

# THE COSTS AND BENEFITS OF OCCUPATIONAL SAFETY AND HEALTH

This brochure summarises the proceedings of a European Conference on the Costs and Benefits of Occupational Safety and Health, which was held in The Hague in May 1997. The conference was held as part of the Dutch Presidency of the Council of the European Union, and was co-sponsored by the Dutch Ministry of Social Affairs and Employment, the European Commission, NIA-TNO and the European Foundation for the Improvement of Living and Working Conditions.

The conference represented one of the first systematic attempts to explore the economics of OSH at European, national and company levels.

## **The participants**

The conference brought together: researchers from a wide range of backgrounds; technical experts, professional workers; policy makers; employers and trade unionists from all Member States of the EU and beyond. They were provided with a wide-ranging overview of the issues at the level of policy, practice and research.

## **Issues discussed at the conference**

- At the policy level, comparisons were made with regard to the structure, function and approach of a number of EU and non-EU OSH systems. Close attention was paid here to the issue of how incentives to engage in OSH are built into these systems.
- At the level of practice, it was clear that the current state of development of the methods of cost-benefit analysis (CBA) do not allow for conclusive answers to be made to the central question of whether OSH is a cost-beneficial activity for companies. However, the potential role of CBA in improving OSH practice was clearly endorsed, notwithstanding the difficulties of data, methods, and purposes to which CBA can be applied.
- At the level of research, much basic development work still needs to be done, not only in relation to producing more reliable and simpler methods, but also in relation to developing data sources. In particular, work is needed on methods of quantifying benefits, and on the issue of incorporating social and human values into the calculations which are made.



## Introduction

The first European Conference on the Costs and Benefits of Occupational Safety & Health was held in The Hague, the Netherlands, from May 28-30 1997. Organised as part of the Dutch Presidency of the European Union, it was hosted by the Dutch Ministry of Social Affairs and Employment in cooperation with the European Foundation for the Improvement of Living and Working Conditions. The conference was co-funded by the European Commission and organised by NIA-TNO.

The issues surrounding the costs and benefits of OSH have been more widely debated in recent years. This debate has occurred at two levels - at policy level in the EU and in Member States and also at company level (see 'Policy Reports'). At European and national levels the questions which have been raised include:

- What are the costs of introducing new legislation?
- What benefits will this legislation bring?

At company level, the issues of concern include:

- What are the costs of implementing OSH activities?
- What are the monetary benefits of OSH practice?

At company level, the increased emphasis on improving productivity and competitiveness has brought the issue of the financial costs and benefits of OSH into sharper focus - companies are now seeking to influence key organisational success factors through demanding that all aspects of company operations are cost effective.

Moreover, many companies are also beginning to address the costs incurred through absenteeism. A significant feature of the debate here is the move towards using workplace health promotion, with its emphasis on the general health of the worker, as a tool to cut employee health-related costs. Of course, other preventive approaches are also used within the OSH arena.

Concern with costs and benefits is not only found in Europe - there is extensive research and debate taking place in many countries of the developed world, while the costs of workplace OSH are also a recurrent theme in the developing world.

The conference in The Hague brought together about 450 experts, policy makers, social partners and

practitioners from 37 countries to address these questions. More than 50 papers were presented, and this brochure summarises the main arguments and themes to emerge. (See the box below.)

### Organisation of the conference

The conference was organised in five parallel sessions with 11 main issues addressed:

1. International comparison of OSH systems
2. Economic incentives for OSH
3. The benefits of workplace health promotion: marketing to business
4. The prevention of absenteeism: assessment of company level measures
5. Costs and benefits of stress prevention
6. Cost-benefit models - theory and practice
7. The impact of OSH regulation on business
8. OSH as a factor in competitiveness
9. Company decision making on OSH practice
10. Cost effectiveness of OSH, especially in SMEs
11. The role and the effectiveness of OSH services.

### The Political Context

Recent years have witnessed a growing debate in Europe about the costs which social policy may impose on the European economy. The ongoing creation of a common European economic and monetary policy has led to a focus on how social policy operates with reference to what is often regarded as the main feature of the European Union - the creation of a vibrant European economy. The debate about the costs and benefits of OSH policy has developed against this background.

### Policy reports

In most EU countries, a large body of legislation has been passed since the 1989 EU Framework Directive. The Molitor and UNICE reports on the role of legislation at EU level provided some of the main stimuli for the conference. These reports have argued that the negative effects of regulation on costs, flexibility, capital spending and management time outweigh any benefits which may occur, especially for SMEs. The Molitor report then goes on to argue for deregulation of existing Directives on OSH and for thorough cost-benefit analysis of any proposals for new regulation.

