European Agency for Safety and Health at Work

New trends in accident prevention due to the changing world of work

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European Agency for Safety and Health at Work

R E S E A R C H

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It can be accessed through the Europa server (http://europa.eu.int).

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

Luxembourg: Office for Official Publications of the European Communities, 2002

ISBN 92-95007-70-0

Printed in Luxembourg

PRINTED ON WHITE CHLORINE-FREE PAPER

Contents

Foreword

Changes in the world of work can give rise to new risk areas or change the way that occupational safety and health needs to be managed. This has implications for workplaces themselves and also for the occupational safety and health system. For this reason the 'changing world of work' has been a priority topic for the Agency.

The European Week on Safety and Health at Work 2001 focused on accident prevention. This research information report reviews new trends in accident prevention due to the 'changing world of work' and needs for future research in this area. It is based on expert viewpoints and current scientific literature.

The Agency's Topic Centre on Research — Work and Health, a consortium of European research institutions, produced the report. TNO Work and Employment from the Netherlands coordinated the work. A workshop of experts was used to provide input into the report. Also, the conclusions and statements based on this report were discussed during the closing event of the European Week 2001 in November 2001.

The Agency would like to thank Rik Op De Beeck, Kathleen Van Heuverswyn, Jean-Claude André, Karl Kuhn, Sylvia Lemkowitz, Jorma Saari, Carin Sundström-Frisk, Jörg Tannenhauer, Mercedes Tejedor and Gerard Zwetsloot from the Topic Centre on Research for drafting the report and all those who contributed to the report. The Agency would like to also thank all the other experts who have contributed to the preparation of this report.

European Agency for Safety and Health at Work
May 2002

1. Introduction

1.1. Context of the project

In 1998, the Agency established four topic centres to assist it and its network in carrying out specific tasks (collection and dissemination of information), one of which is the Topic Centre on Research — Work and Health (TC/WH), a consortium of 10 OSH research institutes in Europe. In 2000, the TC/WH prepared a research overview report on the changing world of work in a broad sense (Dhondt et. al, 2001).

In 2001, the TC/WH studied the following topics in more depth:

(i) the OSH implications of new/changed contractual relationships and on new preventive approaches in response to these contractual relationships (See Goudswaard et al 2002);

(ii) new trends in accident prevention relating to changes in working life.

This report focuses on the second issue. The aims of the project were:

- to organise an expert seminar in order to collect and evaluate information on new trends in accident prevention relating to changes in working life;
- to support the organising of the European Week 2001 Closing Event on Accident Prevention.

Many subjects with regard to the changing world of work and the possible influence on accident prevention were taken into account, such as:

- changing industrial organisation with the integration and globalisation of work (Clifton, 2000);
- the free market, privatisation and the closing down of previously large public enterprises and downsizing of large organisations both in the private and the public sector;
- the growth of subcontracting;
- changes in traditional industry and the transformation of the economy to a service economy (Bullinger, 2000; Johansson, 2000);
- changes in technology;
- the growing use of teleworking, homeworking, the changes in working hours, work pace and workload (Work Life 2000);
- the changing labour market with an increase in part-time jobs, temporary work (Johansson, 2000), self-employment (Van Eijnatten, 2001), subcontracting work, the increase of women in employment, the ageing of the workforce etc. (Work Life 2000; Op De Beeck et al. 2001).

The recent evolutions have important implications on OSH management (Clifton, 2000; Benach et. al. 2001). New technologies can reduce old risks but may also create new risks. Subcontracting creates uncertainty about the responsibilities for safety. The size of the company has to be taken into account, because small enterprises and individual workers often do not have the management structure to develop effective accident prevention (Op De Beeck et. al., 2001). Accident prevention has definitely been a successful activity over the decades. The principles, models, and theories applied have helped to direct preventive actions to maximise the efficiency of prevention. Yet, prevention cannot use the same approaches from decade to decade, since the demands and settings of working life change (Saari, 2001).

1.2. Methodology

The Topic Centre on Research has collected specific information about new trends in accident prevention due to the changing world of work. This information was gathered in two ways: (i) by a preparatory literature search and (ii) by an expert seminar (referred to in this report as the 'expert group'). During this seminar on 9 and 10 May 2001 in Brussels, different experts discussed the topic (Annex 1). In order to prepare the seminar and the report, the questionnaire was sent to a larger group of experts (Annex 2) before the seminar.

On 22 and 23 November 2001, the European Conference and Closing Event of the European Week for Safety and Health and Work took place in Brussels. This year's theme was 'Prevention of work-related accidents: a different strategy in a changing world of work?'

Two of the five pre-conference workshops, organised by the Belgian Presidency, in collaboration with the organisation Prevent, were dedicated to new developments: 'New concepts in the prevention of work-related accidents in the changing world of work' and 'From prevention of occupational accidents to safety promotion, the impact of new contractual relationships'. The input for the workshops was based on this specific TC/WH task and its conclusions were discussed during the workshops (Annex 3).

1.3. Contents of this report

In this report the results of the literature search and the results of the questionnaire and expert seminar are presented. The contributions of the politicians and other participants at the European conference as well as the conclusions of and the expert opinions expressed during the workshops have also been integrated in this report (Annex 3).

In Chapter 2 the relation between accident prevention and changes in the world of work are described. Also, the effect of these changes on the nature of work accidents are discussed in Chapter 2.

In Chapter 3 we look at successful prevention strategies that take into account this changing world of work.

Conclusions and needs for further research are formulated in Chapter 4.

2. The relation between accident prevention and changes in the world of work

The message that the 'world of work is changing' echoes from many different European publications and is an important theme at several European conferences. Some examples of conferences on the theme in the past include the conference on 'The changing world of work' held in Bilbao (October 1998), organised by the European Agency for Safety and Health at Work together with the Austrian Presidency of the European Union; and the conference 'The future of working conditions' organised by the German Presidency of the European Union (see Dhondt et al, 2001; Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, 2000).

Generally, there was a consensus in the expert group about the important influence of the changes in industrial organisation and the changes in the labour market on accident prevention. Change is an inherent aspect of our society. According to the expert group, the changing factors, as listed in Chapter 1, should be considered representative of the actual changes.

2.1. New risks versus old risks

There has been a considerable improvement in occupational safety during the past decades (e.g. Saari, 2001). The number of severe injuries has decreased — some people may even consider accidents a solved problem. The media often seems to present the idea that physical problems belong to the past and that nowadays workers are threatened by totally new risks.

The statistics, however, tell us otherwise. In the European Union, 5 500 people per year lose their lives, and more than 75 000 people lose their working ability permanently. The European Foundation for the Improvement of Living and Working Conditions has conducted three surveys into occupational health and safety problems in the EU countries. The first one was in 1991 and the last one in 2000. The surveys show that people experience more physical problems from work, such as the manual handling of heavy loads. The problem of physical workload and injuries has not been resolved until now.

The importance attached to the possible impact of recent changes in the world of work on accident prevention, probably finds its origin in the growing speed in which they take place and the increasing scale of industrial activities. Seillan (2001) states that the growing complexity of multiple changing factors that take place simultaneously threatens the presently established organisational structures. As has been pointed out, companies can no longer concentrate on optimisation of safety approaches in a stable environment but have to anticipate change, new knowledge and new evolutions (Totterdill, 2001).

