dressing of Leather, Manufacture of Luggage, Handbags, Saddlery, Harness and Footwear														

C - D:	Member States giving priority																
		A	B	DK	H	F	D	GR	IR	I	NL	P	E	S	UK		
20	Mining, Quarrying and Manufacturing (cont.) Manufacture of Wood and of Products of Wood and Cork, except Furniture; Manufacture of articles of Straw and Plaiting Materials	•								•					•		
21	Manufacture of Paper and Paper Products																
22	Publishing, Printing and Reproduction of Recorded Media																
23	Manufacture of Coke, Refined Petroleum and Nuclear Fuel																
24	Manufacture of Chemicals and Chemical Products		•	•													
25	Manufacture of Rubber and Plastic Products																
26	Manufacture of Other Non-Metallic Mineral Products																
27	Manufacture of Basic Metals																
28	Manufacture of fabricated Metal Products, except Machinery and Equipment																
29	Manufacture of Machinery and Equipment NEC																
30	Manufacture of Office, Accounting and Computing Machinery																
31	Manufacture of Electrical Machinery and Apparatus NEC																
32	Manufacture of Radio, Television and Communication Equipment and Apparatus																
33	Manufacture of Medical, Precision and Optical Instruments, Watches and Clocks																
34	Manufacture of Motor Vehicles, Trailers and Semi-Trailers																
35	Manufacture of other Transport Equipment																
36	Manufacture of Furniture, Manufacturing NEC																

C - D:	Member States giving priority	Member States giving priority															
		A	B	DK	FI	F	D	GR	IR	I	NL	P	E	S	UK		
37 Mining, Quarrying and Manufacturing (cont.) Recycling																	
E: Electricity, Gas and Water Supply																	
40 Electricity, Gas, Steam and Hot Water Supply																	
41 Collection, Purification and Distribution of Water																	
F: Construction																	
45 Construction																	
G: Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles and Personal and Household Goods																	
50 Sale, Maintenance and Repair of Motor Vehicles and Motorcycles; Retail Sale of Automotive Fuel																	
51 Wholesale Trade and Commission Trade, except of Motor Vehicles and Motorcycles																	
52 Retail Trade, except of Motor Vehicles and Motorcycles, Repair of Personal and Household Goods																	
H: Hotels and Restaurants																	
55 Hotels and Restaurants																	
I: Transport, Storage and Communications																	
60 Land Transport; Transport via Pipelines																	
61 Water Transport																	
62 Air Transport																	

		Member States giving priority														
		A	B	DK	FI	F	D	GR	IR	I	NL	P	E	S	UK	
I:	<b>Transport, Storage and Communications (cont.)</b>															
	63 Supporting and Auxiliary Transport Activities; Activities of Travel Agencies															
	64 Post and Telecommunications															
J:	<b>Financial Intermediation</b>															
	65 Financial Intermediation, except Insurance and Pension Funding															
	66 Insurance and Pension Funding, except Compulsory Social Security															
	67 Activities auxiliary to Financial Intermediation															
K:	<b>Real Estate, Renting and Business Activities</b>															
	70 Real Estate activities															
	71 Renting of Machinery and Equipment without Operator and of Personal and Household Goods															
	72 Computer and related activities															
	73 Research and Development															
	74 Other Business activities															
L:	<b>Public Administration and Defense; Compulsory Social Security</b>															
	75 Public Administration and Defense; Compulsory Social Security															
M-Q:	<b>Other Services</b>															
	80 Education															
	85 Health and Social Work															



M-Q:	Other Services (cont.)	Member States giving priority															
		A	B	DK	FI	F	D	GR	IR	I	NL	P	E	S	UK		
90	Sewage and Refuse Disposal, Sanitation and similar services		•										•				
91	Activities of Membership Organisations NEC																
92	Recreational, Cultural and Sporting activities			•				•					•				
93	Other service activities																
95	Private Households with Employed Persons																
99	Extra-Territorial Organisations and Bodies																

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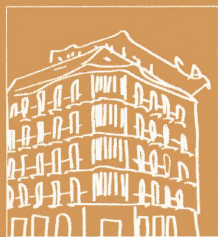
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