

General strategy of risk management SOBANE

Method for the participatory screening of the risks

Déparis



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SUMMARY

The first part of the document describes a strategy for the risk prevention in four levels, called **SOBANE** (**S**creening, **O**bservation, **A**nalysis, **E**xpertise) with the aim of approaching gradually the work situations in the small as well as in the large companies, to coordinate the cooperation between workers, management, internal and external Occupational Health (OH) practitioners and to arrive to an adequate risk prevention faster and more cost-effectively.

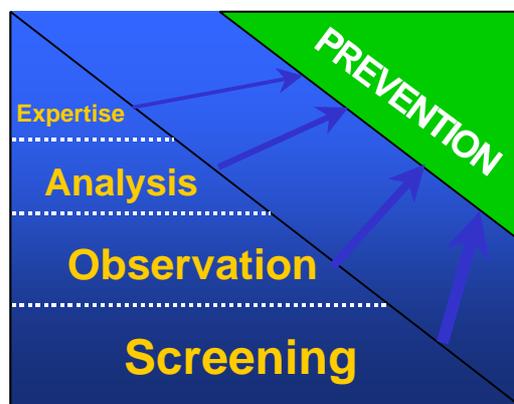
After having discussed the terminology, these four levels are described:

- **Screening:** the risk factors are detected and obvious solutions are implemented.
- **Observation:** the remaining problems are studied more in details, risk factor per risk factor, and the reasons and the solutions are discussed in a detailed way.
- **Analysis:** when necessary, an OH practitioner is called upon to carry out appropriate measurements to develop specific solutions.
- **Expertise:** in very sophisticated and rare cases, the assistance of an expert is essential to solve a particular problem.

The second part of the document presents the method for the participatory screening of the risks (in French: Dépistage Participatif des Risques), **Déparis** that constitutes level 1 of **Screening**. The work situation is systematically reviewed and all the aspects conditioning the easiness, the effectiveness and the satisfaction at work are discussed, in the search of practical prevention measures. The points to be studied more in details at the level 2, **Observation** are identified.

The method is carried out during a meeting of key-workers and technical staff. It proves to be simple, sparing in time and means and play a significant role in the development of a dynamic plan of risk management and of a culture of dialogue in the company.

INTRODUCTION TO THE SOBANE STRATEGY



INTRODUCTION

The framework European Directive [8] requires that the employer ensures **the safety and health of the workers in all the aspects related to work** by implementing the general prevention principles:

- **avoid** the risks
- **evaluate** the risks which cannot be avoided
- **fight** the risks at the source
- **adapt** the work to workers
- ..

The application of these principles in the field raises many problems.

- Problems of **terminology**: the terms risk, risk factor, primary, secondary, tertiary prevention... remain used with different meanings by the various prevention partners.
- Problems of the **nature of the risks** considered: according to their personal training, some OH practitioners tend sometimes to tackle only safety problems, others of occupational diseases, others still the psychosocial problems only.
- Problems of **penetration in the companies**: the situation can be indeed very different in an isolated SME and a large company: difference in awareness, in means, in social pressure....
- Problems of **coordination between OH practitioners** (occupational physicians, safety engineers, ergonomists, psychologists...) and with the industry.

The objective of the document is to bring elements making it possible to avoid, solve or minimize these problems.

After having clarified the terms, the first part of this document describes a general strategy of risk management allowing risk prevention in a progressive and effective way, with the convenient and adequate intervention of the OH practitioners.

In the second part, the **Déparis** method is presented and illustrated.

This document is addressed not only to the OH practitioners but also to the employers responsible for the implementation of prevention programs and to the workers who live this prevention.

CONCEPTS AND DEFINITIONS

1. Workstations or work situations

By "workstation", one generally understands, in a restrictive way, the place and the conditions (noise, heat, dimensions, spaces...) in which an operator performs a stereotyped task.

This concept is obsolete owing to the fact that

- in the new forms of work organization, the concept of a specific site occupied day after day, tends to disappear and to be replaced by the concept of a set of workstations, that is, a "work situation", where the workers interfere the ones with the others.
- the quality of work as well as the behaviour, satisfaction and well being of the worker do not depend only on the physical or chemical factors of environments.



The expression **work situation** refers to all the aspects, physical, organisational, psychological, social, of the life at work, which are likely to have an influence on the well-being and the behaviour of the worker and the efficiency of the work.

2. OH practitioners

We will designate by **OH practitioners** the persons, such as safety officers, occupational nurses, occupational physicians, industrial hygienists, ergonomists..., who received a certain training in safety and health at the work and who developed a particular motivation to recognize, prevent, evaluate and reduce the risks. The training and the competence of these people can be variable, but we will not make a distinction here, owing to the fact that, at this level, the individual differences in competence are often of the same order as the systematic differences.

3. Experts

We will call **experts** the people, coming in general from specialized laboratories, who have the competences and methodological and technical means to look further into a particular problem. In general, however, these competences and means are limited to a particular aspect: electricity, toxicology, acoustics, mental effects, relational problems...

4. Risk factors

The risk factors are all the aspects of the work situation that have the property or the capacity to cause a damage.

These factors can relate to

- safety: machines, ladders, electricity...
- physiological health: heat, pollution, repeated movements...
- psychosocial health: problems of relation, work content, temporal organization...



When a rigorous use of the terms is essential - and thus in the discussions between specialists and in the legislations -, the terms of *risk factor* should be used rather than the terms of *hazard* or *danger* (referring mainly to the safety risk factors) and of *nuisance* (used rather for the physical environmental factors, in the discomfort zone).

It would be unrealistic to seek to impose this rigorous terminology in the companies. However, a clarification of what the partners imply by these terms is necessary in many occasions.

This meaning of the terms of *risk factors* is different from that adopted in medicine, where, for example, cholesterol is called a risk factor of infarction. As we will discuss it below, these

individual characteristics (age, kind, weight, personal sensitivity...) will be referred to as the **risk co-factors**.

5. The exposure

A risk factor for the worker exists only insofar as he is exposed to it.

- In the case of a risk factor related to safety, the exposure can be evaluated in terms of *duration during which* or of *frequency to which* the worker is confronted to the situation.
- In the case of chemical or physical agents, it is often recommended to quantify the exposure by measuring the equivalent mean level of exposure: average concentration on 8h, personal noise exposure level... [6, 20, 21]



The tendency is to think that this quantification is necessary, or even essential and the majority of the handbooks of occupational hygiene are primarily, and sometimes exclusively, devoted to these methods of quantification.

This point will be discussed in details below.

In the majority of the cases however, these quantifications do not lead more directly and surely to prevention measures than the simple evaluation of the duration or the frequency. A scale such as that described in table 1 can be used.

Table 1: Scale of exposure according to the frequency or the duration.

Exposure	Frequency	Duration (% of time)
• Rare	1 time per year	< 0,1%
• Unusual	1 time per month	0,1 - 1%
• Occasional	1 time per week	1 to 5%
• Frequent	1 time per day	5 to 10%
• Very frequent	1 time per hour	10 to 50%
• Continuous		> 50%

6. The severity of the damage

The definition of risk factor refers to a **damage**, that is, for a negative effect with a certain **severity**. It can be:

- physical lesions (fractures, cuts...) leading to a temporary or permanent disability, or death
- occupational diseases (deafness, intoxication, tendinitis) in the more or less long term, reversible or not
- psychosocial problems (tiredness, dissatisfaction, demotivation, psychosomatic disorders, depression...),
- problems of discomfort (posture, lighting, noise, relations...).



Quite often, the OH practitioners omit to think about what could really result (damage) from the exposure to a certain risk factor. However, the problem - the risk - is different whether the possible damage is a sprain or a fracture, a discomfort or deafness, a low hearing impairment in the long term or a severe one, a temporary dissatisfaction or a deep demotivation.

One can characterize the severity by means of a qualitative scale such as that presented at table 2.

Table 2: Qualitative scale of severity of the damage

No consequence	
Discomfort	
Weak severity	Light wound without temporary disability; momentary interference...
Average severity	Temporary disability of 2 or 3 days; reversible health effect; systematic interference with work...
Significant severity	Temporary disability of more than 3 days, without permanent disability; on serious but reversible health effect; severe harmful effect...
High severity	Temporary disability and permanent disability; irreversible health effect...
Very high severity	Threat for the life of one or more persons...

Other scales were proposed [4, 7], often appropriate to a category only of risk factors (safety, chemical agents). The majority are quantitative scales, interesting for epidemiological studies. We will discuss below their opportunity in the context of prevention.

7. The probability of occurrence of this damage during the exposure

- The worker may climb ladders 10 times per day (exposure) and is likely to die if he falls down (severity), but the accident depends also of the condition of the ladders, its stability...
- He can work with a biological agent of class 2 (severity) during 2 hours per day (exposure), but the fact of being contaminated also depends on the ventilation, of the containment of the product...
- ..



Thus intervene other parameters of the work situation (nature and reliability of the collective protective equipments, climatic conditions, quality of the tools...) that determine the probability that this damage occurs **during** the exposure.

A qualitative scale such as that of table 3 can be used to evaluate this probability.

Table 3: Probability of occurrence of the damage during the exposure

Practically impossible
Possible but far from probable
Combination of unusual circumstances
Very possible
Expected

This probability is related also to characteristics of **the worker**: his age, his dimensions, his personal sensitivity. These characteristics are not risk factors in themselves since they cannot

lead to any damage. However, they are likely to worsen the risk when they exist at the same time (**co -**) as risk factors. It is thus logical and explicit to call them **risk co-factors**

8. The risk

The risk in itself is the probability (potentiality) of a damage of a certain **severity**, taking into account **the exposure** to a risk factor and the **probability of occurrence** of this damage during this exposure.