Saari (2001) states that humans tend to underestimate known risks and overvalue new risks. Falls cause a large proportion of fatalities at the workplace. However, the risk is not new since humans have fallen since they have learned to walk. The risk of violence is new to many workers and therefore more interesting as a topic of prevention and research. Both types of risks, new and old, should be properly identified and kept under control.

2.2. Impact of changes

It is difficult to draw conclusions from statistics in order to give a good description of the impact of changes on the rate or the nature of work accidents. Sometimes it is even impossible to compare statistics because of the use of different definitions of a 'work accident' or even different definitions of 'work'. Also, the explanation of evolutions is often very difficult.

Decreasing rates of accidents might be explained by better prevention strategies or by the exportation of dangerous activities (Thébaud-Mony, 2001). They might be explained by the use of new technologies/products and/or better training, or by the increase in illegal employment (the so-called black labour market) of which no statistics are available (Work Life, 2000). The expert group agreed that not all the changing factors have the same impact on safety.

2.2.1. Precarious character of employment

For some workers, who have moved to temporary work, subcontracting or self-employment, this shift might even have positive effects because of increased specialisation and greater job satisfaction. For others though, it might create uncertainty, lead to less involvement, having a negative effect on their job satisfaction and their safety behaviour.

Huuhtanen and Kandolin (1999) refer to a Scandinavian study from 1995–96 that has revealed a 10–15 % higher rate of accidents for temporary workers in industry than for workers in permanent jobs. No differences in accident rates could be found in service work between temporary and permanent jobs (Report of Federation of Accident Insurance Institutions, 1999, cited in Huuhtanen and Kandolin, 1999).

Several other authors have looked at the impacts of temporary work on safety (François and Lievin, 2000; Morris, 1999). They have observed a higher risk of accidents for workers on fixed-term contracts and temporary work. Whatever form the new contractual relationships take, the expert group agreed that the determinant element having an impact on safety is the precarious character of the employment. In the Netherlands, the observed increase of accident rates in contractor firms in the chemical sector led to the introduction of the VCA (certificate for subcontractors) (European Agency, Marketing and Procurement, 2000).

2.2.2. Increased mobility

Nevertheless, some developments change the pattern of accidents and risks very clearly, for example, the tremendous expansion of transportation (Saari, 2001). Both people and goods move more than ever, with all the inherent hazards and risks. The increasing mobility of workers is statistically observed to have an influence on traffic accidents (Prevent, 2001). These accidents should not be neglected as a subcategory of work-related accidents.

2.2.3. Size of companies and downsizing

Problems related to the size of the company were also discussed with regard to the possibility of developing efficient safety and health management and coping with change.

Accident risks are higher for those employed in small and medium enterprises (SMEs). The incidence rate for fatal accidents to workers in enterprises with less than 50 employees is about twice the rate of larger units (Eurostat, 2000).

A Norwegian study on downsizing in the chemical industry showed a relationship between precarious employment and increased risk behaviour (Rundmo, 2001). Several studies have identified the link between downsizing/organisational restructuring and increased occupational violence, bullying or aggressive behaviour at work (Snyder, 1994; McCarthy et al, 1995; McCarthy, 1997).

Clifton (2000) states that new structures of enterprises can, in some respects, have a negative effect on health and safety at work because:

- pressures are experienced by the informal management structures of very small firms. This is because they mainly rely on the support of external health and safety services for the development of their prevention and risk management policies and they lack in-house expertise that may cause a deficiency of risk awareness, which may lead to neglecting health and safety standards;
- uncertainties arise from new organisational structures: for example, the fragmentation of traditional large enterprises, resulting in complex structures involving many interfaces based on contractual relationships, gives rise to uncertainty about responsibility;
- workers are consequently in more precarious employment relationships: they may suffer erosion of long-term skills and competence.

Clifton predicts that at the more sophisticated and successful end of the employment spectrum:

- larger and more sophisticated firms will not reverse the process of contracting out both core and non-core functions, but will continue to look to quality management approaches to retain control and to discharge their own legal responsibilities, in particular for health and safety at work;
- the smaller firms that will survive may be those that can cope with the sometimes complex and bureaucratic requirements of larger enterprises, but which are firms that can maintain a good record, particularly in terms of their performance in the field of health and safety at work.

2.2.4 Mobility of workers within the European Union

The European market involves greater mobility of workers within the European Union but also attracts workers from outside the European Union. The influence on safety of communication problems and cultural differences were mentioned by the expert group as a challenge for the future.

2.2.5. 'Change' as such

The most important 'new' factor in the changing world of work seems to be 'change' as such (Hale et. al., 1998). Work organisations become more complex and change often creates uncertainty due to unknown hazards, the fear of losing control because of complexity, the lack of information/communication, less transparency. Large companies that decide to reorganise, by means of, for example, outsourcing and/or downsizing, often note an increase of accident rates in the beginning. But, according to the expert group, once the situation has regained stability, accident rates also stabilise.

2.2.6. Social acceptance and regulatory initiatives

From a broader societal perspective, the decreasing social acceptance of risks leads to new collective demands. Risks are no longer considered as an inevitably inherent side-effect of our industrial activities.

Saari (2001) emphasises that one cannot be satisfied with occupational health and safety as long as anyone can lose a spouse, a parent, a son or daughter in an accident. It is a basic human right to return home safe from work. Nobody should be killed or harmed in work accidents. As long as the harm exists, there is a job to do.

These expectations concerning the quality of our environment and the acceptable level of health and safety risks have an impact on political decisions and are reflected in recent regulations: reflexive legislation, the precautionary principle etc (*Dossier Prévention et Précaution*, 2001).

3. Research on successful accident-prevention strategies and the changing world of work

In this chapter the following questions will be answered.

- Are there any examples of new, successful approaches, programmes, intervention strategies into accident prevention in relation to new technologies and new work organisation (such as contractual relationships: subcontracting, flexible contracts, temporary agency work, part-time work and teleworking)?
- Is there any validated know-how on success factors for prevention of accidents in relation to any of the elements of the changing world of work?

3.1. Aspects to successful safety management

Changes in work organisations do not only create risks, they also provide opportunities to improve the safety level.

3.1.1. Regulations

Under pressure of accelerating change, regulations have evolved from detailed, prescriptive provisions and standards to more general requirements and obligations. Deregulation replaces the responsibility on the company management to develop their own performance indicators and to improve their management systems (Jensen, 2001).

There are opinions that this shift gives satisfying results for large companies, who have the means to develop appropriate programmes, management tools, training, etc. The bureaucratic paperwork though (that the authorities had to take care of before) is felt as a considerable burden (but nevertheless indispensable because of the burden of proof in the liability regimes) (Opinion of the Economic and Social Committee, 2000; Hovden, 1998).

Another inconvenience is the difficulty for SMEs to cope with this new type of regulation. They often do not have the required resources, in terms of knowledge, time or financial means to develop adequate instruments (Op De Beeck, 2001). Specific support systems need to be developed, taking into account the size of these companies. The difficulty in elaborating these support instruments is that the experts in charge do not always speak the language of the target group (Hovden 1998).

Example: 'Internal control' regulations in Norway (and Sweden)

This Norwegian experiment was an attempt to develop new approaches and means to cope with new, unknown problems of misfits between technology development and regulations. Initially developed for the offshore petroleum industry, these regulations have been extended to all companies. The Norwegian regulations include a number of requirements for managing the environmental impact. The Swedish regulations are limited to OSH (Hovden, 1998).