It should be noted, however, that these reports come from just one side of the argument - the perspectives of organised labour are somewhat different.

## Social policy as a factor in production

Of course, the social partners have not stood aside from this debate - employers have tended to argue for deregulation, while trade unions have tended to argue the contrary and for the provision of universal minimum standards. In addition, trade unions have been concerned about an exclusive focus on cost issues alone. Others have argued that this debate is timely and appropriate, often from the belief that OSH is cost-effective, as the methods are now emerging which can allow for sophisticated analysis of actual costs and benefits, thereby providing a powerful argument in favour of improved practice of OSH.

*To date, there are no definitive answers ...*

To date, however, there are no definitive answers to the central questions about how and under what conditions the assessment of the costs and benefits of OSH should be undertaken. In addition, there are not as yet adequate answers to the questions of whether OSH practice is economically beneficial to either society at large or to individual companies. The conference, with contributions from researchers, OSH professionals, HRM managers, the social partners, governments, the EU Commission and politicians set out to advance the quality and level of debate and to inform future research, policy and practice in the area.

### What is cost-benefit analysis ?

There are a number of approaches to the economic appraisal of OSH. The most important are cost-benefit analysis (CBA), cost-effectiveness analysis and studies which calculate the total costs incurred by work-related accidents and illness.

Cost-benefit analysis (CBA) is a technique for evaluating the total costs and benefits in monetary units at the level of society or of a specific project. CBA compares the prevention costs with the benefits (i.e. reduction in corrective costs or damages plus additional gains). Essentially, CBA is a tool that makes economic consequences visible, which may in turn contribute to political discussions and improve in-company decision making.

CBA has been traditionally applied to production costs and works relatively well where the assignment of value to costs and benefits is clear. However, there are problems in the assignment of monetary values in relation to OSH, especially with regard to benefits.

In a cost-effectiveness analysis the results of an intervention are balanced against the (monetary)

costs. The effects need not be expressed in terms of money. Cost-effectiveness analysis is especially useful in comparing several options for achieving the same goal.

Cost of illness (COI) analysis is a method of calculating costs that can be associated with work-related diseases and illnesses. COI analysis quantifies the magnitude of the problem, while other methods such as cost-benefit analysis or cost-effectiveness analysis must be applied to choose between solutions. COI analysis can apply to both financial and socio-economic costs, according to the agent(s) for whom the calculation is performed.

### Social partners' perspectives

As might be expected, the social partners have somewhat differing perspectives on the applicability of CBA to OSH (see 'The main stakeholders' below). The views of the stake-holders are governed by political, economic, social and technical factors, and while they reflect traditional perspectives, they are not exclusively political or stereotypical in nature. For example, presentations at the conference indicated that while employers are in favour of deregulation, they agree on the need for OSH to address new risks and risk groups, and believe that CBA should focus on 'in-company' costs.

### The main stakeholders

Many parties have a stake in the emerging debate on cost-benefit analysis. These include:

*European Commission* - has come under pressure to demonstrate that new legislation in the area does not add to industry's cost base. They are also under some pressure to cost-justify existing legislation.

*National governments* - these are under the same pressures as the Commission. However, they are also under more immediate pressures from the national stakeholders.

*Employers* - there is a concern that the burden of complying with OSH legislation acts as a brake on competitiveness. There is also evidence that many employers are comfortable with the social and moral values which underlie legislation, if not the economic justification.

*Trade unions* - Trade unions have a major interest in improving working conditions, not only as a means of preventing accidents and illness, but also as a goal in its own right. They tend to view CBA as an equivocal development whereby OSH provisions may be diluted, if the 'economics' of

human health is regarded as being the primary consideration.

*National safety and health agencies* - These have mixed interests in CBA. They would welcome methods and tools which would allow them to prioritise their enforcement activities. But they also share the doubts of the trade unions about the possible erosion of OSH practice.

*Safety and health economists* - This small, but increasingly influential profession, is mainly interested in developing improved methods, instrumentation and data sources.

All key stakeholders have different perspectives, priorities and possibilities to influence conditions at work.

Trade unions believe that limited deregulation should take place, that cost-benefit analysis should focus on both long-term and short-term benefits and that money is not the only factor to be taken into account when assessing new or existing OSH measures.

The Commission believes that minimum standards of OSH are a right, with costs being only one of a number of factors to be taken into consideration. It also believes that OSH investment generally contributes to company productivity.

