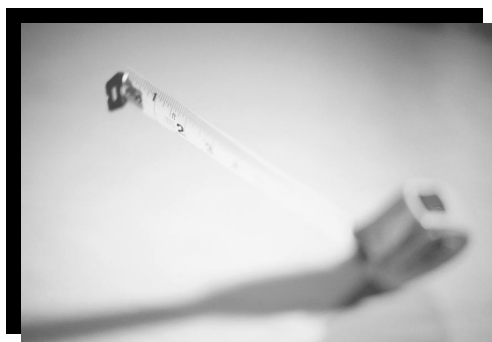




M O N I T O R I N G

Data to describe
the link between OSH
and employability





Data to describe
the link between OSH
and employability

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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FOREWORD

According to Regulation 2063/94 of 18 July 1994 (article 3.1e), the European Agency for Safety and Health at Work shall provide technical, scientific and economic information they require to formulate and implement judicious and effective policies designed to protect the safety and health of workers.

In September 1999 the Agency together with the Finnish presidency of the European Union, hosted an international conference on Occupational Safety and Health (OSH) and employability. Having identified and discussed different aspects of the relationship between OSH and employability, the conference agreed upon the importance of the OSH link being included as a new element in European employment policy. Just over one year later, the OSH and employability link was formally established in EU policy with the publication of the European Union's Employment Guidelines 2001, in which safety and health at work is specifically included for the first time.

In the meantime and following a decision of its Administrative Board, the Agency initiated a number of projects in order to provide political decision-makers, social partners and other interested groups with more detailed information on the link between OSH and employability.

The project which resulted in the current report, aimed to analyse existing data in the European Union that could assist in illustrating the link between OSH and employability. The models to be used for the analysis and the definitions and key questions to be raised were discussed at a workshop in June 2000. At the workshop, the preparation for this study, it was confirmed that we are just at a starting point as regards illustrating the links that exist between OSH and employability and that the available data does not yet provide us with a very detailed picture. Nevertheless the report provides us with a better understanding of possible links and a good overview of the data situation. However a key conclusion is that further investigations are necessary both at the conceptual level and to develop adequate indicators to illustrate the link.

The Agency would like to thank the participants of the workshop and its Thematic Network Group and Focal Points for their valuable contributions and comments and especially Michel Mouyelo-Katoula and Marta Alfagame from Camire for preparing the report for the Agency.

Bilbao, july 2001

EUROPEAN AGENCY FOR SAFETY AND HEALTH AT WORK

EXECUTIVE SUMMARY

OVERVIEW

This study analyses the existing data in the European Union that could help to illustrate the link between occupational safety and health (OSH) and employability, aiming to measure the phenomenon and highlight its relevance.

Part I summarises the findings of the Workshop hosted in the Agency's premises on 29-30 June 2000. Part II is divided into 3 chapters. Chapter 2.1 reviews the theoretical background of the link between OSH and employability, presenting some definitions, hypotheses, key questions and potential indicators. Chapter 2.2 is devoted to the analysis of data to describe the link between core OSH and employability at both the European and national level. Data to describe the link between the working environment level of OSH and employability is investigated in chapter 2.3. Finally, Part III presents the conclusions and recommendations to measure the link between OSH and employability.

THE LINK BETWEEN OSH AND EMPLOYABILITY: CONCEPTUAL FRAMEWORK

The link between OSH and employability is becoming increasingly important in Europe, and is present not only in the context of the European employment guidelines for 2001, but also in the framework of the European social agenda. An estimation of the magnitude of the link and the factors involved will serve to plan occupational and safety measures so that the desired promotional effects on employability can be obtained.

Employability is a relatively new notion that refers to the capability of getting and keeping satisfying work and moving self-sufficiently within the labour market to realise potential through sustainable employment. Therefore, employability depends on a combination of three parameters: the individual's formation (education and training) and competencies; strategies in enterprises regarding technological developments and organisation of work; the policies of governments and social partners. Hence, employability involves stakeholders at different levels: individuals, enterprises, governments, workers' and employers' organisations, alongside the community and society in general.

In this context, the link between OSH and employability refers to the role that OSH measures can have in the improvement of the interaction between individual's resources and work. Improvement of employability is achieved by promoting, maintaining and re-establishing worker's capability to work and ultimately by creating quality of work. Conversely, the link between OSH and employability also refers to the negative impact that lacking or inadequate OSH measures can have on worker's health and safety and, therefore, on their working ability, leading to exclusion from the labour market either permanently or temporarily. The negative impact of work on the employees' health is expressed through accidents at work, occupational diseases and ill health. These in turn often result in workdays lost, job shift, incapacity, unemployment or in the worst case, the worker's death.

This study differentiates between core OSH and working environment level of OSH. Core OSH comprises prevention practises to avoid the negative impact of accidents at work and recognised occupational

diseases. The working environment level of OSH aims at this protection in a wider sense. In other words, it is about avoiding the negative impact of work on the employees' general health.

In order to make an initial assessment of the availability of data that could illustrate the link, this study begins by looking at data that could exemplify the link between core OSH and employability. Then the analysis is opened towards wider and more complex aspects of this link, looking at studies that provide information which illustrate the link between the working environment level of OSH and employability.

DATA TO DESCRIBE THE LINK BETWEEN CORE OSH AND EMPLOYABILITY

Accidents at work and recognised occupational diseases constitute the traditional OSH indicators. Traditional OSH data might be too trivial and perhaps misleading when trying to measure the link between OSH and employability. The changing world of work has resulted in new types of diseases that perhaps are not yet recognised by the social security systems as directly caused by work. Therefore, traditional OSH indicators are not likely to capture the overall impact of work on the employees' health. However, they still remain as very important indicators of the direct negative impact of work on the individual's health, namely negative core OSH outcomes. In this sense, data on accidents at work and recognised occupational diseases linked to their consequences on working ability can provide good indicators of the relationship between core OSH and employability.

European data on accidents at work and recognised occupational diseases

Some interesting indicators exist in the field of the 1999 Labour Force Survey ad hoc module on accidents at work and occupational diseases

A number of different sources are used to assess the availability of data that could illustrate the link between OSH and employability at the European level. For accidents at work, data collected in the European Statistics on Accidents at Work (ESAW) project are investigated, whereas for recognised occupational diseases, data from the Pilot Project on European Occupational Disease Statistics (EODS) are studied. Furthermore, data from the 1999 Labour Force Survey (LFS) ad hoc module on accidents at work and occupational diseases are also analysed.

Accidents at work in the EU

Eurostat collects data on accidents at work for nine sectors of activity only: Agriculture, Manufacturing, Energy, Construction, Trade, Hotels and restaurants, Transport and Business activities (NACE A, D, E, F, G, H, I, J and K). Data are collected for fatal accidents at work as well as accidents at work with more than three days of absence. These data are provided broken down by gender, age, size of enterprise, employment status, part of body injured and number of days lost. Depending on the breakdown desired, these data are available for the years 1993 to 1996.

European data on accidents at work show that there are some sectors of activity, such as Construction or Agriculture, Hunting and Forestry, that are more risky than others, and therefore the link between core OSH and employability is expected to be stronger for these sectors. In terms of standardised incidence rates, the data also show that males are more likely to have an accident than women, whereas with regard to age, the youngest and oldest groups appear as the most affected. Enterprises with 10 to 49 workers retain the highest accident incidence rates and employees seem to have more accidents than employers, self-employed or family workers.

The 4 832 329 accidents with more than three days of absence occurred in the EU 15 plus Norway in 1996, corresponding to an incidence rate of 4 229 accidents per 100 000 people in employment. These accidents resulted in between approximately 61 and 113 million days lost, where 52 877 cases that had either permanent incapacity to work or 6 months' absence or more as a consequence were included. This means that for every 100 000 employees in the EU-15 and Norway, around 46 were excluded from the workplace at least temporarily (over six months), and some of them could not return to work since the accident resulted in permanent incapacity. Most cases of permanent incapacity or temporary incapacity of more than 6 months occur due to head injuries (37 %) and neck injuries (28 %).

ESAW data also provide an estimation of the cost of accidents at work to the insurance system for the years 1994 and 1997. In 1997, it was estimated that accidents cost the insurance system approximately 0.6 % of the total European wage bill. These costs amounted to over Euro 16 thousand million of which around 66 % of them happened in the high-risk sectors, i.e. Agriculture, Manufacturing, Construction, Transport and Communication.

Occupational diseases in the EU

Data on recognised occupational diseases shows that in 1995 there was an incidence rate of 446 occupational diseases per million workers in the labour force, with much higher rates retained by Manufacturing and Construction. The three most frequent occupational diseases were noise-induced hearing loss, allergic or irritative skin disease and respiratory allergy.

The 1999 LFS ad hoc module on accidents at work and occupational diseases

Although the data on accidents at work and occupational diseases are very valuable for prevention practises, they hardly provide information that could help to illustrate the link between OSH and employability. However, the 1999 LFS included an ad hoc module on accidents at work and occupational diseases, which particularly focused on assessing the person's ability to work after the accident or disease. The results obtained by this exercise show that 84.3 % of the people that suffered an accident returned to work, whereas 7.2 % have not started working for various reasons. These rates are very similar both for males and females. Overall, most people continue doing their earlier work, although 2.5 % of the injured had to change their sphere of work or their workplace. 1.6 % of them, in turn, work part time as a consequence of the accident. 7.2 % of the total workers that suffered an accident at work have not returned to work because they have not recovered yet, whereas 0.2 % became absolutely disabled to work. With regard to work related health problems, 13.8 % of the workers that complained about a disease in 1999 expect never to do paid work again due to their illness.

Data on accidents at work and recognised occupational diseases in some Member States
Italian, German and Dutch sources provide similar data to Eurostat.

At the Member State level data from Italy, Germany and the Netherlands are investigated as examples of the type of data that may be available in Europe at present. These data come from the Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro (INAIL), the German Federation of the Berufsgenossenschaften for the industrial sector (HVBG) and the Dutch Ministry of Social Affairs respectively .

Data on accidents at work and occupational diseases in Italy, Germany and the Netherlands provide very similar indicators to those of Eurostat. However, they also provide other additional interesting indicators. Italian data show that 21 days are lost on average for every accident at work, whereas the average

compensation is of 670 Euro. German data show that expenditure on prevention is inversely related to recognition of new accident pension. With regard to occupational diseases, German data also show that a large amount of cases of suspected occupational diseases do not have their occupational causation confirmed. Dutch data indicates that 30 % of the absenteeism due to illness is related to working conditions.

DATA TO DESCRIBE THE LINK BETWEEN THE WORKING ENVIRONMENT LEVEL OF OSH AND EMPLOYABILITY

The link between OSH and employability encompasses more than the direct effect of work on the individual's health, expressed through accidents at work and recognised occupational diseases. However, moving from core OSH towards broader levels of OSH, the issue of the link between OSH and employability becomes less clear. In view of this, and the fact that hardly any comparable/harmonised European data exists in this field, the OSH experts that assisted to the Workshop held in June recommended looking at existing case or pilot studies that focused on particular target groups. Within this framework, the report analyses various European studies aiming to find examples that could illustrate the link between the working environment OSH and employability.

The study presents three European studies that contain information relevant to this project. An Italian case study on health related occupational mobility demonstrates that compared to non hospitalised, people hospitalised retain significant excesses of downward mobility and deficits of upward mobility for most social classes. Similarly, it reveals students that have been hospitalised show a higher probability of becoming unemployed or going into occupations correspondent to the working class when obtaining first employment. The HealthyBus project shows several problems in the working conditions and working environment of the Danish bus drivers, such as bad organisation and communication, defective workplace design and poor lifestyle conditions. These problems result in a poor health and therefore several measures and activities have been undertaken. The results of these measures and their impact on worker's health and employability will be visible in future stages of the HealthyBus project. The Galaxen study shows the positive effect of rehabilitation programmes and adaptive OSH measures on the employability of those workers whose health has been severely affected by work. The case study shows that 25 % of workers subject to these measures return to ordinary work.

The study is then devoted to a summary review of the literature analysing the relationship between health and unemployment. The main objective of this analysis is to learn about the methodologies used in these studies and the type of indicators they constructed. All the studies reveal difficulties to obtain adequate data. Overall, most of them are based on data constructed on follow up studies of 4 to 5 years. Finally, the International Labour Organisation's (ILO) perspective in the field of OSH and employability is summarily reviewed. Studies conducted by the ILO reveal the increase of mental health problems as a cause for disability and early retirement in the Member States.

CONCLUSIONS AND RECOMMENDATIONS

The analysis of the conceptual framework shows that the system that links OSH and employability is not yet sufficiently developed. Therefore, the study concludes that further investigations are required at the conceptual level, so as to clarify which parts of OSH and employability are interrelated and to develop adequate indicators that could best illustrate the link. However, an attempt is made to describe the overall framework of the link in a simple diagram.

With regard to availability of data, the study concludes that in terms of measuring the link between OSH and employability, the data sources to focus for the future development of indicators are the 1999 LFS ad hoc module on accidents at work and occupational diseases, HealthyBus and Galaxen.

In view of the conclusions, 9 recommendations of further actions are proposed:

Recommendation 1: to promote the repetition of an ad hoc module on accidents at work and occupational diseases in later LFSs with a regular frequency of 2 to 3 years and to extend the coverage of variables.

Recommendation 2: to analyse the basic disaggregated results of the accidents at work and occupational diseases available at the National Statistics Institutes of selected Member States.

Recommendation 3: to include a chapter on the link between OSH and employability in the next report of the state of OSH.

Recommendation 4: to follow-up on the 2001 and 2003 rounds of the HealthyBus exercise proposing the inclusion of additional questions and to widely disseminate the results of the exercise in the European Union.

Recommendation 5: to analyse in more detail the original basic registers obtained in round 1 of the HealthyBus exercise and to draw lessons on more qualitative aspects of the link between OSH and employability; to disseminate the results obtained within the EU Member states.

Recommendation 6: to analyse in more detail the results obtained so far by the Galaxen exercise and to draw lessons on more qualitative aspects of the link between OSH and employability; to disseminate the results obtained within the EU Member states.

Recommendation 7: to promote the duplication of exercises such as the HealthyBus and Galaxen in other EU Member States for other sectors or groups of workers. To disseminate widely the results and to promote exchange of experience within the European Union.

Recommendation 8: to fund an ad-hoc exercise for directly gathering data on the link between OSH and employability in test sectors and countries. To disseminate widely the results and to promote the exchange of experience.

Recommendation 9: to promote carrying out a comparative analysis of the link between the quality of OSH and exclusion from the labour market at the company level.

INTRODUCTORY REMARKS

The actual world of work is characterised by change and dynamism. The increase of women's presence in employment, the ageing of the working population, the movement towards a more service intensive economy etc. are the challenges of the new employment, social and economic policies. Changes in the way in which workplaces are organised and in the nature of the risks to which workers are exposed to require more adaptable workers and workplaces. Under these circumstances, the concept of employability and the factors that promote it are becoming increasingly important. In the changing world of work, creating a safe and healthy working environment that will prevent exclusion of workers from the labour market is a rather relevant tool to maintain employability. Although this is of special magnitude for ageing workers and disabled people, occupational safety and health (OSH) measures can benefit all workers' employability. Promoting employability through OSH measures will not only be positive for individuals but also for enterprises, governments, workers' and employers' organisations, alongside the community and society in general.

In this context, the awareness of the link that exists between occupational safety and health and employability is also increasing at the political level. Employability has become a fundamental pillar of the European Employment guidelines. The employment guidelines for the year 2001 consider for the first time OSH measures as a tool to encourage adaptability of businesses and their employees. The Council Decision on employment guidelines for 2001 of 19 January states in paragraph 14 that:

"The Member States will, where appropriate in partnership with the social partners or drawing upon agreements negotiated by the social partners,...

Endeavour to ensure a better application at workplace level of existing health and safety legislation by stepping up and strengthening enforcement, by providing guidance to help enterprises, especially SMEs, to comply with existing legislation, by improving training on occupational health and safety, and by promoting measures for the reduction of occupational accidents and diseases in traditional high risk sectors."

The European Council also approved on 7-9 December the European Social Agenda, which defines specific priorities for action for the next five years. In its communication, the Commission insisted on the need to ensure a positive and dynamic interaction of economic, employment and social policies. Amongst other issues, reinforcement of working conditions in order to keep older workers in employment was pointed out as one of the tools to deal with the ageing of population. The communication also highlighted the importance to promote quality in employment and to develop effective life-long learning and training strategies that benefit as many people as possible. Increasing active employment by encouraging access to jobs or to stay in existing jobs was considered especially relevant for specific categories such as disabled workers and older workers. Another objective of the 2001 Social agenda is to combat long-term unemployment by developing active preventive and reintegration strategies based on early identification of individual needs and improving employability.

International organisations such as the ILO are also carrying out some investigations in this field. As the ILO suggests, the concern and awareness of the importance and magnitude of the problems caused by poor working conditions and environment on employability remain surprisingly modest.

It is under this framework that this project aimed to collect data to measure the link between OSH and employability. An estimation of the magnitude of the link and the factors involved will serve to plan

occupational and safety measures so that the desired promotional effects on employability can be obtained.

The initial goal of the project was to construct a model that would help to measure the link between OSH and employability. A preliminary research was carried out at two different levels. Firstly, the conceptual framework was analysed, and then European databases were researched looking for existing data that could help to build up an econometric model to describe the link between safety and health at work and employability. The investigations showed that the conceptual framework surrounding this issue lacked homogeneity, and that existing harmonised and comparable European data was scarce and rather fragmented, which indicated that it would not be currently feasible to construct the desired econometric model leading to reliable results.

In view of the results obtained in the initial research phase, and after intensive discussions, the European Agency for Safety and Health at Work came to the conclusion that further clarification of the definitions and variables involved in the phenomena was needed so that an adequate assessment of the available quantitative and/or qualitative information could be performed. Under this circumstance the European Agency decided to organise a workshop with European and international experts in the field of employability and occupational safety and health and representatives from European Organisations. The findings of the workshop are summarised in Part I.

The discussions with the experts led to a reorientation of the project, focusing on obtaining data that could illustrate the link between core OSH and employability and the working environment level of OSH and employability. This should be preceded by a summary review of the theoretical background. As a result, Part II is divided in three chapters, according to the steps agreed in the work plan. Chapter 2.1 contains the theoretical background and serves as a basis for the rest of the study. This conceptual framework was drafted following the agreements and comments from the OSH experts that participated in the workshop. However, it should be noticed that the complexity of the subject takes the issue beyond the notions included in this chapter and that the concepts explained here are only valid for the purpose of this study. Due to the lack of a clear vision on what the link between OSH and employability really is, it was decided to also formulate several hypotheses and key questions that would serve as the starting point of the data analysis and a basic reference throughout the study.

Chapter 2.2 looks at the link between the core level of OSH and employability, by looking at data on accidents at work and occupational diseases, both at the European level and Member State level. In this chapter, data on accidents at work and occupational diseases are understood as indicators of the link in a negative sense, i.e. losses of health, and hence exclusion from the labour market temporarily or permanently. At the European level, Eurostat is used as a data source. More specifically, for accidents at work, data collected in the European Statistics on Accidents at Work (ESAW) project is employed, whereas for occupational diseases, data from the Pilot Project on European Occupational Disease Statistics (EODS) is analysed. Data from the 1999 LFS ad hoc module on accidents at work and occupational diseases are also considered.

At the Member State level, relevant data on accidents at work and occupational diseases were obtained for Italy, Germany and the Netherlands. Italian data came from the Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro (INAIL), whereas the German data were acquired from the German Federation of the Berufsgenossenschaften for the industrial sector (HVBG). Dutch data come from the Occupational Health and Safety Balance Sheet published by the Ministry of Social Affairs.

Chapter 2.3 attempts to study the relationship with a wider scope, by looking at the link between the working environment level of OSH and employability. It had been seen in previous phases of the project that as one moves from core OSH towards broader levels, the understanding of the link between OSH and employability becomes less clear. In view of this and following the recommendations of the experts given during the workshop, this phase was based on the analysis of data contained in case or pilot studies carried out in Europe. Several studies were received from various Member States, and data was examined taking as a reference point the hypotheses and key questions proposed in the theoretical background.

Chapter 2.3 is hence divided in three sections. The first section summarise the findings of the analysis of three projects that have been or are being carried out in Europe, namely an Italian case study on health related occupational mobility (Italy), the HealthyBus project (Denmark) and Galaxen (Sweden). The second section focuses on the analysis of several articles and papers that have analysed the relationship between health and unemployment aiming to learn from their experiences and the methodology used. The third section gives a summary of the ILO's activities in this field.

Finally, part three presents the conclusions with regard to the availability of data and recommendations for future developments in the field of the link between OSH and employability.

PART I: WORKSHOP ON OCCUPATIONAL SAFETY AND HEALTH AND EMPLOYABILITY

1. INTRODUCTION

The European Agency for Safety and Health at Work has identified the issue of employability and the link to Occupational Safety and Health (OSH) in its Work Programme 2000 as an important priority. This is based on the discussions during the European Conference "Safety and Health and Employability" held in September 1999 in Bilbao. During the year 2000, the European Agency treated the issue through 2 activities. Firstly, the European Agency undertook a study into current programmes and practices in the Member States that aim to contribute to the reintegration or maintenance at work of sick workers or vulnerable groups of workers. This study highlights the role that intermediary organisations, such as sector organisations, preventive services, social partners, and insurance organisations can fulfil in carrying out such initiatives. In addition, the European Agency planned a study in which it intended to produce data to describe the link between OSH and employability and thereby estimate the impact of OSH on the employability of workers in the European Union.

Being in a preparatory phase of the project, the European Agency considered that further reflection on the concept, definitions and variables was essential. Under these circumstances, it was decided to organise a Workshop where European/international experts in the field of employability and OSH would participate to give their expert advice. The major goals of this Workshop were:

- Identify all elements of employability which can be considered as specifically linked to OSH and vice-versa;
- Develop operational definitions for employability and OSH and the description of the link;
- Select relevant variables describing the link between OSH and employability (directly and/or indirectly);
- Assessment of availability of quantitative and/or qualitative information on European and/or Member State level.

For the preparation of the workshop, various background papers were drafted, proposing several questions. These papers were sent to the participants in advance and can be found in Annex to Part I.

2. RESULTS OF THE WORKSHOP

2.1 Definitions

A. Definition of Employability

A list of definitions of employability was given to the experts for discussion in Background Paper 1: Definition (see Annex 1.1), which the experts considered too political, and too focused on the individual, without taking into account the workplace or social issues. They suggested that the definition should focus more on workers' as well as employers' needs and also on the social and market dimensions. In turn, they suggested the following definition of employability:

Employability is the result of the interaction between individual resources and work.

Employability is about being capable of getting and keeping satisfying work. More comprehensively, employability is the capability to move self-sufficiently within the labour market to realise potential through sustainable employment.

Employability depends on a combination of three parameters: first, the individual's formation and competencies; second, strategies in enterprises regarding technological developments and organisation of work; third, the policies of governments and social partners.

B. Definition of Occupational Safety and Health (OSH)

Background Paper 1 also proposed several definitions of OSH for discussion (see Annex 1.1). The experts considered that there were some missing elements in the proposed definition and therefore decided to reformulate it. They commented that it would be convenient to focus on an operational definition and define OSH using a more narrow approach so as to make the project better manageable. It was also advised to focus the project on certain activities or specific groups of workers, such as temporary workers. The experts agreed for the purpose of the study in two definitions, a first broader one and then a narrower operational one:

OSH includes any measures aimed at adapting work to the individual in order to:

- Reduce the harmful effect of work on the individual's health,
- Promote working conditions and work organisation in a way that improves general health, and
- Ensure that people that have health problems are not unnecessarily excluded from the workplace.

Measures aimed at adapting work to the individual worker in order to protect their health and safety and to avoid their exclusion as a result of work requirements and work capacities.

2.2 Variables

A series of variables describing each of the concepts being analysed in the project was presented in Background Paper 2: Variables (see Annex 1.2). The experts were asked to discuss mainly, which indicators they considered essential for any potential description of the links between employability and OSH.

With regard to variables describing employability, they indicated that employability is a much broader concept than OSH, and therefore includes factors and indicators that are not included in the OSH-concept. This poses a problem for the discussion and identification of indicators linking the two concepts, and therefore some experts decided not to comment on the proposed indicators of employability.

Concerning the list of indicators of preventive OSH measures, they commented the following:

- Expenditures on Research and Development on OSH are not a good indicator, as they do not reflect the use of the OSH knowledge in practice;
- The other expenditures, e.g. on training, are not relevant;
- Number of OSH regulations should be excluded, as they say nothing without knowing the scope of the individual regulations;
- In general they suggested that any indicator should reflect percentages of the working population covered, that is, they should be given as rates, and not in absolute numbers.

Regarding sickness absence as an indicator of health levels and employability, it was considered as a doubtful indicator because of the unclear relationship between individual health, indicators at a societal level (such as rate of unemployment), regulations (legal and economic) and work environment.

The experts indicated that the choice should be informed by a focus on activities at the enterprise level, identifying the following research issues:

- Preventive infrastructure;
- Working conditions;
- Work-related harm;
- Interventions to avoid exclusion;
- Exclusion due to harm.

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- Working conditions;
- Work-related harm;
- Interventions to avoid exclusion;
- Exclusion due to harm.

2.3 Availability of Data

A tentative inventory of databases available in Europe was presented to the experts in Background paper The paper presented a summary of the HASTE database as well as the data available from Eurostat and the European Foundation for the Improvement of Living and Working Conditions. It was expected from the experts to complement and update this inventory with the data sources available from their own organisations or countries.

Generally, the experts felt that there was a lack of relevant and/or reliable data in the field. They recommended that the study could usefully either focus on a few countries or concentrate on developing an analytical framework and research instrument. They proposed to analyse pilot studies to clarify the link between employability and OSH, suggesting studies such as a Danish bus-driver study, Finnish studies on ageing workforce, Dutch studies on health-care personnel and exclusion, French study on long-term unemployment of women, studies on temporary workers and so on. They also proposed that existing evidence could be used to examine the links between working conditions and work-related harm; and work-related harm and exclusion.

Further, they proposed a set of questions to assess this material:

- What are the work-related problems?
- What are the reasons that make people leave (or be excluded)?
- What measures are taken to keep them in work?

They indicated that a possible outcome of the project would be proposals for survey questions to obtain self-report data on the above issues. These questions could perhaps be put forward for inclusion in future Eurostat Labour Force Surveys or European Surveys on working conditions.

3. WORKSHOP CONCLUSIONS

The workshop findings can be summarised as follows:

- There is a need to develop a theoretical frame (e.g. definitions) taking into account all three levels of OSH (Prevention, adaptation and promotion);
- The clarification of the topic and identification of suitable variables should be done by means of case or pilot studies
- There is a need for further recommendations/ ideas about how the link between OSH and employability could be brought forward, such as running a survey or including particular questions in the Eurostat Labour Force Surveys and/or the European Survey on working conditions or in European research programmes.

PART II: MEASURING THE LINK BETWEEN OCCUPATIONAL SAFETY AND HEALTH AND EMPLOYABILITY.

In view of the recommendations that came out of the Workshop, it was decided to redefine the scope of the project in order to make it more realistic. Therefore, a three-step project was designed. The first step would consist on drafting a theoretical background for the purpose of the study and according to the discussions and agreements among the experts that participated in the Workshop. The second and third steps, instead, would aim to assess the availability of relevant data in this field, by looking at examples of quantitative and qualitative data that could describe the link between core OSH and employability and the work environment level of OSH and employability respectively.

Chapter 2.1 contains the definitions of employability and OSH that will serve as a basis for this study. In order to narrow down the study, several hypotheses as well as indicators were drafted as a reference point for the analysis of existing data.

Chapter 2.2 summarises the results of the analysis of data that could help to describe the link between core OSH and employability, i.e. data on accidents at work and recognised occupational diseases. Data are analysed at the European level as well as at the national level.

As examples of the data collection systems in the Member States, national data are analysed for Italy, Germany and the Netherlands, who made their data readily available. These data come from different sources with different methodologies and therefore the results here presented can not be compared across the three countries.

Finally, Chapter 2.3 looks at a wider relationship and focuses on the link between the work environment level of OSH and employability by analysing several studies that have been or are being carried out in Europe and the International Labour Organisation (ILO), as well as some relevant literature in the field of health and unemployment.

CHAPTER 2.1: THE LINK BETWEEN OCCUPATIONAL SAFETY AND HEALTH; THEORETICAL BACKGROUND.

1. DEFINITIONS

1.1. DEFINITION OF EMPLOYABILITY

The concept of employability is complex. It must not be understood only at an individual level but also at the societal level, and thus, it involves different aspects and actors.

Many attempts have been made to define employability. For the purpose of this study, we can define employability as the result of the interaction between individual resources and work.

Employability is about being capable of getting and keeping satisfying work. More comprehensively, employability is the capability to move self-sufficiently within the labour market to realise potential through sustainable employment.

Employability depends on a combination of three parameters: the individual's formation and competencies; strategies in enterprises regarding technological developments and organisation of work; and the policies of governments and social partners. Therefore, employability involves stakeholders at different levels: individuals, enterprises, governments, workers' and employers' organisations, alongside the community and society in general.

1.2. DEFINITION OF OCCUPATIONAL SAFETY AND HEALTH (OSH)

OSH includes any measures aimed at adapting work to the individual worker in order to:

- reduce the harmful effect of work on the individual's health;
- ensure that people that have health problems are not unnecessarily excluded from the workplace or labour market as a result of work requirements and work capacities; and
- promote working conditions and work organisation in a way that improves general health.

Within the notion of OSH, 3 concentric circles representing 3 levels, from inside to outside, can be distinguished. These circles are represented in Figure 1.1 below.

First level: Core OSH

The core OSH comprises prevention practises to avoid the negative consequences of work on the employee's health, such as accidents at work and recognised occupational diseases. The immediate outcomes of accidents at work and recognised occupational diseases are for example work days lost, partial/full incapacity of employees or economic costs (such as costs for medical treatment).