At the European level, different regulatory initiatives have been taken (see, for instance, the Framework on Part-time Work, 1997; and the Framework on Fixed-term Work, 1999); World Health Organisation, 1999 and 2000). The European Commission Green Paper 'Partnership for a new organisation of work' (1997) stresses that the challenge is how to develop or adapt policies which support, rather than hinder, fundamental organisational renewal and to strike a productive balance between the interests of business and the interests of workers, thereby facilitating the modernisation of working life.

For some specific branches in Member States, regulations have made an attempt to solve some of the observed problems related to new evolutions:

- regulations of temporary agency work in Spain: duties and obligations for prevention strategies, information, training, exclusions;
- exclusion of temporary workers in the construction sector in Belgium;
- European and national regulations on temporary or mobile construction sites.

New regulations can also help small and medium enterprises (SMEs) to cope with safety and health issues. For example, the use of safety and health services that have to offer a certain (legally determined) quality of service to SMEs. This type of procedure can bring expertise and practical solutions to these SMEs (Prevent, 1999).

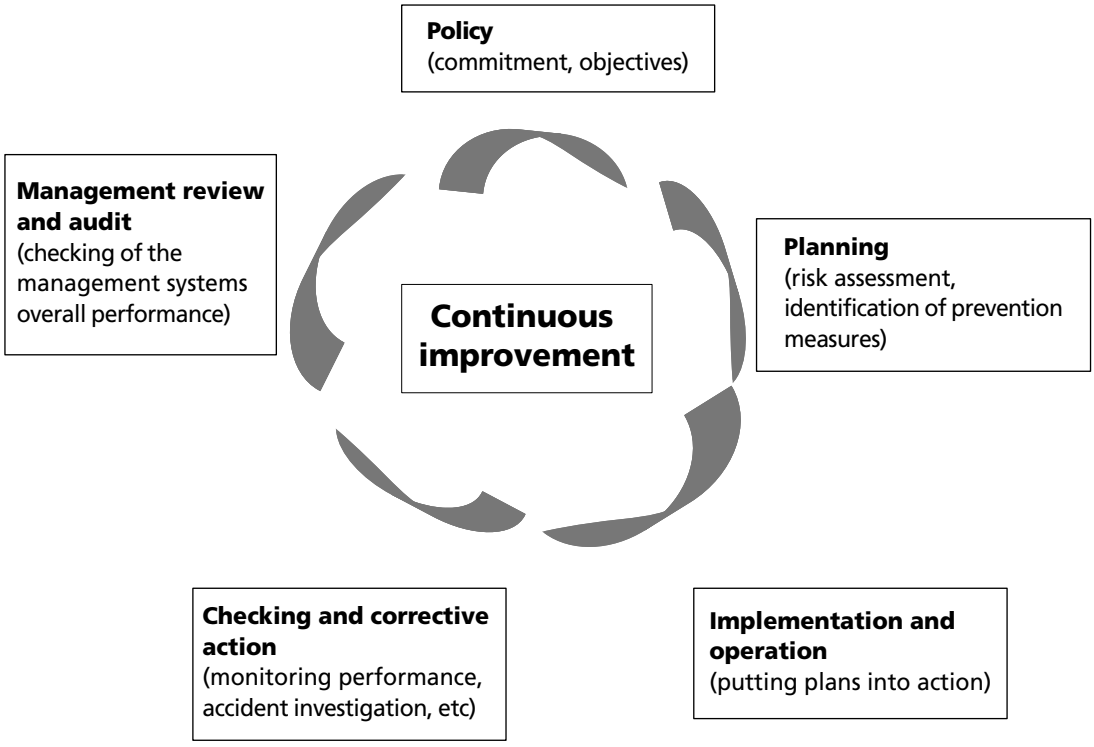
The European legislation based on preventative (anticipatory) risk assessment with a review and monitor process built in, supports this positive approach.

3.1.2. Management commitment

Successful accident prevention consists of (i) strong management commitment, (ii) good employee involvement and (iii) well-structured management. A commonly accepted management model to deal with safety and health problems is 'the circle of continuous improvement' (Figure 1) (European Agency for Safety and Health at Work, 2001).

The management review is an opportunity to look forward to changes in business structure, development of new products, the introduction of new technology or the introduction of new legislation.

Figure 1: **The circle of continuous improvement**



Accident investigation within the cycle of continuous improvement

The established system for safety management includes hazard identification, risk assessment, implementation of prevention measures, monitoring and review. Therefore, within this cycle, continuous learning from accidents and incidents is crucial, but often overlooked. If there are no records, there is no pressure for improvements. If there are no proper investigations, there is no learning from accidents and the continuous improvement cycle is broken.

In the future, a more prevention-oriented recordkeeping is necessary. For example, an American union representing paper workers has suggested a performance index, which should motivate the implementation of effective remedies. The system records all incidents, near misses, accidents, and potentially serious accidents, such as, nip/pinch point injuries, which are indicative of potentially fatal hazards in the paper industry. If the recommendations made after the investigation are in place in 90 days, near misses and less serious incidents are not included in the index. The same applies partly to the defined potentially serious accidents. Initially, they are marked as two incidents in the index. If the remedial action is in place within 90 days, they contribute only as one incident.

As performance measurement is more common in working life, a more prevention-oriented index might be a powerful tool for pressing towards the implementation of remedies, which all too often is neglected in an organisation (Saari, 2001).

3.1.3. The importance of networking

Cooperation is sought through networking in order to maximise the benefits of the means deployed. Multinationals are in a position to export good practices established in one part of their operations to their operations in other countries, or to set common safety standards to be met in all of their operations. Similarly, they may specify safety requirements for their procurement and contracting activities throughout the company. Particular safety problems solved by one branch can also be communicated to other branches, for example by means of the company intranet (Saari, 2001).

Also on a sector level, efforts could be made to profit from examples of good practice. Exchange of information between companies about risk assessment and implementation of prevention measures should be stimulated.

Globalisation

James (2000) concludes that the consequences of globalisation are usually mixed. Operating on a world scale can mean that companies have little moral or economic responsibility to countries where they choose to site production, and yet these companies' influence casts a long shadow. Companies can make decisions based on cost and then walk away from the results. But Saari (2001) emphasises that globalisation also offers a potential platform for accident prevention. The current trend seems to be that people expect better corporate citizenship from global corporations than from local ones. The public image of companies with a poor safety and environmental record is at risk. It is very bad publicity when negative effects of globalisation are splashed across our television and newspapers. Corporate social responsibility (CSR) (Green Paper, European Commission ([1])) can provide a structure for safety promotion as many global companies have already demonstrated their willingness to set high safety goals. In fact, many have already achieved lower accident figures.

3.1.4. Safety ethics

(i) Company values

A good safety culture is a work environment where all members of the organisation share a high safety ethic. Either fatalism, or production-first thinking, provokes the negligence of hazards in a bad safety culture. Top management commitment is essential to promote a safety culture (Saari, 2001).

([1]) http://europa.eu.int/comm/employment_social/soc-dial/csr/greenpaper.htm

Companies that embrace social values and act conscientiously according to their mission statement seem to generate a positive mentality and significant involvement on the part of their employees. A coherent policy, starting with a mission statement and realised through concrete initiatives, programmes and actions, within and outside the company, can mobilise employee commitment. This influences, in a positive way, the safety culture as a whole and even the individual risk behaviour of the employees.