#### Key political issues in CBA

The conference discussed a number of key political issues in the area of cost-benefit analysis of OSH. These included:

- ⇒ What are legitimate uses for CBA?
- ⇒ How are social values to be reflected in CBA?
- ⇒ How should OSH systems be organised as a result of undertaking CBA analysis?
- ⇒ What should be the role of financial incentives?
- ⇒ What is the optimal role of CBA in labour inspection?

The Dutch Government indicated that they are seeking a middle way, and have suggested the use of quantitative targets for the reduction of ill health and injury due to occupational risks as a way out of the regulation-deregulation discussion.

A significant issue in the debate concerns the externalisation of costs. Most companies will seek to externalise whatever costs they can, and OSH costs are no exception. However, there is a trend emerging

in Europe (e.g. the Netherlands, the United Kingdom) where governments have effectively internalised to companies some of the costs associated with worker ill-health, with the dual intention of reducing the State's welfare costs and of boosting the level of OSH practice.

#### Macro Level Studies

A number of papers were presented which described national and multinational analyses of OSH systems. These papers addressed a number of issues - some described OSH systems in detail, others made high level comparisons of the structures and functioning of these systems, while a few attempted to calculate the costs and benefits of specific OSH interventions or the overall costs of occupational accidents and disease.

Generally, three types of cost-benefit study are undertaken at macro level - cost of illness studies and *ex post* and *ex ante* evaluations of policy changes. The first type of study seeks to estimate the total costs of illness due to OSH claims at national level. The second type of study examines both the costs and benefits of policy change. The third type of study looks at the costs of absenteeism, regardless of whether it is caused by occupational ill health.

A number of countries have attempted macro level analyses. These include Denmark, the Netherlands, the UK and the USA, Spain, Italy and Finland.

In the UK, the Health and Safety Executive have conducted cost-benefit analyses of all significant OSH regulations since 1982. CBA is not the only criterion used in decision making, but the results from these analyses are instructive to both policy makers and researchers, often for the methodological shortcomings they point to as much as for the light they shed on cost-benefit and cost-effectiveness issues. For example, in relation to VDU regulations, it has proved difficult to estimate quantitatively the benefits to the various parties, though it is likely that there are some monetary benefits to employers.

Usage of a similar methodology in the Netherlands in relation to manual handling standards as they operate at company level indicated that, on average, the economic return only accounted for 25% of investment over a period of 15 years. Even though some companies do gain a monetary benefit, not all investments are worthwhile in a purely commercial sense.

#### Crossnational comparisons

The difficulty of making international comparisons with the current state of development of methods for CBA is illustrated by a comparative study on occupational stress in Denmark and Sweden. The differences in the data available in terms of how it was collected and the purposes for which it was

collected make the conclusions from these comparisons suggestive at best. However, using epidemiological techniques it proved possible to make a useful comparison of costs.

### *The cost items included in national level studies vary widely*

A more extensive crossnational comparison was carried out by Beatson, a UK researcher. The study demonstrated that the cost items included in national studies varied widely. None of the national studies include all relevant cost items.

A key issue here concerns the reliability, validity and objectivity of the data collected in any country. It is clearly recognised that not only do crossnational differences exist, but that the basis of many data sets is questionable. For example, the use of official accident notification statistics as a basis for comparison is confounded by the fact that many national systems contain within them disincentives to the reporting of accidents, thereby leading to severe under-reporting.

#### **Technical issues in CBA**

Much of the conference focused on presenting the technical aspects of undertaking cost-benefit analyses at both the macro and micro level. Some of the main themes discussed here included:

- ⇒ The scope of the economic models used.
- ⇒ The reliability, validity and accessibility of available relevant data.
- ⇒ The uses to which conclusions are put.
- ⇒ The difficulties of adequately defining and assessing benefits.
- ⇒ The difficulties of including a time dimension in benefits assessment.
- ⇒ Dealing with non-occupational illness.

Some proposals for international standards have been called for, notwithstanding the European Commission's efforts in this regard, especially in relation to the creation of occupational health data sets and the setting up of national working environment cohorts (samples of the working population who are tracked over time) as a supplement to existing notification schemes. These cohorts could then supply longitudinal comparative data which is currently not available.

#### **The problem with benefits**

A key area of current weakness in macro-models concerns the measurement of benefits, not only in relation to the present, but especially with regard to

the estimation of future benefits. Essentially, it cannot be assumed that future benefits will accrue in a linear fashion. For example, changes in technology and innovation in work practices may remove risks in the future, thereby reducing or eliminating potential future costs. In addition, cost reductions in technology may lead to overestimations of current costs, thereby leading to sub-optimal OSH practice in the present. In essence, it is extremely difficult to predict the future.