- It is the probability of being killed while falling from the ladder, taking into account the condition of this ladder and the fact that the worker climbs it 10 times per day.
- It is the probability of a contamination while handling a biological product of class 2 during 2 hours per day, taking into account what work is completed in closed loop, under laminar flow...

Certain methods exist allowing a quantification of this risk. One of the best known is that of Kinney and Wiruth [7], which will be discussed below.

The residual risk is, as its name indicates it, the risk that remains when prevention measures were taken.

9. Prevention

The prevention is the set of technical, psychological and organisational measures likely to reduce the risk for all the workers. These are consequently collective measures contrary to **individual protection** (shoes, gloves, harness, earplugs...).

It is generally referred to:

- **primary prevention** to indicate measures eliminating the risk.
- **secondary prevention** to indicate measures aiming at limiting the risk.

Tertiary **prevention** is sometimes used to indicate, either monitoring measures in occupational medicine, or revalidation measures – putting back to work – after a damage was undergone. Strictly speaking, this is not prevention and it is preferable to use the proper expressions of medical surveillance and revalidation.

10. The acceptability of a risk

Legislations do not usually define the criteria of acceptability of the risks. On the other hand, they generally provide exposure limit values beyond which, implicitly, the risk would be unacceptable.

Paradoxically however, this risk is in general not known: what is the " risk ", that is, the probability of a damage of a certain severity, after 3 years of exposure to a given concentration of a solvent for example?

They specify on the other hand that the risk must be reduced at the **lowest possible value**, which means that, contrary to the current practices,

- to reduce the risk below the limiting value is not sufficient, if it is " possible " to reduce it further
- everything must be made to reduce the exposure, even if the limit values remain exceeded.

The character acceptable or not of a risk must thus be evaluated on the basis, not only of the risk itself, but of the possibilities of reduction.

Such a qualitative scale was proposed by the English Standard BS 8800 [3] and, is presented at table 4, with the actions that result from it.

Table 4: Nature and urgency of the actions of prevention according to the risk

Risk	Nature and urgency of the actions of prevention
Negligible	No necessary action.
Tolerable	The risk was reduced to the lowest reasonably practicable level. No complementary action is needed. One could consider a solution of a more favourable cost-effectiveness ratio or improvements not involving additional costs.
Moderate	Efforts should be carried out to reduce the risk, but the cost of the prevention must be evaluated carefully and be limited. Measures of reduction of the risk must be taken during one definite period of time. If this moderate risk relates to very serious damage, a complementary study can be necessary to specify the probability of this damage and, consequently, the need for improved prevention measures.
Substantial	Work should not be undertaken as long as this risk is not reduced. Significant means can have to be used to reduce it. When this risk relates to a work in progress, actions must be taken in an urgent way.
Intolerable	Work should neither be undertaken nor continued as long as the risk is not reduced. If it is not possible to reduce this risk, work must be prohibited.

11. Small and medium-sized enterprises (SME)

Less than 40% of the population of the employees work in companies of more than 250 people. In these companies, well trained internal OH practitioners are usually present, competences are available, the social dialogue functions rather well, the problems are dealt with and the rates of accidents and occupational diseases are lower by half than those of small and medium-sized enterprises (SMEs).

In SMEs where the majority of the workers are, the situation is much more variable. In these SMEs, a part-time internal OH practitioner might be present, but is often isolated. In smallest, the employer himself is in charge of this mission.

The law requires them to have recourse to external prevention and protection services to fulfil the missions that cannot validly be accomplished in-house.

These external OH practitioners are or should be general practitioners in safety and health at work since they are confronted sometimes with problems of safety in a garage, sometimes with problems of occupational diseases in a dry cleaning, sometimes still with stress problems in an office. They have in general access only to basic measuring instruments.

The methods to be developed must thus be addressed in priority to these SMEs, taking account of the more limited means and competences available a priori.

12. Quantification vs Qualification of the risks: measurements vs evaluation

The number of methods aiming at "analysing" the risks is definitely greater than the number of methods aiming at "preventing them" and these methods relate to generally only one particular risk factor.

They were developed in general by researchers whom responsibility and interest lay in the establishment of the general relations between constraints and effects, rather than in the solution of a problem in a particular work situation.

That is particularly obvious in the case of the environmental factors: dose of the air pollutants, evaluation of the personal noise exposure level, evaluation of the exposure to heat. Extremely sophisticated methods were published in this respect [5, 9, 19].

These methods are little and, most of the time, badly used, because difficult, complex and expensive.

From these methods and these handbooks, it should be concluded that the representative and correct quantification of the exposure and of the risk is very difficult and expensive and that the majority of measurements as performed in industry have little or no value.

The tendency for systematic quantification in the field results from three wrong beliefs:

1. ***What is not quantified, does not exist***

This opinion often lent to the decision makers, and in particular to the engineers, is very costly for the companies. Indeed, the problems are often simple, obvious, inexpensive to solve and any request for quantification involves unjustified expenditure (... if it is not just to delay actions!).

Even if, indeed, this is the request of the decision makers, there is advantage not to answer it systematically and a priori, on pain of maintaining the need.

2. ***The quantification leads to the solutions***

Experience shows that on the contrary the quantification of the whole (time weighted average level for example) can harm the understanding of the details on which it is possible to act to eliminate or reduce the risk. The *How much?* often replaces the *how?* and the *why?* and the quantification ends in sterile observations.

3. ***The quantification is essential to determine whether a risk does exist or not***

This third assertion also appears untrue, because it rests implicitly on the belief that a risk exists above a threshold (15 kg 1 time per day, 85 dB(A) on average over 8h, 100 ppm on average...), and that, below, the risk does not exist.

This position is the "legalist" approach where only matter the fact of "complying" with the law.

To this, can be put forward the "prevention" approach, which does not make any difference between 84 and 86 dB(A) and which seeks, as much as possible, to improve the work situation according to all principles of logic and the terms of the national and international regulations.

It is thus necessary to encourage the OH practitioners who are measuring systematically and the employers who are asking for such quantitative data, to think about the real interest of these measurements, their validity, their cost and to encourage them to "quantify" better and more validly, but advisedly, according to explicit objectives.

The quantification of the risks advisedly for a given work situation remains useful and necessary in certain cases:

- to better know the source of a problem and consequently find prevention measures more adapted
- in the event of development of a certain pathology by certain people
- following a request for compensation for an occupational disease
- to compare the work situation with others
- in the context of an epidemiological study
- by researchers, to develop recommendations that, thereafter, could be used directly in other work situations

The discussion above only tends to discourage the systematic and a priori quantification, which is likely to distract from the first goal, the prevention.

In each case, it rests on the OH practitioner to determine whether he must or not proceed to a quantification of the risks and the reasons (epidemiological, technical, political...) for which he proceeds to it.

This conclusion is much the same as the standpoint of Goelzer [22] in her Yant lecture in 1994, saying "It is not unusual to see more attention given to exposure assessment and monitoring than to hazard prevention and control. The fascination exerted by sophisticated equipments and numbers is, for some reason, greater than the interest in designing pragmatic solutions to prevent exposure".

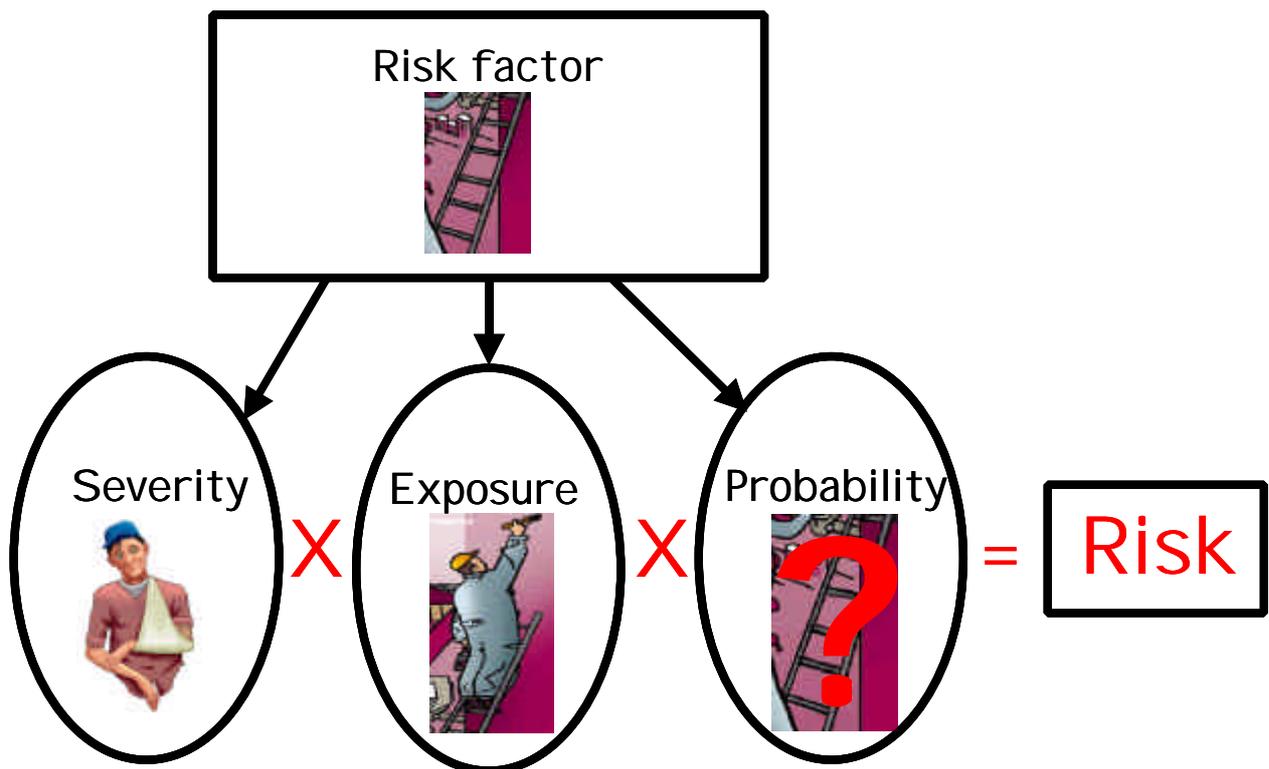
It also is similar to the point of view of the participants in the so-called Control Banding workshop held in London in November 2002 [23]. As underlined Oldershaw [24], "A single simple personal sample may cost more than \$400: three quarters of the members states of WHO spend less than this per capita and per year in their health systems."