(ii) Community approach

Another development of working life is that the borderline between working time and off work is getting more blurred. Safety efforts in society are usually organised separately according to life's time segments, e.g., work, leisure, home and traffic. Yet, the national and local safety culture affects all these segments. A person who is safe at work should not become unsafe in traffic. Safety efforts, however, are divided into different areas, for example different government departments usually cover different areas of safety. Safety efforts should be pooled and an integrated approach is needed (Saari, 2001).

The idea of a 'community approach' (Economic and Social Committee, 2000) is to change the mentality of the entire community in various accident-protection sectors. It should not only be limited to the professional environment, but also broadened to private life, domestic life, leisure activities, and education at school in order to improve attitudes to safety. Successful experiments with the community approach have been conducted worldwide.

The aforementioned actions should not be limited to the workplace. The intentions of the company to put their mission statement into concrete actions gains credibility when other initiatives and actions are supported that do not have a direct or visible link with the working environment.

Example: The community involvement statement of DuPont de Nemours

'Sustainable communities recognise the interdependence of social progress, economic success and environmental excellence. Through financial contributions and the active voluntary participation of employees, DuPont provides support to programmes and non-profit organisations that address one or more components of community sustainability.'
(DuPont De Nemours, s.d.)

Other examples are education programmes at school, awareness campaigns for better safety and health behaviour at home, during leisure time and availability of sports facilities.

The safe community programme promoted by the World Health Organisation is a new approach to help build a good safety culture at large. The focus of this programme is in a community, such as a town, a county, etc. The programme aims at improving safety in the community area no matter whether it concerns traffic, work or leisure. Safe community programmes have given positive results.

3.2. The changing world of work — an opportunity for safety promotion

Change can also be an opportunity to improve safety at work. How can we reach the higher safety level? How can we move from accident prevention to safety promotion?

As already mentioned, work organisations are changing at high speed. This dynamic situation requires a dynamic approach in occupational safety and health prevention (Grossmann and Martin, 1999). The circle of continuous improvement is a dynamic model, but can only succeed if there is a strong management commitment. Also, success in improving the level of safety,

following the legislation, supposes a strong commitment and social responsibility of the management.

3.2.1. Social marketing

When it comes to safety, marketing techniques have rarely been used. As safety is not a product but a value, social marketing strategies may offer perspectives to motivate people to change their attitude, to show companies how the improvement of safety can create profits, and to convince politicians of the overall benefits of an integrated safety policy.

Social marketing can contribute to the shift from actual generally repressive approaches to more incentive-driven, prevention-oriented concepts (winner systems).

Insurance companies are not convinced to grant bonuses for certified safety strategies. But they are often willing to give a reduction afterwards, based on accident rates, but are very reluctant to do so for prevention efforts.

Therefore, social marketing could introduce the concept of social insurance, emphasising prevention policy. A change of mentality seems to be the best strategy. Safety practitioners do not need to be convinced any more of this objective need.

Social marketing can help to raise awareness of different groups of end-users, who are less familiar with safety matters and thus need to be convinced of their subjective needs.

- Employees and the public as a whole should become aware of the importance of a safety attitude and a safety mentality.
- Industry should abandon the illusion that bad-case scenarios will not happen to them.
- Politicians need to be aware of their social responsibility in developing regulations.

3.2.2. Labelling and certification (of products, goods, services)

Companies, governments and sector organisations have been looking increasingly at additional ways of promoting health and safety (European Agency for Safety and Health at Work, 2000). Two important evolutions have been identified:

(i) the use of occupational safety and health as a criterion in purchasing products and services from other companies; and

(ii) the use of occupational safety and health as a marketing element for promoting the sales of products or services.

There is an increasing demand for measuring, documenting and communicating OSH qualities in marketing material and to assist customers in choosing products and services in a safe and healthy manner. Though labelling and certification have initially been developed as a marketing tool aiming at increased productivity and competitiveness, the positive impact on safety and health of the workforce is undeniable.

Some examples of labelling (European Agency for Safety and Health at Work, 2000):

- Fiskars (FIN): ergonomic garden tool designing;
- Köning and Neurath (D): ergonomic designing of office furniture, based on a holistic concept;
- Polytop Autopflege (D): development of an information and customer service programme for the handling of chemical agents, such as car-cleaning products;
- TCO (S): a voluntary labelling scheme, introduced by the Swedish trade union TCO to encourage the development and the dissemination of information on office equipment;
- NF HSA by Bongard (F): this label testifies quality, safety and reliability of bakery equipment.

Examples of certification, selection criterion for contractors (European Agency for Safety and Health at Work, 2000):

- VCA — Veiligheids Checklist Aannemers;
- BeSaCC — Belgian safety criteria for contractors;
- Security-certificate-contractors in Germany (SCC);
- the A/S Øresund experience (DK);
- the Renault-technocenter experience.

3.2.3. The implementation of management systems

The same reasoning as for labelling and certification inspired the development of management systems that integrate occupational safety and health into the overall management strategy.

Examples of integrating safety to management systems:

- 6E management system (S) (Work life, 2000);
- the Spanish plan against work accidents. The Ministry of Work and Social Affairs, in collaboration with the regional communities, promoted a plan against accidents in enterprises with high rates of accidents. This plan, initially elaborated by the Committee of Aragón, included the identification of those companies with an incidence rate that is higher than the average observed in their branch. Secondly, a comprehensive field research was carried out on 36 000 companies that accumulated more than 40 % of the total amount of industrial accidents. The plan is presently being evaluated, but the current (not yet definitive) results show a decreasing number of accidents in the participating companies;
- HASAS / OHSAS 18001;
- the draft ILO guidelines of OHS management systems;
- 'Towards good practices in health, environment and safety management in industrial and other enterprises' (WHO, 1999);
- 'European criteria and indicators of good practices in health, environment and safety management in enterprises-occupational and public health perspective' (WHO, 2000);
- 'Medium-term research plan' by INRS (F);
- occupational safety and health management systems: common point of view of the Federal Ministry of Labour, the administrative safety and health authorities of the German states, the administrative authorities of the accident assurance and the social partners of 1 June 1997;
- BS 8800: 1996 (British Standard);
- COSSH essentials;
- expert system of the British Health and Safety Executive (HSE) to determine measures for the handling of chemical products.

Specific examples for occupational safety and health management systems in enterprises:

- OSHMS as part of an integrated management system at British American Tobacco (Germany);
- OSHMS as part of enterprise management at the brewery Kulmbach.

These examples show that there are interesting developments that try to cope with new demands and settings of the working life. The expert group mentioned different concepts that can help to prevent accidents.

3.2.4. Management objective: zero accident vision

A company prevention policy needs clear objectives. Companies aim to decrease the number of accidents, but accidents still seem to be part of daily working life. Some companies do not accept this fatality and follow a zero accident vision as a management objective. This is a new approach — and under condition that it is understood correctly — it should be promoted.

Saari (2001) states that the zero accident vision is not directly a goal in the usual sense. Rather, it is a way of thinking that all accidents are preventable. It is too common for people to accept accidents, or a certain level of accidents, just because they think prevention is impossible in that situation. In this way, many hazards and injuries are tolerated without attention.