Second level: Working environment

The second level of OSH deals with work related problems beyond the recognised diseases and accidents, i.e. mortality / morbidity rates for occupations, other work related illness/ill-health, work related absenteeism, work related early retirement, work related job shift etc.

Third level: Workplace Health Promotion

The broadest level of OSH involves aspects not directly related to work, but with physical or psychological consequences on the worker's health. It is to do with the individual's health conditions, which somehow affect his work ability, and therefore it is related to measures aiming at the general health promotion. This is because ultimately it is not only about having people healthy at work, but an overall healthy society.

Thus, OSH measures aim at different objectives that can be summarised as protection, adaptation and promotion. Linkages between the protective aspect of OSH and employability might perhaps be stronger than those linkages of adaptation or promotion.

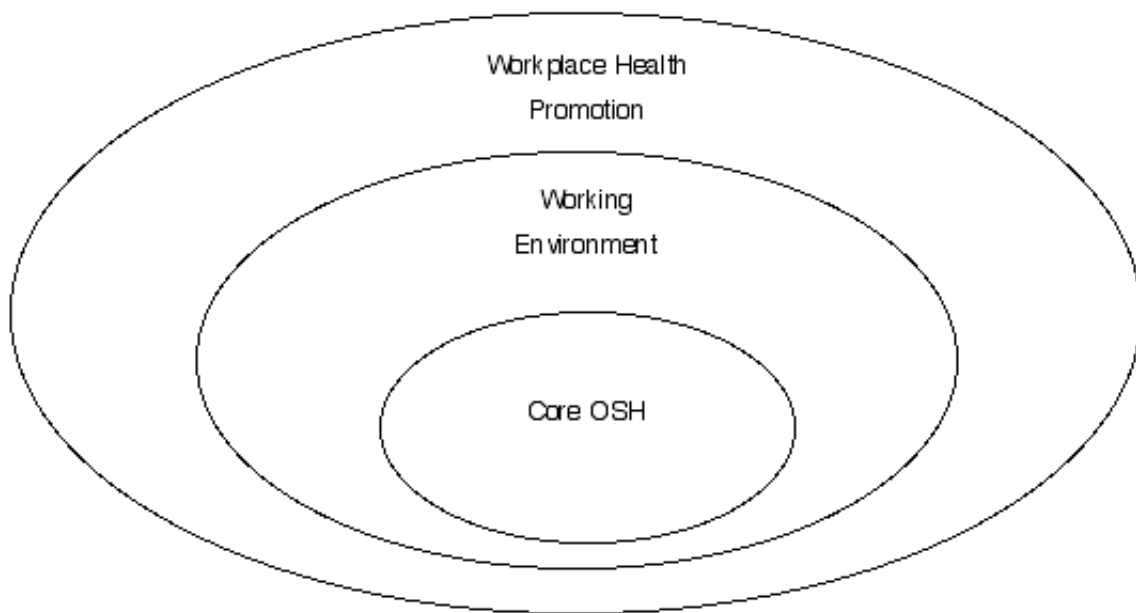


Figure 1.1: Levels of occupational safety and health (OSH).

2. THE LINK BETWEEN EMPLOYABILITY AND OCCUPATIONAL SAFETY AND HEALTH: HYPOTHESES AND KEY QUESTIONS

Employability is a much broader notion than OSH, and therefore, it includes factors and aspects that are not included in the OSH-concept. On the other hand, the strength of the link between OSH and employability becomes weaker moving from the core level towards the softer areas of OSH. This poses a problem for the identification of the link between the two phenomena. On the basis of this, the empirical analysis will focus exclusively on the link between employability and the first two levels of OSH, i.e. core OSH and working environment levels, where the link seems to be stronger.

The complexity of the issue, the lack of reliable data to illustrate many of the aspects and the constraints given by time frameworks, make it necessary to narrow down the analysis to several aspects of the relationship and data sources consulted. In order to have a reference point through out the study, several hypotheses and key questions are proposed below.

2.1. HYPOTHESES

2.1.1. Link between the core OSH and employability

Hypothesis 1:

Lack of preventive OSH measures lead to accidents at work and recognised occupational diseases, which are, in turn, translated into incapacity of employees (complete or partial).

This breaks the interaction between individual resources and work, making employability either disappear (in the case of exclusion from the labour market: fatal outcomes and early retirement) or endanger (in the case when adaptive measures are required or the accident/disease results in a job shift). Therefore by

promoting OSH preventive measures, employability will also be promoted, by avoiding exclusion from the workplace and ultimately from the labour market.

Hypothesis 2:

Accidents at work and recognised occupational diseases lead to work days lost (measured by absence rates) and direct/indirect costs for professional insurance companies.

Hypothesis 3:

Adaptive OSH measures after accidents at work or recognised occupational diseases help to maintain the interaction between the individual resources and work, i.e. employability, and therefore minimise the impact of that accident/disease.

Lack of these measures can lead to job shifts (in the case when the employee is still capacitated to work but in a different position) or, in the worst case, to exclusion from the labour market.

2.1.2. Link between the working environment level of OSH and employability

Hypothesis 4:

An inadequate working environment can lead to other work related illnesses that have not been traditionally recognised by insurance companies. This ill health, in turn, has an impact on the interaction between the individual resources and work, i.e. employability, which is translated into illness related absenteeism. In other cases, the impact can be even stronger, and the result is exclusion from the work place (leading to job shift) or from the labour market (early retirement due to work related illness and cases with a fatal outcomes reflected in the morbidity/mortality rates).

2.2. KEY QUESTIONS

Despite the tentative definition of the links between the phenomena highlighted, key questions, which will be used to evaluate the pilot studies, remain to be answered. These questions must lead the entire data analysis process:

1. What are the problems in the working environment concerned?
2. What are the implications of these problems on the employees' health and/ or safety?
3. What are the implications on the employability of the employees? Does the situation lead to exclusion of employees? Does it lead to job shift?
4. What measures are taken to improve the working environment/ reduce the health impact/ keep them in work?
5. What is the relationship between 'quality of OSH in the company/ organisation' and 'level of exclusion'?

3. INDICATORS

This section includes a list of indicators that could help explain the various elements of the link between Occupational Safety and Health and employability.

3.1. INDICATORS OF OSH MEASURES

3.1.1. Indicators of preventive OSH measures

Indicators of preventive OSH measures could give an estimation of the preventive infrastructure and the working conditions in terms of health and safety standards in the workplace. All these indicators should be expressed in relative terms. Direct indicators of OSH measures could be e.g.:

- Percentage of labour force (organisations) covered by inspection authorities;
- Percentage of labour force (organisations) covered by preventive OSH services;
- Percentage of OSH inspectors per organisations to check and/ or advise enterprises;
- Number of inspections/ year carried out in enterprises;
- Types of enforcement actions (advice, improvement actions, prohibition, and prosecution).

In addition, because of the known weaknesses of the indicators above whenever more suitable qualitative information is to be used to describe the preventive OSH measures.

3.1.2. Indicators of adaptive OSH measures

Indicators of adaptive OSH measures could give an estimation of the efforts to minimise exclusion. This could be shown through indicators such as the proportion of attendants in training and related expenditures.

3.2. INDICATORS OF OUTCOMES

3.2.1. Indicators of direct outcomes

The following indicators of direct outcomes might need to be observed:

At the first level: Core OSH

- Rate of accidents at work (fatal accidents and accidents with more than 3 days' absence)
- Rate of occupational diseases

At the second level: working environment

- Rate of non recognised occupational diseases (work related illness/ill-health)

3.2.2. Indicators of the impact of these outcomes on the various actors involved

Accidents at work and occupational diseases have not only an impact on the injured worker per se, but also on the other stakeholders, such as employers, government, insurance companies etc. The impact of the previous OSH outcomes on these actors could be measured by several other indicators:

- Early retirement rates
- Early retirement pensions
- Absenteeism (Lost working days due to accidents at work/ occupational diseases for core OSH, and general sickness absence for the second level). However, one should be extremely cautious with this indicator, since sickness absence (even more than absence from work) is doubtful because of the unclear relationship between individual health, indicators at a societal level (such as rate of unemployment), regulations (legal and economic) and work environment.
- Job shift rates
- Exclusion rates

CHAPTER 2.2: DATA TO DESCRIBE THE LINK BETWEEN CORE OSH AND EMPLOYABILITY.

INTRODUCTION

Accidents at work and recognised occupational diseases constitute the traditional indicators of occupational safety and health (OSH). Although one has to be careful when interpreting traditional OSH data, as they might be too trivial and perhaps misleading, they still remain as very important indicators of

the direct impact of work on the individual's health. Potentially, these indicators can also help to describe the link between core OSH and Employability in a negative sense, i.e. through losses of health, and hence, exclusion from the labour market (temporarily or permanently).

Up until now, most studies have focused on estimating the impact of accidents at work and recognised occupational diseases on the economy as a whole. This paper will try to estimate the consequences on the labour force per se, by looking for examples that can illustrate these effects at both the EU level as well as at the Member State level.

Data will be examined taking as a reference point the hypothesis and questions presented in chapter The purpose of this step of the project is to analyse data on accidents at work and occupational diseases and to see whether examples and trends that illustrate the link between employability and core OSH can be found.

At the European level EUROSTAT data will be analysed. For accidents at work, data collected in the European Statistics on Accidents at Work (ESAW) project will be used, whereas for recognised occupational diseases, data from the Pilot Project on European Occupational Disease Statistics (EODS) will be analysed. At the Member State level data from Italy, Germany and the Netherlands will be investigated, coming from the Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro (INAIL), the German Federation of the Berufsgenossenschaften for the industrial sector (HVBG) and the Dutch Ministry of Social Affairs respectively . These three countries serve as mere examples of the national data collection systems.

SECTION 1: DATA COLLECTION BY MEANS OF EXAMPLES FOR DESCRIBING THE LINK BETWEEN CORE OSH AND EMPLOYABILITY AT THE EU LEVEL

1.1. ACCIDENTS AT WORK BASED ON EUROSTAT DATA 1996

The European Statistics on Accidents at Work (ESAW) project was launched by Eurostat in 1990 in order to draw up a methodology for the collection of comparable data on accidents at work in the European Union. From the reference year 1993 onwards data on accidents at work have been collected and published by Eurostat on an annual basis .

Eurostat receives the ESAW data from the Member States' national registers or other national bodies responsible for the collection of data on accidents at work. The ESAW data are occurrence-related and based on administrative sources in the Member States. Mainly, two types of reporting procedures can be identified in the various Member States of the European Union. On the one hand, the insurance based systems, mainly based on the notification of the accidents to the insurer, public or private according to the case. On the other hand the reporting procedures based on the legal obligation of the employer to notify the accidents to the relevant national authorities, which is often the National Labour Inspection Service . In this section, 1996 European data will be analysed in order to see whether it helps to illustrate the link between core OSH and employability.

Some definitions

According to the ESAW methodology , an accident at work is defined as "a discrete occurrence in the course of work which leads to physical or mental harm". This definition includes cases of acute poisoning and wilful acts of other persons, but excludes deliberate self-inflicted injuries and accidents on the way to and from work (commuting accidents). The phrase "in the course of work" means whilst engaged in an occupational activity or during the time spent at work. This includes cases of road traffic accidents in the course of work.

Although the definition of what constitutes a notifiable work accident varies across the Member States, all of them cover accidents with more than 3 days' absence from work. Also, it is considered that accidents with more than 3 days' absence from work have a higher reporting level than accidents with less than 3 days' absence from work. Therefore, only accidents with more than 3 days of absence from work are considered by the ESAW methodology.

Eurostat provides data on accidents at work broken down by severity, economic activity, sex, age, size of enterprise, employment status, part of body injured and number of days lost.

The breakdown by severity refers to the differentiation between fatal accidents and accidents with more than three days of absence, where a fatal accident is defined as an accident which leads to the death of a victim within one year of the accident.

The term economic activity of the employer covers the main "economic" activity of the local unit of the enterprise of the victim. The local unit of an enterprise means the geographical location of a business, professional practice, farm, manufacturer or public corporation. The main activity, in turn, is defined as the most important kind of activity in terms of highest number of employees and it is classified according to the NACE Rev.1 classification. Eurostat collects data on accidents at work for nine main NACE branches: Agriculture, Manufacturing, Energy, Construction, Trade, Hotels and restaurants, Transport and Business activities (NACE A, D, E, F, G, H, I, J and K). This means that large sectors such as education (M) and health and social work (N) are excluded from the statistics. One should bear in mind that these excluded sectors represent a large number of workers and furthermore, workers exposed to substantial health and safety risks.

The size of the enterprise is defined in the ESAW project as the number of employees in full time equivalents working at the local unit of the enterprise of the victim. The employment status of the victim concerns the professional status of the victim, in other words, whether the victim was an employee, self-employed or a family worker.

According to Eurostat data, there were around 104.1 million people employed in the EU in the NACE sectors A and D to K in 1996. Within this labour market, over 4.7 million accidents with more than three days of absence and 5549 fatal accidents were recorded for all NACE branches. This means that around 4.6% of the labour force was involved in some kind of accident that year.

1.1.1. Accidents at work by economic activity, severity and sex

Table 2.1 shows accidents at work occurred in the EU in 1996 both in absolute as well as relative terms and broken down by sector of activity. The highest standardised incidence rates (from now onwards incidence rate) of fatal accidents were registered by Construction (13.3 fatal accidents per 100 000 workers), followed by Agriculture, Hunting and Forestry (12.9 fatal accidents per 100 000 workers), and Transport and Communication (12.0 fatal accidents per 100 000 workers). In terms of accidents at work with more than three days of absence, the highest incidence rate was retained again by Construction (8023 accidents per 100 000 workers), followed by Agriculture, Hunting and Forestry (6771 accidents per 100 000 workers), and Transport and Communication (6018 accidents per 100 000 workers). The sectoral breakdown clearly shows that some sectors have more risks associated and therefore a greater impact of OSH on employability can be expected for these sectors

Table 2.1 Accidents at work in EU 15 (1996)

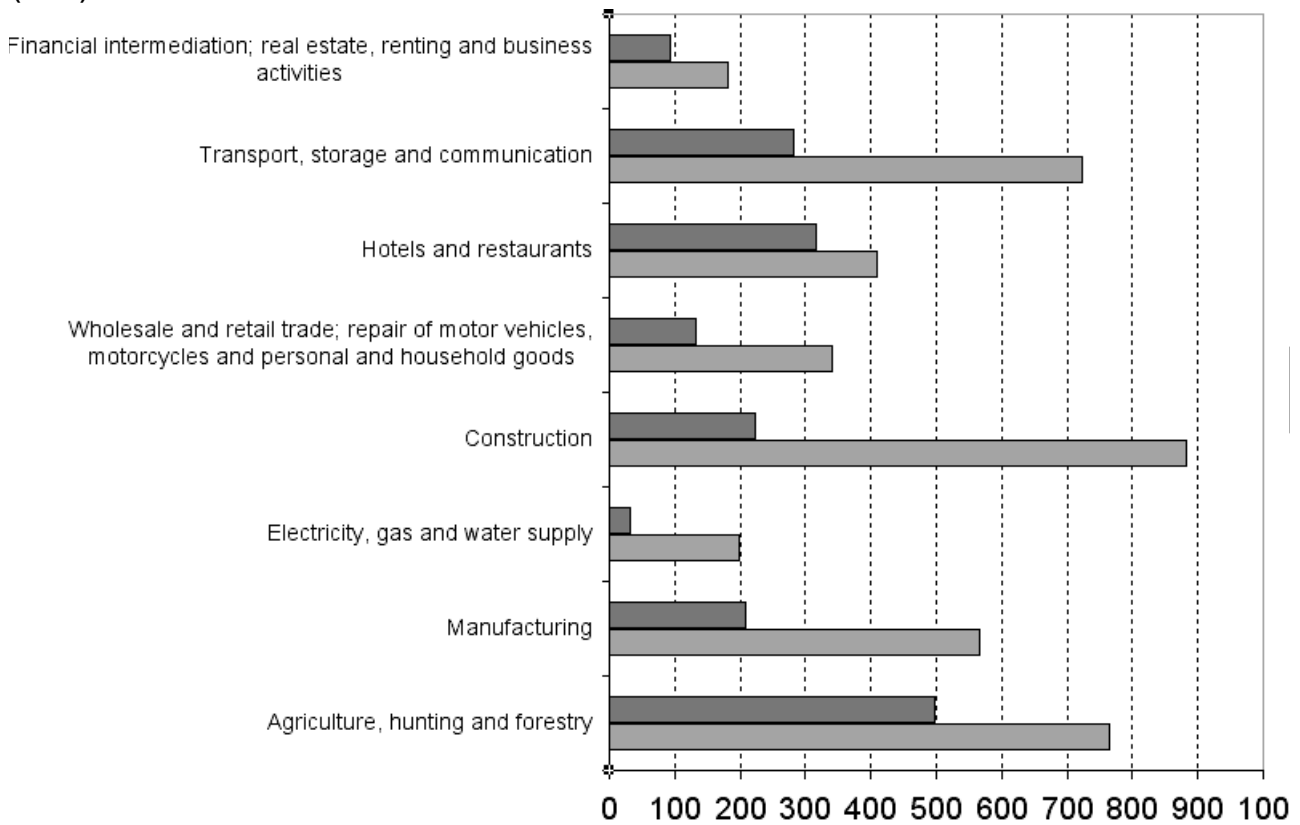
NACE branch ¹⁰		Fatal Accidents		Accidents at work with more than three days of absence	
		Total	Standardised Incidence rate (per 100 000 workers)	Total	Standardised Incidence rate (per 100 000 workers)
	TOTAL (A, D TO K)	5549	5.3	4757611	4229
A	AGRICULTURE, HUNTING, FORESTRY	676	12.9	408666	6771
D	MANUFACTURING	1128	3.9	1357022	4660
E	ELECTRICITY, GAS, WATER SUPPLY	67	5.7	19734	1619
F	CONSTRUCTION	1349	13.3	831000	8023
G	WHOLESALE AND TRADE	486	2.5	491424	2431
H	HOTELS AND RESTAURANTS	53	1.1	176472	3532
I	TRANSPORT AND COMMUNICATION	841	12.0	438973	6018
J+K	FINANCIAL INTERMEDIATION AND REAL STATE	258	1.6	240411	1582

Source: Eurostat - ESAW data

Figure 2.1 and 2.2 show the incidence rates of fatal accidents and accidents at work with more than 3 days of absence respectively broken down by gender and sector of activity. It can be seen that, overall, incidence rates of accidents are considerably higher for males than females. On average, 7.7 fatal accidents per 100 000 people employed were retained for males, whereas the incidence rate for woman was equal to 0.8. Concerning accidents at work with more than three days of absence, for every 100 000 males employed, 5458 accidents occurred in 1996, while for every 100 000 females employed 1924 accidents happened.

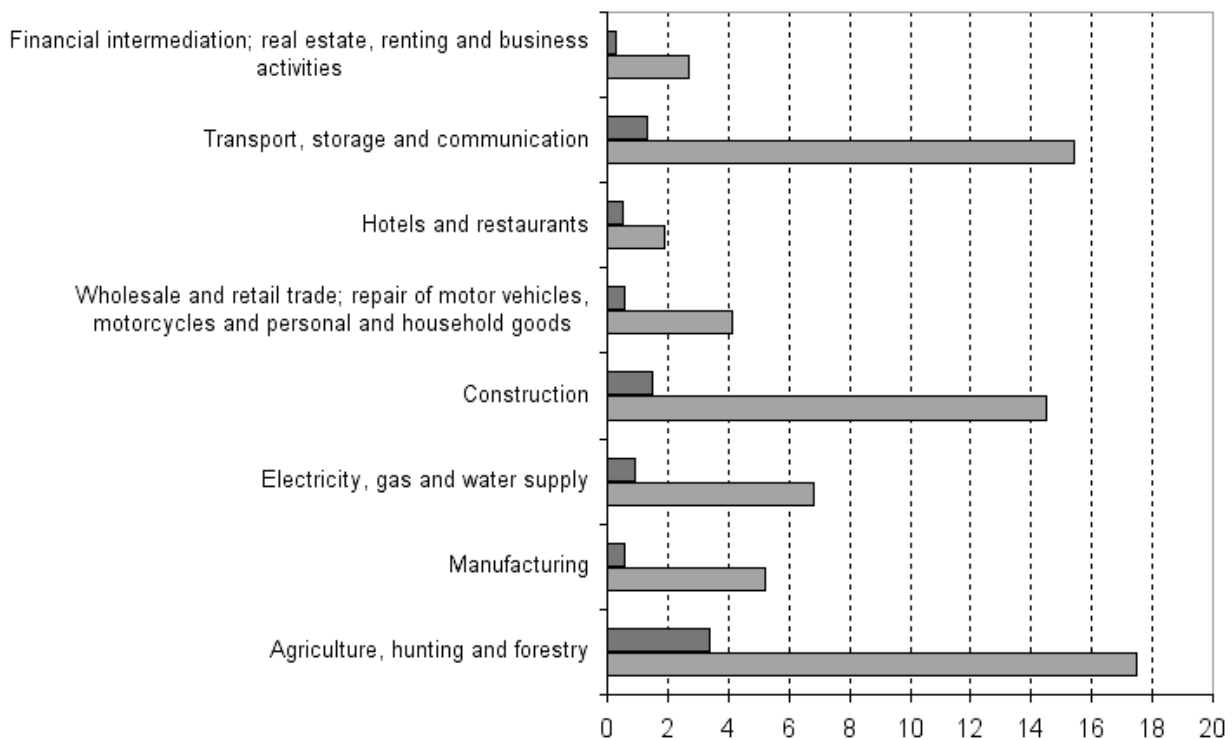
Although overall Construction was the most affected sector, when looking at the breakdown by gender the highest incidence rate for fatal accidents corresponded to Agriculture, Hunting and Forestry (both for males and females). For accidents at work with more than three days of absence, the highest incidence rate for males was retained in Construction, whereas for women it was also in the Agriculture, Hunting and Forestry sector. On the contrary, the lowest fatal accident incidence rates can be seen in the Financial Intermediation sector for women and Hotels and Restaurants sector for males.

Figure 2.1: Standardised incidence rates of fatal accidents at work in EU 15 by economic activity and sex (1996)



Source: Eurostat - ESAW data

Figure 2.2: Standardised incidence rates of accidents at work with more than three days of absence in EU 15 by economic activity and sex (1996)



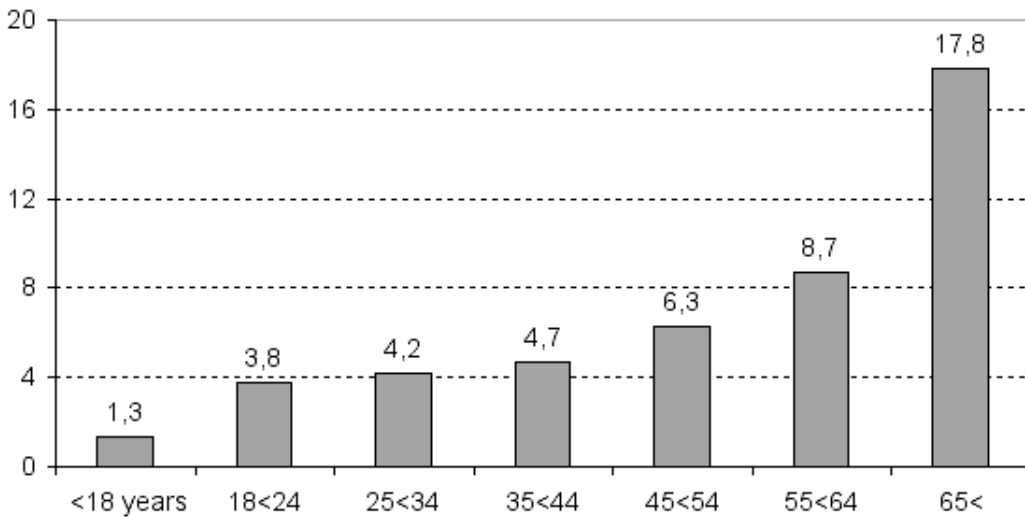
Source: Eurostat-ESAW data

1.1.2. Accidents at work by severity and age

Eurostat differentiates two categories of severity for accidents at work: fatal accidents and accidents with more than three days of absence from work.

Figure 2.3 shows that in 1996 fatal accident incidence rates followed an increasing trend with respect to age. The lowest rate is retained by the under 18 age group (1.3 accidents per 100 000 employed people) and then it maintains an upward trend until the last age group, where the incidence rate is 17.8.

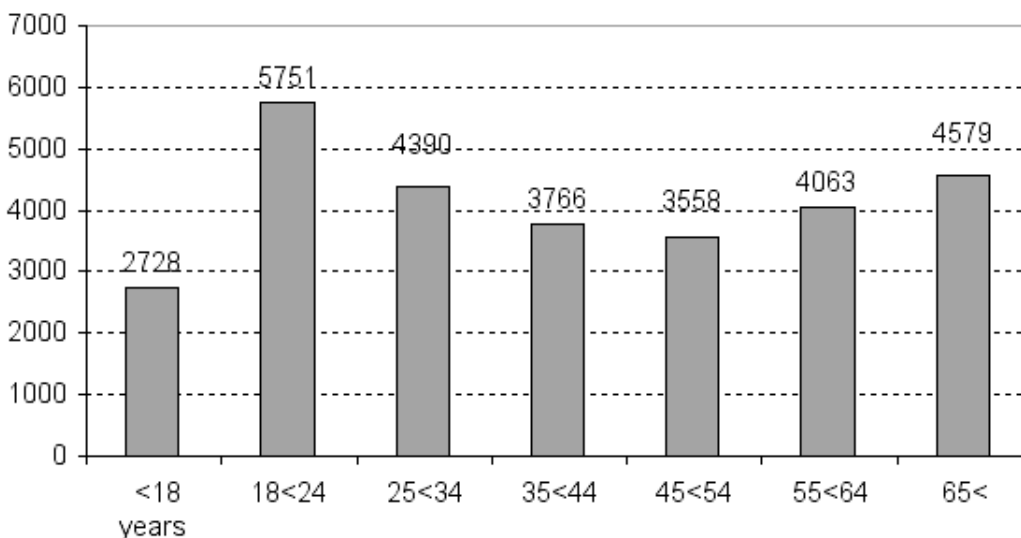
Figure 2.3: Standardised incidence rate of Fatal Accidents at work in EU 15 by age groups (1996)



Source: Eurostat-ESAW data

In the case of accidents at work with more than three days of absence, the pattern revealed by figure 2.4 is rather different. The lowest rate is retained by the under 18 age group. Then the rate goes to a maximum with the 18 to 24 year age group and starts declining, until it finds an inflexion point at the age group 45 to 54, to start raising again.

Figure 2.4: Standardised incidence rate of accidents at work with more than three days of absence in EU 15 by age groups (1996)

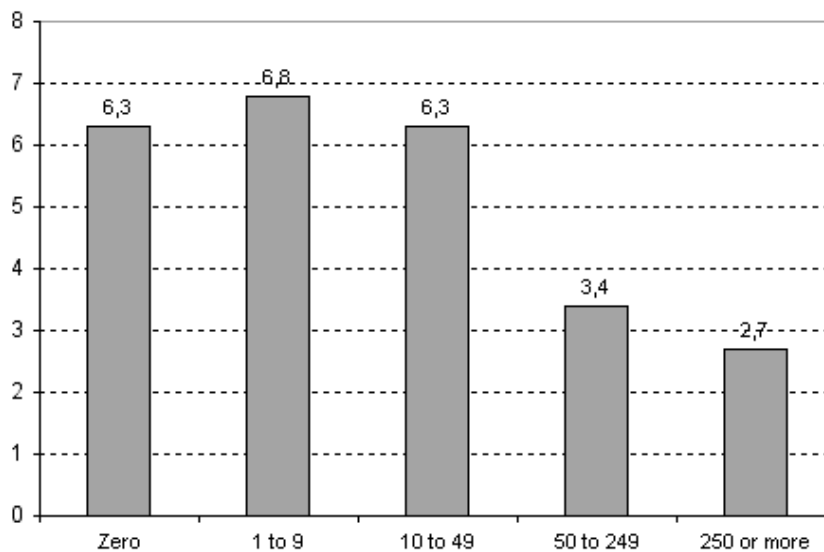


Source: Eurostat-ESAW data

1.1.3. Accidents at work by size of enterprise

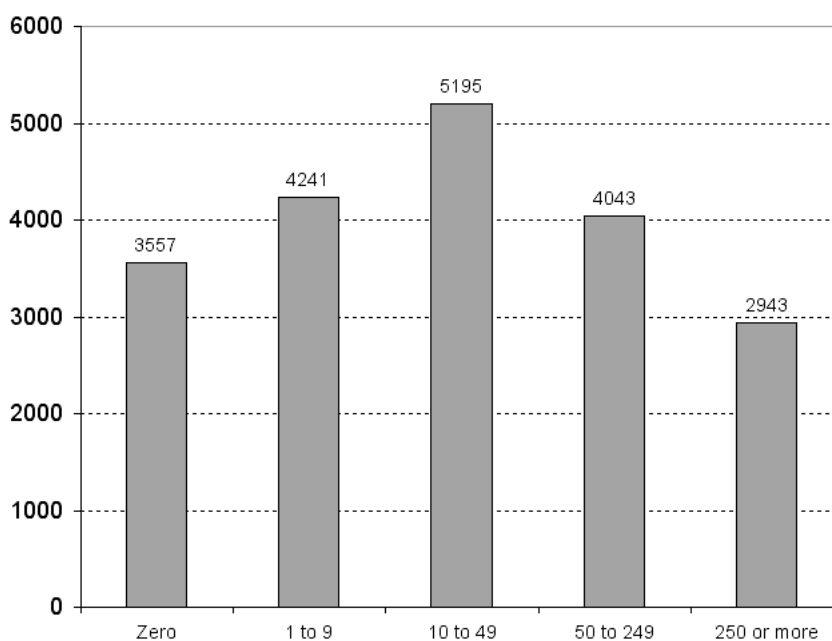
The pattern followed by accident incidence rates related to the size of enterprise in EU-15 plus Norway is shown by figure 2.5. Fatal accident incidence rates (except for the case of self-employed without employees) seem to decrease as the size of the enterprise increases. The incidence rates corresponding to accidents at work with more than three days of absence appear as a concave parabola: they are low for enterprises with just self-employed, they rise as the size of enterprise increases, and decreases again from medium enterprises onwards.