13. Risks assessment vs risk management

The tendency to systematic quantification is especially obvious in the field of safety. Methods were proposed that make it possible to classify the accidents and to define the priorities – and this is certainly very desirable. Experience shows however that the users often neglect to consider in details the elements defining these risks and the ways of reducing them. The quantification then becomes the aim in itself.

The method most often used, in Belgium at least, for this purpose, is the method known as the Kinney method [7] which proposes scales of appreciation of the severity of the damage (G), exposure to the risk factor (E) and probability of occurrence of the damage during exposure (P) and evaluate the risk R by the following expression:

$$R = G \times E \times P$$



The undeniable advantage of such a technique is to make it possible to compare and classify risks very different in nature, such as the fracture of the leg while falling from a ladder and a lumbago while handling building materials... . The method thus makes it possible to define priorities, to compare various solutions....

The validity of these priorities or these decisions is obviously function of the validity of the estimates of the parameters G, E and P, and these estimates, apparently very simple, require the collection of information, the visit of the workplaces and the discussion with the workers about the exact nature of the activities. A study of the risks performed one afternoon, in an office, in front of a computer spreadsheet, is consequently strongly subjective, biased and invalid.

An obvious bias is the fact that the analysis of the risks made by the OH practitioner alone is inevitably a function of the way he knows and sees the work situation. If this knowledge is false or fragmentary, it will be inevitably the same for the study of the risks. The participation of the workers is thus essential as they are the only ones to know exactly how the work is actually performed.

Moreover, **the prevention** consists in seeking the most effective means to reduce the risk while acting on one or more of its components: reduction of the exposure times, increase of the reliability of the work system It is thus essential that the analysis of the risks be not simply a recording and a quick evaluation of the components of the risk R, but a careful consideration of the reasons of this exposure, of this probability, of this severity and of the most relevant and reasonably practicable means to reduce them. The final and comprehensive evaluation of the risk is consequently secondary, the main objective being the study of the components and of the details, on which it is possible to act.

Rather than speaking about risk assessment or risk evaluation, it is thus more appropriate to speak about risk management.

SOBANE STRATEGY OF RISK MANAGEMENT

The elimination of the risks or their reduction under an acceptable threshold can be done at first sight of the work situation only if all competences and all the means are available.

However, the number of risk factors and the number of work situations of work are so large that it would be utopian and impossible to attempt to study them all, a priori and in details.

It would be useless also, since, in the majority of the cases, prevention measures can be taken from the start on the basis of simple **Observations** by the people directly concerned in the companies and who know in details the work situations day after day.

In some cases only and after the obvious solutions were implemented, a detailed **Analysis** can prove to be necessary and only in some particularly complex cases will the participation of **experts** become essential.

It is the procedure adopted spontaneously and logically in most cases :

- Following a complaint or a routine visit (**Screening**), a problem is examined more in details (**Observation**).
- If that does not make it possible to solve the problem, an OH practitioner is called (**Analysis**).
- In extreme cases and when that becomes essential, one has recourse to an expert to solve a specific aspect (**Expertise**).

This spontaneous procedure remains however non systematic and in general not very effective due to, mainly,

- the lack of efficient tools to guide these **Screenings** and **Observations**
- the facts that, frequently, the problems are transferred by the people of the field (workers and their management) to the OH practitioners and the experts and that these specialists take full responsibilities of the studies and recommendations.

It is therefore necessary to develop these tools of **Screening** and **Observation** for people of the field and to ensure the complementarity of the partners. Such is the objective of the risk management strategy described below.

This strategy, called **SOBANE (Screening, Observation, Analysis, Expertise)**, follows the diagram of figure 1 and the criteria defined in table 5.

Figure 1: General outline of strategy SOBANE of risk management

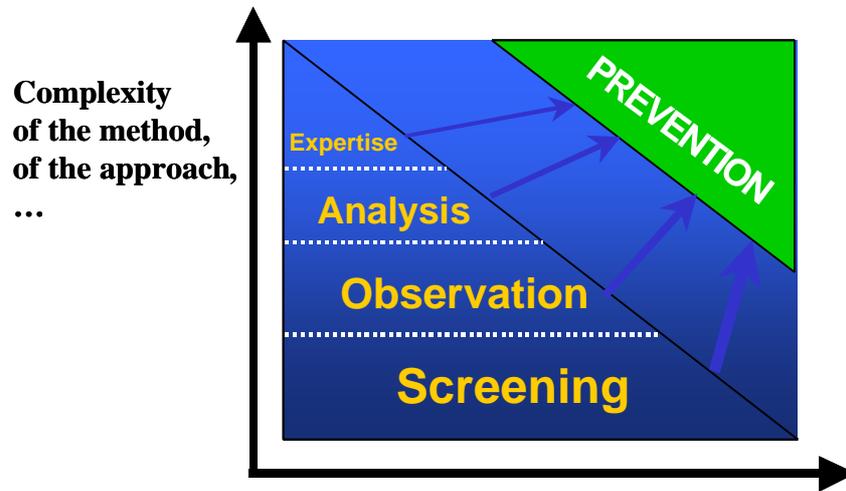


Table 5: Characteristics of the four levels of strategy SOBANE

	Level 1 Screening	Level 2 Observation	Level 3 Analysis	Level 4 Expertise
When?	All cases	If problem	In difficult cases	In complex cases
How?	Simple observations	Qualitative observations	Quantitative observations	Specialized measurements
Cost?	Very low 10 minutes	Low 2 hours	Medium 2 days	High 2 weeks
By whom?	People of the company	People of the company	People of the company + OH practitioners	People of the company + OH practitioners + Expert
Qualifications •work situation •health at the work	Very high Low	High Overage	Average High	Low Specialized

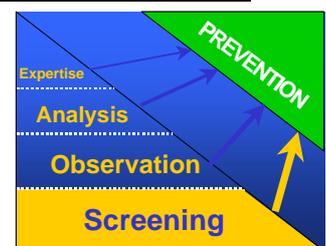
1. Level 1, Screening

Objective:

The objective here is only to identify the main problems and to solve immediately ones such as a hole in the ground, a container containing a solvent and left abandoned, a computer screen turned towards a window...

Actors:

This identification must be carried out internally, by people of the company who know perfectly the work situation, even if they do not have, or have little qualification with regard to the



theories of safety, physiology or ergonomics. These people will be the workers themselves, their immediate technical management, the employer himself in the small companies, with an internal OH practitioner if available, in a medium-size or large firm.

Method:

For this purpose, they need a simple and quick tool such as a list of items adapted to their industrial sector. At this stage, it would be useless to require a rigorous use of the terms risks, damage, probability of occurrence... . One will speak about *problems* in the general meaning of the current language.

The method at this level 1, **Screening**, must seek to identify the problems in all work circumstances, during the day or of the year, and not at a given moment. The **Déparis** method (Dépistage participatif des risques) presented in the second part of this paper tries to fulfil this need.

At this first level, some problems will already be solved. Others will simply be identified. They will be the subjects of a study of level 2, **Observation**

2. Level 2, **Observation**

Objective:

The problems unsolved at the time of level 1, **Screening** must to be studied more in details.

Method:

The method should still be simple to assimilate and implement, quick and inexpensive, so as to be used as systematically as possible by the workers and their management with the cooperation of an internal OH practitioner.

The objective is again to lead these people to discuss the various aspects of the work situation in order to identify as soon as possible prevention solutions.

Actors:

This level 2, **Observation** requires again an intimate knowledge of the work situation under its various aspects, its alternatives, the normal and abnormal operations.

The depth of the study at this level 2, **Observation** will be variable according to the risk factor and according to the company and the qualifications of the participants.

- In a small company of less than 20 people, the employer himself should be able to identify the main risk factors by means of the **Déparis** method at level 1, **Screening**, but an external OH practitioner will be generally necessary for level 2, **Observation**
- In medium-sized company, a more significant share of the work can be carried out in the company itself. The company should have an internal OH practitioner, with the motivation and qualification to recognize the risk factors and put into practice the ergonomic approach of the problems. Its participation will allow the **Observation** to be more thorough and an external service will not intervene until the following level of **Analysis**, for more detailed and more specific studies and/or for proposing more specialized prevention and protection measures.
- Finally, in a larger company, a fortiori, the whole of the problems should and is likely to be managed in the company.