The higher safety goals to which work organisations commit themselves are a step towards higher adoption of zero accident vision. Promoting this vision is an important weapon in the battle against fatality, which is still far too common.

3.3. Anticipating new risks by dynamic management systems

3.3.1. Participation

Participation implies that all the persons involved in the work system (managers, workers, experts) participate in risk assessment and prevention activities. Global participative approaches often have a positive impact on the whole work system and on all the factors and elements that can lead to work accidents. Participation in risk analysis during training has a positive impact on the attitude of people, which is often the bottleneck in accident prevention. The workforce can learn to look at its own work activities from a health and safety point of view. The use of the perception of people involved in the work can lead to the identification of hazards and risks at a very early stage. It is also an opportunity to integrate this information in the concept of new workplaces and work organisations. If everybody in the company looks at the work with this safety view, and under condition that everybody feels responsible for safety, this participatory approach can produce a dynamic anticipation of new risks in rapidly changing working conditions. Different companies in Belgium have applied this approach successfully (Op De Beeck, 1998).

3.3.2. Performance measurement of prevention: moving from 'rewarding good safety results' to 'prevention share'

The cost-benefit analysis of prevention is not an easy task. Nevertheless, it is accepted that rapidly changing risks at work can only be tackled effectively when everybody in the company, from the management to every single worker, approaches them proactively. Prevention is being seen as a result of economic considerations and as an investment in companies' innovative capacity and future prospects (Bullinger, 1999). Management systems aim to integrate performance measurement of prevention to achieve a higher safety level.

This approach can be illustrated by an example from Belgium: the system called 'prevention share' of Janssen Pharmaceutica (J. Van Aerle, 2001). This company consists of a chemical production unit, a pharmaceutical unit and a research and development unit.

In the past, the company used a reward system for units with good safety results. The criterion used to evaluate this result was the number of accidents resulting in absence from work. The employees of the departments without accidents during a certain period received a present. However some criticism existed. It was argued that accidents were probably 'bought off', that there was social pressure not to report accidents and that the reward was not commensurate with the prevention efforts of certain departments. One accident could undo all the prevention efforts and could cut down the motivation for prevention.

Therefore, Janssen Pharmaceutica developed a new evaluation system with different criteria called 'the prevention share'. The basic principles of this system were:

- proactive performance measurement: to focus and measure prevention efforts at a departmental level (leadership of the department, involvement of employees, innovation and continuous improvement);
- safety, health and the environment incentive programme: promotion for safety, health and the environment and positive appreciation of all safety, health and environmental efforts at the departmental level.

The starting points of this new system were as follows:

- measurement of positive indicators of prevention;
- measurement of prevention efforts instead of results;
- involvement of all personnel;
- applicable in different working environments (production, research, administration, etc.);
- can be used as an individual encouragement for prevention;
- can be used as a collective promotion of prevention;
- has to lead to continuous improvement of the prevention level;
- simple to follow and to evaluate.

The 'prevention share' method was created to measure and to evaluate the processes that are necessary for a good functioning prevention system. The word 'share' was chosen because the evaluation value can increase (number of points).

The calculation of the prevention share was based on the following areas (criteria in brackets):

- safety training (10 hours per employee per year);
- safety observation tour by the management (10 tours carried out per year);
- risk inventory (5 analyses performed);
- departmental prevention meeting (8 meetings or equivalent);
- prevention improvement suggestions (1 suggestion per 10 employees);
- accidents (loss of work time due to accidents will decrease the value of the share, but a correct application of incident procedures is taken into account).

The score calculation is well defined with an indication of a maximal score.

Every three months an evaluation of the prevention share is carried out. At the end of the year the value of each department is calculated. The values of the prevention share correspond with a trophy:

- bronze = over 1 000 marks;
- silver = over 1 500 marks;
- gold = over 1 700 marks.

The workers of the departments with a trophy receive a collective present for the department (piece of art) and an individual present such as protective equipment for working at home.

The project is considered very successful. All the departments made significant prevention efforts and the average score was 1 500 marks. Nevertheless a causal relation between the

prevention share and the number of accidents cannot be proven (however the accident rates were the lowest ever achieved). This system generates a positive prevention culture in the company and can be transferred to other companies.

3.3.3. Information/communication

More transparency seems to be an important element of management in general and in management of change in particular (Op De Beeck, 1998). One argument is that one or a few persons within the company are not able to cover all the aspects anymore and therefore information should be shared. Another argument is that well-thought-out information and communication campaigns can be very efficient in dealing with uncertainty. As several studies show, limiting the feeling of uncertainty amongst workers has a positive impact on job satisfaction and on risk behaviour.

Example: The Artesia pilot project to accompany the introduction of teleworking (Travail et Bien être, 2001)

The confrontation with change is a learning process. The changes are often perceived as a menace, an additional load. In this case, several initiatives have proven to be successful, for example:

- the setting-up of an information campaign;
- clear communication on the goals of the project;
- correct timing.

Emphasis was laid on the company culture and four values (agreement, trust, liberty and respect) and on cooperation and participation at different levels.

3.3.4. Life-long learning

Safety and health prevention can no longer be controlled by merely learning from the past. Workers might be less experienced and organisations may lose their knowledge due to changes. Also, hierarchical structures are being broken down. Therefore, self-control and self-steering are considered to be increasingly necessary in the field of prevention. Actions have to be developed to increase employees' capabilities to handle risks (Jager and Sturk, 2000). Life-long learning is becoming more important to sustain one's employability, as well as to sustain health and safety. Temporary and fixed-term employees and part-time employees have less access to training and often perform tasks that require fewer skills. The consequence is that they have fewer opportunities to learn on the job. They are also less informed about the risks of their jobs and have less access to participation. This poses a problem for OSH management, but also for human resources management in general.

Education and learning in the broad sense (e.g. academic training for a specific job profile, training on the job for a specific function, refresher courses in order to keep up with new developments) have become a never-ending assignment. Keeping up with and anticipating new evolutions are the key elements in our changing society. Life-long learning can help to anticipate changes and to cope with risks.

Examples of life-long learning:

- Siemens Learning Valley (SLV) (Human Resources Magazine, 2001): this concept views Siemens as a 'learning organisation'. Different tools and initiatives aim at encouraging the exchange of information and experience between different departments within the company. A lot of courses, articles and presentations are made available worldwide for all Siemens employees. Horizon is one of the initiatives. This is intended to be an online classroom and learning square, the e-learning platform where training courses, FAQs, discussion panels and a list of 'coaches' (collaborating experts) are available;
- in the chemical industry, targeted and compulsory health and safety training courses for every worker every year is a common practice;
- some certification systems (for example: VCA) stress the importance of repeated training and can help to promote life-long learning. Everybody must receive fundamental training regularly for certification to be renewed.

3.4. Integrated, holistic approach and sustainability

3.4.1. Holistic approaches

A holistic approach integrates safety, health, environment and quality aspects (Visser, 1998). The accent should lie on conceptual prevention, not only concerning technical equipment and machines but also in the concept of work organisation and task design. The holistic approach is based on a system approach, where attention is given to all the constituent elements of the system, and based on the understanding that changing one element can change the whole system, influencing hazards and risk occurrence.

The holistic approach should be integrated from the early stages of development, design and planning. All products and services should be inherently safe: sustainable workplaces, sustainable entrepreneurship. Holistic approaches can contribute to the efficiency as well as the profitability of safety, health and quality management.