Figure 2.5: Standardised incidence rate of accidents at work in EU-15 plus Norway by size of enterprise (1996)



Source: Eurostat-ESAW data

Accidents at work with more than three days of absence



Source: Eurostat-ESAW data

1.1.4. Accidents at work by part of body injured and number of days lost

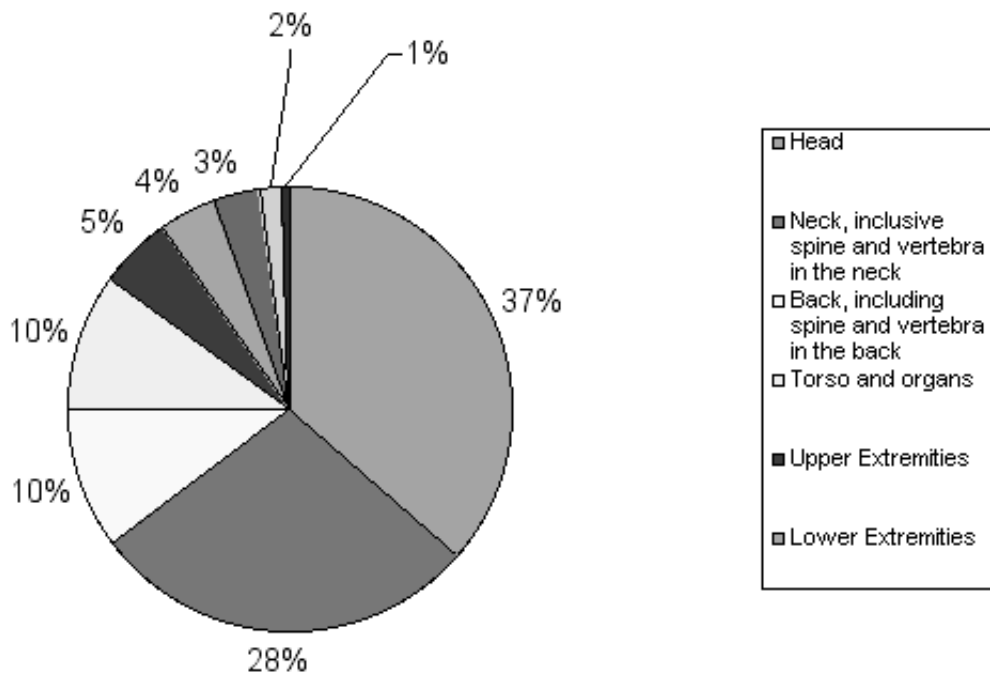
Table 2.2 contains the number of cases of accidents at work by number of days lost and part of body injured. For example, there were 65 638 accidents in 1996 that resulted in 4 to 6 days lost with a head injury in EU 15 plus Norway.

In 1996, 4 832 329 accidents with more than three days of absence occurred in EU 15 plus Norway , corresponding to an incidence rate of 4 229 accidents per 100 000 people in employment. These accidents resulted in approximately between 61 and 113 million days lost, where 52 877 cases that had either permanent incapacity to work or 6 months' absence or more as a consequence were included. This means that for every 100 000 employees in EU 15 and Norway, around 46 were excluded from the workplace at least temporarily (over six months), and some of them could not return to work since the accident resulted in permanent incapacity.

Figure 2.7 shows the percentages corresponding to each type of injury for those accidents at work that resulted in permanent incapacity or more than six months lost. The most frequent type of injury recorded was head injuries (37%), followed by 28% of neck injuries and 10% of back injuries

Number of days lost	Number of days lost					Permanent incapacity (to work) or 183 or more days lost (6 months' absence or more)	Unspecified	Total accidents with more than 3 days absence from work
	4 to 6 days	7 to 13 days	14 to 20 days	21 days to 1 month	1 to 3 months			
Head	66638	71920	24246	18639	32867	4229	233233	451437
Neck, inclusive spine and vertebra in the neck	12704	10714	8619	5466	13414	1534	44761	97999
Back, including spine and vertebra in the back	46363	77011	37296	27263	51708	9307	88805	341970
Torso and organs	26219	46411	26095	20201	34600	4178	86377	246332
Upper Extremities	179664	334215	188573	120728	230429	28962	890739	1972568
Lower Extremities	113175	186876	109004	88602	173775	27988	567003	1280234
Whole body and multiple sites	17005	27803	14486	10962	24628	6040	25183	131542
Other not elsewhere mentioned	678	1039	548	373	567	125	3741	7406
Unspecified	7487	20312	13864	7771	13447	3097	235080	302851
Total	467383	774301	401726	297775	575335	85460	2176922	4832329

Figure 2.7: Accidents at work with permanent incapacity or more than 6 months lost as a consequence by part of body injured (1996, EU 15 + Norway)



1.1.5. Estimation of the direct costs of accidents at work insurance in the European Union

In order to complement the statistics already compiled by the ESAW project, Eurostat carried out two studies on the evaluation of the direct costs of accidents at work insurance, one in 1998 and another one in 2000.

Only 5 countries provided data to Eurostat, i.e. Belgium, Germany, Spain, France and Italy. National data was used to deduce from it an estimate of the total costs at the European level by referring their respective costs to the cumulated wage bills and then applying the resulting rates to the European Union's wage bill.

Data was collected for three variables:

- Medical, pharmaceutical, hospital costs
- Costs of sick leaves
- Costs of the permanent disabilities, fatality cash benefits and the paid-up capitals in once during the reference year for the permanent disabilities compensated according to this method.

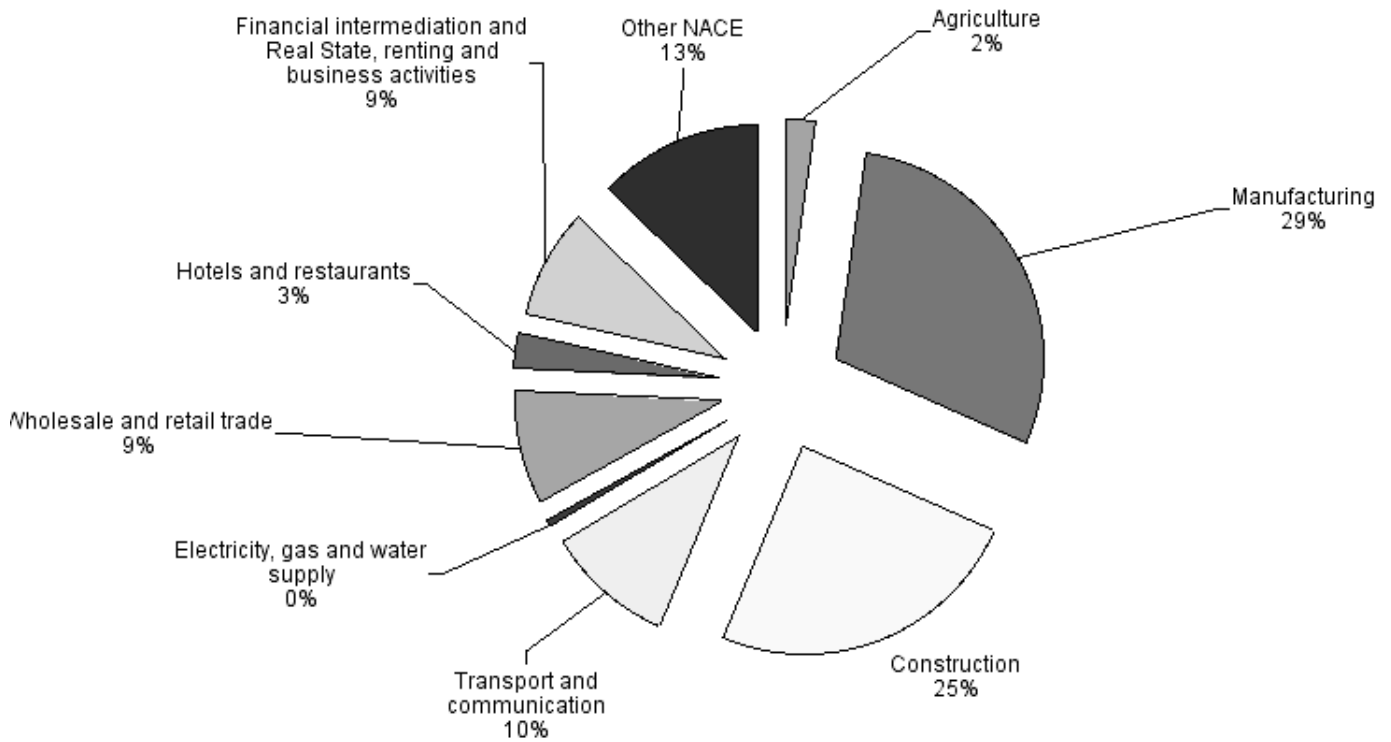
The results of the estimated direct costs of accidents at work to the insurance system for the total EU-15 are presented below. Table 2.3 shows the estimations for 1997. Overall, accidents at work cost the insurance companies over Euro 16 thousand million in 1997, which meant a decrease of Euro 2.7 thousand million with respect to the estimations made for 1994. Of the total costs estimated for all NACE branches, 38 % were for medical and pharmaceutical reasons. 36 % of the costs went to permanent incapacity cash benefits and fatalities and 26 % were sick leave costs.

Around 66 % of the total costs occurred in the high-risk sectors, i.e. agriculture, manufacturing, construction, transport and communication, where accidents at work cost the European Insurance systems over Euro 11 thousand million. As shown in Figure 2.8, the majority of the costs occurred in the

Manufacturing (29%) and Construction (25%) sectors. In these sectors, the highest proportion of the costs was due to compensations for permanent incapacity and fatalities Table 2.3: Estimation of the direct costs of accidents at work by NACE for the EU 15 in 1997 (In million Euro)

Divisions NACE rev 1	Medical, pharmaceutical, in-patient costs	Sick leaves costs	Permanent incapacity benefits and fatalities	Total
I. 9 Common NACE branches				
1. High risk sectors				
A (agriculture) (1, 2)	222	107	80	409
D (manufacturing) (15 - 37) including: <i>DA (manufacture of food prod.) (15, 16)</i> <i>DD (manufacture of wood) (20)</i> <i>DI (products for construction purposes) (26)</i> <i>DJ (basic metals and fab. metal. prod.) (27, 28)</i> <i>DB, DC, DE, DF, DG, DH, DK, DL, DM, DN</i>	1573	1072	2252	4897
F (construction) (6)	1389	1076	1661	4116
I (transport and communication) (30 - 64) including: <i>IG (land transport)</i> <i>IG3 (auxiliary transport activities)</i>	568	554	532	1654
	249	274	261	784
	235	210	208	653
Total high risk sectors	3752	2808	4516	11075
2. Others				
E (electricity, gas and water supply) (40, 41)	33	22	20	75
G (wholesale and retail trade) (50 - 52)	708	408	365	1482
H (hotels and restaurants) (55)	237	163	106	507
K+J (fin. inter. real est., rent., business) (U- /4)	614	434	377	1425
Total 9 NACE	5343	3836	5385	14563
II. Others NACE	923	576	623	2122
Total all NACE	6266	4412	6008	16686

Figure 2.8: Share of the total estimated costs of accidents to work by NACE in 1997



The results in absolute terms can give a biased impression towards the larger sectors. Therefore, the cost of accidents at work for the European insurance systems was calculated as a proportion of the wage bill corresponding to each sector. The results are presented in Table 2.4.

Overall, for all NACE branches, accidents cost the insurance systems about 0.6% of the total European wage bill. According to the breakdown by economic activity, the highest rate was retained by Construction (2.1 %), followed by Transport and communication (1.2 %) and Manufacturing (0.8 %). Although the rate for Manufacturing as a whole was only the third highest, if NACE is considered at the second digit level, it is clear that some subsections are more risky than others. In this sense, well above average costs were estimated for manufacturing of wood and wood products (3.3 %), Manufacture of other non-metallic mineral products (1.5 %) and manufacture of food products, beverages and tobacco (1.3 %).

Although the results obtained by Eurostat are extremely useful for policy makers, the calculations are made on the hypothesis that the situation of the concerned countries is representative of the various situations in all the Member States. Further collaboration from the Member States providing precise data in this field is the only method to improve the results and guarantee its quality and validity.

Table 2.4: Estimation of the direct costs of accidents at work by NACE as a % of the total wage bill for the EU-15 in 1997

Divisions NACE rev 1	Medical, pharmaceutical, in- patient costs	Sick leaves costs	Permanent incapacity cash benefits and fatalities	Total
I. 9 Common NACE branches				
1. High risk sectors				
A (agriculture) (1, 2)	0.2%	0.1%	0.1%	0.4%
D (manufacturing) (15 - 37)	0.2%	0.2%	0.3%	0.7%
including:				
DA (manufacture of food prod.) (15, 16)	0.4%	0.2%	0.6%	1.3%
DD (manufacture of wood) (20)	1.2%	0.7%	1.4%	3.3%
DI (products for construction purposes) (26)	0.3%	0.3%	0.8%	1.5%
DJ (basic metals and fab. metal. prod.) (27, 28)	0.3%	0.3%	0.3%	0.9%
DB, DC, DE, DF, DG, DH, DK, DL, DM, DN	0.2%	0.1%	0.3%	0.5%
F (construction) (45)	0.7%	0.5%	0.8%	2.1%
I (transport and communication) (60 - 64)	0.4%	0.4%	0.4%	1.2%
including:				
I60 (land transport)	0.4%	0.5%	0.4%	1.3%
I63 (auxiliary transport activities)	0.7%	0.6%	0.6%	1.9%
Total high risk sectors	0.3%	0.3%	0.4%	1.0%
2. Others				
E (electricity, gas and water supply) (40,41)	0.1%	0.1%	0.1%	0.2%
G (wholesale and retail trade) (50 - 52)	0.2%	0.1%	0.1%	0.4%
H (hotels and restaurants) (55)	0.3%	0.2%	0.1%	0.7%
K+J (fin. inter. real est., rent., business) (70-74)	0.2%	0.1%	0.1%	0.4%
Total 9 NACE	0.3%	0.2%	0.3%	0.7%
II. Others NACE	0.1%	0.1%	0.1%	0.3%
Total all NACE	0.2%	0.2%	0.2%	0.6%

1.2. RECOGNISED OCCUPATIONAL DISEASES BASED ON EUROSTAT PILOT DATA 1995

Following the Pilot Project on European Occupational Disease Statistics (EODS) launched in 1991, Eurostat has collected data on recognised occupational diseases in the 15 Member States of the EU for the year 1995 (for 31 selected items of the European Schedule of Occupational Disease). Each Member State reports data according to their national recognition system. These data are complemented with a questionnaire on the coverage, which helps Eurostat to assess the comparability and quality of the data.

The evaluation of the data revealed various factors restricting comparability: (1) Definition of the reference population, (2) Varying inclusion criteria, (3) The coding of the medical diagnosis and (4) Differences in the recognition of mild cases. Taking its restricted comparability into account, and hence, being cautious when interpreting the data, such data still remains very useful for prevention and evaluation of the direct impact of work on the individual's health.

According to the 1995 pilot data, there were 57 444 cases of occupational diseases that year in the EU. The number of cases varied from 17 in Luxembourg to 20 216 in Germany. The three most frequent occupational diseases were noise-induced hearing loss (18 419 cases), allergic or irritative skin disease (8 767) and respiratory allergy (4 543) (See Annex 2.3).

Due to the great variation on the workforce covered by the compensation schemes in each country as well as the problems in diseases with a long latency time, Eurostat filtered the reference population in the LFS according to the EODS questionnaire information. Although the filtered reference population is not ideal either, it gives a better estimation of the incidence of occupational diseases on the European workforce. Table 2.5 shows the standardised incidence rate of occupational diseases in EU 15 by sector of activity, relative to the total and filtered workforce.

The differences in the coverage across industries can clearly influence the total incidence of certain occupational diseases. There were over 148 million people employed in Europe in 1995. However, only 86.7% of the workforce were covered by compensation schemes. This means that overall, for every million workers, 446 cases of occupational diseases were recorded that year. The analysis of the data on occupational diseases by NACE sectors taking the filtered workforce as a reference population showed NACE C (Mining and Quarrying) as the highest risk sector with an incidence rate of 11 992 diseases per million people employed in the sector. Regarding the other sectors, most diseases were retained by "Manufacturing" (24 513 cases in total, with an incidence rate of 825 diseases per million workers. High incidence rates were also retained by the "Construction" (762 diseases/million workers) and the "Electricity, gas and water supply" sectors (536 diseases/million workers).

Table 2.5: Occupational diseases in the EU 15 (1995)

NACE branch ²²	Employment			Occupational diseases		
	Total (in 1000s)	Filtered		Total	Unfiltered ²³ per million workers	Filtered ²⁴ per million workers
		% of unfiltered	(in 1000s)			
TOTAL	148406	86.7	128668	57444	387	446
A AGRICULTURE, HUNTING AND FORESTRY	7593	67.2	5102	1854	244	363
B FISHING	236	44.7	105	29	123	275
C MINING AND QUARRYING	648	87.5	567	6760	10432	11922
D MANUFACTURING	31114	95.5	29714	24513	788	825
E ELECTRICITY, GAS AND WATER SUPPLY	1356	84.1	1140	611	451	536
F CONSTRUCTION	11632	84.9	9876	7530	647	762
G WHOLESALE AND TRADE	22388	86.3	19321	2380	106	123
H HOTELS AND RESTAURANTS	5830	82.6	4816	684	117	142
I TRANSPORT, STORAGE AND COMMUNICATION	8939	89.4	7991	1306	146	163
J FINANCIAL INTERMEDIATION	5198	97.1	5047	193	37	38
K REAL ESTATE, RENTING AND BUSINESS ACTIVITIES	10301	86.6	8921	917	89	103
L PUBLIC ADMINISTRATION AND DEFENCE	11411	68.1	7771	813	71	105
M EDUCATION	9838	81.4	8008	345	35	43
N HEALTH AND SOCIAL WORK	13368	94.8	12673	3289	246	260
O OTHER COMMUNITY, SOCIAL, PERSONAL SERVICE ACTIVITIES	6648	88.2	5864	1142	172	195
P PRIVATE HOUSEHOLDS WITH EMPLOYED PERSONS	1422	92.8	1320	23	16	17
Q EXTRA-TERRITORIAL ORGANISATIONS AND BODIES	132	96.4	127	26	197	204
NO RESPONSE	353	78.6	277	5029	14246	18125

Source: Eurostat-EODS pilot data

If Member States are considered individually, the highest incidence rate can be observed for Finland , where 1 720 cases of occupational disease were registered per million workers. Belgium retained the second highest occupational disease incidence rate, with 1 690 cases of occupational disease per million workers. However, the data on recognised occupational diseases reflect not only the occurrence of such diseases, but inevitably also the way in which the concept of an occupational disease has been integrated into the social security system. These figures strongly depend on whether the Member State recognises also mild occupational diseases without medical disability, or not. The high rates retained by Finland and Belgium can be explained by a wider recognition system, as well as a more extent coverage of workers. If only cases with a certain minimum disability are considered, less variation can be observed. Cases of occupational diseases with more than 20% disability are shown in Table 2.6. It can be observed that in 1995, an average of 95 people per million workers in the EU suffered of more than 20% disability due to occupational diseases.

Table 2.6: Number of cases, workforce and incidence rate (/million) of occupational diseases in the EODS pilot data.

Country	N	Total workforce		Filtered workforce			
		All cases		All cases		Cases with > 20 % disability	
		Workforce (million)	Incidence (/million)	Workforce (million)	Incidence (/million)	N	Incidence (/million)
EU15	57444	148.41	387	128.64	447	12177	95
B	4580	3.79	1210	2.71	1690	1412	521
DK	1734	2.6	667	2.55	680	77**	30**
D	20216	35.78	565	35.57	568	4318	121
EL	92	3.82	24	1.89	49	83	44
E	2857	12.03	238	9.72	294	n.d.***	
F	7411	22.06	336	15.26	486	765	50
IRL	129	1.26	102	1.23	105	13	11
I	6085	19.94	305	19.3	315	2135	111
L	17	0.16	105	0.16	105	n.d.***	
NL	321	6.78 *		5.88 *		n.d.***	
A	1412	3.68	384	3.63	389	n.d.***	
P	1201	4.42	272	2.85	422	311	109
FIN	3133	2.02	1550	1.82	1720	707	388
S	1617	4.13	391	4.13	392	n.d.***	
UK	6639	25.94	256	21.94	303	2305	105

* The incidence rates are not calculated for NL, as the data represent only a selection of companies.

** For DK, cases exceeding 35 % of disability.

*** No data available for disability of most cases in E, L, NL, A and S

1.3. THE 1999 LABOUR FORCE SURVEY AD HOC MODULE ON ACCIDENTS AT WORK AND OCCUPATIONAL DISEASES

The 1999 Labour Force Survey (LFS) included an ad hoc module on health and safety, where especial attention was paid to what happens with the workability of those that have suffered an accident at the workplace or an occupational disease.

The technical aspects of the implementation of the LFS are laid down in agreement with the National Statistical Institutes. These, in turn, are responsible for selecting the sample, preparing the questionnaires, conducting the direct interviews among households, and forwarding the results to Eurostat in accordance with the common coding scheme. Eurostat devises the programme for analysing the results and is responsible for processing and disseminating the information forwarded by the National Statistical Institutes.

Following the prescriptions from Eurostat, all the Member States, except for Belgium, France and Austria carried out the corresponding survey in the second quarter of 1999. Italy and the UK completed it in the third quarter, whereas the Netherlands will be doing it proximately.

With the data so far received, Eurostat has built up several tables that are of great interest for this study, both regarding accidents at work as well as occupational diseases.

Although the detailed methodological notes have still not been provided, the data was presented at Eurostat in a workshop held on 30th October 2000, and then discussed again in the Employment Statistics Working group on 18-19 January 2001.

With the data received from the Member States plus Hungary, Eurostat calculated averages for these countries. The main relevant data for this study are presented below.

1.3.1. Development of work ability of people having suffered an accident at work

Table 2.7 presents the effects of accidents at work on the individual's work ability. As seen from this table, 84.3 % of the people that suffered an accident are working at the moment, whereas 7.2 % have not returned to work for various reasons. When looking at data broken down by gender, it can be seen that there are not major differences across sexes. Overall, most workers have returned to work and continue doing their earlier work, although 2.5 % had to change their sphere of work or their workplace. 1.6%, in turn work part time as a consequence of the accident.

7.2 % of the total males and females that suffered an accident at work have not returned to work because they have not recovered yet, whereas 0.2 % became absolutely disabled to work

Table 2.7. Development of working ability of persons having suffered 1 or more accidental injury in EU-9 plus Hungary (work ability after the last accident)

Working ability		Total	Males	Females
		%	%	%
Works at present		84.3	84.7	83.5
	Continues earlier work	80.3	80.7	79.9
	Had to change sphere of work or workplace	2.5	2.5	2.5
	Works in part time after accident	1.6	1.5	1.6
Not working, because		7.2	7.3	6.9
	Has not recovered yet	5.0	5.2	4.4
	Became absolutely disable to work	0.2	0.2	0.1
	Other reason	2.0	1.9	2.3
Unknown		8.5	8.0	9.6
Total		100.0	100.0	100.0

Source: Eurostat- Ad hoc LFS module

1.3.2. Return to work after having suffered an accident at work

Table 2.8 gives an estimation of how much time a worker needs on average to return to work after he/she has suffered an accident at work. According to the Eurostat averages most workers return to work after 1 to 3 days (17.2 %), although a considerable amount of injured people take between 2 weeks and a month to start working again (15.7 %). 3.7 % take three months or more to return to work.

Table 2.8. Date of starting to work again after the last accident in EU-10 plus Hungary

Date of starting to work	%
Less than one day	12.3
1 to 3 days	17.2
4 to 6 days	10.7
at least 1 week less than 2 weeks	6.9
at least 2 weeks less than 1 month	15.7
at least 1 month less than 3 months	10.2
3 months or more	3.7
no time off work	4.2
not applicable	6.8
unknown	12.4
Total	100.0

1.3.3. Return to work after a work related health problem during the last 12 months

Table 2.9 provides an estimation of the days of sickness benefit following a work related health problem complaint. Although 28.9 % of the workers had less than one day off, 19.7 % of the had a sick leave of 3 months or more due to their most serious work related health complaint during the last 12 months and 13.8 % expects never to do paid work again due to this illness.

Table 2.9. Number of days off work due to the most serious complaint in EU-10 plus Hungary

Days of sickness benefit	%
Less than one day	28.9
1 to 3 days	5.4
4 to 6 days	5.4
at least 1 week less than 2 weeks	6.4
at least 2 weeks less than 1 month	8.3
at least 1 month less than 3 months	8.6
3 months or more	19.7
Expects never to do paid work again due to this illness	13.8
unknown	3.5
Total	100.0

SECTION 2: DATA COLLECTION BY MEANS OF EXAMPLES FOR DESCRIBING THE LINK BETWEEN CORE OSH AND EMPLOYABILITY AT THE MEMBER STATE LEVEL

2.1. ACCIDENTS AT WORK AND OCCUPATIONAL DISEASES IN ITALY

2.1.1. The Italian OSH organisational structure

The Italian OSH system is organised around the National Health Service (SSN). The Ministry of Health is the central body of the SSN and its main tasks consist on the national planning and co-ordination of all matters regarding public health.

The National Institute of Occupational Safety and Health (ISPESL), depending on the Ministry of Health, is one of the technical-scientific bodies of the SSN and it operates on all occupational safety and health matters. The ISPESL is organised at the local level with 36 departments. The process of decentralisation that is going on in Italy, assigns to the 19 Regions and 2 Autonomous Provinces the task of regional planning and co-ordination in more and more areas, including OSH. All activities concerning prevention, monitoring, inspection and safety and health at work fall under the competence of the Local Health Agencies (ASL), through their Departments of Prevention, instituted by each Region.

On the other hand, the Ministry of Labour and Social Security plans and co-ordinates the national labour and employment policies and strategies. Labour inspectorates are present at the local level all over the country. The Italian Institute of Social Medicine (IIMS) is an advisory body, under the Ministry of Labour,

devoted to study and research regarding social diseases and prevention tools. A Permanent Advisory Committee for Accidents Prevention and Occupational Hygiene, headed by the Minister of Labour, monitors the application of the legislation, as well as its updating, and is composed of a great number of members regarding all aspects of OSH.

The National Institute of Insurance against Accidents at Work (INAIL) operates under the vigilance of the Ministry of Labour, managing the mandatory insurance funds against occupational accidents and pathologies. The INAIL has regional and local offices all over the country. Based on the notifications received, INAIL publishes data on accidents at work and occupational diseases in the Banca Dati database. The Inail data banks are subdivided into several sections: Data Bank, Data Bank for women (denominated Data Bank in the feminine), Data on disabled, Statistical Observatory, weekly accidents Newsletter. The Data Bank includes statistics useful for prevention purposes, allowing the identification of the most risky activities, and of the geographical areas where accidents happen more often. Moreover, accidents severity rates are estimated, as well as the most frequent ways in which accidents and professional diseases occur in industry and agriculture. The Data Bank is subdivided into the following subject areas: "insured companies", "reported events", "indemnified events", "risk", AND "monthly data". Data are available for accidents at work as well as occupational diseases. Data are also broken down by region, industry branch, type of consequence etc. All the data presented in this section come from INAIL's Banca Dati .

With regard to the coverage of the preventive occupational safety and health services in Italy, all workers employed by an employer are protected during work in all sectors of activity, both public and private . Concerning the number of inspectors, in 1996 there were approximately 17-20 inspectors per 100 000 workers.

2.1.2. Accidents at work

In 1996, according to INAIL data, there were 873 095 cases of accidents at work notified to INAIL in the Industry, Commerce and Service sectors, of which 63 % were compensated. Table 2.10 shows the number of compensated accidents at work in the Industry, Commerce and Service sectors that happened in Italy in

	Employment in thousands	Accidents at work by type of consequence				Average number of days lost	Average compensation Euro
		Temporary incapacity	Permanent incapacity	Fatal	Total		
Total	20014	526860	22572	997	550429	21	670
Males	12829	448578	20326	934	469838	22	686
Females	7185	78282	2246	63	80591	21	580

1996. There were 550 429 accidents at work with an economic compensation registered in Italy that year, in which 95.7% of the victims were male.

Table 2.10: Number of compensated accidents at work in Italy (1996)

According to LFS data, in 1996 there was over 20 million people employed in Italy (15 years and over), of which approximately 64% were males and 36% females. Hence, there was an incidence rate of 4362 accidents per 100 000 workers (In terms of accidents notified). In terms of compensated accidents the overall standardised incidence rate was 2750 per every 100 000 people employed. However, it must be noticed the great difference in incidence rates for men and for women: Males registered an incidence rate

of 3 662 accidents compensated per 100 000 males employed, compared to 1 122 compensated accidents retained by females.

In terms of economic cost for the insurance companies, the average compensation for an accident at work in Italy in 1996 was of Euro 670. This means that accidents at work produced costs for Italian insurance companies of an average of Euro 369 million that year.

With regard to workdays lost, the average number of days lost following an accident at work was calculated to be 21 days per accident. This means that, broadly speaking, over 11 million days in total were lost that year in Italy due to accidents at work. Of course, this involves costs not only for the employee, but also for the employer (in terms of productivity and financial costs) and for the social security system.

Regarding the effect of work on the victim's employability, 95.7% of the accidents resulted in temporary inability, 4.1% in permanent inability and almost 0.2% had a fatal outcome. In terms of standardised incidence rates, for every 100 000 workers, 5 suffered an accident with a fatal outcome, 113 were involved in an accident that left them permanently incapable to work and 2 632 were incapable temporarily.