The method should not require any quantification and therefore any measurements, so as to remain applicable even when these qualifications and these techniques are not available.

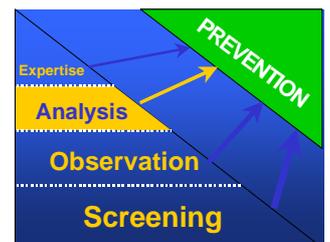
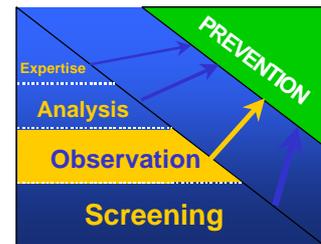
3. Level 3, **Analysis**

Objective:

When the levels of **Screening** and **Observation** did not allow to bring the risk to an acceptable value or that a doubt remains, there is necessary to go further in the **Analysis** of its components and in the search for solutions.

Actors:

This stage requires the assistance of OH practitioners who have the necessary qualification, tools and techniques. These will often be external OH practitioners, intervening in close



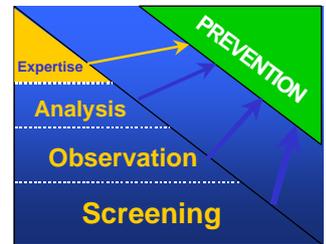
cooperation with those who conducted the stage 2, **Observation**, (and not in their place) to bring to them these necessary qualification and means.

Method:

The method must be more rigorous in the use of the terms damage, exposure, risk... It relates to the work situation in particular circumstances identified at the end of level 2, **Observation**. It can require simple measurements with common instruments. These measurements however must have explicitly defined objectives of confirmation of the problems, investigation of the causes, optimisation of the solutions...

4. Level 4, **Expertise**

The study on this level 4, **Expertise** is to be realized by the same people of the company and the OH practitioners, with the additional assistance of very specialized experts. It will concern particularly complex situations and possibly require special measurements.



PROCEDURE OF IMPLEMENTATION OF SOBANE

By means of a method of level 1, **Screening**, appropriate to the branch of industry, the main risk factors are quickly reviewed by several people of the company (workers, technical management...). The simple problems are immediately solved and others are identified.



For what cannot be solved directly, these people of the company will

- observe (level 2, **Observation**) systematically the work situation,
- collect the available qualitative information,
- determine whether the problem is real or not,
- identify the prevention measures likely to be directly implemented,
- and estimate whether, after these modifications, the situation will be acceptable or not.

If it is acceptable, the study is ended.

In the contrary case, they ask for the assistance of an OH practitioner better trained on these problems, coming in general from an external prevention service and seek together prevention measures : it is level 3, **Analysis**

They estimate again whether the residual risk is acceptable or not.

If the residual risk is still unacceptable, they ask for the assistance of an expert: this will be level 4, **Expertise**

The responsibility for the implementation of the strategy and the reliability of the results is delegated by the employer to the internal and external OH practitioners: validity of the observations, measurements, relevance of the prevention measures.

The responsibility for the practical application of these prevention measures however falls, in all the cases, to the employer.

The documents of **Screening, Observation, Analyses, Expertise** are sent to the Prevention-Protection Committee for evaluation and advices and to the employer who decides the actions to be taken, when, how and by whom.

The Déparis **method** described hereafter constitutes the **Screening** method.

The methods for the levels of **Observation, Analysis** and **Expertise** according to this strategy were developed and validated with regard to

- ✧ noise [11, 9]
- ✧ thermal environments of work [10, 16]
- ✧ lighting [12]
- ✧ whole-body vibration [13]
- ✧ hand-arm vibration [14, 17]
- ✧ musculoskeletal constraints [15, 18]

They are being developed for the following aspects:

- ✧ chemical agents
- ✧ biological agents
- ✧ work spaces
- ✧ fire and explosion hazards
- ✧ electric safety
- ✧ machines safety
- ✧ work on VDU
- ✧ social premises

These documents will be available in 2004.

DISCUSSION

The prevention requires not only *to understand* the work situation, but also to *know* it and the people who *know* really the situation are the workers themselves. The strategy thus rests on the knowledge of the work situation by the workers and their management, rather than on the understanding of this situation by an OH practitioner. Consequently, the person in the centre of the action of prevention is not the OH practitioner and it is erroneous to speak here about interventions. The workers and their technical management, in any company, of any size, are in the centre of the prevention action and are assisted, when necessary, by the OH practitioners. It is thus more adequate to speak about risk management by the people directly concerned.

The suggested approach and the few remarks of the preceding section lead to some fundamental questions:

- *Isn't it utopian to count on the workers and their technical management to manage the prevention process?*
- *If it is not completely utopian, how to start the process of **Screening** in a small company?*
- *If this process is started, isn't it likely, by these **Observation** methods, to privilege specific technical aspects without a more global approach of the work situation?*
- *In this same case, doesn't one risk that the OH practitioners are never called for assistance, the actors at levels 1 and 2 underestimating the problems in such a way that they wrongly consider that they can solve them themselves?*
- *Lastly, how to ensure the quality of the procedure and ensure that the problems are adequately dealt with in the short and long terms?*

The concerns about safety and health at work in the small companies remain low and few actions are carried out directly by the employers and the workers themselves.

However, it should also be noted that the existing methods rather discourage them to undertake anything: too long, not adapted to their situations, difficult to understand, directed towards quantification and without suggesting preventive measures.

Consequently, it appears too early to conclude that a self-management of the problems can not work: the experiments were badly carried out, they are not conclusive.

In the current state of the organization of safety and health at the work, the only systematic contact in the small companies with these aspects is the annual visit of the occupational physician and the annual inspection of the workplaces.

These inspections are and remain essential to detect some significant safety and health aspects, such as biological risks, fire, electricity... , which might escape the awareness of the workers because they do not interfere directly with their behaviour at work.

However, in many cases, for lack of checklists adapted to the industrial sector of the company, these inspections are carried out according to a standard and stereotyped protocol and information is primarily collected concerning what can be seen, heard, felt or smelled at the time of the inspection. Their impact on the improvement of the situations of work then might remain limited.

The strategy presented here wants to be pragmatic. It ambitions to propose to the people carrying out these inspections, a complementary tool of level 1, **Screening**, more adapted, giving more information and allowing to determine what aspects of the work situation really need a more detailed **Observation**.

In the current situation and for SME, that is, for 60% of the workers' population, the occupational physician and the people in charge of the annual inspections will probably remain the best people to use this tool, to make aware the employers and the employees to use it themselves and thus start the process. The method must thus be prepared so that it is usable by these people and not only by the OH practitioner.

Any other way of initiating the process must be exploited: trade unions, employers' associations, newsletters, posters...

The third and fourth interrogations above are fears that must be taken into account explicitly in the elaboration of the working papers of the strategy. The documents of level 1, **Screening** and of level 2, **Observation** must at the same time:

- be sufficiently detailed and rich of information to allow the users to find appropriate solutions.
- be as comprehensive as possible, by not taking only into account the technical factors (heights, positions, forces...) but also the organisational, relational, personal... factors.
- be instructive in explaining what are the possible safety and health consequences (potential damage).
- be cautions, by clearly indicating when the recourse to an OH practitioner is essential, because the consequences are serious, the problem is difficult to apprehend, or the solutions are difficult to develop...

The majority of the existing methods do not meet these balanced requirements.

From the quality of these methods follows the quality of the solutions. Therefore, it is essential that these methods of levels 1 and 2 be written by OH practitioners and experts capable of ensuring this quality. Then, the difficulty consists of translating the documents in a language comprehensible in the field.

The last interrogation relates to the follow-up of the actions.

This follow-up depends on the employer who, as mentioned already, keeps the whole responsibility for the work situation.

It is clear however that solutions found and finalized by the workers and their management and discussed by health and safety committees, have much more chances to be effective thereafter than those described at the end of a report of 10 to 50 pages prepared by an OH practitioner who *has taken charge of* the problem. The approach centred on the concerned people will succeed more certainly than the intervention of a consultant.

The discussion above is based upon the way prevention is organized and is functioning at the present time in Belgium.

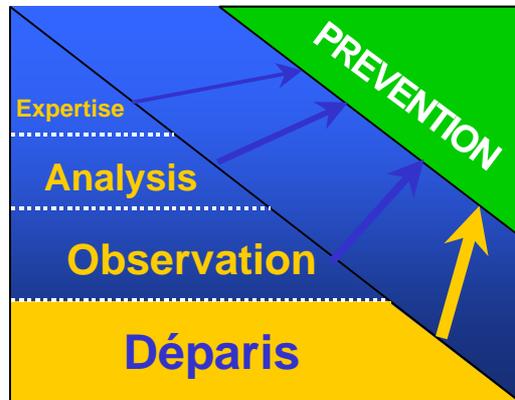
Can this situation change with time?

It is hoped that this will be the case and that the strategy SOBANE will contribute to this evolution.

Another element could also accelerate the evolution. It is the obligation for the companies to behave with respect to the work situations as they do with respect to their products and to guarantee the quality of their programmes. A draft standard ISO was under discussion concerning this quality management in health and safety. A standard BS 8800 [3] exists in the United Kingdom. The International Labour Office published a recommendation on this matter [2]. Audit systems are already imposed in some countries. These quality systems will require that the cooperation between the company and OH practitioners be organized. The **SOBANE** strategy could be at the basis of this cooperation.