### *The monetary value of benefits is more difficult to measure than costs*

Of course, the conduct of CBA at macro level is not solely a technical calculation, though there may be a danger of it being treated as such. There is a need to ensure that social values are at least made explicit, and if possible are systematically integrated into the process of making these calculations, thereby ensuring that the social and human values which underpin OSH practice are maintained. New, more sophisticated CBA models and methodologies are needed, which take into account and place a value on social factors. In practical terms, issues such as social and worker rights, the need to set minimum standards for OSH practice and the need to encourage good and improving practice need to be effectively integrated, if not into the models themselves, then into the decision making process on CBA at macro level. In order for this to happen, new and more inclusive methodologies need to be developed, which not only include the relevant calculations, but which are structured in such a way as to embrace the process of their use and application, thereby increasing acceptance by all of the stakeholders concerned.

It is also clear that the use of CBA at macro level is a political process, whereby attempts are made to integrate the scientific, if flawed, outputs from economic analysis with the values of political and social discourse. This discourse is set to become more intense, and become the subject of negotiation between the social partners, as efforts are made to shift responsibilities for OSH towards the company level. As one contributor to the conference put it:

‘Social partners will tend to exploit the shortcomings in methodology and the lack of reliable data in their own interest.’

#### **Strengths and weaknesses of macro level CBA**

In summary, it is relatively easy to calculate the costs of OSH, though these may be over-estimated, and it is difficult to measure the benefits of such activities. This situation reflects not only difficulties with methodologies and data, but the fact that costs tend to be incurred immediately, while benefits are deferred to some



future point. Political values and ideologies and commercial realities then come to the fore in a debate which is based on values and inadequate data, rather than on scientific objectivity and definitive conclusions, which, as yet, do not exist.

Furthermore, CBA does not contribute to the question of who pays the cost and who gets the benefits, and to the issue of which costs are to be externalised by companies.

## National OSH Policies

National policies on OSH differ widely in the EU, despite the emergence of a common body of legislation due to the Framework and related Directives. As a result, national approaches to the economic assessment of OSH, where these can be said to exist, also differ widely. The goal of national policies is to stimulate preventive action in companies, or at least compliance with regulation. An economic drive, for all the parties involved, is usually a strong one. Crucial in this respect is how costs can be internalised to companies. Incentives and, at least to some extent, enforcement can contribute to this end. OSH systems differ in relation to the source and type of regulation, its enforcement, and the kinds of overt or covert incentive systems which operate.

### The role of incentives

Most OSH systems do not provide large scale financial incentives systems for improving OSH - typically these account for less than 0.1% of payroll costs, which is only a fraction of the actual costs of illnesses and absenteeism. A major barrier to providing larger incentives is the structure of national insurance systems, which usually do not take account of good practice in relation to prevention.

### *The use of incentives in OSH systems is now being investigated*

Relevant parameters of insurance systems for worker protection include the nature of regulations, the style of implementation and enforcement and public versus private involvement.

A study of the systems in many European countries and the US and Japan, not surprisingly, found that there were many differences along these parameters. Many of these differences are deeply culturally embedded and, because of this, are unlikely to be much affected by the economic pressures of globalisation, i.e. there is unlikely to be significant convergence of these systems. The difficulties of changing entire insurance, enforcement and regulation systems towards a common system are unlikely to be overcome by economic competition alone. However, pressures internal to an economy

may bring about change, though convergence of systems is unlikely. This situation does not undercut the economic arguments in favour of OSH legislation, rather it means that the forms of change and the economic forces operating on national systems are likely to be different.

It appears from the international evidence that appropriate incentives can play a significant role in developing better OSH practice. The model developed by the European Foundation for the Improvement of Living and Working Conditions is a case in point. An implication of this model is that disincentives also need to be looked at. A test of a new incentive model which involved both retrospective and proactive elements (i.e. where past good performance is rewarded and good practice encouraged) was carried out as part of this work, and it was concluded that it could work in practice.