Examples:

- MBA training as developed in the UK, including a more global, holistic approach (such as OSH) as a guideline;
- Prevent in Belgium developed programmes for engineering departments. Training was given about integration of safety and ergonomic principles in the concept and design of work systems and work places.

3.4.2. Encouraging inherently safer production

Ashford and Zwetsloot (2000) state that in order to make significant advances in accident prevention, the focus of industrial firms must shift from assessing the risk of existing production and manufacturing systems to discovering technological alternatives, that is, from the identification of problems to the identification of solutions. In the change of working conditions and production systems it is important to identify specific inherently safer options. This will advance the adoption of primary prevention strategies in production systems. Successful approaches to encourage inherently safer production require both technological and managerial changes. Firms must have willingness, opportunity and the capability to change.

4. Conclusions and needs for further research

Change is a key element to the extent that 'management of change' is proposed as the ideal way to cope with new developments and the problems (hazards and risks) deriving from it. Because of the high speed of change, a dynamic approach in occupational safety and health prevention is required. Change can be an opportunity to improve safety and to move from 'accident prevention' to 'safety promotion'. The following can be concluded.

(i) **Social responsibility and management commitment** are necessary success factors. Companies, governments and sector organisations have increasingly been looking at additional ways of promoting health and safety. The use of OSH as a criteria in purchasing products and services from other companies and as a marketing element for promoting the sales of products or services have an important influence on the promotion of safety. This has resulted in the labelling and certification of products, goods and services, but also in new management systems.

(ii) **Clear management objectives** are important. The accent should be put more on prevention, but also on the recording of safety data. We should also include prevention performance indicators in the rewarding systems of good safety results. Zero accident vision provides a clear management goal for accident prevention.

(iii) It is important to realise that **effective OSH management** in a fast-changing working environment needs good information and communication flow about the changes, participation of personnel involved, and a holistic approach to analysing and solving problems. The starting point for good prevention in every changing production process is to look for inherently safer production. To be able to cope with the new risks, life-long learning is indispensable. Special support should be given to small enterprises to realise this.

(iv) **Safety promotion** concerns influencing company values and the creation of a safety and health culture. A community approach can help to cross the borderline between working time and private time.

(v) **Globalisation** may have negative consequences but it can also offer a new platform of accident prevention. The correct use of networking can be important to export and exchange good practice examples.

(vi) There is still **little research** into the scope of the OSH problems due to the changing world of work, although several publications already exist as referred to earlier. There are some case studies, with examples of good practices and new approaches. Validated or evaluative research into the success of these good practices is needed.

(vii) **Some gaps in research knowledge** have been identified, for example, the topics mentioned above that have not been investigated enough. Other gaps concern research methods. Sauter and Rosenstock (2000) mention some essential research topics to better understand how work organisation is changing and what the implications are of these changes and prevention measures on safety and health:

- the need to further embed work organisation as a discipline in the occupational safety and health field;
- the need for improved mechanisms for surveillance of changing work organisation and effects on job characteristics;
- the need for targeted safety and health effect studies of changing work organisation;
- the need for increased emphasis on (organisational) intervention research;
- the need for improved research methodologies in studies of work organisation and safety and health.

(viii) Also, research about how **regulations** can contribute to safety promotion, taking into account the fast-changing world, is needed. The Nordic studies on internal control are examples of this type of research.

(ix) Change is often seen as a critical moment and menace, but it can also be **an opportunity for improvement**. Therefore we should invest in research to learn from the past and to anticipate future evolutions: 'Savoir pour prévoir, prévoir pour prévenir' ([2]).

([2]) 'To know in order to foresee, to foresee in order to prevent.'

5. References

Ashford, N. and Zwetsloot, G., **'**Encouraging inherently safer production in European firms: a report from the field', *Journal of Hazardous Materials*, 78 (2000), pp. 123–144.

Benach, J., et al., 'A new occupational health prevention for a new work environment: needs, principles and challenges', *TUTB-Saltsa Working Without Limits Conference and Newsletter*, No 15–16, February 2001.

Bullinger, H. J., 'Innovation und Prävention'. In: W. Eichendorf et al (ed.), *Arbeit und Gesundheit Jahrbuch*, 2000, Universum, Wiesbaden, 1999, pp. 19-40.

Bullinger, H. J., 'The changing world of work: prospects and challenges for health and safety', *Magazine of the European Agency for Safety and Health at Work*, No 2, 2000.
http://agency.osha.eu.int/publications/magazine/2/article.php3?nr=4&lang=en

Bundesanstalt für Arbeitsschutz und Arbeitsmedizin. 'The future of working conditions', European Conference on 8 and 9 June 1999. *Schriftenreihe der Bundesanstalt für Arbeitsschutz und Arbeitsmedizin*. Dortmund/Berlin, 2000.

Clifton, R., 'The consequences of new enterprise structures', *Magazine of the European Agency for Safety and Health at Work*, No 2, 2000.
http://agency.osha.eu.int/publications/magazine/2/article.php3?nr=5&lang=en

Council Directive 97/81/EC of 15 December 1997 concerning the framework agreement on part-time work. http://europa.eu.int/eur-lex/en/lif/reg/en_register_052020.html

Council Directive 1999/70/EC of 28 June 1999 concerning the framework agreement on fixed-term work.
http://europa.eu.int/eur-lex/en/lif/reg/en_register_05202020.html

Dhondt, S., Goudswaard, A., Jungeteg, G., Knave, B., Ennals, R., André, J.C., Huuhtanen, P., Kuhn, K., Peirens, K. and Pinella, J., *Research on the changing world of work: implications on occupational safety and health in some EU Member States*. Bilbao, European Agency for Safety and Health at Work, 2001. http://agency.osha.eu.int/publications/reports/#cww

Dossier Prévention et Précaution, Préventique Sécurité, n° 56, mars–avril 2001, p. 3–39.

DuPont De Nemours, 'The community involvement statement', s.d.

Economic and Social Committee, 'Health and safety in the workplace: application of Community measures and new risks' (2000/C 51/11), OJ C 051, 23.2.2000, p. 33–41.

European Agency for Safety and Health at Work, 'Successful management to prevent accidents', *Fact sheet*, 13. http://agency.osha.eu.int/publications/factsheets/facts13/

European Agency for Safety and Health at Work, *Occupational safety and health in marketing and procurement*, 2000, http://agency.osha.eu.int/publications/reports/#marketing

European Commission. Green paper on corporate social responsibility. http://europa.eu.int/comm/employment_social/soc-dial/csr/csr_index.htm

European Commission. Green Paper on partnership for a new organisation of work. European Communities, 1997.

Eurostat, 'Accidents at work in the EU in 1996', *Statistics in Focus*, Theme 3–4/2000.

François, M. and Lievin, D., 'Occupational safety and risk factors for temporary employees', *Cahiers de Notes Documantaires de l'INRS — Hygiene et securite du travail*. ND 21-178-00.

Grossmann, A. and Martin, H., 'Flexible management system for occupational safety and quality', *International Journal of Occupational Safety and Ergonomics*, Vol. 5, No 2, 1999, p. 195–215.

Hale, A., Baram, M. and Hovden, J., 'Perspectives on safety management and change', In: Hale & Baram (eds), *Safety management: the challenge of change* (1998), Elsevier Science, Oxford, p.1–18.