The greatest difficulties will remain, like always, the resistance to change and the defence of particular interests.

The DÉPARIS method



CRITERIA OF A TOOL FOR A COMPREHENSIVE SCREENING OF THE RISKS IN A WORK SITUATION.

On the basis of experience gained by the existing methods, one can as follows define the criteria for a comprehensive tool for **Screening** of the risks:

- To be usable directly by the workers and their technical management, with, if available, but not necessarily, the assistance of a OH practitioner trained in safety, ergonomics... It results from this that the method must:
 - be simple to understand
 - use the usual vocabulary
 - take little time
 - not require any measurement.
- Not to require any special knowledge in health, safety, physiological or cognitive ergonomics, but to be based only on the intimate knowledge of the work situation by the workers.
- To approach quickly as many aspects of the work situation as possible.
- To avoid rating scales that divert the attention from the search for solutions towards the sterile determination of a score.
- To be directed towards the calling into question of the work situation and towards the search for improvements.
- To be directed, not necessarily towards the elimination of the "legal problems" of health and safety, but rather towards the search for a "flexible, pleasant and technically efficient " work situation, towards the research of the best technical, human and economic condition for the workers and the company.
- To lead to action plans in the short, medium and long terms and in a plan for effective interventions by OH practitioners later.
- To be devised within the framework of the general strategy of prevention **SOBANE** of which it must constitute the first level. The link must be established between the conclusions of this **Screening** method and the later levels of intervention where the aspects with "problems" will be studied more thoroughly, with the aim again to find the most effective solutions.

PRESENTATION OF THE DÉPARIS METHOD

The tool of participative screening of the risks (**DÉpistage PArticipatif des RISques, Déparis**) follows strictly these criteria.

It is devised to be used by the workers and their management in order to take stock as objectively as possible on the work situation which is theirs daily and which they are the only ones to know intimately. They are thus ideally in the centre of the action of prevention, not to give their opinion or to answer questions, but to discuss the practical details that would make it possible to perform the work under the optimal conditions, for them and for the company.

It is presented in the form of 18 tables, given in appendix 2, approaching 18 aspects of the work situation.

1. Operating areas
2. Technical organization between workstations
3. Work sites
4. Risks of accident
5. Controls and signals

6. Tools and work material
7. Repetitive work
8. Handling operations
9. Mental load
10. Lighting
11. Noise
12. Thermal environment
13. Chemical and biological agents
14. Vibration
15. Work relationships between workers
16. Local and general social environment
17. Work content
18. Psychosocial environment

The order of these tables was studied so as to correspond as much as possible to the way one physically approaches a work situation, going from the general aspects to the more specific ones, considering the general organization (n° 1 and 2) before the work sites (n°3), the safety (n°4) and aspects for work (n°5 with 9). The environmental factors (n°10 with 14), often dealt with in first place, were deliberately pushed back in the list in order to fight against this practice and to draw the attention on the first points.

The psycho-organisational factors (n°15 with 18) were kept in the last position, as in the majority of the existing methods, realizing, in a pragmatic way, the persistent hesitation of many industries to deal with these fundamental aspects.

Déparis proposes for each item a short description of the Ideal situation and a list of aspects to be discussed.

Next to these descriptions, the table includes a space where the coordinator (see below) will note what can be made in practical terms to improve the situation.

Within the third frame of each table, the coordinator will note the aspects that require a more thorough study (by an OH practitioner), to give shape to the solutions considered during the discussions (for example, to choose a particular seat or a more adapted tool, to re-examine the work organization, to re-distribute the responsibilities among the workers in the development for the product...).

ITEM	
Ideal situation: To be discussed	What to do in practical terms?
Aspects to study more in details:	
  	

Lastly, the group leading the study makes an assessment (indicator) of the priority with which the modifications are to be brought. The determination of a numerical score was avoided by choosing an intuitive figurative system of colours and smiles:

- ☺ Green light: satisfactory situation
- 😊 Amber light: average and ordinary situation, to improve if possible
- ☹ Red light: situation unsatisfactory, likely to be dangerous and to improve necessarily.

At the end of the 18 tables, the actions and complementary studies proposed during the discussion are summarized in a table with the determination of " who" does "what" and "when". This table makes it possible to elaborate the action plan at short, medium and long terms.

There is a partial redundancy between various tables: for example work postures are mentioned as aspects to discuss on several occasions. This was avoided as much as possible in order to arriving at rather complementary headings. However, a total separation is neither possible, nor desirable, because the work situation constitutes a whole and is lived by the workers as this whole, where the various aspects interfere and reinforced or neutralized each other's.

PROCEDURE OF USE OF DÉPARIS

1. The employer informs the workers and the management about his objectives and his commitment to take account of the results of the meetings and the studies.

The process can be profitable only if it is developed in a climate of sincere cooperation. Certain conditions must be filled so that it is the case, namely:

- a clear and unambiguous position of the employer, declaring its objectives of safety and health and committing himself to take account of the results.
- a scrupulous respect of the committees where labour and management discuss the health and safety problems in the company.

The committee for protection and prevention in the company, if it exists, must keep and play fully its role, more specifically here by promoting the follow-up and the harmonious development of the local actions.

2. The "work situation" is identified, made of a coherent set of workstations.

One starts by gathering workstations that depend the ones on the others, which form a small functional unit, such as a small workshop, a conditioning chain, a garage... The number of workers concerned may vary, but should hardly exceed ten (by team in the event of shift work) under penalty of considering a set of workstations too heterogeneous.

3. The employer designates a coordinator, with the agreement of the workers.

The coordinator will have to organize the meetings, to lead them and bring back the results. He must know the work situation perfectly: it could be a foreman, the head of section, a local OH practitioner when available.

This coordinator is the main actor of the procedure and all parties must accept him unreservedly.

4. The coordinator adapts Déparis to the work situation

He prepares himself to fill his role of leader of the meeting by reading and practising **Déparis** in details. Then, he adapts the method by modifying terms, eliminating some irrelevant aspects, transforming some others or adding new ones.

5. A "working group" is formed

This group must include

- **key-workers** of the work situation, designated by their colleagues and their representatives
- some technical supervisory staff, designated by the employer.

In SMEs, it can be a group of 2 or 3 people only. In a larger company, it could be a more significant group including 2 or 3 workers, a foreman, a production engineer, a person from the engineering and design department, another one from the purchase or maintenance department, an OH practitioner...

The number of people taking part in the meeting should be about 3 to 7, neither too large – on pain of being too expensive -, nor too small – on pain of being not very representative. These people must be key-persons of the work situation, knowing particularly well the activities, the physical and social work conditions and accepted by their colleagues. They must not speak in their own name, but be able to express, as much as possible, the opinions and expectations of the group of workers. It is essential also that the choice and the representativeness of the participants be accepted, by the worker as well as by the hierarchy.

When the work situation concerns at the same time men and women, the participation of at least a male and a female representative is essential. Experience indicates that the group must be local and include workers living the work situation day after day. This is not contradictory with the presence and the participation of representatives of the workers who are likely to bring in complement their more general knowledge of the company and to ensure the coherence between the various interventions of this type in the company.

6. A meeting of the working group is organized in a calm room, close to the workstations.

The meeting must be held close to the workplaces in order to be able to see the workplaces and the operations and to go there, if necessary, to discuss on the spot the possible changes. Experience shows that it is very difficult to hold it while the participants are working and must supervise and intervene on the process. It thus asks that the participants to stop working.

7. The coordinator leads the meeting

He clearly explains the procedure and proposes, one after the other, the points to discuss, using the tables in appendix 2. These tables could, for example, be projected by a transparency on a wall or distributed to the participants.

The tables are reviewed one by one. The discussion is launched, trying to concentrate on the aspects included under the table, not to give a score, but, to determine:

- what it is possible to do simply, directly and in practical terms (with the details of realization) to make the situation more flexible, more effective and more pleasant
- for what it is necessary to ask the assistance of an OH practitioner.

The written document is used as support for the discussion, but is not the aim. The aim is to structure and make the meeting progress, not to fill the tables.

Although that is difficult and not always reliable, the participants are invited to consider the cost of the solutions they propose and the impact that they can have on the quality of the product and the productivity. They are invited to quickly assess the solutions in term of "no" (0), "little" (€), "fairly" (€€) or "very" (€€€) expensive, taking account of the criteria: direct cost, quality of work and productivity.

At the same time, they are invited to seek **who** could implement each solution, **how** and **when**.

For these two evaluations, the advantage does not lie only in the evaluations of cost or assumption of responsibility, but, more subtly, in the fact of taking these economic and feasibility criteria in account. Thus, the working group learns how to manage its proposals of solutions in a realistic and practical way and these proposals are likely to be more realistic and to become implemented.

During the discussion, the coordinator is brought to manage the fact that items from different tables are dealt with at the same time: thus, the discussion about a machine can approach the

aspects of control, signals, tools and material, noise, vibration. To refuse to deal with these aspects in order to stick strictly to the sequence of the tables would be an error. Conversely, there remains necessary to deal with the various aspects in an organized way.

8. After the meeting, the coordinator writes a synthesis

A fair copy of the result is prepared with:

- the tables used and the detailed information arising from the meeting
- the list of solutions proposed with the indication of who does what and when
- the list of the aspects that need to be studied more in details, with the priorities.