2.1.3. Occupational diseases

According to INAIL data, in 1995, 28 851 occupational diseases were recognised in the Industry, Commerce and Service sectors by the Italian system (Table 2.11). This means that for every 100 000 people employed in Italy around 145 suffered an occupational disease . Most diseases were recorded in the Manufacturing sector (8 241 cases). However, when one looks at data in relative terms, it can be seen that Mining and Quarrying is the sector most affected by occupational diseases. Here for every 100 000 workers, 478 were recognised to have an occupational disease. High incidence rates are also recorded for Electricity, gas and water supply (308 per 100 000 people employed), Manufacturing (181 per 100 000 people employed) and Construction (138 per 100 00 people employed) sectors.

Table 2.11: Recognised Occupational diseases in Italy in the Industry, Commerce and Service sectors (1995)

NACE branch		Employment			Occupational diseases		
		Total (in 1000s)	% of unfiltered	Filtered (in 1000s)	Total	Unfiltered per million workers	Filtered ²² per million workers
TOTAL		148406	86.7	128668	57444	387	446
A	AGRICULTURE, HUNTING AND FORESTRY	7593	67.2	5102	1854	244	363
B	FISHING	236	44.7	105	29	123	275
C	MINING AND QUARRYING	648	87.5	567	6760	10432	11922
D	MANUFACTURING	31114	95.5	29714	24513	788	825
E	ELECTRICITY, GAS AND WATER SUPPLY	1356	84.1	1140	611	451	536
F	CONSTRUCTION	11632	84.9	9876	7530	647	762
G	WHOLESALE AND TRADE	22388	86.3	19321	2380	106	123
H	HOTELS AND RESTAURANTS	5830	82.6	4816	684	117	142
I	TRANSPORT, STORAGE AND COMMUNICATION	8939	89.4	7991	1306	146	163
J	FINANCIAL INTERMEDIATION	5198	97.1	5047	193	37	38
K	REALESTATE, RENTING AND BUSINESS ACTIVITIES	10301	86.6	8921	917	89	103
L	PUBLIC ADMINISTRATION AND DEFENCE	11411	68.1	7771	813	71	105
M	EDUCATION	9838	81.4	8008	345	35	43
N	HEALTH AND SOCIAL WORK	13368	94.8	12673	3289	246	260
O	OTHER COMMUNITY, SOCIAL, PERSONAL SERVICE ACTIVITIES	6648	88.2	5864	1142	172	195
P	PRIVATE HOUSEHOLDS WITH EMPLOYED PERSONS	1422	92.8	1320	23	16	17
Q	EXTRA-TERRITORIAL ORGANISATIONS AND BODIES	132	96.4	127	26	197	204
NO RESPONSE		353	78.6	277	5029	14246	18125

Source: INAIL and Eurostat

Of the total recognised occupational diseases only 11 % were compensated (See Annex 2.4). Within the compensated diseases, 72 % resulted in permanent incapacity, 23% in temporary incapacity and 5 % had a fatal outcome. According to the data, for every 100 000 workers, 11 suffered an occupational disease that left them unable to work.

Hypoaacusis and deafness caused by noise, was undoubtedly the most frequent disease (37 % of the cases), followed by skin diseases (6 %) and silicosis (4 %) (See Annex 2.5).

2.2. ACCIDENTS AT WORK AND OCCUPATIONAL DISEASES IN GERMANY

2.2.1. The German OSH organisational structure

The German system of occupational safety and health is divided into public safety and health provisions and occupational safety and health of the statutory accident insurance funds (UVT).

The UVT include the industrial employers' liability insurance funds (HVBG), the agricultural employers' liability insurance funds and the liability insurance funds of the public sector. All companies, establishments and administrations are subject to compulsory membership, ensuring insurance coverage for industrial accidents and occupational diseases for all employees in Germany. The UVT, and hence, any benefits in the case of industrial accidents and occupational diseases, are funded by employers' contributions. It is the task of the UVT to take any suitable action to prevent industrial accidents, occupational diseases and work-related health hazards. As self-governing bodies under public law, the UVT have the power to issue accident prevention regulations. Monitoring and enforcement of the regulations are the responsibility of the technical inspection institutions of each UVT.

The dualism of the system also applies to the field of labour inspection. In the public occupational safety and health administrations a rate of 14.6 supervisors per 100 000 employees was calculated for 1997. In the field of accident insurance funds, 5.5 supervisors per 100 000 insurance relationships were computed.

In Germany, the industrial professional associations (Gewerbliche Berufsgenossenschaften-BG) are the institutions responsible for statutory accident insurance in industry. The HVBG is the Federation of the Berufsgenossenschaften for the industrial sector, and since 1969, it has published a booklet annually, containing figures and long term trends from the BG. This booklet is therefore a good example of existing insurance-based data in Germany.

The BG statistics contain an extraordinary amount of data regarding traditional occupational safety and health indicators. Data are available not only on accidents at work and occupational diseases, but also on accident pensions, contributions, expenditures, prevention, companies, man-hours and full workers etc. All the data presented in this section come from the HVBG.

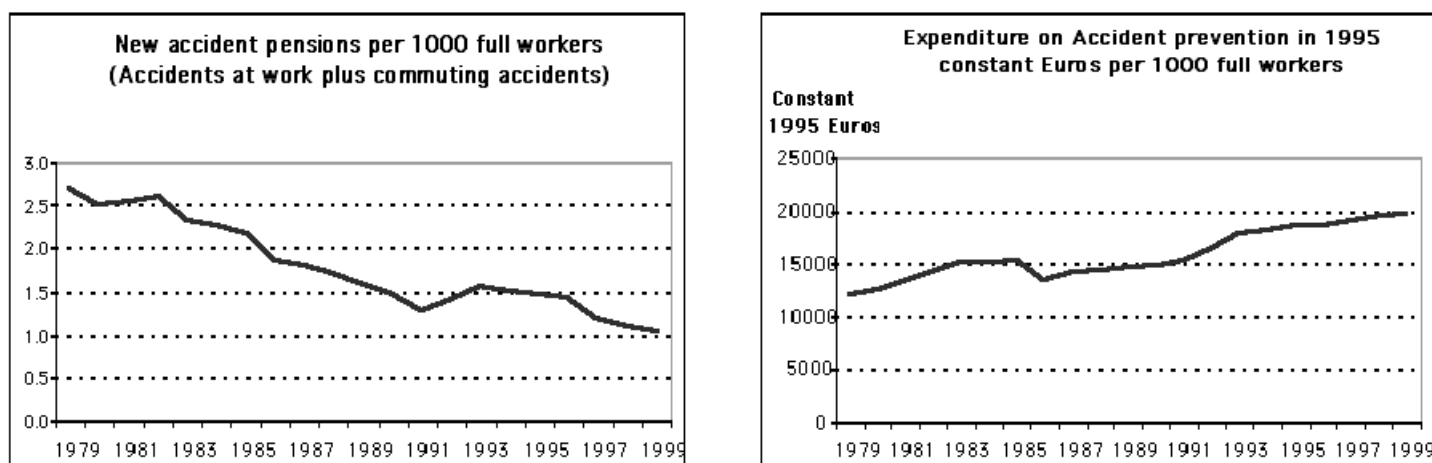
Note to the reader:

The rates of new accident or occupational disease pensions presented in this section are calculated upon the working population of the same reference year as the pension was first paid. This poses a problem especially in the field of occupational diseases, where there may be a long time lag from the moment when the disease was originated to the moment when the pension is recognised. As a result of this, in sectors where a significant structural change has occurred, the results may appear slightly distorted.

2.2.2. Statistics on accidents at work

The analysis of the German data on accidents at work helps to illustrate the link between OSH measures and accidents at work. Figure 2.9 shows the trend of new accident pensions on the one side, and the trend of expenditure on prevention on the other. Both figures are expressed per 1000 full workers. New occupational accident pensions or new commuting accident pensions refer to cases of accidents at work or commuting accidents for which compensation was paid for the first time in the year under review either in the form of a pension, a lump sum or a death grant. It can be seen that since 1979, expenditure on prevention in real terms has followed an increasing trend. On the contrary, new accident pensions have steadily decreased over the same period. Although the decreasing trend of new accident pensions could be explained by other factors too, it is clear from Figure 2.9 that expenditure on prevention and new accident pensions are inversely related. Therefore these data help to illustrate part of the link between OSH and employability, i.e. the first statement of hypothesis 1: "Lack of preventive OSH measures lead to accidents at work". If recognition of a pension is considered as a reflection of an undermined employability due to an accident at work, the assumption that the data also may show the existence of the link between OSH and employability could be made.

Figure 2.9: Accident prevention and accident pensions.



Source: HVBG

Table 2.12 shows the evolution of incidence rates of new pensions for accidents at work by branch of industry. It can be seen that in 1999 Mining was undoubtedly the sector most affected by accidents at work. For every 1 000 workers employed in the mining sector, 3.5 suffered an accident at work that year. Rates well over the average were also recorded for Construction (2.2 per 1 000 workers), Timber (1.6 per 1 000 workers), Pit and Quarry (1.5 per 1 000 workers) and Transport (1.5 per 1 000 workers). If one takes new commuting accident pensions only into account, Mining seems to be still the most affected sector, followed by Leather and textiles, Timber and Chemical industries.

Table 2.12: Accidents at work: New pensions by branch of industry per 1000 full workers (accident rates)

Branch of industry	1960	1970	1980	1990	1999
Mining	14.7	12.1	10.2	7.3	3.5
Pit and Quarry	4.8	4.0	3.2	2.2	1.5
Gas, long distance energy and water	2.5	2.4	1.6	1.0	0.6
Metal	3.5	3.0	2.4	1.5	0.9
Light engineering and electrical engineering	1.6	1.4	0.9	0.6	0.5
Chemicals	2.4	2.2	1.5	1.0	0.7
Timber	5.8	5.0	3.5	2.2	1.6
Paper and printing	2.7	2.1	1.7	1.1	0.8
Leather and textiles	1.1	1.3	1.1	0.8	0.7
Foods	2.8	2.8	2.1	1.2	0.8
Construction	6.1	4.4	4.6	3.2	2.2
Commerce and administration	1.9	1.4	1.1	0.6	0.4
Transport	5.4	4.7	3.2	1.8	1.5
Health service	1.5	1.2	0.5	0.5	0.3
Total	3.4	2.6	2.0	1.2	0.8

Source: HVBG

With regard to the evolution over time, the incidence rates for accidents at work have steadily decreased for all the sectors. Overall incidence rates of accidents at work decreased at an annual average growth rate of -3.7% during the 1960-99 period.

2.2.3. Statistics on Occupational diseases

Table 2.13 shows the cases of occupational diseases in Germany in 1999 by subgroup of diseases. In 1999, there were 72 722 cases of suspected occupational disease notified to the BG. This means that for every 100 000 full workers, about 238 notified the suspicion of an occupational disease, regardless of whether or not the suspicion proved justified.

Table 2.13: Occupational diseases (OD) in 1999 by subgroups of diseases

	Notification of a suspected case of OD	Decided cases					Occupational causation not confirmed
		Total	Occupational causation confirmed				
			Total	Recognised cases of OD			
				Total	Of which new pensions		
1 Conditions due to chemical agents	2585	2627	410	401	247	9	2217
2 Conditions due to physical agents	30055	27549	7504	7384	1478	120	20045
3 Diseases caused by infective agents or parasites including tropical diseases	1758	1689	705	705	94	:	984
4 Conditions of the respiratory passages and lungs, the pleura and the peritoneum	17034	17778	7489	6841	2862	648	10289
5 Skin diseases	19510	19126	8687	1499	468	7188	10439
6 Miner's nystagmus	5	4	:	:	:	:	4
01-93 (GDR)	:	743	178	178	139	:	565
Other diseases	1775	1355	38	38	21	:	1317
Total	72722	70871	25011	17046	5309	7965	45860

In 1999 too, 70871 cases of Occupational Diseases were decided. Of the decided cases, only 35.3 % had an occupational causation confirmed, of which 68.2 % were acknowledged to be recognised occupational diseases. The other 31.8 % of the cases required additional insurance conditions in order to confirm the occupational causation.

The fact that in almost 2/3 of the cases causality was not confirmed may seem worrying. However, the BG explains that part of this is due to the system established for notification of a suspected case of occupational disease. The main reasons may be that:

- All employers and doctors are obliged to notify any suspected cases. Moreover, doctors obtain a financial reward for notification.

- Other social security institutions have a great interest to notify too, as that would reduce their own budgetary implications.
- If an insured person notifies a case, it is handled the same way as when the doctor notifies.
- The BG promotes the notification of suspected cases of occupational diseases through also work related medical checks and surveys carried out in specific enterprises.

However, the proportion of decided cases with an occupational causation confirmed seems to be decreasing over time. In 1993 40.4 % of the diseases reported had their occupational causation confirmed, compared to the 35.3 % in 1999. This could be due to the appearance of new illnesses that have not traditionally been recognised. In any case, and despite the lack of recognition, the fact is that there is a great amount of people whose health has been undermined, and that perhaps looking simply at statistical data on recognised occupational diseases could be misleading.

Nevertheless, looking we can look at data on new occupational disease pensions to obtain an estimation of the effect of ill health due to work on employability. New occupational disease pensions are defined by the BG as those cases of recognised occupational diseases for which the insurance requirements for compensation in the form of a pension or a death grant were established for the first time in the year under review. It should be noticed that these figures could only give a very limited estimation of the effect of occupational diseases on people's employability. This is because a pension is only granted when all the attempts have been made to rehabilitate the person concerned. Therefore statistics on new occupational disease pensions represent only the most severe cases of occupational diseases.

Table 2.14 shows new occupational disease pensions by branch of industry from 1960 to 1999. It should be noticed that these rates should be interpreted with care, since the figures are calculated over the working population of the same reference year as the pension was first paid. In this sense, sectors such as Mining where the working population has decreased considerably over the last decade, may appear with higher incidence rates than what in reality should be due to the lag between the occurrence of the disease and the recognition of a pension. Nevertheless, the rates have been calculated in order to allow for comparability across sectors.

In fact, the table shows that the Mining sector is by far the most affected, with an incidence rate of 905.8 per 100 000 workers in the sector in 1999. Other branches with incidence rates well over the average that year were "Chemicals" (50.1 per 100 000 workers), "Construction" (30.7 per 100 000 workers), "Metal" (31.1 per 100 000 workers), "Timber" (27.5 per 100 000 workers) and "Pit and Quarry" (24.4 per 100 000 workers).

Incidence rates of new occupational disease pensions have been fluctuating in the various sectors since 1960. Overall the incidence rates have decreased at an annual average growth rate of -2.4 %. However, if the evolution of the rates is seen individually by branch of industry, it can be seen that they have only decreased for 3 branches: "Mining", "Pit and Quarry" and "Health Service". Incidence rates of new occupational disease pensions have increased for the rest of the industrial branches, especially on the "Timber" sector, where the highest annual average growth rate was recorded (5.9 %) for the 1960-99 period.

The results indicate that existing quantitative data may be of limited value for quantifying the link between OSH and employability, suggesting that, in any case, quantitative data should be accompanied by other information of qualitative nature. Looking at quantitative data only may be in fact misleading and may underestimate the scope of the problem.

Branch of industry	1960	1970	1980	1990	1999
Mining	970.0	860.0	964.0	444.4	905.8
Pit and Quarry	68.2	48.3	67.4	51.3	24.4
Gas, long distance energy and water	7.0	6.1	9.2	6.6	18.9
Metal	13.5	16.0	46.0	26.1	31.1
Light engineering and electrical engineering	4.6	3.1	7.6	9.7	13.5
Chemicals	16.3	11.4	25.1	37.8	50.1
Timber	3.1	5.9	15.2	19.4	27.5
Paper and printing	3.3	4.0	6.4	5.7	4.3
Leather and textiles	3.3	7.1	14.6	1.5	17.7
Foods	3.4	9.2	9.8	10.8	8.1
Construction	19.9	16.7	22.6	2.5	30.7
Commerce and administration	1.1	0.9	1.2	1.6	3.0
Transport	2.0	2.7	2.1	3.0	8.0
Health service	41.3	43.7	30.6	16.4	9.4
Total	43.6	22.9	27.8	15.7	17.3

Table 2.14: New occupational disease pensions by branch of industry per 100000 full workers

2.2.4. Indicators of OSH preventive measures

The 1999 BG statistics booklet also provides data on prevention practises for that year:

There were 4425 people employed in the technical inspectorate in 1999. 396 016 companies were inspected (13 % of the total companies in Germany that year) and 77 505 accidents were investigated, finding 825 348 safety deficiencies in total. There was 17 976 safety training events that year in Germany, where 348 103 participants were involved (1136 participants per 100 000 full workers in the labour force). That year, there were 361 892 safety delegates, 111 400 industrial safety officers and 490 461 people trained in first aid in Germany (1 182, 364 and 1 602 per 100 000 full workers respectively).

The data show that prevention measures are overall skewed towards high-risk sectors such as "Construction". However, the effects of these measures on workers' employability could not be seen, due to the existence of a time lag between the adoption of the measures and the materialisation of the effects. The HVBG data does not show the results of these measures either.

2.3. ACCIDENTS AT WORK AND OCCUPATIONAL DISEASES IN THE NETHERLANDS

2.3.1. The Dutch OSH organisational structure

The structure of the Dutch OSH-system is organised in a model devised on the analogy of the patient healthcare system: (medical) professionals belong to the first, second etc. line according to their 'distance' to the primary customer, i.e. the patient or client.

Private or public companies and institutions are the primary customers of the available occupational safety and health knowledge and services. The available OSH-knowledge and applications of OSH-knowledge here have to create good working conditions. In the model, companies and institutions are situated in 'line zero'. All other organisations in the system act as operational or strategic knowledge and/or service providers to the organisations located in line zero.

The most important providers are the occupational safety and health services, which are situated on the first line. Contracted by companies or institutions, their mission is to provide the employees with OSH-services. In line two, the OSH research and development (R&D) institutions can be found; who provide with knowledge and services mainly to line one. The third line level, concerns the institutions working at the OSH strategy and policy development level. Organisations situated at this level are: The Ministry of social Affairs and Employment, the Ministry of Health, the Ministry of Education, employers organisations, Trade Unions, the Social Insurance Supervisory Board and research funding organisations. This level has an important impact on all the others. Feedback loops are active between the various levels.

The Dutch Ministry of Social Affairs publishes an Occupational Health and Safety Balance Sheet yearly. This Balance sheet is based on the information from the Surveys conducted by the Central Bureau for Statistics (CBS) and the research carried out by the Health and Safety Inspectorate and aims to create an overview of working conditions in the Netherlands.

This section summarises the data and indicators included in the 1999 Balance sheet. The first chapter of the 1999 Balance sheet refers to working conditions, illness and occupational disability and discusses the effects of unfavourable working conditions on the workers' health. The chapter summarises the situation regarding working conditions and absenteeism due to illness, occupational injuries/illnesses, working conditions and occupational disability and industrial accidents in 1998/1999.

2.3.2. Statistics on working conditions and absenteeism due to illness

Table 2.14 shows the evolution of absenteeism due to illness in the Netherlands from 1996 to 1998 by sector of activity. The table shows an increasing trend of absenteeism due to illness for most of the sectors. It can be seen that overall, absenteeism due to illness percentages are higher for the Government sector than for the Private sector, and are even higher for the teaching staff. Within the private sector, the highest percentages are retained by the "Healthcare and welfare sector". Other sectors with percentages above the average are "Industry", "Energy and water supply companies", and "Transport and communication".

Table 2.15: Absenteeism due to illness (excluding maternity leave) by sector of activity (in %)

	1996	1997	1998
Private sector -			
Agriculture and fisheries	3.4	3.5	3.4
Mining and mineral extraction	3.5	3.3	3.5
Industry	5.2	5.5	6.1
Energy and water supply companies	5.5	5.5	5.8
Building industry	4.3	4.5	4.7
Trade	3.7	3.3	3.6
Hotel and catering industry	3.2	2.7	2.7
Transport and communication	5.4	5.0	5.4
Financial institutions	4.0	3.8	4.3
Commercial services sector	4.4	4.3	4.8
Healthcare and welfare sector	6.7	6.9	7.3
Culture and other government services	3.8	3.8	4.0
Total percentage of absenteeism due to illness in the private sector	4.6	4.6	5.0
Government			
Central government *	5.9	5.7	6.4
Education sector - teaching staff			
Primary education	7.6	7.9	Not available
Special education	7.9	8.7	Not available
Secondary education	6.6	7.0	Not available

Quarterly Survey of absenteeism due to illness; CBS Absenteeism due to illness within the Government; Book of tables 'The labour market within the education sector in the picture' Sectorbestuur voor de Onderwijsarbeidsmarkt (SBO), 1999

As stated in the Balance sheet, research has shown that almost 30% of absenteeism due to illness is related to working conditions. Factors such as heavy physical work, work involving intense mental concentration, work shifts or monotonous work have appeared to be followed by higher absenteeism rates. The fact that absenteeism rates have been increasing in the Netherlands in the past years has made some researches point out that there is a negative correlation between absenteeism due to illness and unemployment. They say that "during periods of strong economic growth when the labour market is relatively scarce, there is less fear of dismissal and less stringent control of absenteeism due to illness" and that "there are also fewer opportunities for employers to select employees on the basis of health or the (supposed) risk of absenteeism due to illness (selection on the basis of risk)". Therefore it can be concluded that absenteeism rates have to be interpreted very carefully, since high rates could be caused, not by a precarious working environment, but rather by external factors such as the economic cycle.

2.3.3. Statistics on occupational injuries and illnesses

Data on occupational illnesses/injuries are collected by the "Reporting occupational illnesses" project that the Netherlands Centre for Occupational illnesses is carrying out. The data collection is based on the reports made by the industrial medical officers employed by the health and safety authorities, which in 1998 were still being submitted on a voluntary basis.

In 1998 there was 1804 cases of occupational illnesses reported, where the victim concerned was male in two thirds of the cases. The most frequently reported illnesses were injuries to the upper extremities (34.5%) followed by deafness due to noise (26.5%) and psychological disorders (13.1%).

However, according to calculations based on the EU average, the number of cases in the Netherlands would amount to 12 000.

2.3.4. Statistics on working conditions and occupational disability

In 1998, almost 110 000 people applied for benefit under the terms of the state occupational disability schemes, which was approximately 1.5 % of the working population. Both in absolute and relative terms, the number of people claiming benefit has increased steadily since 1995.

Research has shown that 35 % of the costs incurred as a result of occupational disability are generated entirely or to a large extent by the work itself . The Dutch Ministry of Social Affairs and Employment is now carrying out investigations to identify connections between working conditions and the probability of subsequent influx into the state occupational disability schemes. The first report of the result of the analyses of the relationship between risk at work and influx into the state occupational disability schemes will be presented in the 2000 Balance sheet.

2.3.5. Statistics on industrial accidents

It is estimated that annually, 175 000 industrial accidents occur in the Netherlands leading to absenteeism due to illness. In 1998 at least 110 000 victims of industrial accidents were treated in the hospital casualty departments. That year, 3700 accidents that involved hospitalisation or permanent injury were reported to the Health and safety inspectorate, representing a slight increase from the 1997 figure. These accidents resulted in 89 death workers, of which the majority were men.

SECTION 3: DATA ON ACCIDENTS AT WORK AND OCCUPATIONAL DISEASES AS AN ILLUSTRATION OF THE LINK BETWEEN CORE OSH AND EMPLOYABILITY; CONCLUSION.

The aim of the analysis of data on accidents at work and occupational diseases was to find examples that could help to illustrate the link between core OSH and employability. This section presents the various examples found at the European as well as Member State level.

Recall the hypotheses 1, 2 and 3 presented in Chapter 2.1 within the framework of the link between core OSH and employability.

Hypothesis 1:

Lack of preventive OSH measures lead to accidents at work and recognised occupational diseases, which are, in turn, translated into incapacity of employees (complete or partial).

Hypothesis 2:

Accidents at work and recognised occupational diseases lead to work days lost (measured by absence rates) and direct/indirect costs for professional insurance companies.

Hypothesis 3:

Adaptive OSH measures after accidents at work or recognised occupational diseases help to maintain the interaction between the individual resources and work, i.e. employability, and therefore minimise the impact of that accident/disease.

3.1. EUROSTAT DATA

3.1.1. Eurostat ESAW and EODS data

Eurostat ESAW and EODS data comprise primarily indicators of direct outcomes, i.e. accidents at work and recognised occupational diseases. Data on number of days lost and economic costs of the accidents are also available. Some initial results of the effects of accidents at work and occupational diseases on the individual's workability have also been achieved.

The analysis of the data showed that there is a considerable amount of people whose employability might have been affected by core OSH causes:

- 4.6 % of the working population was involved in some kind of occupational accident in 1996 in the EU.
- For every 100 000 workers 5.3 had a fatal accident that year.
- For every 100 000 workers 4229 suffered of an accident at work with more than three days of absence as a result.
- 446 workers with an occupational disease for every million people employed were recorded in 1995.

Eurostat data also showed that accidents at work result in a high economic cost for the insurance systems, not only in terms of direct medical costs, but also in terms of sick leave costs and permanent incapacity cash benefits. It was estimated that:

• Accidents at work cost the insurance systems in Europe Euro 16 686 million in 1997.

• These costs amounted to 0.59% of the European wage bill, with Construction being the proportionally most costly sector (2.06% of the total construction wage bill).

Although in a fragmented and limited way, ESAW and EODS data also show the impact of accidents at work and occupational diseases on the individual's employability:

- There were between 61 million and 113 million days lost in EU-15 plus Norway in 1996 due to accidents at work.
- In 1996 in EU-15 plus Norway, for every 100 000 workers, 46 had an accident at work that resulted in permanent incapacity or more than 6 months of absence from work.
- In 1995 in the EU, 95 workers per million employed had a disability greater than 20%, due to an occupational disease.

It is obvious that the employability of these people will be influenced by that relative disability which was originally caused by an occupational disease or accident at work. However, no further information is available on whether the disability leads to a job shift or to exclusion from the labour market.

Overall, data on accidents at work and occupational diseases collected by the ESAW and EODS projects are good examples of the consequences of bad or lack of OSH measures. In other words, they help to illustrate the first part of hypothesis 1 as well as hypothesis 2.

However, they do not give an estimation of the link between OSH and employability. This is because they do not provide a clear picture of the effect of the accidents and diseases on the individual's well being and

they hardly give details about the effect of this undermined health on the individual's employability. Although the data illustrate part of the consequences of the link, this is done in a very fragmented way (Only in terms of number of days lost and some information on disability). So as to be useful to measure the link between OSH and employability these data on accidents at work and occupational diseases should be linked to changes in employment status or job shifts.

On the other hand the quality of the data should also be considered. EODS and ESAW data are based on national accident reporting and occupational disease national recognition systems. This means that reported data are largely influenced by the legal framework that surrounds them. In this sense, experts believe that real figures would be considerably higher than those presented. In fact, large groups of diseases are excluded from the statistics, in particular musculoskeletal disorders, which certainly have a strong impact on employability. Musculoskeletal disorders are fast becoming the greatest health and safety challenge for Europe, as they affect over 40 million European workers (i.e. over 30% of the workforce).

This means that when using EODS and ESAW data to estimate effects on working life, one should notice their strong bias in favour of some types of reported data and suppression of other types, giving therefore a restricted estimation of the link.

Also, ESAW data only cover 9 sectors of activity, excluding sectors like education or health and social work, which are known to be highly affected by health and safety risks. Indeed, it could be seen in the case of the Netherlands that the healthcare and welfare sector reported the highest percentages of absenteeism due to illness. The exclusion of these sectors from data on accidents at work will therefore imply an underestimation of the real link between OSH and employability.

The lack of solid time series that would allow an analysis of the trends results in missing the dynamic aspect of the process. Further developments of these data could perhaps help to illustrate this aspect.

3.1.2. 1999 LFS ad hoc module on accidents at work and occupational diseases

The 1999 LFS ad hoc module on accidents at work and occupational diseases collected very similar indicators to what the ESAW and EODS project did. However, its value added comes from its particular focus on estimating the effect on these accidents and diseases on people's work ability. It could be seen that:

- On average 0.2 % of the people that suffered an accident at work became absolutely disable to work, 1.6 % works now part time, and 2.5 % had to change their workplace (1999 LFS- EU-9 plus Hungary).
- Around 13.8 % of people that suffered an occupational disease expect never to do paid work again due to this illness (1999 LFS- EU-10 plus Hungary).

Therefore the data provided by the LFS helps to illustrate the second part of hypothesis one, since it gives and estimation of the effect of accidents at work and occupational diseases on people's employability (especially in the case of accidents at work).

Another positive feature of these data is that in the case of occupational diseases, data are not restricted to recognised occupational diseases. On the contrary, they take into account all health complaints caused by work, avoiding restrictive estimations of the impact of work on employability.

3.2. INAIL DATA

The INAIL database provides useful information regarding accidents at work and occupational diseases in Italy:

- In 1996, 3 662 accidents at work per 100 000 males employed and 1122 per 100 000 females employed were recorded in Italy.
- In 1995 149 diseases per 100 00 people employed were calculated on average.

The data collected by INAIL provide valuable information with regard to the link between OSH and employability in terms of the direct average consequences of occupational accidents:

- The average number of days lost due to an accident at work:

Considering that the average number of days lost in an accident at work is 21, for a 235 working days calendar, almost 9% of the working days were on average lost by an occupational accident victim. There were over 11 million days lost due to accidents at work in total in 1996.

- Capability to work:

Data on consequences of the accident gives an estimation of the direct link between occupational accidents and the victim's employability. Cases of permanent inability represent loss of work capacity, and hence, are cases of exclusion from the labour market due to an accident at work. 4.3% of the compensated occupational accidents in Italy in 1996 lead to permanent exclusion from the labour market. The other 95.7% were incapacitated at least temporarily.

72% of the compensated occupational diseases resulted in permanent incapacity. Of these, 55% of the cases were due to hypoacusis or deafness caused by noise.

- Average cost for the social security system

The average compensation for an accident at work in Italy was Euro 670, which means a total average cost of Euro 369 million due to accidents at work in 1996.

Therefore, INAIL data also help to illustrate hypothesis 1 and 2. However, there are many parts of the link between OSH and employability that remain unexplained. For example it is not known what happens with these people between the accident and the final outcome: whether they participated in some rehabilitation program, whether they remain working but they had to change work due to an undermined health... Further, no information is available regarding what happens with people after incapacity has been determined.