### Conclusions on national systems

1. There is an EU-wide consensus on the content of OSH policy due to the implementation of the Framework Directive. There is also a developing consensus on the content and the way forward for workplace health promotion.
2. Policies should be developed which take into account the health-related goals of social security, employment policy and industrial relations.
3. There are large differences in the structure and organisation of services and the responsibilities of the public and private sectors.
4. Future policy development can make more use of international comparisons and benchmarking.
5. Scenario studies are also useful, i.e. where the potential impacts of legislative changes are assessed in a prospective fashion.
6. Quantitative predictions are beyond the capabilities of current instruments and methods.
7. Incentive systems as a means to encourage cost internalisation offer opportunities to improve OSH.
8. Under-reporting of accidents and illness is widespread leading to underestimates of costs.

### The role of enforcement

One useful conclusion to be drawn is that the role of enforcement is crucial, at least in relation to the reduction of accident rates. Even in countries such as Norway, where there is a culture of high levels of



workplace control of OSH, accident rates are high. In most ILO countries, enforcement is the basis for developing a continuing OSH dynamic within companies. Yet, current cost-benefit methods do not factor in the effects of enforcement (even if its costs are included), although the costs of non-prevention are high. There is a need to research this issue further, as it illustrates the difference between theoretical approaches to the assessment of cost-effectiveness and the practicalities of how enforcement systems work.

One issue in relation to enforcement which was developed at the conference concerns its cost-effectiveness. In general terms, enforcement agencies seek to target companies and sectors which have the highest levels of risks (e.g. construction, agriculture) on the basis that the greatest number of the most costly accidents can be prevented in this way. However, inadequacies in the data used for this risk assessment (e.g. under-reporting, validity of data) may mean that the most cost-effective (or even the most benefit-effective) strategies of enforcement may not ensue. There is a role both for improved CBA models and for better data collection here.

### OSH and Its Impact on Business

Cost-benefit analysis is a powerful tool for demonstrating the positive effects of better working conditions for business. In addition, CBA can help in selecting the most (cost) effective solutions to problems.

There is currently much interest in the issue of micro level studies, i.e. examining the costs and benefits of OSH activity at company level. In many ways the issues which operate at company level are more immediate and real - their resolution has the potential to determine whether specific activities take place at all, and if they do, what form they might take.

Until recently, it has been widely assumed that OSH activity within enterprises has been governed by a combination of rights, responsibilities, legislation and enforcement. In this scenario activities took place because they were obligatory, and cost and benefit issues were not prominent. Companies tend to engage in good practice either because legislation dictates this or because they believe in doing so - essentially because they have positive attitudes towards their obligations in the area of OSH.

The situation has been changed somewhat by the introduction of CBA techniques into the field of OSH. New kinds of questions are now being asked of OSH activity - in addition to questions as to whether it is obligatory or feasible, questions concern its financial justification and cost-effectiveness.

### The nature of the debate

The essence of the debate in this area is the assessment of whether OSH is a worthwhile investment for the enterprise in both the short and long term. In many countries, this is a current debate. Underlying some of the arguments is the opinion that OSH should not have a net cost for the enterprise. Much of this debate is conducted on ideological grounds and on the basis of unsubstantiated belief. New studies can perhaps begin to provide data to support or refute these beliefs. For example, it would be worthwhile to develop a systematic international research programme which covered issues such as: the nature of benefits; the economic impact of a wide range of OSH interventions; the development of common methods and methodologies to integrate issues such as the effectiveness of specific interventions, not only in financial terms, but also in terms of OSH improvements.

It is relatively easy to assess the costs of OSH at company level, but much more difficult to assess benefits. The most commonly mentioned benefits include:

- improved health
- reduced fatalities and injuries
- reduced damages
- reduced production losses
- increased productivity.

However, all of these dimensions are difficult to measure and are difficult to relate directly to preventive action; they are often omitted from CBA calculations.

*The assumption that decision makers within companies always act in a rational economic way is questionable*

Among the dangers of using CBA models is that they are open to misuse - methodological problems are many, and employers and employees are not strictly rational economic beings. In addition, OSH behaviours of individuals or companies are also governed by value systems and external regulation and enforcement, thereby questioning the assumptions of many models.

### Is OSH always profitable?

The belief that improvements in working conditions for OSH purposes are inevitably cost-effective does not hold true, especially when effects on quality and productivity are taken into account. For example, it seems that ergonomic improvements are generally cost-beneficial, while other improvements are less productive, though there is evidence that workplace

health promotion actions can be cost-effective. Many studies reported on in the conference indicated that not all OSH actions yield commercial rates of return. (See 'The profitability of OSH'.)

One important issue here is whether national policy should reflect the findings on what are the most cost-effective investments. Where the costs of OSH exceed the financial returns, legislation, enforcement and the creation of incentives are policy options. There is also evidence that using a mix of policies is most effective for improving OSH.