9. Ideally, this synthesis is presented to the participants

One second meeting is often difficult to organize. It appears however particularly rich in confirmations, in additions.... It also demonstrates the educational effect of **Déparis**, namely that, after the first meeting, some participants looked at their work situation more thoroughly, with different eyes, in search of more permanent control measures.

In the absence of such a meeting, a presentation of the results to each participant individually is already enriching.

10. The synthesis is finalized

11. It is presented at the employer and the OH committee

12. The study is carried on for the unsolved problems

Factor by factor, the methods of level 2, **Observation** of strategy **SOBANE** or equivalent methods are used to search further for relevant solutions or to give shape to the proposals made on the level of **Déparis**.

13. Action plans at short, medium and long terms are decided and implemented

The table summarizing **who** does **what when**, as well as the financial implications (**0, € €, €€€**) makes it easier to determine what can be implemented immediately, what must be planned, what must be budgeted for. It also makes it possible to follow the evolution of the actions and to evaluate the results and the progresses.

14. Periodically, the operation is repeated

The improvement of the work situation cannot be done in once and is never final.

- The first time that a method such as Déparis is used, the majority of the problems raised are relatively specific: deteriorated grounds, machines too noisy, damaged tools, signals badly posted, autonomy too low ... and the solutions for one "problem" hardly have an influence on another one.
- If the method is used a second time, the problems raised concern more basic aspects, such as the policy of maintenance of the workspaces, the choice of adapted tools, the nature of the signals, the temporal organization...
- If it is used a third time, they will concern the work organization, the collaboration between services, the staff management...

The process of improvement is thus continuous, provided that, between the successive uses, the recommendations were carried out and that the situation did not regress towards the former state.

Periodically and after an appropriate lapse of time function of the circumstances, the operation must be repeated: the general condition of the work situation is re-studied by the same main actors and the action plans are updated.

Consequently, one arrives at a really **dynamic process of risk management**

ROLE OF THE OH PRACTITIONER

Déparis as presented in appendix 2, was conceived to be the most comprehensive as possible. It is obvious however that the problems can not be considered in the same terms in an office in the tertiary sector, in a hospital, in an iron and steel company or on the building industry.

It is thus desirable that, from the document in appendix, a more suitable tool is prepared, respecting the spirit of methodology (participative, structured, simple, economic).

The author intend to develop gradually, with people in the field, a set of "sector-based" versions from which an OH practitioner could more easily derive the tool that best suits the work situation he has to study.

In some cases, and especially for a first use, a meeting can prove to be premature or impossible. The OH practitioner who wishes to introduce **Déparis** into the company must then use it himself, while trying to collect the opinions and the ideas of the operators. The use is still participative but in the more traditional meaning: the worker takes part in the study conducted by the OH practitioner.

The intervention of the OH practitioner consequently appears to be as follows:

- Make aware the social partners – employers and unions, all committees - of the possibilities that **Déparis** offers to structure their approach of the working situations in a comprehensive way.
- To adapt the tool to the characteristics of the work situation, by re-examining the terminology (ex: workshop or office) and/or the aspects taken into consideration (ex: vibration, work on VDU...).
- To follow closely, even to lead himself, the first use of **Déparis** so as to avoid ambiguities and to take care that the process of discussion, decision and implementation develops harmoniously.
- Periodically, to start again the machine while taking care that the process is renewed and is maintained in the company.

The OH practitioner thus plays literally the role of an "engine", starting the process, bringing the fuel necessary (the **Déparis** method) and maintaining the movement, in overcoming the inertia and the friction forces.

OPERATIONAL VALIDITY

The validity of the **Déparis method** must be evaluated in terms of cost and results.

- **In terms of cost and time necessary**

- the preparation of the intervention takes time, to convince the employer and the hierarchy to take this route and to gain the cooperation of the workers.
- the technical preparation of the **Déparis** meeting hardly takes time, once the partners agree.
- the meeting takes approximately 2 hours for 3 to 7 people.
- after the meeting, the time to write the report is approximately 2 hours.

The cost of the procedure is thus not nil, but appears reasonable and definitely lower than the cost of interventions of consultants.

- **In terms of results**

The results of **Déparis** are very variable, according to the way the coordinator led the meeting and according to the "culture" of the company.

- In some cases, the participants limit themselves to report the problems, discussing primarily whether a given aspect is satisfactory or unsatisfactory and, sometimes, they tend to limit themselves in their appreciations
- In other cases, the discussion really concerns the reasons for the problems, but the solutions remain general "it would be necessary", "one could", "one should"... "reorganize the work", "re-examine the work cycles"...
- In many cases however, the goal is reached: practical solutions are formulated such as plans to refit out a space, relocation of stocks or machines, re-distributions of tasks between workers, modifications of the work process... .
The final table of "**who** does **what when** " and "**what needs a complementary study**" is then very useful, makes it possible to determine the priorities and to define action plans in short, medium and long terms.

As underlined previously, during a later use, the effectiveness becomes more significant, the participation of the workers is more practical, demonstrating that the previous meetings tough them to better look of their work situation.

The **Déparis** method proves definitely more profitable than methods such as "the workstation profile " (Renault method [1]) , health and safety checklists, the Kinney-Wiruth method [7]..., due to the fact that:

- The solutions are proposed by the concerned people themselves
- They are concrete
- From them, they are spontaneously more accepted and implemented
- The priorities are determined, thanks to the appreciation, whatever approximate, of the financial implications
- An action plan, a "**dynamic plan of risk management**", can be set up, in the short, medium and long terms, in particular, thanks to the summarizing table of **who** does **what** and **when**
- The method allows the self-training of the workers, being brought to seek information according to their needs, contrary to the training programmes decided by OH practitioners and taught to workers who are hardly interested.

EXAMPLE OF USE

An example of use of the **Déparis method** is presented at appendix 1.

A 2-hour meeting was held, with 2 workers, their direct manager, the person in charge for maintenance and the occupational physician who played the role of coordinator.
The work situation concerned 10 people working in a large unit of reproduction of documents.

The results are presented using the 18 tables of **Déparis** method. The irrelevant tables are omitted. The study led to 33 actions, of which 17 require the intervention of a more qualified person.

Appendix 1 ends with the synoptic table given to the company after having carried out the **Déparis** method for 3 working situations. This table makes it possible to see quickly in what fields the situations are most unfavourable.

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APPENDIX 1: DÉPARIS STUDY IN A PRINTING WORKSHOP

1. Operating areas

What to make in practical terms to improve the situation?

- Evacuate the useless boxes, pallets, carts which clutter the work zone to the warehouse everyday
- Tidy the working area
- Limit the supplies at the workplace to 2 paper reams
- Move the furniture to increase the distance to 0.7m between the binding machine and the paper pallet
- Organize a space for the pauses close to the windows, with view outside
- Clean the working area every 2 days
- Repair the tiles of the ground

Aspects to study more in details: Organization of the working area



2. Technical organization between workstations

What to make in practical terms to improve the situation?

- All work is urgent: fix priorities.
- The orders are badly organized: oral, written or handwritten: reorganize and systematize the orders by email

Aspects to study more in details: Fix priorities



3. Work sites

What to make in practical terms to improve the situation?

- Position upright. Provide a *sit and stand* seat.
- No possible to sit in front of the two computer screens connected to the photocopier: re-examine their position to be able to work in a sitting posture

Aspects to study more in details: " sit and stand " seat, location of the screens



4. Risks of accident

	Severity	Where?, When?, For What?, What to do?
Impact	+	Against the corner of the pallet or of the furniture, insufficient space (0.7 m) – reorganize the room
Crushing	+	Foot stuck under the pallets, when moving with the stacker: provide safety shoes (reinforced end)
Cuts	+	While handling paper and the cutter: provide cotton gloves, change the cutter.
Burns	+	In the furnace of the machine (+-180°C), while removing the documents: provide gloves.

Aspects to study more in details: Protective gloves, safety shoes, cutter



6. Tools and work material

What to make in practical terms to improve the situation?

- The folding knife and the cutter are dangerous, no protection of the blades: take away the knife and provide a cutter with a protection of the blade.
- Provide on the wall above the machine, a case for arrange the new cutter.

Aspects to study more in details: The cutter



8. Handling operations

What to make in practical terms to improve the situation?

- Control the stacker annually.
- During the filling up of the tray with the stock of paper, the worker must bend forward
- Raise the tray by 45 cm

Aspects to study more in details: Nothing



10. Lighting

What to make in practical terms to improve the situation?

- The working area is not lit enough: install additional lighting above the workplaces
- The tubes have different colours: harmonize them
- The machines are too far from the windows: re-examine the location of the workplaces

Aspects to study more in details: Additional light; revision of the locations of the machines



11. Noise

What to make in practical terms to improve the situation?

- It is impossible to hold a normal conversation because of the noise of the photocopier, of the 3 other machines, of the ventilation and the traffic.
- The room is very reverberating: cover the walls with an absorbing material.

Aspects to study more in details: Reduction of the noise at the sources, absorbing materials on the walls



12. Thermal environment

What to make in practical terms to improve the situation?

- The air is very dry because of the paper: install humidifiers

Aspects to study more in details: Nothing



13. Chemical and biological agents

What to make in practical terms to improve the situation?

- Odours of solvents or glues: operate the ventilation system during and after the binding operations.
- Light leaks of dust and powder during the filling up of the photocopier: clean the room more frequently.
- Paper fleas: the workers complain about itching: decontaminate the room in the spring and in the autumn.