3.3. GERMAN DATA

German data published by the BG provides an extraordinary amount of information on core OSH measures and outcomes:

- In 1999 0.8 new accident pensions per thousand full workers were granted in Germany.
- New accident pensions showed to have an inverse relationship over time with respect to expenditure on prevention.
- There were 238 notifications of suspected cases of occupational disease per 100 000 full workers in Germany in 1999. However only 56 cases per 100 000 were decided as recognised occupational diseases.
- In 1999 17.3 new occupational disease pensions were granted per 100 000 full workers in Germany.

- 13 % of the companies in Germany were inspected in 1999.
- There were 1182 safety delegates, 364 industrial safety officers and 1602 people trained in first aid for every 100 000 full workers that year.

BG data are of great relevance to learn about the relationship between core OSH and Employability. They help to illustrate hypotheses 1 and 2 in terms of OSH measures, accidents at work and occupational diseases and expenditure on compensation. However, they do not go into detail with regard to the worker's capacity to work or their employability after the accidents or diseases occur. Moreover, whilst BG statistics help to show the link between OSH and employability, they fail to quantify it. One could say that granting of a pension implies recognition of the link between OSH and employability. Indeed, the system compensates the worker (or his/her surviving dependants) assuming that the loss of employability responds to an ill health caused by work. However, these cases only represent the top of the iceberg. BG data on pension recognition only include the most severe cases of recognised occupational diseases. Therefore the statistics on pensions exclude cases where workers still remain employable (perhaps doing another job), i.e. less severe cases of occupational disease, as well as cases where the system does not officially recognise the disease as occupationally caused.

3.4. DUTCH DATA

The 1999 Balance sheet of the Dutch Ministry of social affairs contains data on working conditions, absenteeism due to illness, occupational injuries and illnesses, occupational disability and industrial accidents, based on a reporting system.

Of the data presented the following are of special relevance as examples of the link between OSH and employability:

- 30 % of absenteeism due to illness is related to working conditions such as heavy physical work, work involving intense mental concentration etc.
- In 1998 almost 110 000 people (1.5 % of the population) applied for benefit under the terms of the state occupational disability schemes
- 35 % of the costs incurred as a result of occupational disability are generated entirely or to a large extent by work itself

Dutch data helps to illustrate hypothesis 1 and 2, but it's special relevance comes from being able to quantify part of the link between the working conditions and ill health, and hence also fits into hypothesis 4.

3.5. CONCLUSION: AVAILABILITY OF DATA TO ILLUSTRATE THE HYPOTHESES AND KEY QUESTIONS

Hypothesis 1 and 2 can partially be described by the data on accidents at work and occupational diseases analysed. The data show that accidents at work and occupational diseases lead to both work days lost and incapacity of employees. This could be seen at European as well as National levels. However, less detailed was the data explaining the extent of that incapacity or its effect on employability. Only the 1999 LFS ad hoc module gave a clear estimation of the amount of people whose employability disappeared or endangered due to an accident at work. Also, the lack of indicators on preventive and adaptive OSH measures at the European level disallows seeing the effect of improving the measures on the worker's well-being, through a lower rate of accidents and diseases and lower rates of incapacitated people. The only time when this relationship could be investigated was with the German data, which clearly showed that expenditure on prevention and new accident pensions are inversely related. However, not all the

factors that affect this relationship are known. One of the aspects to be taken into account is the structural change of the economy since the '60s, with a movement of the workforce to less risky sectors, which has resulted in a change of the health problems related to work. The fact that less accident pensions are recognised does not allow concluding that German workers are healthier now, since a number of new illnesses have arisen in the past years (such as stress or musculoskeletal disorders), which do not necessarily imply the loss of employability completely at present, but an undermined work ability. Bearing in mind that ESAW data exclude certain sectors of and that both ESAW and EODS data exclude cases of non-officially recognised occupational diseases, it can be concluded that the quality of these data to estimate the real effect of OSH on employability is limited.

No data was found to illustrate hypothesis 3. The 1999 LFS ad hoc module data showed that a proportion of the people that suffered an accident had to change workplace. However, it is not known whether adaptive measures were taken and what was the effect of these measures in the workers employability. It could have happened that no measures were taken and hence this resulted in job mobility. Or, on the contrary, adaptive measures could have resulted in a new job adjusted to the worker's necessities, who otherwise could have lost their work ability completely.

With regard to the key question 1 presented in chapter 2.1, the problems in the working environment concerned are unknown. Although the strong link between the accident and disease rates and the sector of activity confirms that, indeed, the working environment is a major determinant of an accident or an occupational disease.

Key question 2 is answered by all the data sources analysed. The impact of work on employees' health can be measured by incidence rates of accidents at work and occupational diseases. The health problems suffered by the victims can be seen in the rates of accidents at work by part of body injured or the rates of occupational diseases by type of disease.

Regarding key question 3, data provided by the LFS ad hoc module was of special relevance. These data showed that worker's employability is affected by health troubles generated by work. It could be seen that accidents at work lead to exclusion (0.2 %) and job shift (2.5 %) and reduced ability to work. Occupational diseases also lead to exclusion from the labour market (13.8 %). Besides the LFS data on the effects on work ability, other examples were found of indicators such as incapacity rates, accident pension recognition rates or the rates of recognition of occupational disease pensions.

The analysed data fails to show what measures are taken to improve the working conditions and reduce the impact of work on the worker's health. Similarly it was not possible to see what is the relationship between the quality of OSH in the company/organisation and the level of exclusion.

Most of the analysed data focus on describing the factors surrounding the accidents or diseases, trying to identify those "more risky" situations. Hence, these data can be very useful for prevention practises. Nevertheless, data focus very little on describing the step following the accident or disease. Sometimes it describes the type of injury, or the part of body injured (medical diagnosis), but very rarely the impact on the person's capability to work is fully explained. Most data describe this link partially. For example, Eurostat data makes the differentiation between accidents with a fatal outcome and accidents with more than three days of absence. In some cases, it also gives a breakdown of number of days lost, where one of the categories is more than six months of absence or permanent incapacity. Only the 1999 LFS ad hoc module data provide a more complete picture in this respect, providing a complete breakdown of what

happens with the person's employment status that suffered an accident at work. INAIL data also provide the breakdown indicating whether the accident or disease resulted in permanent incapacity, temporary incapacity or fatal outcome.

Although it helps to understand several parts of the link, currently existing data leave many aspects unexplained, and hence, these data sets are not sufficient to provide a comprehensive picture of the phenomena. The link between OSH and employability can be understood as a two step process: The first step would consist on the direct impact of work on the employee's health. The second step would involve the consequences of that undermined health on the worker's capability to work. The actual existing data helps to describe the first part of the link, but hardly gives an estimation of the second step, i.e. what happens with those workers that suffer of health problems due to work. Moreover, the conceptual framework surrounding traditional statistics may lead to underestimating the real scope of the link between OSH and employability

The need for further data does not imply that the existing data sets are not relevant to describe the link between OSH and employability. On the contrary, these data help to understand the link and the features that ideal indicators should follow. It was clear from the analysis of the data on accidents at work and occupational diseases that there are certain aspects or factors that should be taken into account when trying to measure the link between occupational safety and health and employability. For instance, the link proved to be strongly related to the sector of activity where the worker is employed. Each economic sector has certain risks associated. Different risks result in different occupational diseases or type of injuries and this will affect in a different way on employability. Indicators built upon the entire working population without considering the sector of activity would not be desirable, because they would not take into account the variance of risk of exposure. Another important factor to be taken into account would be time. Indeed, the link between occupational safety and health and employability constitutes a dynamic process rather than a static one, due to the existence of a time lag between the occurrence of an accident (or appearance of the disease) and the impact on the employability of the worker. This pose numerous questions regarding what happens with the worker since the accident happened or the disease initially appeared, until the definite effects on his employability are materialised. Were rehabilitation and adaptive measures taken to avoid exclusion? Did that disability lead to a job shift? Also, during the time lag between the accident and its implication on employability, the enterprise must continue to produce and generally calls for a substitution. For example, the company could recruit a temporary new employee for the design of a new production process that will improve the safety and perhaps mechanise the process itself. Both solutions can have dramatic impact on the employability of the former employee at this very same post. Of course, the outcome will also depend on the country's legal system and its protection to injured workers. The existing harmonised European data on accidents at work and occupational diseases do not yet cover a long enough time series to be able to analyse trends and patterns being developed in this field. In terms of building up indicators, the dynamic character of the phenomena involves many difficulties in calculating the adequate reference population also.

Overall, one could conclude that the existing statistics help to illustrate the link between core OSH and employability but can not be used to give an actual estimation of the link. Firstly, because they would have an strong bias towards traditionally recognised risky sectors and diseases, and secondly because they would underestimate the scope of the problem. Therefore, any analysis based on traditional quantitative data should rather be accompanied by other information of qualitative nature.

It should be noticed that despite the limited quality of Eurostat data to measure the real link between OSH and employability, the results obtained from the 1999 LFS ad hoc module are a sustainable input for data

analysis in the field of core OSH and employability. Further collaboration of the Member States providing the data required would allow Eurostat to construct more complete results.

CHAPTER 2.3: DATA COLLECTION BY MEANS OF EXAMPLES FOR DESCRIBING THE LINK BETWEEN THE WORKING ENVIRONMENT LEVEL OF OSH AND EMPLOYABILITY.

INTRODUCTION

As stated in hypothesis 4, an inadequate working environment can lead to other work related illnesses that have not been traditionally recognised by insurance companies. This ill health, in turn, has an impact on the interaction between the individual resources and work, i.e. employability, which can be translated into illness related absenteeism. In other cases, the impact can be even stronger, and the result is exclusion from the work place (leading to job shift) or from the labour market (early retirement due to work-related illness and cases with a fatal outcome reflected in the morbidity/mortality rates).

In other words, the link between occupational safety and health and employability encompasses more than the direct effect of work on the individual's health, expressed through accidents at work and recognised occupational diseases. Some OSH experts are rather reluctant to reduce the study to the analysis of traditional OSH figures, addressing that they can be too trivial and perhaps misleading. In fact, while the rate of traditional accidents is going down, other type of disorders such as musculo-skeletal problems and stress are increasing.

However, moving from core OSH towards broader levels of OSH, the issue of the link between OSH and employability becomes less clear. In view of this, and the fact that hardly any comparable/harmonised European data exists in this field, the OSH experts that assisted to the Workshop held in June in the European Agency recommended looking at existing case or pilot studies that focused on particular target groups. Within this framework, the purpose of this step of the project is to analyse various European studies in order to find examples that could illustrate the link between employability and the working environment level of occupational safety and health (OSH). Some studies were received from various experts in the Member States, and information was examined taking as a reference point the hypothesis and questions presented in Chapter 2.1.

This chapter presents firstly some European studies that contain information relevant to this project, aiming to obtain a first impression of the phenomena. The second section of the chapter is devoted to a summary review of the literature analysing the relationship between health and unemployment. Finally, the ILO's perspective in the field of OSH and employability is summarily reviewed.

SECTION 1: EUROPEAN STUDIES THAT ILLUSTRATE THE LINK BETWEEN OSH AND EMPLOYABILITY.

1.1. AN ITALIAN STUDY: A CASE STUDY ON HEALTH RELATED OCCUPATIONAL MOBILITY.

1.1.1. Introduction

The Italian Epidemiology Service carried out a case study in 1996 based on data from the integrated information system of the City of Torino, i.e. the so-called Torino Longitudinal Study (TLS) and data from the local health information system. The TLS follows the social and health even statuses and their

relationship of the entire Torino population through time, and the health information system provides data on health related issues such as causes of death, causes of hospital admission, support received from the social workers due to unemployment, etc.

As an example of application of this information system, a paper was presented analysing data on health related occupational mobility. The case study measured to what extent occupational mobility (out of work force, upward and downward mobility) from 1981-91 was related to health conditions in the cohort of 200 000 men employed in Turin during 1981. Unhealthy people showed significant excesses of downward mobility and significant deficits of upward mobility. The authors concluded that the results suggested that some mechanisms of occupational exclusion based on health status may be active in the workplaces, and that specific policies on working conditions could be undertaken in order to tackle the exclusion and avoid the negative effects of health troubles in workers' employability.

1.1.2. Main findings of the study

The paper calculated various indicators, where rates for hospitalised people were compared with rates for non-hospitalised:

- occupational mobility rates
- Educational mobility rates
- Inflows to first occupation
- Social inequalities in mortality
- Mortality by occupational mobility

Occupational mobility and inflows to first occupation are of special relevance to illustrate the link between occupational safety and health (OSH) and employability.

Table 3.1 shows the risk of upward and downward occupational mobility, for the 1981-91 period, among hospitalised people relative to the non-hospitalised (Relative rate (RR)=1). The analysis was based on a cohort of almost 200 000 male adults that were between 30 and 64 years old in 1981.

As seen in Table 3.1, the study revealed that people hospitalised recorded significant excesses of downward mobility and deficits of upward mobility for most social classes. The highest excesses for downward mobility were recorded for managers (26%) and the middle class (21%). The study also showed that people with health problems in the working class had 15% more chance of becoming unemployed than the healthy workers. With regard to the upward mobility, the largest deficit was retained by the working class (18%). The mean size of these excesses of downward mobility and of these deficits of upward mobility was calculated to be around 10-20%.

The mobility of professionals seemed not to be influenced by health status. Indeed, professionals are the only ones that may take decisions on their own occupation without being affected by the constraints posed by the labour market and the work organisation rules.

Although the study confirmed that social mobility in Torino in the '80's was related to health status, the authors noticed that there could be an underestimation of the health related occupational mobility. This is because hospitalisation is not the best indicator of health, selecting only the severe forms of health related mobility. Moreover, the authors also indicated that the ten-year observation period could be too long, since mobility could have occurred in the first year of follow up.

Table 3.1: Health related occupational mobility 1981-91(1) in Torino, according to occupational position in 1981 (Males 30 to 64 years in 1981)

Occupational position in 1981	Occupational mobility 1981-91 ⁽¹⁾	
	Downward	Upward
CONTRACTORS	1.19	0.91
PROFESSIONALS	0.71	1.01
MANAGERS	1.26	0.95
MIDDLE CLASS	1.21	0.8
PETITE BOURGEOISE	1.09	0.88
WORKING CLASS	1.04	0.82
WORKING CLASS	1.15	
UNEMPLOYED	1.05	0.97

Source: Servizio di epidemiologia.

Table 3.2: Health related mobility: Inflows into first occupation in Torino 1981-91 (Males 14 to 29 years old in 1981 MALES 14-29 YRS AT 1981).

Education 1981	Occupation 1991	RR
Senior high school	MANAGERS	0.77
	MIDDLE CLASS	1.06
	WORKING CLASS	1.26
	UNEMPLOYMENT	1.44
University	PROFESSIONALS	0.94
	MANAGERS	0.95
	MIDDLE CLASS	1.13
	WORKING CLASS	2.13

Source: Servizio di epidemiologia.

It was calculated that people with health problems showed about 15% less probability to get a senior high school title and a 30-40% less probability to get a university degree. However, the authors indicated the possibility of a bias in this calculation, since the family social class can directly cause both health problems and low probability of qualification.

The results obtained for health-related mobility into first occupation are displayed in Table 3.2. Concerning people that were in senior high school in 1981, hospitalised people showed a higher probability of becoming unemployed (44%) or going into occupations correspondent to the working class (26%). On the contrary, unhealthy people recorded a 23% less relative probability of getting a first job as a manager. Of course, this is all linked to the fact that they also have a lesser chance of completing a degree in tertiary education.

Similarly, hospitalised people that were at university in 1981, retained higher probability of obtaining a job in occupations of the working or middle class, and lower probability of obtaining an occupation as a professional or a manager. Of special relevance is the relative rate recorded for those that entered the labour market going into a working class occupation: the mobility rate computed for hospitalised people was 113% higher than that of non-hospitalised.

Therefore, the rates given in table 3.2 clearly show that a young man who has been hospitalised has a lower probability to get a job consistent with the expectation based on educational title and viceversa.

1.2. A DANISH PROJECT: HEALTHYBUS

1.2.1. General background and aims of the project

The HealthyBus project began in April 1999 based on the Luxembourg Declaration on Workplace Health Promotion . Initiated by the Danish National Institute of Occupational Health, Department of Epidemiology and Surveillance, it is one of the most comprehensive scientific studies ever made on bus drivers' working and living conditions. It is a 4-year project whose purpose is to initiate systematic health promotion efforts in co-operation with the parties of the bus trade.

The project aims to develop company-related methods in order to strengthen and evaluate health promotion efforts so as to improve health and well being among bus drivers. The study chose the bus driver community since research has shown that overall, bus drivers are not as healthy as other job groups and they do not seem to live as long as other people.

Summarising, the purposes of the healthy bus are:

- To integrate health promotion in the daily operations in order to obtain wide and quick results for a majority of the bus drivers.
- To accomplish lasting improvement of health and well-being.
- To reduce and remove health risks.
- To increase job satisfaction.
- To regain professional pride and a good reputation.
- To attract and recruit bus drivers.
- To develop methods to manage health promotion efforts.

Within this project Work Health promotion is understood as a means to increase an individual's physical and mental resources throughout life, whereas work that reduces a person's resources increases the risk of low quality of life and health. In the same way, a fulfilling private life will benefit working life.

The project was designed in various phases:

1. Development and testing of a questionnaire (October 1999)

2. First round of questionnaires/Surveying (Winter 1999/2000)

3. General analysis of the data

Report to the task group 1 (April 2000)

Report to the haulage contractors and the drivers (From April to June 2000)

Implementation of interventions during year 2000

Until the next round they will follow the conditions of the trade carefully, and methods for measuring the effect of the health promoting efforts will be developed and tested.

4. The second round of questionnaires: Follow-up (Winter 2001)

5. The third round of questionnaires: Follow-up and closing (Winter 2003)

The project will be closed after four years in the spring of 2003.

With regard to the questionnaire study, approximately 3500 bus drivers from some 20 garages in the Copenhagen Transport area will be answering the three questionnaires carried out during the project, even if they leave their job during the project. These questionnaires aim to survey the health and work conditions of the bus drivers, and include questions that will allow assessing:

- job satisfaction

- planning of duties
- the relation between work and private life
- work ability
- physical work environment
- the reputation of the trade
- job demands
- ability to change
- co-operation and solidarity
- relation to the management
- causes for running problems
- educational wishes
- use of written information
- health information
- eating habits
- exercise
- smoking

The project is based on the principles of confidentiality regarding the driver's questionnaire answers, active participation and cross-scientific co-operation.

Although it will take years before it is possible to see the desired effects (such as reduced sickness and increased lifetime among the drivers) it is expected that some effects will be possible to measure at the end of 2002:

1. Increased job satisfaction
2. Integration of the general work environment, health and well being of the drivers as a part of the quality measures of the trade.
3. A strengthened co-operation at all levels.
4. Improved reputation for the occupation
5. Aid to attract and retain bus drivers in the trade.

1.2.2. Results

The first round of questionnaires had a high response rate, with 75% of the 3500 drivers who work in the Copenhagen Transport area providing responses.

The results of the first questionnaire confirmed what initially was thought:

- Bus drivers enjoy their job, and they feel very committed and motivated. However 60% expect that the working condition as a bus driver will get worse in the next two years.
- It is of great importance to the bus drivers that the job has a good reputation. However, 50% believe it is bad.
- Bus drivers suffer of a worse health compared to the rest of the population. Their health is reduced due to a combination of job exposures and unhealthy lifestyle. They also suffer from high levels of stress.
- The questionnaire also revealed operational problems, lack of adequate management in the view of the bus drivers.
- They also appeared dissatisfied with the Traffic Service and the unions.
- 71% of the bus drivers state that the timetables can not be met during rush hours. 62% say it is often difficult to comply with the Road Traffic Act. 50% say that breaks and the stops to balance the time schedule are too short.

After the results were obtained, the task group met for a meeting where all the parties were represented. After that meeting the shop and safety stewards were informed, a report was worked out for each haulage contractor and all garages received a report presenting the results from each garage. The next step was for the parties to work out local goals for changes. Then the parties should plan where, when and what to do. It is the task of the employees and the managers to point out specific initiatives, with the support of the parties' unions and the Copenhagen Transport being crucial.

In view of the results, four main areas to be tackled were identified:

<p>1. Organisation of work. Objective:</p>	<p>Improve dialogue between managers and bus drivers Improve timetables</p>
<p>2. The physical work environment. Objective:</p>	<p>Create a healthy working environment Create a clean and well-designed work place</p>
<p>3. Education, training and qualifications. Objective:</p>	<p>Increase the bus driver's knowledge about the bus and the routes Increase the bus driver's general knowledge so as to improve their professional pride, job reputation and attractiveness of the job</p>
<p>4. Lifestyle conditions. Objective:</p>	<p>Improve bus driver's general health Promote exercise Combat smoking and unhealthy eating habits</p>

Taking into account the problems revealed in the first round of questionnaires, the haulage contractors

Taking into account the problems revealed in the first round of questionnaires, the haulage contractors have designed several activities they have initiated or they are planning to implement, which are summarised in Table 3.3.

Measures				
Haulage contractor	Organisation of work	The physical work environment	Education, training and qualifications	Lifestyle conditions
De Hvrde Busser AS	<p>Introduction of 5 different rotation instead of the same rotation for everybody, aiming to improve the combination between the duty roster and the driver's private life.</p>	<p>Division of driver's premises between smokers and non-smokers.</p> <p>Buy new buses that secure a clean and well designed place for the driver.</p>	<p>Decentralised training in the ticket and zone systems.</p>	<p>Courses on food and diet for drivers and their families.</p>
Arriva Danmark	<p>Education/training of route representatives in order to improve dialogue and demands to authorities.</p> <p>Large project optimising preventive maintenance and injecting resources.</p> <p>Creation of a guide "revive a dead bus".</p> <p>Transfer of resources to night so as to repair the buses before they leave the garage in the morning.</p>		<p>Hire instruction managers for new route training.</p>	<p>Course in healthy lifestyle.</p>
Combus	<p>Appointment of a working group consisting of employees and management representatives.</p> <p>Holiday and timetable planning and testing.</p> <p>Duty rosters.</p> <p>Communication.</p>	<p>Appointment of a committee on technical matters: set maintenance standard, fault complaint book, notice board, bus-radio.</p> <p>Appointment of a committee that will work out plans to avoid stress.</p> <p>Change of cleaning routings, specially at the</p>	<p>Introductory education with professional and qualitative content for new drivers.</p> <p>Design of a new education policy.</p> <p>Short courses according to the needs of the company and the drivers.</p>	<p>Exercise promotion by introduction of wall bars, company teams for various sports, sponsorships, physiotherapy, massage.</p> <p>Improvement of eating habits by: providing information, fruit baskets, loss of weight competition.</p> <p>Anti-smoking campaign.</p>

It can be seen that most measures are being taken in the area of organisation of work, i.e. duty rosters, timetables, communication groups etc. and promotion of healthy lifestyle conditions.

The Greater Copenhagen authority has also planned the following initiatives:

- Review of guidelines for quality control.
- Project co-ordinator recruit.
- Project concerning certified drivers; certificate for basic knowledge.
- Project concerning customer service in relation to the bus routes.

Unfortunately, at present, the effects of these measures and the work place health promotion plans have not been materialised, and hence the influence that improved health and well being can have in the worker's work capacity and job satisfaction could not be measured. However, a follow up of this study through out the second and third rounds of questionnaires could permit obtaining this information.

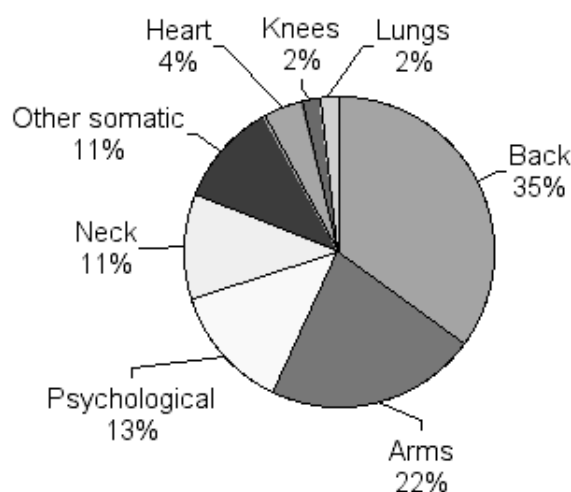
1.3. A SWEDISH PROJECT: GALAXEN.

1.3.1. The aims of Galaxen

Galaxen is a company formed by the six largest contractors in Sweden and the Swedish Construction Federation. The objective of Galaxen is to take care of building workers who are no longer able to work in normal building production as a result of work accidents or wear injuries, by adapting jobs and organising their rehabilitation. This project gives construction workers the possibility to remain at work, despite their disabilities.

Galaxen focuses on construction workers, which have traditionally shown a greater impact of work on their health. Indeed, very few construction workers are able to cope with the hardness of construction work until normal retirement age. Accidents at work and wear injuries lead to very high exclusion rates. It has been calculated that in Sweden only 5 to 10% of the workers in the industry are left at the age of 65. As shown in Figure 3.1, musculoskeletal disorders are most frequent among construction workers. Particularly back problems were the main cause for disabilities.

Figure 3.1: Reasons for disablement prior to Galaxen employment



Galaxen consists of a mother company and regional subsidiaries in every county. Each regional Galaxen has an adoption or adjustment team attached who is in charge of researching possibilities for construction workers who have been left out of production due to a disability. Representatives of the construction employers in the region, the trade union, the State's social insurance office and the local labour market authorities compose these adjustment teams. There must also be medical expertise within the team.

The adjustment team is notified when there is a case of disabled building worker who is not able to remain in the production process due to ill health. Then the team decides whether that worker should be retrained and employed in another sector, early retired or rehabilitated continuing within the construction industry. In this case, Galaxen employs the worker and a rehabilitation plan is designed for him.

The criteria for Galaxen employment are the following:

- 1) Being a building worker;
- 2) Having working ability (preferably above 50%);
- 3) That the State guarantees salary support to compensate for his disability;
- 4) Having a rehabilitation plan for the worker.

If these criteria are met and finding a job locally is possible, the worker is employed by Galaxen. The workplace is adapted to his disability in order to make him work feasible and he follows a rehabilitation plan designed by the adjustment team.

The working period is normally limited. During this period the officers of the regional subsidiaries follow the case and ensure that the adapted employment works. If it doesn't work or the employment period comes to an end, then the worker returns to Galaxen where he has his basic employment, and Galaxen tries to find a new construction company in which he could be allocated.

1.3.2. Results

In November 2000, Galaxen had approximately 1240 people employed, which involves around 1.3% of Sweden's building workers.

It has been found that 25% of employees that left Galaxen went to ordinary employment without any state subsidy. After three years 75% of these are still employed in the trade. It was calculated that for this group, the economic profit for society was calculated to almost Euro 58 000 per person, which reveals a very positive cost benefit calculation for Galaxen's rehabilitation method.

For the rest, 25% were early retired, 6% went to ordinary retirement and the other 44% had other reasons for leaving the trade, such as education, or were unemployed. There was no cost benefit calculations for these groups but interviews suggest that also for them there have been positive effects.

Besides improving their employment situation, Galaxen employees also had their health, self-esteem, as well as their job satisfaction improved. In the evaluation study, 2/3 of the workers stated that health had improved during the Galaxen rehabilitation. Most of them also indicated that their wellbeing and quality of life in general had been raised. The main reasons for this improvement was lighter work, the change of tasks and less time pressure. The belief in oneself and in working life, together with general well being and self-confidence increased for the majority of the workers during their Galaxen time.

1.4. EUROPEAN STUDIES AS AN ILLUSTRATION OF THE LINK BETWEEN OSH AND EMPLOYABILITY;

CONCLUSION

The objective of the analysis of European studies was to gather examples that could illustrate the link between OSH and employability with a wider scope than the traditional OSH indicators, i.e. accidents at work and occupational diseases. This section summarises the examples found that illustrate hypothesis 4 as well as the key questions presented in chapter 2.1

Recall hypothesis 4:

Hypothesis 4:

An inadequate working environment can lead to other work related illnesses that have not been traditionally recognised by insurance companies. This ill health, in turn, has an impact on the interaction between the individual resources and work, i.e. employability, which is translated into illness related absenteeism. In other cases, the impact can be even stronger, and the result is exclusion from the work place (leading to job shift) or from the labour market (early retirement due to work related illness and cases with a fatal outcomes reflected in the morbidity/mortality rates).

1.4.1. Italian case study on health related occupational mobility

Although the Torino Longitudinal Study does not help to illustrate most parts of hypothesis 4, it contains very interesting data and indicators with regard to illustrating the link between health and employability in terms of job shift.

Health related occupational mobility seems to be a good example of the link between health status and employability. Health related mobility rates can be regarded as changes in the interaction between individual resources and work, in other words, alterations of the individual's employability due to health troubles. Indeed for the first time an indicator that provides a quantitative measure of the link between health status and employability is found. For instance, the probability of unhealthy people moving into lower class jobs is about 10 to 20 % higher than that of healthy people. The relative mobility rates appeared as a very good indicator to illustrate the overall measurement of the phenomena. The various types of mobility rates calculated allow estimating the impact not only in terms of the physical ability to access the labour market after having been ill, but also in terms of the intellectual aspect of employability (i.e. in terms of the effects on the educational level). In this sense it was shown that people with health problems had about 15% less probability to get a senior high school title and a 30-40% less probability to get a university degree

Unlike data on accidents at work and recognised occupational diseases, health related mobility rates allow seeing the effect of an undermined health on those workers accessing the labour market for the first time. This is because the definition of unhealthy is much broader in this study: not only it takes into account core OSH but also the working environment and the workplace health promotion levels. The study defines unhealthy people as those who have been hospitalised during a certain period of time, being irrelevant whether the hospitalisation has been due to an occupational accident or disease, or not. However, although the definition of unhealthy person is extensive with respect to the level of OSH comprehended, it is narrow in terms of the degree of sickness that it takes into account. The definition used only selects the most severe forms of health related mobility.