### The profitability of OSH

The evidence concerning the profitability of undertaking OSH actions is mixed. Some of the factors which influence its profitability or rate of return include:

- ⇒ Existing OSH practice - if a company has poor practice in this area, then even small investments may have major payoffs.
- ⇒ The nature of the OSH activity - it seems that ergonomic interventions (which may include work organisation changes) may be most profitable.
- ⇒ The targeting of OSH actions - interventions which are targeted towards work issues which are giving rise to the highest OSH costs will make a better return on investment.
- ⇒ The factors taken into account when making CBA calculations - in general, costs tend to be more visible, while benefits tend to be underestimated.

One of the limitations of traditional CBA is that it adopts a relatively narrow definition of productivity, i.e. the relationship between financial inputs and outputs. This is usually defined in terms of the monetary costs of materials, human resources and capital. If this definition is expanded to include, for example, the costs associated with poor wellbeing it can be demonstrated that work performance is enhanced when the work itself, working conditions and the worker are in healthy shape. (However, it should be noted that it is a technically difficult task to assign monetary benefits to wellbeing.) Not enough is known about the link between measures targeted at working conditions and their effects, such as reduced absenteeism, better product quality and improved productivity.

Another theme which emerged concerns the use of efficiency indicators in OSH economics. This approach emphasises the need not only to look at absolute costs and benefits, but also the imperative of finding ways to make the most efficient interventions possible. Adopting this approach leads to a much fuller understanding of what kinds of

situational factors influence the success or failure of initiatives at company level, a feature which is usually absent from the macro level analyses. However, there are serious difficulties in identifying suitable and reliable indicators of efficiency even at company level.

### Research findings from micro level CBA

There are many technical issues influencing the results obtained from company level CBAs. The conference heard many papers which explored these issues. Some of the highlights from these papers included:

- ⇒ Profitability of OSH is often expressed in terms of sick leave reductions. However, because of insurance cover, there may be no real costs, and the employer may have built in some sick leave costs into the overall costs structure. Related to this is the fact that many companies allow for some level of disruption to production in their costings. In essence, they may not be in a position to capitalise on sick leave reductions.
- ⇒ Very cheap investments may give large returns.
- ⇒ Profits and OSH are separate goals and should be treated as such in CBA analyses.
- ⇒ Indicators such as lost time, accidents and illnesses tend to have limited relevance and poor statistical reliability in smaller companies.
- ⇒ There is good evidence from Sweden that OSH can have positive financial effects on company operations. In a study of 108 companies, it was found that investments in OSH led to reductions in sick leave and productivity benefits. In general, the median payback time was three years.
- ⇒ Trade-off analysis may be a more effective way of inducing positive OSH change than CBA, especially where the values aspect of OSH is given a high emphasis. This approach involves negotiated solutions which seek to balance OSH improvements against alternative uses of the resources available to a company.

An assumption which is often made is that lost production time due to accidents is a significant factor in the competitiveness of a company. However, many companies, especially larger ones, have an inbuilt flexibility in their work processes which allows them to overcome problems of lost time, at least to a certain extent. Indicators of uninterrupted production, product and process



quality and personnel and ancillary labour costs may provide a better measure of costs than lost time.

There is a danger that when the true costs of absenteeism are known, companies may act to rigorously select and deselect workers on the basis of their health, with non-core staff being most at risk.

In general terms, there were two areas of debate in the discussions on the company impact of CBA. The first concerned the potential uses of CBA within companies. Here there was a consensus behind the view that OSH activity should not be treated in the same way as profit-oriented activity within a company - social values and legislative approaches should maintain their traditional importance. The role of CBA should be to help inform the prioritisation of OSH activities.

The second area of debate was concerned with the technical aspects of calculating costs and benefits. A large number of papers reported on empirical investigations of the issues. (See 'Research findings'.) Some tentative conclusions can be drawn from these papers, perhaps the most important being that most CBA analyses show positive financial benefits to the enterprise.

#### Conclusions at company level

- ⇒ Improvements in working conditions generally had a beneficial effect on productivity.
- ⇒ Productive and innovative companies generally have good working conditions.
- ⇒ Major productivity improvements can be made by focusing on the jobs with poorest working conditions.
- ⇒ There is a lack of easy to use, comprehensive methods for CBA at the company level and there is a danger that currently available models will be misused.

#### Marketing OSH and WHP - The Role of CBA

A number of workshops and papers explored the important issue of the role of CBA in the marketing of OSH and workplace health promotion (WHP). In addition, the issue of how CBA itself might be marketed was a theme for some papers.