Hovden, J., 'Models of organisations versus safety management approaches: a discussion based on studies of the "Internal control of SHE" reform in Norway'. In: Hale & Baram (eds), *Safety management: the challenge of change* (1998), Elsevier Science, Oxford, p.23–41.

Human Resources Magazine, interview with Karel Verhelst, HR manager Siemens Belgium, No 66, January 2001.

Huuhtanen, P. and Kandolin, I., 'Flexible employment policies and working conditions'. National report, Finland. Prepared for the European Foundations for the Living and Working Conditions (Project No 0203) December 1999.

Jager, W. and Sturk, P., 'Zeitarbeit und Arbeitssicherheit bedingen einander'. *BG (Die Berufsgenossenschaft)* 2000, No 5, p.258–261.

James, L., 'Redefining work as a result of globalisation and the use of new information technologies', *Magazine of the European Agency for Safety and Health at Work*, No 2, 2000. http://agency.osha.eu.int/publications/magazine/2/article.php3?nr=13&lang=en

Jensen, P. L., 'Conclusions and perspectives: reconsidering regulation', *TUTB-Saltsa Working Without Limits Conference and Newsletter,* No 15–16, February 2001.

Johansson, A., 'Work organisation in an ageing Europe', *Magazine of the European Agency for Safety and Health at Work*, No 2, 2000.
http://agency.osha.eu.int/publications/magazine/2/article.php3?nr=10&lang=en

McCarthy, P. 'When the mask slips: inappropriate coercion in organisation undergoing restructuring'. In: McCarthy, P, Sheehan, M. (Eds), *Bullying: from backyard to boardroom*. Sydney: Millenium Press, 1997.

McCarthy, P., Sheehan, M. and Kearns, D., 'Managerial styles and their effects on employees' health and well-being in organisations undergoing restructuring'. Research report prepared by Worksafe Australia, Sydney, 1995.

Morris, J.A., 'Injury experience of temporary workers in a manufacturing setting: factors that increase vulnerability', *American Association of Occupational Health Nurses Journal*, Vol. 47, No 10 (October 1999).

Op De Beeck, R., *Participatieve risicoanalyse*, Universiteit van Antwerpen, 1998.

Op De Beeck, R., Hermans, V., De Broeck, V., Willems, F. et al. Study on accidents at work and employability, European Agency for Health and Safety Work, 2001.

Opinion of the Economic and Social Committee on 'Health and safety in the workplace — application of Community measures and new risks', (2000/C 51/11), OJ C051, 23.02.2000, pp. 33–41

Prevent, *Dossier statistiques, Accidents du travail et maladies professionnelles*, 2001.

Rundmo, T., Study on organisational change, job security and occupational risk-taking behaviour in the Norwegian chemical industry, Dept. of Psychology, Norwegian University of Science and Technology, 7491 Trondheim, Norway, 2001.

Saari, J., 'Accident prevention today', *Magazine of the European Agency for Safety and Health at Work*, No 4, 2001.
http://agency.osha.eu.int/publications/magazine/#4

Sauter, S. and Rosenstock, L., 'An American perspective: the changing world of work', *Magazine of the European Agency for Safety and Health at Work*, No 2, 2000.
http://agency.osha.eu.int/publications/magazine/2/article.php3?nr=6&lang=en

Seillan, H., 'La précaution, une nouvelle exigence pour la prévention', *Dossier Prévention et Précaution dans Préventique Sécurité,* n° 56, mars–avril 2001, p. 4–9.

Snyder, W., 'Hospital downsizing and increased frequency of assaults on staff', *Hospital and Community Psychiatry*, 45 (5) 1994.

Thébaud-Mony, A., 'Casualisation and flexibility: impact on worker's health', *TUTB-Saltsa Working Without Limits Conference and Newsletter,* No 15–16, February 2001.

Totterdill, P., 'Labour market and work organisation trends', *TUTB-Saltsa Working Without Limits Conference and Newsletter,* No 15-16, February 2001.

'Travailler autrement: la philosophie derrière la pratique', *Travail et Bien-être*, n° 1, 2001.

Van Aerle, J., 'Prevention share', unpublished presentation. Janssen Pharmaceutica, 2001.

Van Eijnatten, F. M., 'From intensive to sustainable work systems: the quest for a new paradigm of work', *TUTB-Saltsa Working Without Limits Conference and Newsletter,* No 15–16, February 2001.

Visser, J. P., 'Developments in HSE management in oil and gas exploration and production'. In: Hale & Baram (eds), *Safety management: the challenge of change* (1998), Elsevier Science, Oxford, p. 62.

'WHO collaborating centres in occupational health. European criteria and indicators of

good practice in health, environment and safety management in enterprises: occupational and public health perspective'. Draft. WHO collaborating centres in occupational health/European Centre for Environment and Health, 2000.

World Health Organisation, 'Towards good practice in health, environment and safety management in industrial and other enterprises'. Third Ministerial Conference on Environment and Health, London, 16 to 18 June 1999.

Work life 2000, *Work force diversity in Europe: immigration and ageing as policy challenges*. National Institute for Working Life, 2000.
http://www.niwl.se/wl2000/workshops/workshop66/default.asp

Work Life 2000, *Child care, domestic services, employment and gender equality*. National Institute for Working Life, 2000.
http://www.niwl.se/wl2000/workshops/workshop15/default.asp

Work Life 2000, *Environmental management and health and safety*. National Institute for Working Life, 2000. http://www.niwl.se/wl2000/workshops/workshop15/default.asp

Work Life 2000, *New strategies and types of occupational health and safety (development and types of occupational health and safety management).* National Institute for Working Life, 2000. http://www.niwl.se/wl2000/workshops/workshop8/default.asp

Work Life 2000, *Sustainable workplaces*. National Institute for Working Life, 2000.
http://www.niwl.se/wl2000/workshops/workshop51/default.asp

Work Life 2000, *Teleworking: working conditions and the labour market*. National Institute for Working Life, 2000. http://www.niwl.se/wl2000/workshops/workshop39/default.asp

Work Life 2000*, Voluntary guidelines for management systems for the working environment*. National Institute for Working Life, 2000.
http://www.niwl.se/wl2000/workshops/workshop23/default.asp

Work Life 2000, *When the work force age*s. National Institute for Working Life, 2000. http://www.niwl.se/wl2000/workshops/workshop2/default.asp

Work Life 2000, *Work organisation: development more than regulation.* National Institute for Working Life ,2000. http://www2.niwl.se/wl2000/default.asp

Annex 1: Project organisation

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Expert workshop on new trends in accident prevention due to the changing world of work, Brussels, 9 to 10 May 2001

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Annex 2: Questionnaire and concepts

2.1. Questionnaire: 'New trends in accident prevention due to the changing world of work'

The questionnaire was used as a guideline for the preparation of and the discussion during the seminar on accidents at work.

1. Do you agree with the description of the 'changing world of work'? Are these categories relevant to accident prevention?
2. What evidence is there that the nature of work accidents has changed due to the changes in the world of work? Are there research examples showing that the nature of accidents or accident rates are changing due to new technologies and new work organisation such as contractual relationships: subcontracting, flexible contracts, temporary agency work, part-time work, telework, etc.?
3. Are there any examples of new successful approaches / programmes / interventions / strategies into accident prevention in relation to new technologies and new work organisation such as contractual relationships: subcontracting, flexible contracts, temporary agency work, part-time work, telework, etc.?
4. Is there any validated know-how on success factors for the prevention of accidents in relation to any of the elements of the changing world of work?
5. What are the needs for further research?
6. Do you know relevant literature or references concerning these topics?