Another positive characteristic of health related mobility rates as indicators of the link between OSH and employability, is that they take the “time” factor into account, since mobility rate is a dynamic concept per se. Although the authors point out that the ten-year period chosen for the study may be too long, it is also true that the time taken for materialisation of the effect of an undermined health in the worker’s employability will depend on the health problem itself.

The fact that the health related mobility rates can be considered as a good indicator to illustrate the link between OSH and employability does not mean that these indicators do not have any drawbacks. These indicators provide a good overall picture, but this is, of course, in the detriment of the particularities and details of the link. For instance, the fact that the study used a general definition of healthy/unhealthy means that there is no estimation of what part of that mobility is due to the direct effect of work on the individual’s health and what part is due to the impact of the general environment or the individual’s own characteristics. The rates calculated in this study rather explain the link between health status and employability. In order to convert these rates in measurement of the link between OSH and employability a more specific definition of what is considered healthy or unhealthy is needed. For example, to illustrate the link between core OSH and employability one could calculate the mobility rates of people that suffered an accident at work or were diagnosed an occupational disease relative to workers that did not. This would provide an estimation of which part of that loss of employability is due to the direct impact of work. It would also be interesting to have these rates broken down by sector of activity.

In general, health related mobility rates help to illustrate the proposed hypothesis 4 except for two aspects. It is not indicated when the undermined health results in an early retirement. It would be desirable to include early retirement as one of the downward mobility categories. The second aspect refers to morbidity/mortality rates. Although the study calculated inequalities in mortality and mortality by occupational mobility, these rates are not of much use to illustrate the link between OSH and employability. For this purpose it would be rather interesting to compare mortality rates due to accidents at work or occupational diseases with general mortality rates.

Another aspect that the health related mobility rates leave uncovered is what happens between hospitalisation and the downward mobility outcome. There is no information whether the downward mobility was due to the loss of capability to work or it was due to the substitution of the worker by another employee or by a mechanised process. Neither it is known whether adaptive OSH measures were taken to minimise the negative impact on the worker’s capability to work. In order to answer these questions, health related mobility rates should be complemented with other indicators. This would entitle us also to understand the aetiology of workplace ill health.

With regard to the key questions, the Torino Longitudinal Study provides a very limited answer to these questions. From the data observed it is not visible what the problems in the working environment that are causing that health related mobility are (Key question 1) and what are their implications in the worker’s health and safety (Key question 2). However, it can clearly be seen one of the direct implications of an undermined health on the person’s employability, this is job shift and exclusion (Key question 3). The study does not provide answers to key questions 4 and 5.

1.4.2. HealthyBus

The information provided by healthy bus gives a great deal of evidence regarding the link between the working environment level of OSH and employability, helping to illustrate part of hypothesis 4. The first round of questionnaires showed that an inadequate working environment and unhealthy lifestyle has

resulted in a worse health of bus drivers compared to other occupations. Although the project is still in an early stage to see the impact of OSH on employability, it helps to answer key questions 1,2 and 4.

The HealthyBus project has revealed several problems in the working environment for the bus drivers (Key question 1). According to the results of the first questionnaire, there are three main areas of the working environment and working conditions that bus drivers complain about:

- Defective physical work environment: One third of the bus drivers state that they drive defective buses at least once a week.
- Lack of communication and dialogue with the management, the Traffic Service, unions and the local shop and safety stewards: Almost half of the bus drivers say that they only get feedback when something is wrong. 29 % say that the management creates insecurity among the employees, and 34 % say that the management does not treat the employees well. 55 % of the bus drivers do not think that the Traffic Service solves problems and other tasks as good as they should. 50 % of the bus drivers do not feel that the unions and shop and safety stewards take well care of the members' interests.
- Inadequate organisation of work: 71% of the bus drivers state that the timetables can not be met during rush hours. 62% say it is often difficult to comply with the Road Traffic Act. 50% say that breaks and the stops to balance the time schedule are too short. Many bus drivers want to influence on the duty roster and Holiday planning.

The problems in the work environment as well as the more unhealthy lifestyle that bus drivers seem to have result in serious implications on the workers' health reflected in the following facts revealed by the first round of questionnaires:

- Compared to the general population, bus drivers complain twice as much about fatigue, headache, palpitations and Musculoskeletal disorders.
- Compared to the general population, they complain three times as much about stomach pain, respiratory troubles, being nervous and melancholy.
- They complain four times more than the general population about digestive troubles.
- They show high levels of stress, although it is not so pronounced when compared to other occupational groups.

In view of the problems in the working environment and bus drivers' health revealed by the first round of questionnaires, various measures were taken by the haulage contractors and the Greater Copenhagen Authority, which help to answer key question 4. The measures can be grouped in four areas of action:

1. Improvement of organisation of work and communication with the management
2. Improvement of the physical work environment
3. Education, training and improvement of qualifications of bus drivers
4. Improvement of eating habits and lifestyle conditions of bus drivers

No information was found to answer key question 3, nor key question 5. However, a follow up of the results of the next questionnaires could allow seeing this aspect as well as seeing the effects of workplace health promotion on the bus drivers' employability. The effects of the workplace health promotion plans have not been materialised yet and hence, a follow up of the results of the study should be carried out in order to see what are the effects of the undertaken OSH measures on the workers health and their employability.

1.4.3. Galaxen

The target population in the Galaxen project is particularly relevant for our study. The health of construction workers has demonstrated to be especially affected by work. Indeed, they always appear with the higher rates of accidents at work and occupational diseases. Also, the general effect of work on their well being has been translated into higher early retirement rates than other occupations. The fact that the link between OSH and employability in this group is noticeably stronger than other occupational groups makes it especially interesting for the study of the link between OSH and employability. In other words, this is a very representative group of these workers whose employability has been affected by a health undermined due to work.

The information given by Galaxen helps to illustrate the hypothesis 4 in the field of rehabilitation and reintegration into the workplace. Galaxen information showed that work has a strong impact on construction worker's health. For example in November 2000 there was about 1240 people with a reduced working ability employed by Galaxen (1.3 % of Sweden's construction workers).

With regard to the health problems suffered by construction workers in Sweden (Key question 2), these can be seen in the reasons for disablement prior to Galaxen. The most frequent reasons for disablement were problems with the back (35 %) and the arms (22 %) and psychological disorders (13 %). This undermined health results in the worker being unable of carry on doing his normal tasks and requires adjustment of workplace to the workers necessities (Key question 3), which is precisely what Galaxen aims to.

Therefore, Galaxen itself is an answer to key question 4, in other words, Galaxen is a rehabilitation measure taken by the Swedish Construction Federation and the contractors. The results obtained by Galaxen so far are a good example of how OSH measures can improve the working environment and therefore, reduce the impact of bad health and ultimately keep workers at work. Most measures consisted in translating workers into lighter work and reducing the time pressure.

Concerning the effect of these measures on worker's employability, Galaxen has shown that 25% of the workers have been able to reach reemployment and 6 % reached the ordinary retirement age. Even if the rehabilitation measures were taken, health troubles caused early retirement for 25 % of the workers, and the other 44 % had other reasons for leaving the construction sector (such as education or unemployment). Besides the effect of the OSH measures on the person's employment status, OSH adaptive measures also affected positively the worker's health and their self-esteem, job satisfaction, general well being and quality of life.

Answers for key questions 1 and 4 were not found in the information received from Galaxen.

Overall one can conclude that the three studies presented above are very good efforts to identify and influence important factors to promote employability. These cases show that OSH measures are important for the maintenance and promotion of employability. These cases show the great value of qualitative data in measuring the link between OSH and employability.

SECTION 2: STUDIES ANALYSING THE ASSOCIATION BETWEEN HEALTH AND UNEMPLOYMENT

During the past years a debate had arisen regarding the relationship between health and unemployment. Different authors have analysed whether the fact that unemployed people seem to be more unhealthy and have higher mortality rates is due to the unemployment status itself or due to the fact that unhealthy people have a higher risk of losing their jobs. In this sense, two major competing explanations to the relationship between health and unemployment have been addressed, i.e. selection and causation.

Selection refers to the hypothesis that individuals with a poorer health are at a higher risk of unemployment. On the contrary, the causation hypothesis states that the experience of unemployment itself may have a negative impact on the individual's health.

In the context of this study, the selection explanation is particularly interesting. If it can be proved that people that become unemployed are not a random sample and that their current situation is related to their prior health status, then evidence can be found to support the importance of controlling the effects of work on the person's employability. In other words, that would emphasise the relevance of measuring the link between OSH and employability, and thus the rationale of this project. To understand the causation hypothesis is also important though, especially in terms of reemployment and adaptive OSH measures in order to reinsert workers into the labour market.

However, the most interesting information that can be drawn from these studies relates to the methodology used. Most of these studies have faced problems when trying to obtain data to illustrate their hypotheses in the field of the link between general health and unemployment, which made them often the studies open to question from a pure methodological point of view. An analysis of the methodologies used in these projects can certainly help for future development in measuring the link between OSH and employability.

This section summarises some of the papers that have been presented and their findings, aiming to learn about the methodologies they used and the type of indicators they constructed.

2.1. ESTIMATING THE INFLUENCE OF HEALTH AS A RISK FACTOR ON UNEMPLOYMENT: A SURVIVAL ANALYSIS OF EMPLOYMENT DURATIONS FOR WORKERS SURVEYED IN THE GERMAN SOCIO-ECONOMIC PANEL (1984-1990), BY J. ARROW.

2.1.1. Aims of the study and methodology.

In 1996, a study testing the negative health selection hypothesis, i.e. poor health poses an unemployment risk, was published. The study used data from the German Socio-Economic Panel (GSOEP), which included over 12 000 respondents of almost 6 000 households. The study used data of German and foreign workers participating in the GSOEP aged 18-64 in 1984 and who were economically active and could be interviewed in 1985, resulting in a sample of 2 424 workers.

The author made an interesting observation with regard to the methodology. In his point of view, if the relevant question is whether poor health rises the risk of unemployment or lowers the chances of re-employment, there are two options regarding the sampling design:

- a. For the case of unemployment: Study of a sample of employed individuals, where health status constitutes a risk factor while the duration of employment becomes the dependent variable of interest.
- b. For the case of re-employment: Study of a sample of unemployed persons looking for a job, where the duration of unemployment becomes the dependent variable and health status is the risk factor.

Therefore, the author designed a regression model where the duration of an employment spell was the dependent variable, and looked at the changes of employment status.

The model had two types of independent variables:

1. Socio-demographic variables: gender, nationality and past labour history.
2. Health related variables:
 - Subjective health status
 - Reported chronic illness
 - Long sick-leaves
 - Disability

2.1.2. Main findings of the study

The author calculated unemployment transition rates for workers sampled in the German Socio-Economic Panel (1984, 1990) which are presented in Table 3.3 below.

Table 3.4: Unemployment transition rates for workers sampled in the German Socio-Economic Panel (1984, 1990) by selected explanatory variables.

All		9,5
Gender		
	Male	9,2
	Female	10,3
Nationality		
	German	9,4
	Turkish	15,1
	Yugoslavian	11,8
	Other (EC)	5,8
Age (1984)		
	18-29 years	10,5
	30-50 years	8,8
	51-64years	11,1
Qualification (1984)		
	Unskilled/semi-skilled	10,4
	Skilled	8,1
Labour history		
	Previous unemployment spell	14,5
	No previous unemployment spell	14,5
Self-evaluation of health		
	No satisfied with health status	11,5
	Satisfied with health status	9,2
Reported Chronic illness		
	Some	11,4
	None	8,7
Sick-leave		
	At least one longer than 42 days	9,5
	None or all less than 42 days	9,5

Source: Arrow (1996)

The unemployment transition rates were higher for people that were not satisfied with their health status and also for these that had reported some chronic illnesses, compared to the workers that were satisfied with their health status and didn't report chronic illnesses respectively.

The analysis confirmed that labour market risks are closely associated to the attributes of social inequalities and the selection hypothesis was proofed in various cases. The results showed that health factors determining unemployment affect different types of workers in different ways. The results also indicated that poor health does not necessarily imply a higher risk of unemployment. Poor health was only linked to unemployment when it concurred with other factors such as being foreigner or female. The paper demonstrated that chronic illnesses or long absence from work for health reasons was positively associated with the risk of unemployment for both foreigners and females.

The paper also showed strong dependence of the results on the existence of previous spells of unemployment.

2.2. HEALTH AND SOCIAL PRECURSORS OF UNEMPLOYMENT IN YOUNG MEN IN GREAT BRITAIN, BY S.M. MONTGOMERY, M.J. BARTLEY, D.G. COOK AND M.E WADSWORTH

2.2.1. Aims of the study and methodology.

This study published in 1996 looks at the relationship between social capital and physical and psychological health potential and unemployment in young men . The study aims to identify health and socio-economic factors in childhood, that are precursors of unemployment in early adult life and to examine the hypothesis that young men who become unemployed are more likely to have accumulated risks to health during childhood.

The authors comment on the “causation” and “direct health selection” hypotheses that have been proposed as explanations of the relationship between health and unemployment. In their opinion, neither direct selection nor causation have been able to explain fully the relationship between unemployment and ill health. In turn, they propose the “indirect selection hypothesis”. According to this, there may be social and individual characteristics, which put individuals at higher risk of both unemployment and ill health.

The authors used 1958 birth cohort data from the national child development study (NCDS), which contains information collected at birth, childhood, adolescence and until the age of 33, and hence permits to carry out a prospective analysis. The NCDS is an ongoing national longitudinal study of all those living in Great Britain who were born between 3 and 9 March 1958.

Three types of measures were used:

- Unemployment history: Full employment history at ages of 23 and 33.
- Measures of health potential: Height at age 7 years and psychological status at age 11 .
- Measure of social capital: Social class at birth and highest educational qualification attained.

The relation among these data was examined by cross tabulation and logistic regression, introducing all the categorical variables as binary dummies in the model. The height and psychosocial variables were fitted as linear terms in the model, and the dependent variable was coded as 0 or 1 representing experience of more than 12 months of unemployment.

2.2.2. Main findings of the study

The results showed that poor social economic conditions in childhood and lack of qualifications were associated with an increased risk of unemployment. Also, men with short stature and poor social adjustment in childhood were more likely to experience unemployment in adult life, even after controlling for socio-economic background, education and parental height. These differences remained when those with chronic childhood illnesses were excluded from the analysis.

For example, the authors calculated the relative odd rates of experiencing unemployment for over one year between ages 22 and 32 according to the child's height at 7 and their psychological health score at 11. These rates are presented below in Table 3.4.

Table 3.5: Rates of relative odds of experiencing unemployment for over one year between ages 22 and 32 according to the child's height at 7 and their psychological health score at 11

Variable	Relative odds	
	Unadjusted	Adjusted
Height at age 7		
1 Shortest	2,90	2,41
2	2,03	1,81
3	1,30	1,23
4	1,19	1,20
5 tallest	1,00	1,00
BSAG score		
1 least maladjustment	1,00	1,00
2	1,45	1,43
3	1,84	1,78
4	2,27	1,96
5 most maladjustment	3,28	2,36

The adjusted relative odds for experiencing over one year of unemployment between ages 22 and 32 years for men who were in the bottom fifth of the distribution of height at age 7 years when compared to those in the top fifth, were 2.41. On the other hand, the adjusted relative odds for experiencing over one year of unemployment between ages 22 and 32 years for men who were in the bottom fifth of the BSAG distribution (most maladjusted) compared with those in the bottom fifth, were 2.36. The results therefore supported the theory that undermined health acts as a predictor of unemployment.

The authors concluded that unemployment may well play an important mediating role between disadvantage in early life and morbidity and mortality in later life. However, they suggested that the concept of indirect health selection does not undermine the argument that the experience of unemployment, or the process of becoming unemployed, can damage physical and psychological health.

2.3. PREDICTORS AND CONSEQUENCES OF UNEMPLOYMENT IN CONSTRUCTION AND FOREST WORK DURING A 5-YEAR FOLLOW-UP, BY LIIRA J. AND LEINO-ARJAS P.

2.3.1. Aims of the study and methodology.

In 1999, a Finnish study was published in the *Scandinavian Journal of Work, Environment & Health* under the title Predictors and consequences of unemployment in construction and forest work during a 5-year follow up.

The study investigated both the selection and causation hypotheses, i.e. whether unemployment is selective according to the person's characteristics and whether unemployment leads to a deterioration in health or life-style. In order to carry out this study, a questionnaire was distributed to a group of 1594 male construction workers and 1556 male forest workers in 1989. Five years later a follow up questionnaire was sent out to the same workers.

For predicting unemployment during follow up, a logistic regression analysis was used and age-adjusted odds ratios were calculated for multivariate models .

2.3.2. Main findings of the study

For the construction workers, the following base-line factors were associated with long-term unemployment during the follow-up:

- age >40 years
- poor subjective health
- smoking
- frequent heavy use of alcohol
- low job satisfaction
- marital status (single)
- unemployment during the year preceding the initial survey

Among the forest workers, the following variables entered the model:

- age >40 years
- frequent stress symptoms
- preceding unemployment

In addition, smoking predicted unemployment among the forest workers with no preceding unemployment and the proportion of regular smokers decreased among the long-term unemployed. Physical exercise was more frequent at the time of follow-up than it was initially, particularly among the unemployed. Stress symptoms increased among the construction workers, but musculoskeletal symptoms decreased significantly among the long-term unemployed. Among the forest workers stress symptoms decreased among the continuously employed and re-employed persons, but musculoskeletal symptoms decreased significantly for all of them.

Overall, the results gave some limited support to both hypotheses, and hence the authors concluded that health as an individual factor has an influence on people's employment status and viceversa. The study proofed that unemployment among construction workers is to some extent dependent on life-style, health, and job satisfaction in addition to age, marital status, and unemployment history. For forest workers, unemployment was less determined by individual factors.

2.4. UNEMPLOYMENT AND HEALTH CARE UTILISATION, BY KRAUT A., MUSTARD C., WALLD R., TATE R.

2.4.1. Aims of the study and methodology.

A more recent study in this subject was published in the Scandinavian Journal of Work, Environment & Health in 2000 under the title Unemployment and health care utilisation.

This study attempted to determine whether prior use of health services predicts a subsequent risk of unemployment and also to describe the acute effects of exposure to unemployment on the use of health care services. This project was designed to test the two competing explanations for the relationship between unemployment and health, i.e. the causal explanation and the selection explanation.

In order to perform the study, the 1986 census records were linked with comprehensive health care information for the period 1983-1989. The study population was a randomly selected sample of labour force participants in the province of Manitoba, Canada. The study compared rates of hospital admission and ambulatory physician contacts between unemployed and employed people across 4 consecutive time periods related to the onset of unemployment.

2.4.2. Main findings of the study

The results showed that hospitalisation increased after a period of unemployment for people without prior mental health care, which gives support to the causation hypothesis. However, people who became unemployed showed not to be a random sample of the labour force according to prior health status. In fact, during the period prior to the incidence of unemployment, the use of both hospital care and ambulatory physician services was higher for those who became unemployed than for the employed group. With regard to people with prior mental health care, it was shown how their hospitalisation rates had increased in the period before unemployment. It could be clearly seen in the study that mental health disorders have negative impacts on labour force participation. The study computed that around 6% of the labour force with a treatment history for mental health conditions had an elevated risk of subsequent unemployment. Indeed, mental health problems in the period immediately prior to the initiation of unemployment predicted unemployment. For example, the authors calculated that among the labour force participants employed in 1985 who had more than 2 ambulatory physician contacts for mental health care in this period (3.5% of the employed cohort in 1985), the risk of 1986 unemployment was 1.57 times greater than for those not in treatment in 1985. Overall, unemployed persons had increased hospitalisation rates before their current spell of unemployment, but much of this difference was due to the subgroup with prior mental health treatment. Indeed, health care utilisation for people without mental health disorders prior to unemployment only predicted unemployment for the subcohort that became unemployed in 1986. However, the authors noted that non-mental health utilisation could not have predicted unemployment for the groups with longer unemployment, since to be officially unemployed one has to be actively seeking work, and those who have chronic illnesses could have selected themselves out of the work force.

Overall, the authors concluded that their results showed evidence to support both the causation and selection hypotheses.

2.5. EVALUATION OF THIS LITERATURE

This section has reviewed various studies analysing the relationship between health and unemployment. The studies examined look at a wider relationship than the one attained in the OSH and employability project. In fact, the previous literature looks at health in a broad sense, without differentiating whether that undermined health was due to the effect of work on the individual or whether it was due to the workers personal characteristics. Therefore, this literature does not help to directly illustrate the hypotheses and key questions presented in chapter 2.1.

Although the scope of this project is narrower than the one the previous literature has looked at, there are a great deal of issues that one can learn from these studies, especially in terms of methodology and project design.

Overall, it turns out from the studies reviewed that investigating the hypothesis that the association between health and unemployment can be explained primarily by the selection of unhealthy workers into unemployment has been constrained by the relative absence of information on health status prior to the incidence of unemployment. Most studies have been based on longitudinal data constructed upon follow up surveys or combination of census data with health care records, and have been based on a specific group of workers. Overall, all studies reveal serious problems arising in the study designs for obtaining the necessary data to empirically verify the hypotheses they propose. In most of the cases, the problem is that there is a lack of appropriate control group or that the study population is not representative of the target population.

The studies previously carried out have once more emphasised the complexity of the subject. The relationship between health and unemployment has been proved to be a complex one. Evidence for both the causation as well as the selection hypotheses (direct and indirect) has been found. However, all of them appear inter-linked, and none of them seem to be sufficient on their own to explain the relationship. In this sense, it could be seen that the link between bad health and unemployment is dependent on other features of the individual, such as gender, nationality, social status, previous spells of unemployment or mental health records.

This makes the choice of the target population extremely important. The results of the study are largely determined by the characteristics of the group that is being analysed. This is of special importance for the measurement of the link between OSH and employability, due to the great variance of the impact of work on the workers' health depending on the sector of activity where they are employed. This means that aggregated data are not convenient if one wants to obtain unbiased results.

Within the employability concept, whether one wants to see the link for the employed or unemployed people makes also a difference when deciding which one is the target population. In the first case, the sample should be built on a group of employed people, taking an occupational safety and health hazard as a risk factor for unemployment. In the second case one should look at people that are already unemployed due to an accident at work or an occupational disease, and look at the evolution of their employment status.

With regard to the models previously used, most of the analyses are based on relative odd rates as well as model regressions. The relative odd rates are compared between employed and unemployed. The regressions are performed most of the time taking an indicator representing employment as the dependent variable and variables related to health and other personal features as the explanatory variables.

With regard to the indicators used as direct measures of health status, most studies have used proxies as a measure, such as health care utilisation rates, hospitalisation rates, subjective health status, chronic illnesses, long sick leaves, disabilities, psychological status etc.

SECTION 3: OSH AND EMPLOYABILITY; THE INTERNATIONAL LABOUR ORGANISATION'S (ILO) PERSPECTIVE.

SafeWork is the ILO's new global programme on occupational safety, health and environment, which focuses on reducing both human and economic losses caused by work.

ILO estimates have shown that besides the 5550 annual fatal accidents recorded by Eurostat (Eurostat, March 2000), there are another more than 3000 fatal accidents from the non-covered workforce. According to the ILO these over 9000 deaths caused by accidents should be complemented by commuting accidents and, in particular, by fatal work-related diseases. On the whole the ILO estimates that there could have been as much as 70 000 work-related fatalities in the EU. Besides, if one takes into account that workers losing their lives at work are often relatively young compared to those dying from other causes, the burden calculated as adjusted life years is much higher (5%) than the share of deaths (2.2%), together with a 4 % loss of GNP .

According to the ILO 50 million workers in the EU have a continuous disability caused by work, often perhaps not enough to prevent employment, but sufficient to reduce employability and the quality of life. If one assumes that only 10 % of these workers have such a serious disability that it renders them much more difficult or impossible to employ, that could be about 5 million such workers, or one third of present total European unemployment, according to ILO estimates.

In view of the amount of people that have become unemployable due to their previous work history or earlier poor conditions of work, the ILO calls for the redesign of work so that workability and employability can be maintained. It is in this context that the ILO's new SafeWork initiative fits. The goals of this OSH initiative are:

- To develop preventive policies and programmes to protect workers in hazardous occupations and sectors;
- To extend effective protection to vulnerable groups of workers falling outside the scope of traditional protective measures;
- To help Governments, and employers' and workers' organisations to be better equipped to address problems of workers' well-being, occupational health care and the quality of working life;
- To document the social and economic impact of improving workers' protection and thereby bring to the attention of policy and decision-makers.

In this context too the ILO has recently conducted a study on mental health at the workplace and employability . The study analysed mental health policies and programmes affecting the workforces of Finland, Germany, Poland, the United Kingdom and the United States. The results showed an increasing incidence of mental health problems, with as many as one in ten workers suffering from depression, anxiety, stress or burnout, which can lead to unemployment, hospitalisation and severely reduced employability.

The report expressed alarm at the widespread costs of these trends. For the employers the costs are felt in terms of low productivity, reduced profits, high rates of staff turnover and increased costs of recruiting and training replacement staff. For the government the costs include care costs and insurance payments as well as the loss of income at the national level. It was estimated that the EU spent about 3-4 % of its GNP on mental health problems. According to the findings of the study, in many countries, early retirement due

to mental health difficulties is increasing to the point where they are becoming the most common reason for allocating disability pensions.

The following are some examples of the findings of the study:

- In Germany, depressive disorders account for almost 7 % of early retirements; depression-related work incapacity lasts about two and a half times longer than incapacity due to other illnesses; and the volume of production lost because of absenteeism related to mental health disorders is estimated at over EUR 2.56 billion annually.
- In Finland, over 50 % of the workforce experiences some kind of stress-related symptoms, such as anxiety, depressive feelings, physical pain, social exclusion and sleep disorders; 7 % of Finish workers suffer from severe burnout, leading to exhaustion, cynicism and sharply reduced professional capacity. Mental health disorders are the leading cause of disability pensions in Finland.
- In the United Kingdom, each year nearly three out of every ten employees experience mental health problems; depression, in particular, is such a common problem that at any given time one in every 20 working-aged Britons is experiencing major depression.

Similar trends were observed in Poland and the US.

These data are clear partial examples of the link between OSH and employability. Furthermore, they are a good example of the impact of work on the individual's health from a wider point of view than the traditional one, taking into account what is one of the most serious problems arising from the new world of work, which is influenced by stress. The high early retirement rates computed in this study make the situation worrisome, giving support for further investigation.

PART III: LOOKING TO THE FUTURE CONCLUSIONS AND RECOMMENDATIONS REGARDING THE MEASUREMENT OF THE LINK BETWEEN OSH AND EMPLOYABILITY

3.1. CONCLUSIONS

3.1.1. General conclusions

This study has shown that the link between Occupational Safety and Health and employability is a complex phenomenon. At the conceptual level, it was observed that the system that links OSH and employability is not well developed yet. Employability in itself is a notion that has no single definition. The fact that employability is a much broader concept than OSH makes it even more difficult to describe the link between them in a simple form. The discussions during the workshop, and the difficulties to reach unanimous agreements on definition, lead to the conclusion that there is a need for additional research in order to specify what is meant by the link between OSH and employability. The concept of employability is a rather new notion; in order to be able to perform an adequate assessment of which parts of employability and OSH are interrelated, further investigations are required. Strengthening the theoretical foundation would allow the development of a series of indicators that could best illustrate and measure this link.

The link between OSH and employability was also shown to be a dynamic process. So as to have a good perception of the link and to be able to measure it, one needs to look at the evolution of the link over time. OSH measures take time to have an effect on the state of occupational safety and health, and in turn, a greater period will be required until these measures have materialised their effects on employability. As a result, one also needs to look at data with the same characteristics. Static data would simply miss out the dynamics of the process, and even the link itself.

Despite the difficulties mentioned above, Diagram 1 is an attempt to describe the link between OSH and employability in a basic model. Although this is a very simple frame, it helps to illustrate the fundamental elements of the link, which can be summarised as follows:

OSH measures aim at preventing risks, at adapting work and workplaces and ultimately at promoting the workers health and safety. The different OSH measures taken determine the state of OSH and have an impact on employability in two different ways:

- Adequate OSH measures improve the working environment and working conditions as well as the workers' physical and mental health. This encourages the interaction between the individual resources and the nature of the work to be performed and increases the quality of work, this having in turn a beneficial effect on employability.
- Inadequate or insufficient OSH measures can result in several outcomes such as accidents at work, occupational diseases or a general work-related ill health. These accidents and diseases can result in temporary or definitive exclusion from the labour market, two outcomes that are dramatic for employability. So as to avoid exclusion, adaptive OSH measures (rehabilitation and reintegration) must be taken. The ill worker then will either return to work (under the same initial conditions or under new conditions, depending on the degree to which the person is affected) or will be pushed towards unemployment or early retirement/pension benefits. Those who return to work (directly or indirectly)

will have their level of employability unchanged if they retrieve the same conditions for similar work or increased if they get back more favourable conditions. In all the other cases (re-employed persons but under different and less favourable conditions, long-term unemployed people and pensioners), the level of employability will be diminished or lost.

In any case, the role of OSH measures is to protect the health and safety of the worker. In other words, it contributes to promote, maintain, and re-establish the interaction between the individual resources and work or employability through creating quality of work.

Diagram 1 also allocates other studies that are being carried out in the field of OSH and employability by the Agency and by the European Foundation for the improvement of the Living and Working Conditions. The Agency's study *The State of Occupational Safety and Health in the European Union – Pilot study* and the *Third European Survey on working conditions (2000)* deals mainly with the working environment and working conditions, and also sometimes with negative outcomes. *OSH and employability – Programmes, practises and experiences* gives an overview of the different types of initiatives in the Member States that aim to increase the employability of workers by using interventions deriving from the field of OSH. All these studies contain valuable information and complement this project.

3.1.2. Availability of data

This study has shown that there is a general lack of complete and harmonised European data capable of sufficiently illustrating the overall link between OSH and employability. However, data have been found in different sources to partially describe the link. Diagram 2 summarises the relevant indicators of OSH measures, OSH outcomes and the impact of OSH outcomes on employability found during this study.