Marketing OSH and WHP using CBA faces a number of challenges:

- convincing companies that OSH problems have a cost
- convincing them that costs are controllable

- showing them that there are reliable models for CBA
- demonstrating successful interventions.

Creating awareness is an important first step - focusing on showing that bad working conditions and absenteeism have a cost has been suggested as a central message. In Japan, such costs have been demonstrated as constituting up to 6.4% of payroll costs. In Germany, Volkswagen have estimated the costs of OSH activities at DM38 per car or DM605 per worker per annum, yet they can demonstrate financial benefits. The importance of company values and non-monetary factors in company decision making should be also emphasised.

The importance of marketing for workplace health promotion was also emphasised, especially in terms of making connections with real business concerns and in terms of using well-established and developed marketing techniques. However, the lack of adequate evaluation studies impedes the development of WHP. Given the under-development of the area, CBA may not be the best tool for marketing purposes, especially as many of the approaches to marketing do not make an exclusively economic case.

The marketing of OSH is not a problem in the same way as is the case for WHP or CBA. OSH is legislated for, is enforced and in some cases incentives are provided to encourage more and better OSH practice.

#### *CBA may not be the best tool for marketing WHP*

Workplace health promotion and cost-benefit analyses share many problems in relation to their marketing. Neither are compulsory, both are relatively underdeveloped and both should be marketed in terms of what problems they can solve for the enterprise. In addition, the issue of the best means of establishing worker involvement in the processes of WHP and CBA is yet to be finalised.

More generally, both CBA and WHP need further development if they are to become widespread. In particular, there are needs for better definition, methods, reliability, practice and marketing if they are to fulfil their potential.

#### Instruments and Models

A number of presentations were made to the conference on the methods, instruments and models which may be used to undertake cost-benefit analysis. These models are applicable to both macro and micro level analyses.

There are many models used, and these are largely variations on traditional models used for investment analysis. Well-established models sometimes adopt differing approaches. For example, the Oxenburgh 5-step model concentrates on the calculation of payback times while the planning model of Zangemeister is much more comprehensive and detailed, and focuses on cost-effectiveness calculations.

The models presented have their strengths and weaknesses: in some cases they do not take account of important variables; in others they are very complex to use; and some models are theoretical only, while others have been used in real life situations. Software support for the calculations may help overcome the complexity problem, while more widespread testing in varied conditions will help the evolution of more usable, transferable and transparent models.

### Future Developments in CBA

A number of keynote papers were presented which addressed the issue of future development needs in policy, practice and research.

One of the main messages at policy level to emerge from these papers concerned the need for cost internalisation to take place in order to provide incentives for OSH improvement. A second message concerned the need to develop better research and practical methodologies. In the research area, it was felt that the scope of research needs to be broadened at both basic and applied levels in order to further develop methods and tools and to help inform practice and policy. The principal conclusions and recommendations to emerge from the conference are contained in the boxes on policy, practice and research. It was recognised that the development of the three areas is interlinked, but there is a need to separate the priorities for future actions in these areas.

#### Company level research needs

- ⇒ More data and knowledge about benefits and more case studies of good practice.
- ⇒ Instruments and models should aim for direct application in companies or sectors.
- ⇒ There is a need to reconcile the demand for simple tools, and the need to include all relevant variables.
- ⇒ More information about the significance of cost-benefit analysis as a tool in decision making.
- ⇒ To reconcile the accountancy methods of OSH economists with those of companies.

At company level, research priorities were largely concerned with the need for more research and with the need to support both research and practice with the development of practical tools.

At macro level, by contrast, research priorities focused on the need to conduct more inclusive studies, and the need to improve basic data sources. It was also recognised that OSH systems and social insurance systems were interdependent, and that their interaction needs to be elucidated.

#### Macro level research needs

- ⇒ As yet, no macro level research project covers all relevant cost components - there is a need for large scale comprehensive studies to take place.
- ⇒ The quality and accessibility of data leaves much to be desired: under-reporting of accidents, problems with reliability and validity of data are common in many countries - a concerted effort to improve data sources is needed.
- ⇒ Research is needed to make international comparisons of the strengths and weaknesses of occupational insurance systems.
- ⇒ Research is needed to investigate the relationship between occupational insurance systems and OSH systems.
- ⇒ The need to develop comparable international data on OSH indicators and for absenteeism.