2.2. Concepts

In order to facilitate the exchange and comparison of information and documentation, we propose to all the participants of the project and/or the seminar the following concepts that have been taken from official European documents or publications:

Accident at work — definition:
'a discrete occurence in the course of work which leads to physical or mental harm'

Accident prevention strategy — definition:
all activities 'aiming at reducing the number and the seriousness of work-related accidents'

Changing world of work — description:
The effects of the 'changing world of work' cannot be discussed when looking only to changes at the workplace. The shift away from traditional patterns of work is the result of new developments at different levels of our society, especially the overall industrial organisation and the labour market. To get insight into the range of emerging risks resulting from these evolutions, one must keep in mind all of the following factors.

(i) Changing industrial organisation

- *Integration and globalisation of work:*
  - ➢ *national solutions become increasingly dependant on European and international conditions.*

- *Liberalisation of markets, privatisation and breaking-up of previously large public enterprises and downsizing of large organisations both in the private and public sector:*
  - ➢ *organisations have become flatter, smaller and leaner.*
- *Slimmer management structures and concentration on core functions (elimination of support activities, contracting out):*
  - ➢ *raising employability through new qualifications and growth of contracting staff, of contract and subcontractor companies and the self-employed.*
- *Changes in industrial distribution of employment and a rapid decline in traditional areas / the transformation of the economy into a service economy / changes in technology, growing use of information and communication technology:*
  - ➢ *enabling telework, homework, rapid relocation.*
- *Changes in the way people work with more demand for 24-hour operations due to market demand for availability, such as JIT:*
  - ➢ *increasing working hours, work pace and work load.*

(ii) Changing labour market

Demand:

- *an increased level of deregulation resulting in an increase in part-time jobs, temporary work, self-employment, subcontracting work;*
- *the development of new forms of work organisation such as telework, homework.*

Supply:

- *the increase of women in employment;*
- *the ageing of the workforce.*

⇨ *The implications of these recent evolutions on OSH management:*

- *New technologies, new materials and new forms of organisation:*
  - ➢ *reducing old risks but/and leading to new problems, new risks.*
- *Subcontracting:*
  - ➢ *a large number of contractors working together creates uncertainty about the responsibilities for training, for information, for equipment, for coordination;*
  - ➢ *a large number of contractors working together requires more effective coordination.*
- *Size of the company:*
  - ➢ *small enterprises and individual workers have the disadvantage of a lack of management structure: the responsibility is not clearly defined, less information, less training;*
  - ➢ *large firms have the means to adopt FIQMS: fully integrated quality management system (especially in the energy and chemicals sector): defining overall quality goals, defining audits, enforcing operational procedures, ensuring that these procedures have been reflected in business plans, job descriptions, procedural manuals;*
  - ➢ *large firms can establish a joint approved contractor list with contractors attesting the required expertise;*
  - ➢ *large firms redefine the role of safety professionals: from laying down safety rules (often prescriptive and highly documented) in manuals => they are much more concerned with facilitating rather than doing, i.e. developing health and safety competence in line managers, guiding and auditing, overseeing the management of HS in the process of contracting out.*

➘ *There may be a risk of a two-tier system with higher standards applied by large, progressive companies and their approved contractors and suppliers.*

Annex 3. Outcome of the workshops organised during the European Week 2001 Closing Event on Accident Prevention

The European Week on Safety and Health at Work 2001 focused on accident prevention. The closing event of the week was organised in Brussels in November together with the Belgian EU Presidency ([3]). The participants of two expert workshops during the closing event discussed statements and conclusions coming out of this report. A brief summary of the expert comments and opinions are given in this annex.

The workshop: 'New concepts in the prevention of work-related accidents in the changing world of work'

(Chair: Paul Weber, Inspection du Travail et des Mines, Luxembourg — Keynote: Jean-Claude André, Scientific Director, INRS, France — Rapporteur: Rik Op De Beeck, Head of Research and Consultancy Department, Prevent, Belgium)

Statement 1

The increasing speed with which changes in the work systems are taking place requires accident prevention models based on an increasing social responsibility within a well-defined (new?, legal?) framework.

In the opinion of the experts, it is up to politicians to determine new prevention models taking into account social and economic (cultural, ethical) considerations. These new regulations could be more advisory than prescriptive. Social company values with respect for the individual human being are complementary to public regulations.

Statement 2

The increasing complexity of the work environment and the lack of trust in scientific solutions require new prevention policies based on a greater expertise.

The experts agreed on this statement but stated that expertise must be based on:

- an anticipative and heuristic approach;
- an holistic and integrated approach, with participation of everybody involved in the working system;
- good communication and teamwork.

Statement 3

Work and private life, occupational risks, environmental risks and public health, cannot be treated as separate fields of interest any more: there is an obvious overlapping. This requires a new approach.

New accident prevention strategies should be oriented towards safety promotion. The changing social perception of risks requires new defined relationships between the employer and his employees on the one hand, and between industry and civil society on the other. The experts stated that a community approach contributes to a better safety and health attitude.

([3]) See the proceedings at http://agency.osha.eu.int/publications/

The workshop: 'From accident prevention to safety promotion'

(Chair: Kris De Meester, representative UNICE, Belgium — Keynote: Gerard Zwetsloot, TNO, The Netherlands — Rapporteur: Richard Wynne, Work Research Centre, Ireland)

Statement 1

'The changing world of work requires the integration of safety (and health) management into the core business processes of companies.'

The experts stated that the key is the alertness on potential (future) improvements and the control of the impact of future changes. In order to encourage this process in SMEs, there is a necessity for good supportive structures and a supportive business environment.

Statement 2

'Safety promotion is essentially beyond compliance and cannot be enforced by legislation.'

It is very useful to develop safety promotion programmes to influence innovations in companies towards more dynamic and sustainable safety.

The experts put the emphasis on the fact that there is a fundamental need to have the safety promotion idea integrated in all parts of the educational systems.

Statement 3

'There is a great potential to use technological developments and innovation processes for promoting safety and health by eliminating or reducing inherent hazards and risks.'

Statement 4

'Most companies compare their safety performance with their direct competitors in the same sector. For safety promotion, inter-sectorial and even societal benchmarking *(i.e. seeking out best practices)* offers much more potential for improvement.'

We need different tools (not just accident statistics) to measure positive safety actions, including activities by contractors.

Statement 5

'Safety is a human and societal value.'

Developing a safety culture can imply a win-win-win situation for companies. They can improve:

- their safety performance;
- the involvement and motivation of the personnel; and
- their corporate social responsibility.

To achieve this win-win-win situation a lot of constraints have to be tackled in dialogue with all partners (management, personnel) involved.

Conclusion

The outcome of these two workshops confirms the results of this report. It is clear that more research is needed to prove these expert opinions and good practice experience in a more scientific way.European Agency for Safety and Health at Work

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New trends in accident prevention due to the changing world of work

Luxembourg: Office for Official Publications of the European Communities

2002 — 34 pp. — 21 x 29.7 cm

ISBN 92-95007-70-0

Price (excluding VAT) in Luxembourg: EUR 7