With regard to OSH measures, no indicators were found at the European level. Nevertheless several indicators of OSH measures were found in Germany. Here, the evolution of expenditure on prevention showed an inverse relationship with regard to the evolution of new accident pensions.

OSH outcomes can be positive or negative. Positive OSH outcomes refer to the improvement of working conditions and working environment and to the protection of the physical and mental health of the worker, which, in turn, have a positive impact on employability. Data to describe the working conditions and working environment can be found both in the Agency's *The State of Occupational Safety and Health in the European Union – Pilot Study* as well as in the *Third European survey on working conditions (2000)*. However, no indicator was found to illustrate the link between positive OSH outcomes and employability. It may be possible to obtain these data from future developments of the HealthyBus project.

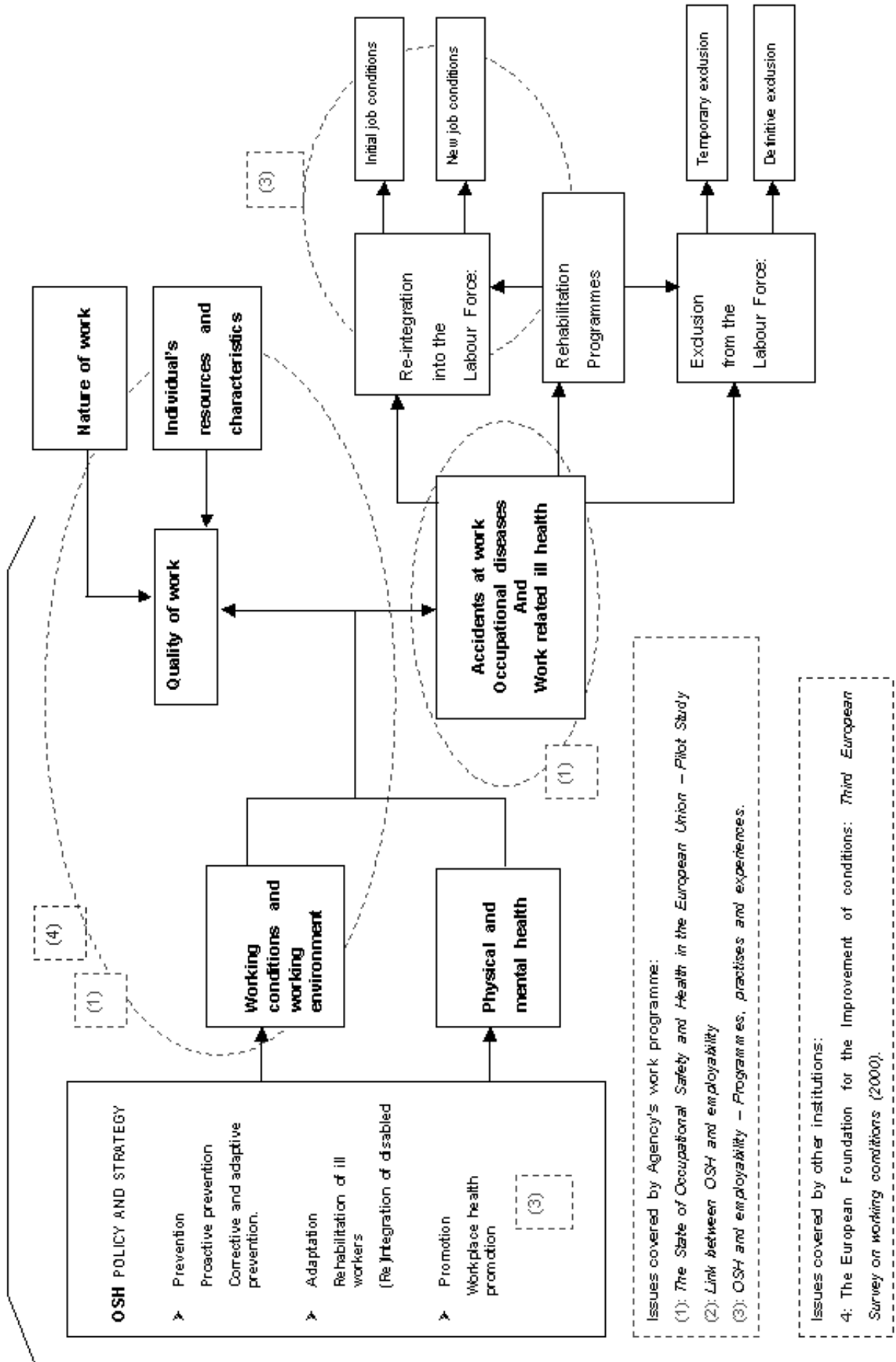
There are plenty of data showing OSH negative outcomes, both at the European and national levels, and especially data relative to accidents at work and occupational diseases. The analysis of the data on accidents at work and occupational diseases helped to understand that there are many features that have an influence on the extent of the impact of work on the individual's health. The sector of activity where the worker is employed, his/her age, his/her gender, the size of the enterprise where he/she is employed etc. showed to be determinant of the risk of suffering an accident at work or an occupational disease. These aspects, of course, also have an influence on the link between occupational safety and health and employability and therefore it can be concluded that carrying out an analysis without taking all these breakdowns into account could lead to biased results.

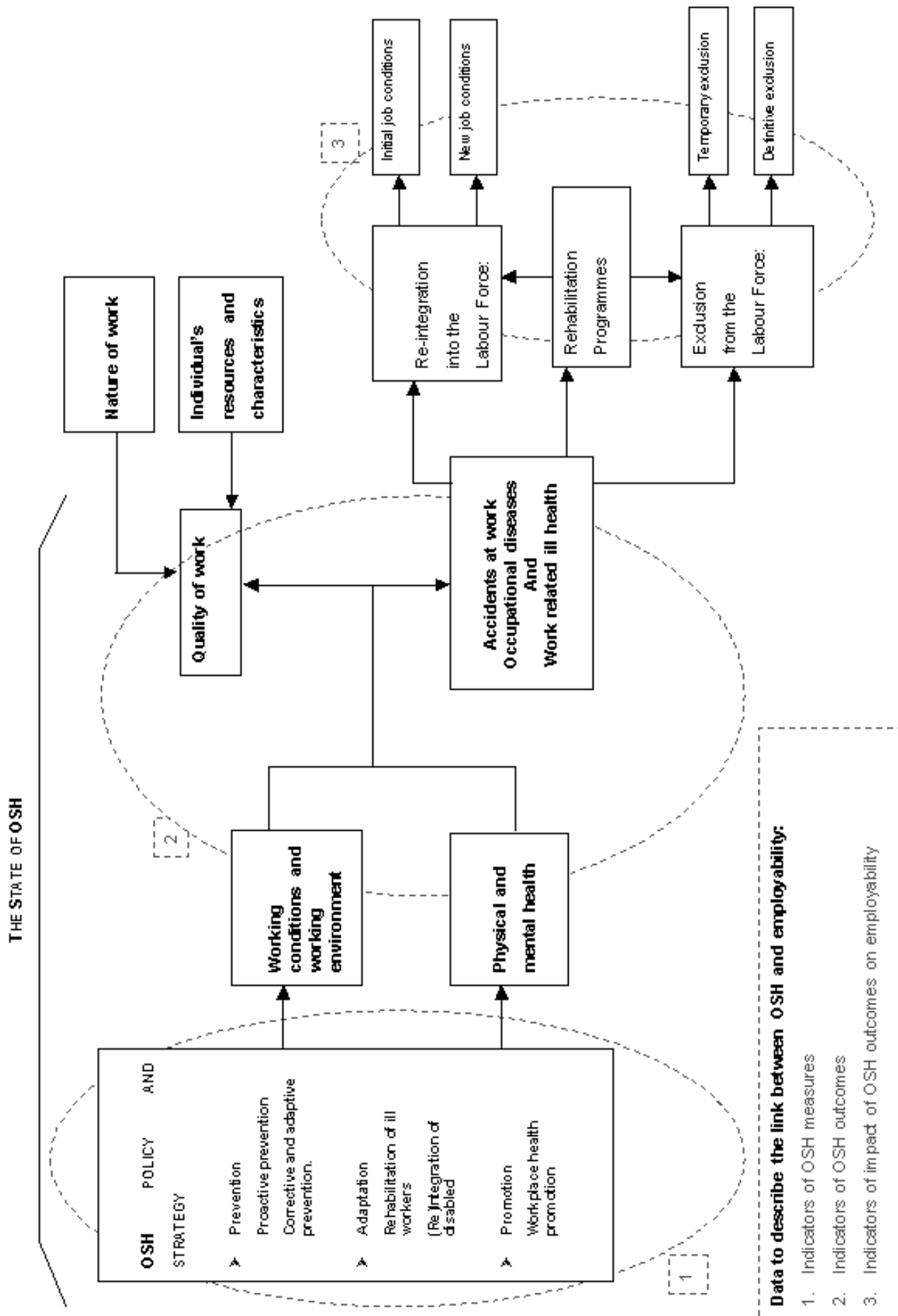
Concerning the sector of activity, it could be seen that different sectors have different risks associated. Therefore, the impact of work on the employee's health is different depending on where they are

employed, both in qualitative terms (types of injuries, disabilities and diseases associated) as well as quantitative terms (degree and severity of the impact). This means that no analysis of the link between OSH and employability should be carried out without taking this aspect into account. For example, the type and the degree of the impact of work on health and safety are not the same for a construction worker and a state agent.

The data demonstrated that accidents at work and occupational diseases lead to work days lost, job shifts and incapacities of employees. However, this information was often too vague. Most of the data do not allow an understanding of what happens before or after the accident happened or the occupational disease was recognised. Indeed, hardly any data on OSH measures associated to the outcomes were found (Only some for Germany). Having data on OSH preventive and adaptive measures could have allowed an insight into the relationship between OSH measures and worker's health and safety, and ultimately their impact on worker's employability. Existing data on accidents at work and occupational diseases do not provide information on what happens between the loss of health and the declaration of incapacity. It can not be seen whether adequate prevention would have avoided that incapacity or not. Perhaps, aggregated data misses out this aspect and the only way to obtain this kind of information would be by conducting a follow up study on individual people that have suffered an accident at work or an occupational disease.

Of special relevance were the data provided by the 1999 LFS ad hoc module on accidents at work and occupational diseases, which provided direct indicators of the impact of OSH on employability. These were the development of working ability of people that have suffered one or more accidental injuries, the number of days to return to work after the last accident, or the number of days off work due to the most serious complaint. It could be seen that 7.2% of the people that have suffered one or more accidental injuries are excluded from the labour market at least temporarily, 2.5% had to change workplace and 1.6% work part time after the accident. With regard to occupational diseases, 13.8% of the people declared that they expected never to do paid work again due to their illness. These data particularly focus on the consequences of accidents at work and occupational diseases and their impact on employability, and therefore further steps should focus on these data.





Field	Name of indicator found	Year/countries	Source
[1] Indicators of OSH measures	<ul style="list-style-type: none"> ▪ Expenditure on <ul style="list-style-type: none"> - Compensation - Curative treatment pensions - Accident prevention ▪ Prevention <ul style="list-style-type: none"> - Staff in the technical inspectorate - Selected activities of the technical inspectorate - Occupational safety training events - Participants in occupational safety training events - Safety delegates, industrial safety officers and first aiders 	1950-99, D	HvBG
	<ul style="list-style-type: none"> ▪ WHP measures taken in the HealthyBus project ▪ Measures taken in the Galaxen project 	2000, DK S	HealthyBus Galaxen
[2]	<ul style="list-style-type: none"> ▪ Accidents at work by <ul style="list-style-type: none"> - Severity - Economic activity - Sex - Age - Size of enterprise - Employment status - Part of body injured - Number of days lost ▪ Estimation of the direct costs of the accidents at work insurance by <ul style="list-style-type: none"> - Economic activity - Type of costs 	1993-96, EU-15 and NO 1995-96, EU-15 and NO 1996, EU-15 plus NO 1997, EU-15	Eurostat ES/AMW data (Also 1999 LFS ad hoc module)
	<ul style="list-style-type: none"> ▪ Occupational diseases by <ul style="list-style-type: none"> - Economic activity and disease - Diagnosis group and sex - Diagnosis group and age ▪ Absenteeism due to illness 	1995, EU-15 1996-98, NL	Eurostat EODS data (Also 1999 LFS ad hoc module) Dutch Ministry of Social Affairs
[Indicators of OSH outcomes]	Similar indicators also available from the national sources		e.g. HvBG, INAIL Dutch Ministry of Social Affairs
	<ul style="list-style-type: none"> ▪ Indicators of the state of working conditions and working environment 	1999/2000	First round of questionnaires in the HealthyBus project
	Various indicators of the state of working conditions and working environment presented in chapter 4		The State of Occupational Safety and Health in the European Union – Pilot study (2000)
	Various indicators of the state of working conditions and working environment as well as the nature of work presented in chapters 3 to 8		Third European Survey on working conditions (2000)

The analysis of data that goes beyond the traditional OSH indicators showed that in the changing world of work new risks have appeared, which have materialised in different types of illnesses that perhaps are more difficult to impute to the job (or occupation) than the ones traditionally recognised by the social security systems. The incidence of stress as well as psychosocial symptoms is increasing in the new economy, and therefore their impact on employability is becoming increasingly important. The ILO documentation showed that in Germany depressive disorders account for almost 7% of early retirement and that mental health disorders are the leading cause of disability pensions in Finland.

As a result of this it can be concluded that looking exclusively at traditional OSH data so as to measure the link between OSH and employability can lead to an underestimation of the problem, and therefore one needs to look at the working environment level too. However, statistical tools have still not been adapted to the new problems. Most data refer to recognised occupational diseases, and these have been based on the national recognition systems, which perhaps still do not take these issues into account. German data were a good example: almost 2/3 of the decided cases of occupational disease in 1999 did not have their occupational causality confirmed. So as to avoid or detect biases in the results, traditional OSH quantitative data should always be accompanied by other information of a qualitative nature.

There are no harmonised data at the EU level describing the link between working environment level of OSH and employability (besides the one provided by the 1999 LFS ad hoc module). However, there are good examples of the increasing interest of the subject for the various actors involved. As an example, various projects/studies with potential existing data were reviewed. However, original data sets were confidential, and only summaries of results were obtained. Perhaps looking at primary data from the projects reviewed would have been interesting. Unfortunately these data were only available to the researchers involved in the respective projects and could not be obtained for more detailed analysis. All that could be done in this project with the existing documentation was to summarise the conclusions of these projects and studies.

Of the studies reviewed, the HealthyBus and Galaxen projects are of special relevance. Both of them directly ascribe to the link between OSH and employability. The HealthyBus fits more in the area of workplace health promotion, whereas Galaxen deals with rehabilitation/reintegration issues. Both studies provide information that complements traditional OSH indicators.

The HealthyBus project showed the state of the working conditions and working environment as well as the physical and mental health for the Danish bus drivers. A set of measures to combat problems arising was also presented. It would be interesting to follow the results of this study and observe the impact of the workplace health promotion measures taken on the bus drivers' employability.

Galaxen in turn, showed that adaptive OSH measures help to avoid loss of employability for these workers with a diminished workability. It would be interesting to follow this project so as to address additional questions such as: who were the workers who have maintained their employability and what type of work they had been allocated.

In any case, the general feeling after seeing the existing data is that there is further need to define and find new indicators that would help to better illustrate the link between OSH and employability. In particular, two issues were totally absent from the data analysed at the European level. Firstly, indicators of OSH adaptive and preventive measures linked to accidents at work and occupational diseases, and secondly indicators of the relationship between the quality of OSH in the company/organisation and the level of exclusion.

3.2. RECOMMENDATIONS

In view of the conclusions presented above, the study report proposes 9 main complementary recommendations. The recommendations are presented in the sections below.

3.2.1. 1999 LFS ad hoc module on accidents at work and occupational diseases

The 1999 LFS ad hoc module on accidents at work and occupational diseases provided good indicators of the link between OSH and employability. These data have also the advantage of coming from Eurostat, which provides harmonised and comparable data for the European Union. Unfortunately, the ad hoc module on accidents at work and occupational diseases is only a one-year exercise, and therefore indicators can not have a dynamic perspective. For this reason, it is recommended that the ad hoc module be repeated. Considering the increasing importance of the link between social and employment policies, these data would be of great use not only for the social partners but also for policy makers at both European and national levels. The guidelines that the European Council has established for the employment policies for the year 2001 include encouraging adaptability of businesses and their employees. In this respect, these indicators could help the Member States to assess the evolution of the application of their health and safety regulations and their effect on employability.

Should this exercise be repeated the possibility of extending the coverage of the ad hoc module beyond the questions included in 1999 should be analysed. It would be interesting to include a question on OSH measures taken before and after the accident or disease occurred, in order to measure the impact of these measures on employability and their quality and effectiveness. Additional questions could be proposed in order to measure the link between quality of OSH in the company and the level of exclusion.

Recommendation 1: to promote the repetition of an ad hoc module on accidents at work and occupational diseases in later LFSs with a regular frequency of 2 to 3 years years and to extend the coverage of variables.

In the meantime, the usefulness of the results obtained by the 1999 LFS ad hoc module should be promoted. A first step could be to go to the National Statistical Offices and try to obtain disaggregated data that was collected for the 1999 LFS ad hoc module so as to perform a more in depth analysis of these data and look at further breakdowns such as the impact on work ability by sector of activity and gender etc. It would be interesting to obtain such original data from 2 or 3 National Statistical Offices. However, confidentiality problems could arise.

Recommendation 2: to analyse the basic disaggregated results of the accidents at work and occupational diseases available at the National Statistics Institutes of selected Member States.

3.2.2. The State of Occupational Safety and Health in the European Union – Pilot Study

The Agency's pilot study gives information regarding the working environment, OSH negative outcomes and changes in working life. It would be interesting to include a chapter on the link between OSH and employability in future reports. This would help to focus attention on the importance of establishing the links between OSH and employability, allowing at the same time to collect some concrete information about actions or experiences carried out in the Member States in this field.

Recommendation 3: to include a chapter on the link between OSH and employability in the next report of the state of OSH.

3.2.3. HealthyBus

The HealthyBus project is a good example of the use of OSH measures to improve workers' employability and avoid the loss of their working capacity. This project has two further rounds of questionnaires planned for the winter of 2001 and 2003 respectively. A follow up of their results would allow an insight into the effect of the measures taken on workers' health and safety and employability. Further more, these questionnaires are a good opportunity to propose the introduction of several questions directly related to the link between OSH and employability, such as: has their ability to work improved thanks to these measures? Have these measures had a positive effect on the working environment and workplace design? Do workers feel healthier than before the measures were taken? Do they expect to be doing the same work in the future? If not, why? Do they think additional measures could keep them in the job?

Recommendation 4: to follow-up on the 2001 and 2003 rounds of the HealthyBus exercise proposing the inclusion of additional questions and to widely disseminate the results of the exercise in the European Union.

Future developments aside, the possibilities of obtaining original registers and data should also be investigated in order to see what else can be drawn from these studies. For example, what are the characteristics of those people that declare themselves as unhealthy? Are they older workers? What type of health troubles do they have? Due to the confidential status of data, this should be discussed with the different parties involved in the project.

Recommendation 5: to analyse in more detail the original basic registers obtained in round 1 of the HealthyBus exercise and to draw lessons on more qualitative aspects of the link between OSH and employability; to disseminate the results obtained within the EU Member states.

3.2.4. Galaxen

Similar to the case of the HealthyBus, the information received from Galaxen did not allow a detailed and exhaustive analysis of the case study. It would also be interesting to obtain the data collected by Galaxen so as to answer the questions relevant to the OSH and employability field. It would be interesting to know issues such as: what are the characteristics of the 25% of the Galaxen employees that went to ordinary employment? What specific new jobs are assigned to them? What is the composition of the people that are still employed by Galaxen? Do they expect to go to ordinary employment? What are the main problems that these people experience? Health troubles, workplace design, nature of work?

Recommendation 6: to analyse in more detail the results obtained so far by the Galaxen exercise and to draw lessons on more qualitative aspects of the link between OSH and employability; to disseminate the results obtained within the EU Member states.

3.2.5. Further actions for developing new indicators

Projects like HealthyBus and Galaxen have demonstrated the impact that adequate OSH measures can have in worker's health and safety and employability. This encourages not only further data collection but also the promotion of the duplication of these types of programmes at the Member State and European level.

In the long term, and in order to obtain high quality results, future developments of the analysis should ideally be based on an ad hoc data collection and analysis project. At this stage it seems rather difficult to envisage the viability of a study of the overall link between OSH and employability, i.e. obtaining results that could be applied to the entire working population. As indicated earlier, this study has proved that looking at aggregated data where no specific characteristics and circumstances of the worker are taken into account would simply miss out the real determinants and rationale of the link. On the other hand, looking at overall data with the required degree of detail would imply building up enormous data sets, which would call for a great deal of resources and time. However, so as to reduce the amount of required resources, the link could be studied for a specific group or target population, which would serve as a pilot study for future developments.

Choosing an adequate target population would determine of the results and this is why whatever group is chosen one needs to bear in mind that the results only apply to this group, since it is probable that the outcomes would have been different if another group was selected. Perhaps, initially a group where the link between OSH and employability is stronger should be chosen, leaving groups where the link appears to be weaker or unclear for further developments.

Recommendation 7: to promote the duplication of exercises such as the HealthyBus and Galaxen in other EU Member States for other sectors or groups of workers. To widely disseminate the results and to promote exchange of experience within the European Union.

As an example, one could choose a group of construction workers in various companies of a Member State and examine the evolution of their employability. One could compare the evolution of employability of the workers that have suffered an accident at work, an occupational disease or that complain about ill-health due to work, with that of the workers who seem to be healthy. Among the unhealthy workers it would be interesting to compare the evolution of workers that have been part of (re)adaptive OSH measures, and those that have not. Perhaps this could be possible by looking at workers from companies with very different rehabilitation policies. The researcher could look at the evolution of the employment status of each group and their lifespan in the labour market: how does the labour lifespan of ill workers compare to healthy workers? What is the average age of retirement for each group? How many of them become unemployed? How do downward and upward job mobility rates compare across the various categories?

Some of the studies we reviewed used data from population censuses and health records. However, this could be adequate for studying the relationship between general health and employability, but not between occupational safety and health and employability, since most of these records would not explain whether the ill health is due to the effect of work or the individual's own conditions.

This type of information would be very difficult (if not impossible) to acquire from existing data sources, and therefore, the only method that could permit us obtaining it would be by designing ad hoc questionnaires that could be run at different stages of the study spell. For instance this could be done at the beginning of the study period, half way through it and at the end of it. This would require a study period of at least 4 or 5 years. Otherwise, variations in health status and employability could be so minor that measuring them would be extremely difficult.

With regard to the indicators that could be built with that ad hoc data collection, it should be noticed that it affects people in different situations and therefore the link varies both in qualitative and quantitative terms across the various groups. For example, one could construct the following indicators for particular occupational groups or sectors of activity:

Relative rates of people who have suffered an accident at work or have been diagnosed an occupational disease, compared to people that are healthy.

Relative rate of:

- Average age of retirement
- Unemployment rate
- Job mobility (upward and downward)
- Average lifespan in the job or occupation

One could expect that for people that have suffered an accident at work or an occupational disease, the RR of unemployment and downward mobility is greater than 1, whereas the RR of average retirement, upward job mobility and average lifespan in the profession is smaller than 1. This would confirm the existence of the link between core OSH and employability and give an estimation of the extent of the link. If these indicators could be observed over time, we could look at their trend and verify whether they are approaching 1 or not. The closer they are to the value 1, the more the OSH measures are minimising the negative impact of work on worker's health and their employability.

Within people that have suffered an accident at work or an occupational disease, relative rates of those that have not been subject to adequate adaptive OSH measures, with respect to those that have.

Relative rate of:

- Unemployment rates
- Downward job mobility
- Early retirement
- Average number of days lost due to an accident until return to work

One could expect that for people who have not been subject to adaptive OSH measures, compared to those that have, all these RR are greater than 1, providing evidence of the positive impact of OSH adaptive measures on disabled/ill workers capability to work and their employability.

Recommendation 8: to fund an ad hoc exercise for directly gathering data on the link between OSH and employability in test sectors and countries. To disseminate widely the results and to promote the exchange of experience.

Finally, there was a specific aspect that was not covered by the data analysed. This was the issue queried in key question 5, i.e. what is the relationship between quality of OSH in the company/organisation and the level of exclusion? So as to respond to this question, a comparative study of 2 enterprises (from the same occupational sector) could be made, one being known for its very good level of OSH, the other for its bad. This would allow an analysis into the impact of OSH measures and the quality of OSH on the employability of workers and comparing the level of exclusion from the labour market related to the different OSH strategies. To be significant, such a study must be carried out for a certain period of time, say 4 to 5 years.

Recommendation 9: to promote carrying out a comparative analysis of the link between the quality of OSH and exclusion from the labour market at the company level.

ANNEX 1.1

BACKGROUND PAPER 1: DEFINITIONS

Towards operational definitions of Employability and Occupational Safety and Health (OSH)

1. INTRODUCTION

Employability has become one of the key elements of most of the European policies for promoting employment, productivity and competitiveness. But the link between employability and OSH still needs to be discussed.

The objective of this paper is to provide inputs for the discussion of the concepts of Employability and OSH, and to help clarify all elements of employability, which can be considered as specifically linked to OSH and vice-versa. Please note that this paper is a working paper and therefore suggestions and remarks from all participants will be really appreciated.

2. CONCEPTS OF EMPLOYABILITY AND OSH: EXAMPLES OF CURRENT DEFINITIONS AND STATEMENTS.

The European Agency for Safety and Health at Work held a conference on “Safety and Health and Employability” in September 1999. Several definitions and statements regarding Employability and Health and Safety at work were presented by the various organisations invited. These definitions and statements as well as others that have previously been utilised are presented in this section.

1.1. EMPLOYABILITY

European Commission

Employability is about investment in human resources, a new active policy to replace the passive policies of the past. It is about a more inclusive policy, building on early identification of needs and early action, to prevent the drift into long-term unemployment.

European Agency

Employability can be defined as the set of conditions and characteristics corresponding to the ability of a person to be employed. It is about the ability to gain initial employment, to maintain employment, and to obtain new employment if necessary. A set of basic factors influence the employability of persons, such as their health and functional capacity, education and experience, knowledge and skills based on talent, attitudes and motivation. These factors should also be evaluated in the context of the work.

Dan Murphy, Ireland

Employability seeks to keep workers fit, healthy and happy at work. This obviously includes the traditional preventive aspects of workplace health and safety. Workers who are spared accidents at work and occupational ill health will stay fit and at work. The next health aspect of employability is the promotion of adaptive and flexible attitudes to employees' health or disability problems. Next, employability aims to improve the general health of all employees.

Juhani Ilmarinen, Finland

Work ability refers to both individual and occupational factors that, according to research data, are essential to a person's ability to cope in work life. Work ability is the result of the interaction between individual resources and work.

A person's individual resources include health, functional capacity, education and know-how. The resources are also influenced by the person's values and attitudes, motivation and job satisfaction. A person realises his or her resources at work, and the results is influenced by the work community and the work environment, as well as by the physical and mental demands of the work. Therefore, work itself, the work community, and the work environment significantly influence how well or how poorly a worker uses his or her resources. Good resources do not transform into good work ability unless the content of the work, the work community and the work environment provide the proper conditions. On the other hand, a well operated work community or work environment cannot fully compensate for weakened resources. Work ability creates the basis for the employability of the individual. Different support and service systems, work and retirement legislation, and the prevalent values and attitudes of society can for its part, support employability. The objective is as high employment as possible, measured by the employment rate. Work ability and employability can be considered to form a process that leads to employment of older workers.

Marc Boisnel, France

Employability stands for an increase of individual's ability to remain in employment or to get employment. A combination of three parameter is essential: first, the individual's formation and competencies; second, strategies in enterprises regarding technological developments and organisation of work; third, the policies of governments and social partners.

HRH The Prince of Asturias, Spain

Employability is one of the fundamental pillars of the Employment Guidelines and it must, therefore, be made clear that a good, safe working environment is an important factor of competitiveness. It affects workers' willingness and ability to work, their sense of motivation, their work output and the general development of human resources ... Safe workplaces and safe jobs, like a healthy working population, make it possible to extend people's working lives, prevent absenteeism and, ultimately, help to balance social-security budgets, which have become such a fundamental issue.

The Institute for Employment Studies, UK

In simple terms, employability is about being capable of getting and keeping fulfilling work. More comprehensively, employability is the capability to move self-sufficiently within the labour market to realise potential through sustainable employment. While there is no singular definition of employability, a review of the literature suggests that employability is about work and the ability to be employed; i.e.

- the ability to gain initial employment; hence the interest in ensuring that 'key skills', careers advice and an understanding about the world of work are embedded in the education system
- the ability to maintain employment and make 'transitions' between jobs and roles within the same organisation to meet new job requirements, and
- the ability to obtain new employment if required, i.e. to be independent in the labour market by being willing and able to manage their own employment transitions between and within organisations.

It is also, ideally, about:

- the quality of such work or employment. People may be able to obtain work but it may be below their level of skill, or in low paid, undesirable or unsustainable jobs.

For the individual, employability depends on

1. their assets in terms of the knowledge, skills and attitudes they possess
2. the way they use and deploy those assets
3. the way they present them to employers
4. crucially, the context within which they seek work. The ability to realise or actualise 'employability' assets depends on the individual's personal circumstances and external circumstances (labour market environment) and the inter-relationship between the two. This includes:

- personal circumstances — e.g. caring responsibilities, disabilities, and household status can all affect their ability to seek different opportunities and will vary during an individual's life cycle; while
- external factors such as macro-economic demand and the pattern and level of job openings in their labour market, be it local or national; labour market regulation and benefit rules; and employer recruitment and selection behaviour.

Proposed definition for discussion:

Employability is the ability for a person to spend the maximum of his/her contractual time at work over the year and to meet the productivity requirements or goals of her/his employer.

When the person is looking for an initial employment, or for a further one, he/she will be said employable, if according to his/her profile, he/she may spend the maximum of his contractual time at work over the year and may meet the productivity requirements or goals of her/his potential employer.