At the level of practice, it was recognised that CBA can act as a useful marketing tool for, and stimulus to, OSH activity. As is the case at policy level, the dangers of misuse of CBA were also recognised. Other important issues included the role of incentives to boost OSH practice and the need for improved analytical methods.

#### Practice development needs

The major issues which emerged at the level of practice included:

- ⇒ Professionals and decision makers should not rely too much on cost-benefit analysis - social and human values are also important.
- ⇒ Improved methods will help to build credibility of economic assessments.
- ⇒ Not everything can or should be expressed in financial terms.
- ⇒ It is a mistake to focus too much on costs; managers are also interested in client

satisfaction. The language of managers should be adopted by OSH specialists.

- ⇒ Important conditions for influencing OSH systems are the size of the incentives, direct relations between improvements and financial effects, effective targeting, usability for SMEs and moderate administrative overheads.

At the level of policy, the conference cautiously recommended that CBA be integrated into the decision making process of government and social partners. There is still a need to ensure that social and human values are not neglected or underplayed as a result. In practice this will demand the development of new, more accessible and more robust methods which are capable of integrating technical and social concerns.

#### Policy development needs

- ⇒ Policy development must be open to a wide range of new workplace risk factors and also changes in the nature of work and workforces, which are related to health.
- ⇒ Emergent workplace risks include stress at work and atypical working conditions. These

issues should move higher on the policy agenda.

- ⇒ There is a need for an integrated approach to work and health; policy should not be restricted to isolated risk factors.
- ⇒ The impact of OSH legislation and bureaucracy on company competitiveness need elucidation.
- ⇒ Key indicators of OSH systems (including efficiency, enforcement, incentives and insurance) must be developed.
- ⇒ More work is needed to compare trade-off analysis and cost-benefit analysis.
- ⇒ Trend analysis within sectors is likely to give better results than cost comparisons between countries.
- ⇒ There is a need to identify how incentives might improve OHS systems.
- ⇒ Governments should provide a balanced framework for cooperation between the parties involved: employers, workers, insurance companies, the OSH professions and expert services.

This summary was written for the European Foundation for the Improvement of Living and Working Conditions by Richard Wynne, Work Research Centre Ltd., Dublin.

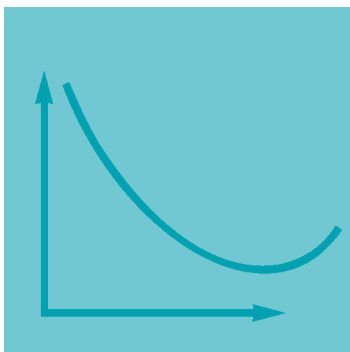
The Conference on the Costs and Benefits of Occupational Safety and Health 1997 took place in the context of the Dutch Presidency of the European Union. Its activities focused on the European debate regarding the relationship between safety, health and environmental standards, and increased productivity and innovation at the workplace.

The conference was an excellent opportunity for the Foundation to present research results gathered over the last few years on the following issues:

- the effectiveness of occupational health and safety policies at company and national level
- information on preventive measures related to stress, workplace health promotion and absenteeism
- evaluation of economic incentives to improve the working environment in Europe.

The full proceedings of the conference are to be found in Mossink, J. and Licher, F., *Costs and Benefits of Occupational Safety and Health*, Amsterdam, NIA-TNO, 1998. This gives an overview of the various presentations at the conference, a summary of the discussions which took place in the plenary sessions and sub-groups, and concludes with some outlines for future strategies on policy, practice and research in the field of occupational safety and health. In addition to the conference proceedings, the book also contains a number of papers that could not be presented at the conference but are still relevant to the issue of costs and benefits.

Copies of the book can be ordered from NIA-TNO B.V., PO Box 75665, 1070 AR Amsterdam (ISBN 90 6365 160 0, ECU 31).



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## FOR FURTHER INFORMATION

For further information on this project, please contact:

Dimitrios Politis,

**European Foundation for the Improvement of Living and Working Conditions,**

Wyattville Road,

Loughlinstown,

Co Dublin, Ireland.

Tel : ++ 353 1 2043140;

Fax : ++ 353 1 2826456/2824209

E-mail : [dimitrios.politis@eurofound.ie](mailto:dimitrios.politis@eurofound.ie)

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**European Foundation for the Improvement of Living and Working Conditions,**

Wyattville Road, Loughlinstown, Co. Dublin, Ireland.

**Tel:** ++353 1 2043 100

**Fax:** ++353 1 2826 456/2824 209

**E-mail:** [postmaster@eurofound.ie](mailto:postmaster@eurofound.ie)

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