Aspects to study more in details: Cleaning, decontamination



14. Vibration

What to make in practical terms to improve the situation?

- Strong jerk of the stacker: level the ground

Aspects to study more in details: Nothing



15. Work relationships between workers

What to make in practical terms to improve the situation?

- One of the superiors intervenes periodically in the procedure. The worker feels put down and is irritated: re-examine the allocation of responsibilities

Aspects to study more in details: Re-examine the allocations of responsibilities



16. Local and general social environment

What to make in practical terms to improve the situation?

- Communications difficult because of the noise
- The toilets are not operational and clean: repair and ensure that they are cleaned regularly

Aspects to study more in details: Nothing



18. Psychosocial environment

What to make in practical terms to improve the situation?

- Wages little satisfying
- Job instability
- Lack of personnel when an operator falls sick and for the period of vacation
- Lack of information
- Verbal aggressiveness of some people
- The worker does not know the system, he does not receive any feedback and does not have the possibility of delivering its opinion.

Aspects to study more in details: Verbal aggressiveness; information on the evaluation system; the management of the vacation; the wages



Synthesis of the Déparis study of printing works	
1. Operating areas	
2. Technical organization between workstations	
3. Work sites	
4. Risks of accident	
5. Controls and signals	
6. Tools and work material	
7. Repetitive work	
8. Handling operations	
9. Mental load	
10. Lighting	
11. Noise	
12. Thermal environment	
13. Chemical and biological agents	
14. Vibration	
15. Work relationships between workers	
16. Local and general social environment	
17. Work content	
18. Psychosocial environment	

Synthesis of the improvements suggested and of the aspects to be studied more in details

N°	WHO?	WHAT?	Cost	WHEN?	
				Projected	Carried out
1	Workers	Evacuate everyday the boxes, pallets, carts which clutter the work zone to the warehouse	0	Immediately	
2	Workers	Tidy the working area	0	Immediately	
3	Workers	Limit the supplies at the workplace to 2 paper reams	0	Immediately	
4	Workers	Operate the ventilation system during and after the binding operations	0	Immediately	
5	Cleaning	Clean the working area every 2 days	€	Immediately	
6	Maintenance	Move the furniture to increase the distance to 0.7m between the binding machine and the paper pallet	0	1 week	-
7	Maintenance	Provide on the wall above the machine, a case for arrange the new cutter	€	1 week	-
8	Maintenance	Control the stacker annually	€	-	-
9	Maintenance	Raise the tray with the stock of paper by 45 cm	0	1 week	-
10	Maintenance	Harmonize the types of fluorescent tubes	€	1month	-
11	Maintenance	Decontaminate the room in the spring and in the autumn	€	-	-
12	Maintenance	Repair the tiles of the ground and level the ground	€	1 month	-
13	Maintenance	Repair the toilets and ensure that they are cleaned regularly	€	1 month-	-
14	OH practitioner	Organize the working area	€€	To be analysed 3 months	
15	OH practitioner	Provide a sit and stand seat	€€	To be analysed 3 months	
16	OH practitioner	Re-examine the location of the computer screens to be able to work in a sitting posture	0	To be analysed 1 month	
17	OH practitioner	Provide safety shoes (reinforced end)	€€	To be analysed 3 months	
18	OH practitioner	Provide cotton gloves.	€€	To be analysed 3 months	
19	OH practitioner	Select new cutters with protections of the blades	€€	To be analysed 1 month	
20	OH practitioner Maintenance	Install additional lighting above the workplaces	€€	To be analysed 3 months	
21	OH practitioner	Cover the walls with an absorbing material.	€€€	To be analysed 2 years	

22	OH practitioner	Reduce the noise at the sources	€€€	To be analysed 1 year
23	OH practitioner	Install humidifiers	€€	To be analysed 3 months
24	Employer	Organize a space for the pauses close to the windows, with view outside	€€	To be analysed 6 months
25	Employer	Fix work priorities	€	To be analysed 3 months
26	Employer	Reorganize and systematize the orders by email	0	To be analysed 3 months
27	Employer	Relocate the workplaces closer to the windows	€€	To be analysed 3 months
28	Employer	Re-examine the allocations of responsibilities between workers and the hierarchy	0	To be analysed 6 months
29	Employer	Better inform the workers of the evaluation criteria	0	Immediately
30	Employer	Replace more rapidly the workers absent	€€	Immediately
31	Employer OH practitioner	Develop a programme again verbal aggressiveness	€	To be analysed 3 months
32	Employer	Inform about the evaluation system	0	1 month

Synthesis of the results of the 3 Déparis performed in the same printing company

Synthesis of the Déparis study of the 3 workshops			
1. Operating areas			
2. Technical organization between workstations			
3. Work sites			
4. Risks of accident			
5. Controls and signals			
6. Tools and work material			
7. Repetitive work			
8. Handling operations			
9. Mental load			
10. Lighting			
11. Noise			
12. Thermal environment			
13. Chemical and biological agents			
14. Vibration			
15. Work relationships between workers			
16. Local and general social environment			
17. Work content			
18. Psychosocial environment			

DIALOGUE GUIDE DÉPARIS

Participative Screening of the Risks

Procedure of use

1. Information by the Direction on the objectives and commitment to take account of the results of the meetings and the studies.
2. Agreement of the Safety Committee
3. Definition of a small group of workplaces forming a unit, a "work situation"
4. Designation of a coordinator by the Direction with the agreement of the workers.
5. The Déparis coordinator adapts the guide to the work situation by modifying terms, eliminating some irrelevant aspects, transforming others or adding additional aspects.
6. Constitution of a working group with key-workers of the work situation concerned, designated by their colleagues and with supervisory technical staff chosen by the direction. It includes at least a man and a woman in the event of mixed group.
7. Meeting of the working group in a calm room close to the working stations.
8. Clear explanation by the coordinator of the objectives of the meeting and the procedure.
9. Discussion sequentially on the aspects listed in each table, while concentrating on:
 - ◇ What can be done to improve the situation, by whom and when
 - ◇ What aspects require the assistance of a trained person
 - ◇ The cost of the suggested improvement measures and their possible impact on the quality of the product and the productivity: not (0), little (€), mean (€€) or high (€€€).
10. After the meeting, synthesis by the coordinator
 - ◇ The list of the points that need to be studied more in details with the priorities.
 - ◇ The list of solutions under consideration with indication of who can do what and when
 - ◇ The headings used, containing detailed information arising from the meeting
11. Presentation the participants, revision, additions...
12. Finalization of the synthesis.
13. Presentation of the results to the direction and the safety committee.
14. Continuation of the study for the unsolved problems, factor by factor, by means of the methods of level 2, **Observation** of strategy **SOBANE**

The following text can help to specify the goal of the meeting.

"During the meeting, we will review all the technical, organizational and relational aspects that make that work is more or less easy, effective and pleasant.

The objective is not to know if it is easy or pleasant to 20, 50 or 100 %.

It is to find what can be made in practice, immediately, in 3 months and later, so that it is more effective and more pleasant.

They can be engineering changes, new techniques of work, but also better communications, reorganization of the schedules, more specific trainings...

For certain points, the group should succeed in defining what should be changed and how in practice change it. For other aspects, complementary studies will have to be carried out.

The Direction commits herself to establish an action plan in order to implement for the best the solutions discussed."

1. Premises and working areas

To be discussed

Workshops, offices and working areas

- ✦ Of average size and nobody is isolated

Circulation paths (for people and vehicles)

- ✦ Broad enough, well delimited by lines
- ✦ Not obstructed with objects, boxes, pallets...
- ✦ Good visibility

Accesses to the working areas

- ✦ Easy, direct and of sufficiently broad (> 80 cm)

Obstruction appropriate storing and tidiness

Storing spaces

- ✦ Sufficient (binders, cupboards...) and easily accessible

Technical maintenance and house keeping

- ✦ Working areas well and regularly maintained, pleasant

Waste

- ✦ Sorted and evacuated correctly
- ✦ Enough containers, well located and appropriate

Floor

- ✦ In good condition, level, secure, not slipping

Social premises

- ✦ Showers, toilets, changing-rooms, canteen...
- ✦ Appropriate size, comfortable and well equipped

Emergency exits

- ✦ Not obstructed, quite visible
- ✦ Signalled with appropriate pictograms

Who can do what in practice and when?

Aspects to study more in detail



2. Work organization

To be discussed

Work organization

- ✦ Clear and appropriate
- ✦ Allows to work safely
- ✦ Work planning appropriate in time and space
- ✦ Work procedures clear and applied

Work circumstances

- ✦ The places, tools, materials, stocks, unforeseen events, external requests, time...
- ✦ Allow applications of the usual work procedures and make possible a work of quality

The supply of the workplaces

- ✦ Stocks neither too large nor too small

Independence between the neighbouring workstations

- ✦ Neither too much, nor too little

Interactions and communications

- ✦ During work between workers of the various workstations
- ✦ Easy and free

Means of communication

- ✦ Voice, phones, computers...appropriate and pleasant

Who can do what in practice and when?