Any remark on the above definition?

1.2. OCCUPATIONAL SAFETY AND HEALTH

European Commission

Measures to improve health and safety at work provide an important contribution to employability in the work force. They can contribute by means of 'prevention of accidents and diseases' and 'employment of people with disabilities' to maintenance and improvement of employability.

European Agency

Occupational safety and health includes any preventive measures aimed at the protection of life and health of workers in every aspect related to work. A general principle of prevention is to adapt work to the individual to reduce its effect on individual's health. Safe and healthy working conditions are therefore a means to maintain or even improve the employability of workers. Poor working conditions will deteriorate their employability and exclude them from the labour market.

Dan Murphy, Ireland

Occupational health promotes employability by:

- Avoiding unnecessary and inappropriate fitness standards for entering the workplace.
- Retaining employees in the workplace through ensuring their health and safety by good health and safety management systems.
- Adapting work and making it flexible for those employees who develop a major or minor health problem while at work, thus helping them to stay in the workplace.
- Making the healthy workplace compatible with attracting differently abled persons and people from vulnerable groups back into the world of work.
- Embracing the concept of workplace health promotion as a means of achieving healthy work and healthy workers, and thus retaining them at work.
- Ensuring that occupational health experts are competent and multidisciplinary in their outlook and committed to the concept of employability.

Madame Hermange, European Parliament

The linking of employability and health and safety at work represents an excellent basis for discussion and exchange of experiences with a view to improving access to employment for an entire section of the population that is too often left out of traditional employment policies. These are people injured at work, the disabled and ageing workers. All, in different ways, encounter problems in entering the world of work in its current form. However, they all have a role to play. It is well known that demographic changes could

lead to labour shortages in the European Union as the next century dawns. In some regions this will be particularly acute. Our companies will need the labour of all those who are anxious to work.

Proposed definition for discussion:

Occupational safety and health includes any measures aimed at adapting work to the individual in order to both

- reduce its effect on individual's health
- and ensure that major or minor health problems experienced by people do not necessarily justify their exclusion from the labour market.

Any remark on the above definition?

2. CONCLUSION AND DISCUSSION POINTS

From the above definitions one can summarise the various elements of employability and OSH as follows:

2.1. CONCEPT OF EMPLOYABILITY

Employability can be understood at two levels: Individual and collective.

For the individual employability refers to the ability of a person to obtain and maintain a fulfilling work.

Therefore, three cases are comprised:

- The ability to gain initial employment.
- The ability to maintain employment.
- The ability to obtain new employment if necessary.

Therefore employability refers to the entire active population. How can employability be defined at a collective level? Can we define it as the ability of the active population to respond to the necessities of the labour market? This is a relevant issue that needs to be answered prior to generating operational definitions and building a potential model.

2.2. FACTORS OR ELEMENTS DETERMINING EMPLOYABILITY.

Employability at an individual level depends on various factors that can be classified in four main groups.

Assets

The person's assets refer to the individual's resources, which include:

- Knowledge and skills.

These will depend on the person's

- Education;
- Experience;
- Talent;
- Health and functional capacity;
- Person's values and attitudes;
- Motivation and job satisfaction.

Deployment

These include career management skills, job search skills as well as being adaptable to the labour market developments and realistic about labour market opportunities, including the willingness to be occupationally and locationally mobile.

Presentation

Presentation refers to the ability to demonstrate 'employability' assets and present them to the market in an accessible way.

Context

External factors:

- Work environment;
- Labour market environment.

Interaction between the 4 elements

The interaction between the 4 elements will define the employability of the individual. For instance a person with a great level of assets (good education and many years of experience in the field) can have low employability because the working environment is not adapted to his physical or mental needs. It is in this sense that promotion of health and safety at work comes into play. A safe and healthy environment will help to maximise the potential productivity of an employee, whereas poor working conditions will only serve to diminish the effectiveness of the worker and potentially exclude him/her from the labour market.

Involved population.

Employability involves various groups of the working population.

Labour market entrants

They are included in the first case of employability (The ability to gain initial employment). Would their employability level be affected by occupational health and safety promotion policies? This needs to be clarified in order to define the reference population for a model that links employability and OSH.

Labour market re-entrants

They are included in the third case of employability (The ability to obtain new employment). These individuals might have left the labour market for health reasons or for other circumstances. Those that left the labour market for health reasons might have done it as a result of occupational illnesses and accidents or due to personal wellbeing problems.

Disadvantaged groups

This includes people with health or disability problems. It can concern people in any of the three cases of employability.

Insecure or under-utilised employees

They are included in the second case of employability (The ability to maintain employment). This is related to the fact that employability connotes not only the ability to obtain employment but also the capability of acquiring fulfilling employment.

What groups would benefit from occupational health and safety promotion policies? Or, in other words, what groups' employability would be expected to increase with better and safer working environments?

Groups of actors

Employability involves various groups of actors:

- Individuals;
- Enterprises;
- Social Partners;
- Government.

2.3. OCCUPATIONAL SAFETY AND HEALTH POLICY MEASURES IN ORDER TO PROMOTE EMPLOYABILITY

It involves different types of policy measures.

- Preventive measures: All those measures oriented to prevent accidents at work, occupational diseases, work-related illnesses... by adapting work to employees in various ways.
- Reactive measures: All those measures aiming to redesign work e.g. after accidents in order to adapt it to the employees' needs, rehabilitation measures, measures for improving the general health of employees...

Promotion of OSH as a tool to increase employability benefits all actors involved. Individuals will benefit from a healthier and safer environment, which will allow them to maximise their work output and feel fulfilled by their work. Health and safety promotion will result in a reduction of the number of accidents at work as well as absenteeism rates. It will also extend employees' working life. The enterprises will see that healthier workers will result in higher rates of productivity and competitiveness, whereas the State will benefit from an increase of employment and wellbeing of its labour force in general.

Remarks and proposals:

3. KEY QUESTIONS

In the course of the discussion one should bear in mind the following issues:

- Question 1 Are there any other definitions of Employability that should be taken into account?
- Question 2 Are there any other definitions of OSH that should be taken into account?
- Question 3 The concept of employability as referring to the active population and mainly to employed people is obvious. However, how can employability be defined at a collective level?
- Question 4 Can we define it as the ability of the active population to respond to the necessities of the labour market?
- Question 5 The openness of European labor markets suggests that reference population for the definition of employability should not be restricted to each individual country. How can the definition be enlarged to the possibility for an individual to be unemployable in his resident country but employable in another country where his features will best meet labor markets requirements?
- Question 6 Is the employability level of people in search of initial employment affected by occupational health and safety promotion policies?
- Question 7 What groups would benefit from occupational health and safety promotion policies? Or, in other words, what groups' employability would be expected to increase with healthier and safer working environments?
- Question 8 Can we assume that non employed people (those looking for an initial employment and people between two jobs) benefit from the improvement of health at work through e.g. specific training related to relevant issues delivered by universities, schools, other training centers, and also through general medical schemes (hospitals, doctors, etc.)?
- Question 9 What operational definition of OSH can be designed?
- Question 10 How can the link between OSH and employability be defined? Can this link be measured in quantitative terms?

ANNEX 2.1

BACKGROUND PAPER 1: DEFINITIONS

COMMISSION REGULATION (EC) NO. 1571/98 OF THE 20/07/1998 IMPLEMENTING THE COUNCIL REGULATION NO. 577/98 ON THE ORGANISATION OF A LABOUR FORCE SAMPLE SURVEY IN THE COMMUNITY

ANNEX III LABOUR FORCE SURVEY SPECIFICATION OF THE 1999 AD HOC MODULE

1. All Member States are covered except Belgium, France, Austria.
2. Germany can provide Eurostat with data concerning accidents at work and work related health problems for a period of reference of 4 weeks. The variables that can be provided are: accidents at work, time off work due to the work accident, existence of a work related health problem and time off work due to the work related health problem.
3. The variables will be coded as follows:

Column	Code	Description	Filters/remarks
209		ACCIDENTS AT WORK HAPPENED TO PERSONS HAVING WORKED IN THE LAST 12 MONTHS	
		Accidental injury(ies), apart from illnesses, occurred during the past 12 months, at work or in the course of work	(Col.24 = 1,2) or (Col.64 = 1 and Col.65/68 and Col.69/70 is not prior to one year before the date of the interview)
	0	None	
	1-8	Number of accidental injuries	
	9	Not applicable (Col.24 = 3-9 and (Col.64 = 1 or (Col.65/68 and Col.69/70 is more than one year before the date of the interview, or is blank)))	
	blank	No answer	
210/211		Month when the most recent accidental injury occurred	Col.209 = 1-8
	00	Current month	
	01-12	Month - 2 digits (accidents occurred before the current month)	
	99	Not applicable (Col.209 = 0, 9, blank)	
	blank	No answer	

Column	Code	Description	Filters/remarks
	212	Type of the injury caused by the most recent accident (code only the most serious type of injury)	Col.209 = 1-8
	0	Contusion, bruising	
	1	Burn, scald, frostbite	
	2	Cut, laceration, severed nerves or tendons	
	3	Amputation	
	4	Broken bone	
	5	Sprain, strain, dislocation	
	6	Poisoning, gassing or asphyxiation	
	7	Infection by virus, bacteria or contact w/ infected materials	
	8	Other types of injury	
	9	Not applicable (Col.209 = 0, 9, blank)	
	blank	No answer	
213		Work status after the most recent accidental injury Person has started work again	Col.209 = 1-8
	1	Resumption of usual work activities	
	2	Change of work or workplace because of the accidental injury	
	3	Part time work or on reduced hours because of the accidental injury	
	4	Person has not started to work again Person has not yet recovered from the accidental injury and is not working at the date of the interview	
	5	Person expects never to do paid work again because of the accidental injury	
	6	Other reasons	
	9	Not applicable (Col.209 = 0, 9, blank)	
	blank	No answer	
214		Date when the person was able to start to work again after the most recent accidental injury	Col.213 = 1-3, 6,
	blank		
	0	On the same day as the accident or on the first day after the accident	
	1	From the second to the fourth day after the accident	
	2	From the fifth to the seventh day after the accident	

Column	Code	Description	Filters/remarks
215	3	From one week but before two weeks after the accident	Col.209 = 1-8
	4	From two weeks but before one month after the accident	
	5	From one month but before three months after the accident	
	6	Three months or later after the accident	
	7	No time off work	
	9	Not applicable (Col.213 = 4, 5, 9)	
	blank	No answer	
		Job done when the accidental injury occurred (code first that applies)	
	1	Main current (first) job	
	2	Second current job	
3	Last job (person not in employment)		
4	Job one year ago		
5	Some other job		
9	Not applicable (Col.209 = 0, 9, blank)		
blank	No answer		
216		WORK-RELATED HEALTH PROBLEMS SUFFERED DURING THE LAST 12 MONTHS (apart from accidental injuries)	
		Illness(es), disability(ies) or other physical or psychic health problem(s), apart from accidental injuries, suffered by the person during the past 12 months (from the date of the interview) and that was (were), caused or made worse by	
Column	Code	Description	Filters/remarks
		the work	(Col.24 = 1,2 or Col.64 = 1)
	0	None	
	1-8	Number of different complaints	
	9	Not applicable (Col.24 = 3-9 and Col.64 π1)	
	blank	No answer	
217		Type of the most serious complaint caused or made worse by work	Col.216 = 1-8
	0	Bone, joint or muscle problem	
	1	Breathing or lung problem	

Data to describe the link between OSH and Employability

Column	Code	Description	Filters/remarks
218	2	Skin problem	(Col.216 = 0, 9,
	3	Hearing problem	
	4	Stress, depression or anxiety	
	5	Headache and/or eyestrain	
	6	Heart disease or attack, or other problems in the circulatory system	
	7	Infectious disease (virus, bacteria or other type of infection)	
	8	Other types of complaint	
	9	Not applicable	
	blank		
	blank	No answer	Col.216 1-8
		Number of days off work due to the most serious complaint caused or made worse by work during the last 12 months	
	0	Less than one day	
	1	One to three days	
	2	Four to six days	
219	3	At least one week but less than two weeks	Col.216= 1-8
	4	At least two weeks but less than one month	
	5	At least one month but less than three months	
	6	Three months or more	
	7	Expects never to do paid work again due to this illness	
	9	Not applicable (Col.216 =0, 9, blank)	
	blank	No answer	
	Job that caused or made worse the most serious complaint (code first that applies)		
220/221	1	Main current (first) job	Col.219= 5, blank or (Col.219= 3 and the person did not work within the last
	2	Second current job	
	3	Last job (person not in employment)	
	4	Job one year ago	
	5	Some other job	
	9	Not applicable (Col.216= 0, 9, blank)	
	blank	No answer	
	Economic activity of the local unit of the job that caused or made worse the most serious complaint (when not defined in another part of the survey)		

Column	Code	Description	Filters/remarks
	00	NACE Rev.1 (2 digits) Not applicable (Col.219= 1-2, 4, 9 or (Col.219= 3 and the person last worked within the last 8 years))	
	blank	No answer	

ANNEX 2.2: NACE CLASSIFICATION .

NACE branches

- A AGRICULTURE, HUNTING AND FORESTRY
- B FISHING
- C MINING AND QUARRYING
- D MANUFACTURING
- DA Manufacture of food products, beverages and tobacco
- DB Manufacture of textiles and textile products
- DC Manufacture of leather and leather products
- DD Manufacture of wood and wood products
- DE Manufacture of pulp, paper and paper products; publishing and printing
- DF Manufacture of coke, refined petroleum products and nuclear fuel
- DG Manufacture of chemicals. Chemical products and man-made fibres
- DH Manufacture of rubber and plastic products
- DI Manufacture of other non-metallic mineral products
- DJ Manufacture of basic metals and fabricated metal products
- DK Manufacture of manufacture of machinery and equipment n.e.c.
- DL Manufacture of electrical and optical equipment
- DM Manufacture of transport equipment
- DN Manufacturing n.e.c.
- E ELECTRICITY, GAS AND WATER SUPPLY
- F CONSTRUCTION
- G WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES, MOTORCYCLES AND PERSONAL AND HOUSEHOLD GOODS
- H HOTELS AND RESTAURANTS
- I TRANSPORT, STORAGE AND COMMUNICATION
- J FINANCIAL INTERMEDIATION
- K REAL ESTATE, RENTING AND BUSINESS ACTIVITIES
- L PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY SOCIAL SECURITY
- M EDUCATION
- N HEALTH AND SOCIAL WORK
- O OTHER COMMUNITY, SOCIAL, PERSONAL SERVICE ACTIVITIES
- P PRIVATE HOUSEHOLDS WITH EMPLOYED PERSONS
- Q EXTRA-TERRITORIAL ORGANISATIONS AND BODIES

ANNEX 2.3: OCCUPATIONAL DISEASES IN THE EUROPEAN UNION (1995)

DISEASE	NACE BRANCH													
	total	a_b	c	d	e	f	g	h	i	j_k	l_mn	o_to_q	Unknown	
	57414	1883	6760	24493	611	7524	2379	684	1305	1109	1158	3288	1191	5029
Diseases caused by physical agents	29613	639	3397	14248	222	4703	1285	129	782	657	589	305	282	2375
Hypoacusis or deafness caused by noise	18419	218	1235	10163	142	2793	624	24	426	344	389	103	130	1828
Respiratory diseases	15805	613	3247	6529	365	1562	429	82	381	146	127	252	263	1809
Occupational skin ailments caused by scientifically recognised allergy provoking or irritative substances not included under other headings	8767	320	92	2702	15	1102	471	440	87	254	303	1900	588	493
Respiratory ailments of an allergic nature caused by the inhalation of substances consistently recognised as causing allergies and inherent to the type of work	4543	605	95	2573	15	164	194	73	87	77	97	223	148	192
Silicosis	4381	1	2660	694	10	246	27	0	11	12	3	10	17	690
Asbestosis	3894	3	47	2129	187	585	104	7	144	30	10	4	49	595
Paralysis of the nerves due to pressure	3392	28	103	1761	14	343	365	85	66	191	75	124	78	159
Osteoarticular diseases of the hands and wrists caused by mechanical vibration	2539	30	476	718	16	572	139	16	210	34	77	23	24	204
Angioneurotic diseases caused by mechanical vibration	2454	24	918	948	33	279	61	0	37	35	28	9	22	60
Diseases of the periarticular sacs due to pressure	2305	339	397	581	13	696	75	3	32	40	17	10	19	83
Infectious diseases	1662	300	5	170	2	24	47	8	12	10	111	734	21	218
Diseases caused by certain chemical agents	1567	11	19	844	7	133	147	25	43	42	28	97	37	134
Mesothelioma														

following the inhalation of asbestos dust 1446 2 28 565 125 353 39 1 106 17 14 11 37 148

DISEASE	NACE BRANCH													
	total	a_b	c	d	e	f	g	h	i	j_k	l_mn	o_to_q	Unknown	
Complication of asbestos in the form of bronchial cancer	987	1	19	483	24	188	60	0	31	7	2	3	12	157
Viral hepatitis	501	1	3	21	2	15	2	5	2	2	41	285	8	114
Pneumoconioses caused by dusts of silicates	488	1	396	38	3	21	2	1	2	2	0	0	0	22
Diseases caused by ionising radiation	482	0	267	64	3	20	20	1	11	11	3	36	8	38
Infectious or parasitic diseases transmitted to man by animals or remains of animals	461	183	2	62	0	5	29	2	7	3	16	89	7	56
Tuberculosis	458	1	0	7	0	3	1	1	1	3	39	351	4	47
Diseases caused by nickel or compounds thereof	325	2	1	127	0	5	26	22	10	16	15	54	14	33
Diseases caused by isocyanates	301	1	4	181	3	24	48	1	8	6	1	5	10	9
Diseases caused by chromium or compounds thereof	276	2	1	166	0	44	9	2	7	6	6	9	3	21
Diseases caused by benzene or counterparts thereof	259	0	7	110	1	32	33	0	12	6	3	4	3	48
Brucellosis	242	115	0	80	0	1	15	0	2	2	15	9	2	1
Diseases caused by lead or compounds thereof	200	0	4	150	1	16	9	0	2	5	2	0	3	8
Diseases caused by halogenated derivatives of the aromatic hydrocarbons	109	5	0	48	0	5	19	0	4	1	1	18	4	4
Bronco-pulmonary ailments caused by dusts from sintered metals	57	0	2	41	1	4	3	0	0	1	0	1	0	4
Skin diseases and skin cancers caused by by-products of														

ANNEX 2.4: RECOGNISED OCCUPATIONAL DISEASES IN ITALY BY SECTOR OF ACTIVITY (1995)

Banca Dati

TAV. CIMP/1.2.1 MALATTIE PROFESSIONALI, DENUNCIATE DALLE AZIENDE, E DEFINITE A TUTTO IL 31 DICEMBRE 1997, PER SETTORE DI ATTIVITA' E TIPO DI DEFINIZIONE.

SETTORI DI ATTIVITA' ECONOMICA	INDENNIZZATE				NON INDENNIZ.		TOTALE DEFINITE
	INAB. TEMP.	INAB. PERM.	MORTE	TOTALE	TOTALE	DI CUI GRADO 1-10 %	
A AGRINDUSTRIA	1	10	-	11	46	3	57
B PESCA	-	-	-	-	1	-	1
C ESTRAZ. MINERALI	-	74	1	75	282	50	357
DA IND. ALIMENTARE	11	44	2	57	303	33	360
DB IND. TESSILE	19	82	1	102	476	107	578
DC IND. CONCIARIA	17	16	-	33	178	5	211
DD IND. LEGNO	13	110	1	124	325	96	449
DE IND. CARTA	4	18	-	22	204	9	226
DF IND. PETROLIO	1	1	1	3	23	-	26
DG IND. CHIMICA	13	20	3	36	204	7	240
DH IND. GOMMA	14	14	-	28	188	11	216
DI IND. TRASFORMAZ.	55	169	8	232	749	106	981
DJ IND. METALLI	52	411	8	471	2.046	459	2.517
DK IND. MECCANICA	46	106	4	156	719	137	875
DL IND. ELETTRICA	23	34	2	59	327	36	386
DM IND. MEZZI TRAS.	31	92	22	145	571	118	716
DN ALTRE INDUSTRIE	20	74	1	95	365	90	460
* D TOT. IND. MANIF.	319	1.191	53	1.563	6.678	1.214	8.241
E ELET. GAS ACQUA	2	4	-	6	80	10	86
F COSTRUZIONI	135	284	10	429	1.728	196	2.157
G50 COMM. RIP. AUTO	21	88	8	117	339	48	456
G51 COMM. INGROSSO	5	29	3	37	169	14	206
G52 COMM. DETTAGLIO	7	17	-	24	125	12	149
* G TOT. COMMERCIO	33	134	11	178	633	74	811
H ALBERG. E RIST.	20	7	-	27	39	3	66
I TRASPORTI	12	29	8	49	212	12	261
J INTERM. FINANZ.	3	1	-	4	37	3	41
K ATT. IMMOBILIARI	32	39	1	72	266	34	338
L PUBBLICA AMMIN.	2	12	-	14	278	21	292
M ISTRUZIONE	-	-	-	-	10	3	10
N SANITA'	59	35	1	95	275	15	370
O SERV. PUBBLICI	74	41	-	115	339	23	454
X NON DETERMINATO	9	334	78	421	14.888	79	15.309
IN COMPLESSO	701	2.195	163	3.059	25.792	1.740	28.851

ANNO EVENTO : 1995

ANNEX 2.5: OCCUPATIONAL DISEASES IN ITALY BY TYPE OF DISEASE (1995)

TAV. CIMP/1.1.5 MALATTIE PROFESSIONALI, DENUNCIATE DALLE AZIENDE, E DEFINITE A TUTTO IL DICEMBRE 1997, PER TIPO DI MALATTIA PROFESSIONALE E TIPO DI DEFINIZIONE.
ANNO EVENTO : 1995

MALATTIE PROFESSIONALI O SOSTANZE CHE LE CAUSANO	INDENNIZZATE				NON INDENNIZ.		TOTALE DEFINITE
	INAB. TEMP.	INAB. PERM.	MORTE	TOTALE	TOTALE	DI CUI GRADO 1-10 %	
01-PIOMBO	32	4	-	36	68	-	104
02-MERCURIO	1	-	-	1	8	-	9
03-FOSFORO	-	-	-	-	3	1	3
04-ARSENICO	-	1	-	1	1	-	2
05-CROMO	14	10	2	26	59	9	85
06-BERILLIO	-	-	-	-	-	-	-
07-CADMIO	-	1	-	1	1	-	2
08-VANADIO	-	-	-	-	-	-	-
09-NICHEL	17	3	-	20	56	-	76
10-MANGANESE	1	-	-	1	4	-	5
11-BROMO,CLORO,FLUORO	1	1	-	2	29	-	31
12-ACIDO NITRICO,AZOTO	1	29	1	31	127	2	158
13-ANIDRIDE SOLFOROSA	2	3	-	5	17	-	22
14-TALLIO	-	-	-	-	3	-	3
15-ANTIMONIO	1	-	-	1	-	-	1

MALATTIE PROFESSIONALI O SOSTANZE CHE LE CAUSANO	INDENNIZZATE				NON INDENNIZ.		TOTALE DEFINITE
	INAB. TEMP.	INAB. PERM.	MORTE	TOTALE	TOTALE	DI CUI GRADO 1-10 %	
16-OSMIO	-	-	-	-	1	-	1
17-SELENIO	-	-	-	-	2	-	2
18-FAME	-	-	-	-	8	-	8
19-STAGNO	-	1	-	1	-	-	1
20-ZINCO	-	-	-	-	10	-	10
21-ACIDO CARBAMMICO	-	-	-	-	2	-	2
22-SOLFURI DI BARIO	-	-	-	-	2	-	2
23-OZONO, OZONURI	1	1	-	2	3	-	5
24-ACIDO CIANIDRICO	4	9	1	14	19	1	33
25-ALCOLI, GLICOLI	2	-	-	2	11	1	13
26-OSSIDO DI CARBONIO	1	4	-	5	47	2	52
27-CLORURO DI CARBONILE	-	1	-	1	5	-	6
28-SOLFURO DI CARBONIO	-	1	-	1	2	-	3
29-IDROCARBURI ALIFATICI	2	3	2	7	21	2	28
30-IDROCARBURI AROMATICI	3	10	4	17	29	-	46
31-NITROD. IDROCARB. ALIF.	-	2	-	2	4	-	6
32-CHINONI E DERIVATI	-	-	-	-	5	-	5
33-FENOLI, TIOFENOLI	2	-	-	2	6	-	8
34-AMINE ALIFATICHE	27	25	1	53	65	2	118
35-DERIVATI ALOGENATI	-	1	-	1	10	-	11
36-CLORURO DI VINILE	3	3	-	6	33	-	39
37-CHETONI E DERIVATI	1	1	-	2	9	1	11
38-ETERI ED EPOSSIDI	-	1	1	2	7	-	9
39-ALDEIDI, ACIDI ORGAN.	11	4	-	15	15	1	30
40-ASMA BRONCHIALE	10	58	-	68	364	16	432
41-ALVEOLITI ALLERGICHE	5	7	-	12	72	1	84
42-MALATTIE CUTANEE	527	120	1	648	1.191	24	1.839
43-PNEUMOC. DA SILICATI	-	44	2	46	512	2	558
44-PNEUMOC. DA CALCARI	-	8	1	9	212	6	221
45-PNEUMOC. DA ALLUMINIO	-	2	1	3	56	2	59

Data to describe the link between OSH and Employability

MALATTIE PROFESSIONALI O SOSTANZE CHE LE CAUSANO	INDENNIZZATE				NON INDENNIZ.		TOTALE DEFINITE
	INAB. TEMP.	INAB. PERM.	MORTE	TOTALE	TOTALE	DI CUI GRADO 1-10 %	
46-PNEUMOC.E PROC.FIBROS	-	3	-	3	36	-	39
47-SIDEROSI	1	7	3	11	33	1	44
48-BISSINOSI	-	3	2	5	42	1	47
49-BRONCHITE CRONICA	-	12	-	12	210	3	222
50-IPOACUSIA E SORDITA'	3	1.212	2	1.217	9.409	1.418	10.626
51-RADIAZIONI IONIZZANTI	1	27	1	29	90	7	119
52-MALAT.OSTEOARTICOLARI	-	66	-	66	555	27	621
53-MALAT. DA LAVORI SUB	1	-	-	1	1	-	2
54-CATARAT.DA RAGGIANTI	-	2	-	2	13	-	15
55-ANCHILOSTOMIASI	-	-	-	-	3	-	3
56-NEOPLASIE DA ASBESTO	-	17	82	99	81	-	180
57-NEOPLASIE POLV.LEGNO	-	6	6	12	11	-	23
58-NEOPLASIE POLV.CUOIO	-	4	-	4	2	-	6
77-BRONCOPNEUM. SILICATI	-	4	-	4	5	-	9
78-BRONCOPNEUM. POLVERI	-	1	2	3	1	-	4
79-BRONCOPNEUM. DA ALTRO	-	-	1	1	1	-	2
90-SILICOSI	-	117	17	134	1.116	8	1.250
91-ASBESTOSI	-	192	28	220	534	24	754
99-MALAT. NON TABELLATE	26	164	1	191	10.515	178	10.706
IN COMPLESSO	701	2.195	163	3.059	25.792	1.740	28.851

ANNEX 2.4: RECOGNISED OCCUPATIONAL DISEASES IN ITALY BY SECTOR OF ACTIVITY (1995)

Banca Dati

TAV. CIMP/1.2.1 MALATTIE PROFESSIONALI, DENUNCIATE DALLE AZIENDE, E DEFINITE A TUTTO IL 31 DICEMBRE 1997, PER SETTORE DI ATTIVITA' E TIPO DI DEFINIZIONE.
ANNO EVENTO : 1995

ANNEX 2.5: OCCUPATIONAL DISEASES IN ITALY BY TYPE OF DISEASE (1995)

TAV. CIMP/1.1.5 MALATTIE PROFESSIONALI, DENUNCIATE DALLE AZIENDE, E DEFINITE A TUTTO IL 31 DICEMBRE 1997, PER TIPO DI MALATTIA PROFESSIONALE E TIPO DI DEFINIZIONE.
ANNO EVENTO : 1995

ANNEX 2.6: LIST OF TABLES PUBLISHED BY THE HVBG IN THE BG STATISTICS 1999 BOOKLET .

Companies, man-hours and full workers

Companies, by size

Full workers by branch of industry

Reportable accidents

Accidents

Accident rates

Accidents at work by branch of industry

Commuting accidents by branch of industry

New accident pensions

Accidents

Accident rates

New occupational accident pensions by branch of industry

New commuting accident pensions by branch of industry

Fatal accidents

Commuting accidents and accidents at work

Accidents at work by branch of industry

Occupational diseases (OD)

List of occupational diseases as contained in appendix 1 of the German ordinance

Occupational diseases as contained in appendix to the ordinance of the former GDR

Decided cases

Occupational diseases by subgroup of disease (Summary)

Occupational diseases according to former GDR ordinance

Notification of suspected cases of OD

Recognised cases of OD

New OD pensions

Notification of suspected cases of OD by branch of industry

Recognised OD by branch of industry
New OD pensions by branch of industry
Long term trends in OD

Pensions

Contribution
Remuneration level used as basis for calculating contribution
Apportionment quota required of member companies

Expenditure

Compensation
Curative treatment Pensions
Accident prevention

Prevention

Staff in the technical inspectorate
Selected activities of the technical inspectorate
Occupational safety training events
Participants in occupational safety training events
Safety delegates, industrial safety officers and first aiders

European Agency for Safety and Health at Work

Data to describe the link between OSH and employability

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In order to encourage improvements, especially in the working environment, as regards the protection of the health and safety of workers as provided for in the Treaty and successive action programmes concerning health and safety at the workplace, the aim of the Agency shall be to provide the Community bodies, the Member States and those involved in the field with the technical, scientific and economic information of use in the field of health and safety at work.

European Agency for Safety and Health at Work

<http://agency.osha.eu.int>



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