Aspects to study more in detail



3. Work accidents	
To be discussed	Who can do what in practice and when?
Working clothes and personal protective equipments <ul style="list-style-type: none"> ✧ Appropriate, available, used, maintained, put away ✧ Dangerous products: masks, safety glasses, gloves ✧ Machines: glasses (against projections, splashes), gloves ✧ Work at height: helmet, safety harness... 	
Falls from height <ul style="list-style-type: none"> ✧ Handrails, anchorages, maintenance of the work at height equipment, lifting devices for people Falls on the ground: condition of the floor, tidiness, cleanliness... Falls or projections of objects <ul style="list-style-type: none"> ✧ Safety of the operations, storing of the tools and the material... 	
Mechanical risks <ul style="list-style-type: none"> ✧ Shocks, dragging, crushing, cuts, punctures, burns... ✧ From lack or neutralization of barriers, pulley covers; use of syringes, cutters, sources of heat 	
Procedures in case of an accident <ul style="list-style-type: none"> ✧ Clear, known and applied Analyses of the work accidents <ul style="list-style-type: none"> ✧ Systematic, complete, used First care first-aid room, first-aid kits, first-aid workers... well located and appropriate	
Aspects to study more in detail	  

4. Electricity, fire and explosions	
To be discussed	Who can do what in practice and when?
<p style="text-align: center;">Electricity</p> The general wiring <ul style="list-style-type: none"> ✧ Circuit breakers, fuses, grounds, signposting, protection The material wire, cables, extensions, earth... The equipment <ul style="list-style-type: none"> ✧ Connections, emergency stop, earth, maintenance, insulation, batteries. 	
<p style="text-align: center;">Fire and explosion</p> Inflammable or explosive materials <ul style="list-style-type: none"> ✧ Quantity, storage, ventilation, supply... Sources <ul style="list-style-type: none"> ✧ Flame, spark or sources of heat (static electricity...), signposting Fire fighting devices <ul style="list-style-type: none"> ✧ Automatic fire detection and extinction, fire extinguishers, hose reels, hydrants..., signposting Compartmentalisation of the areas, stairs <ul style="list-style-type: none"> ✧ Technical shafts, fire doors (condition, obstruction), filling in of the holes (cables, pipes...)... The internal intervention team: trained, available Instructions in case of fire <ul style="list-style-type: none"> ✧ Evacuation plans, fire alarms, emergency exit and gangways, meeting point, tests of evacuation... Signposting <ul style="list-style-type: none"> ✧ Storage sections, fire fighting devices, emergency exits and escape lighting, plans by floor... 	
Aspects to study more in detail	  

5. Controls and signals

To be discussed

Work orders: clear forms, lists...

Signals (screens, lamps...) and **controls** buttons, levers, pedals...

- ✦ In good condition

Localization

- ✦ Near and facing the worker, neither too high, nor too low
- ✦ Well located on the control board (number and colours of the buttons, lamps...)
- ✦ Emergency stop system (buttons, cables...) available and easily accessible

Characteristics

- ✦ In accordance with the stereotypes: needle moving from left to right, green = work....red = stop, direction of the controls...
- ✦ Level of loud alarms or appropriate light intensity
- ✦ Size, form and dimensions (buttons, indicators...)

Force

- ✦ No excessive pressure with the finger or the foot...

Who can do what in practice and when?

Aspects to study more in detail



6. Work material, tools, machines

To be discussed

The material, tools and machines

- ✦ Hammers, pliers... fixed, portable, or lifting machines...
- ✦ Inventory available

Appropriate for each operation

- ✦ Isolated in a safety area (for dangerous machines)

Maintenance

- ✦ In good condition
- ✦ Regular maintenance, thorough annual checking
- ✦ Put away in case of problems (damaged cable, cracks, tears, general wear...)
- ✦ Cleaned up and put away according to the needs, in places easily accessible around the workstations

Dimensions and forms

- ✦ Easy to grab safely
- ✦ Easy to use without tiredness of the hands or arms
- ✦ Right or curved handles, not too long or too short, not too thick or too thin, not too rough or too smooth

Adapted to the worker and safe

- ✦ No parts that could wound
- ✦ Not too heavy; no vibration
- ✦ Adapted to the left-handers

Training

- ✦ On the safest and most efficient use of the material and machines

Who can do what in practice and when?

Aspects to study more in detail



7. Work postures

To be discussed

The repetition of the same gestures not continuously

Work postures: comfortable

- ✦ Straight back: no flexion nor torsion of the back
- ✦ Straight head: no flexion, extension nor rotation
- ✦ Shoulders relaxed: not raised
- ✦ Arms close to the body: not outspread nor raised
- ✦ Hands in a normal position: not bent
- ✦ Feet on the ground or on a rest-foot
- ✦ No work kneeled down or in crouching position
 - If not, knee support, cushion... available
- ✦ No repeated or uninterrupted unfavourable positions

Work heights (tables, desks, shelves, machine-tools...)

- ✦ Make possible this ideal work posture

Seated or seated/standing posture

- ✦ Preferred
- ✦ Appropriate seats, stable and comfortable
- ✦ Support of the forearms on the desk or armrests adjustable in height
- ✦ No obstruction for the legs under the desk

If upright work posture

- ✦ No obstruction in the movements
- ✦ Comfortable support of the thighs and/or the arms on support at appropriate height

Help means

- ✦ Stepladder... available for working at height.
- ✦ Stable, solid, easy to use safely (falls)

Who can do what in practice and when?

Aspects to study more in detail



8. Efforts and handling operations

To be discussed

Gestures and efforts

- ✦ Not abrupt nor too strong
- ✦ Without fast or repeated movements

Hand efforts

- ✦ Moderated, without wrist torsions
- ✦ No knocking with the heel of the hand

Loads

- **Light and balanced** (liquids, size of the bags...)
- **Comfortable to grab:** good handles, no cutting edges, not slipping, not too hot or too cold...
- **At good height** grabbed and dropped at the level of the waist
- **No torsions or bending of the trunk**
- **Carried only on short distances**

Mechanical assistance devices appropriate

- ✦ Hoists, trucks (pushed rather than pulled)... for heavy or unstable loads
- ✦ Belts, conveyor belts... for frequent transport
- ✦ High standard, well located, easy and rapid to use

Training on how to handle loads, adapted to the work situation

Tiredness at the end of the day acceptable

Who can do what in practice and when?

Aspects to study more in detail



9. Lighting

To be discussed

General lighting of the premises and the work itself

- ✧ Neither too much nor too little: sufficient to see the details of work, but not too large

Daylight and view outside acceptable through clean windows

No shade on the work

No reflections nor glares

- ✧ On the tables, metal or glass surfaces, plastic sheets, windows, screens...
- ✧ Especially by the sun: windows with curtains, blinds or sun screen
- ✧ No direct sight of the light sources

Lighting uniformity

- ✧ Of the working areas and gangways (staircases...)

Lamps

- ✧ Cleaned regularly
- ✧ Defective lamps or tubes are quickly replaced

Work on VDU

- ✧ The worker does not stand facing or turning the back at a window or at a significant source of light

Who can do what in practice and when?

Aspects to study more in detail



10. Noise

To be discussed

In the workshops

- **The ease to speak** at a distance of 1 meter
- **Personal protective equipments**
 - ✧ Ear plugs, ear muffs... available and used when necessary

In the offices

- **No discomfort, lapse of concentration**
 - ✧ Traffic, telephones, air conditioning, photocopiers, conversations...

Location of the workstations

- ✧ As far as possible from the noise sources

Means of communication

- ✧ Take the ambient noise into account

Noisy machines or installations

- ✧ Well maintained, equipped with hood

Holes, openings

- ✧ In the walls between the premises, slots around doors

Who can do what in practice and when?

Aspects to study more in detail



11. Chemical and Biological risks

To be discussed	Who can do what in practice and when?
<p>Chemical and biological risks</p> <ul style="list-style-type: none"> ✦ Inventory of the products available and up to date ✦ Documentation on the risks available <p>Training on the procedures and the risks</p> <p>Procedures</p> <ul style="list-style-type: none"> ✦ Of use: clear and respected (mixtures...) ✦ In case of incident (spill, splash...): respected <p>Labelling: appropriate and well labelled containers</p> <p>Stocks (toxic, corrosive, flammable, biological... products)</p> <ul style="list-style-type: none"> ✦ stored in adapted, isolated and labelled spaces <p>Dusts, chips, oils, vapour...</p> <ul style="list-style-type: none"> ✦ Evacuated (ventilation, aspiration...) without setting in suspension or being dispersed <p>Chemical and biological waste</p> <ul style="list-style-type: none"> ✦ Evacuated in a controlled way according to a known procedure ✦ In appropriate containers (dustbins) <p>Signposting</p> <ul style="list-style-type: none"> ✦ Appropriate and respected: no smoking, risk areas... <p>Collective protections</p> <ul style="list-style-type: none"> ✦ Showers, wash-hand basins, ocular showers... well located and in good condition <p>Personal protective equipments</p> <ul style="list-style-type: none"> ✦ Gloves, masks, glasses, clothing... ✦ Appropriate, available and used <p>Sensitive personnel</p> <ul style="list-style-type: none"> ✦ Women, pregnant or nursing women, young workers... ✦ Health monitoring <p>Vaccinations: in order</p> <p>Hygiene</p> <ul style="list-style-type: none"> ✦ Nobody eats on the workplace ✦ No fungi nor moulds <p>Air Renewal: sufficient</p> <ul style="list-style-type: none"> ✦ the air is fresh, pleasant to breathe, without odours <p>Smokers: Smoking zones well located and ventilated</p>	

Aspects to study more in detail



12. Thermal environments

To be discussed	Who can do what in practice and when?
<p>Temperature</p> <ul style="list-style-type: none"> ✦ Neither too warm nor too cold, no significant variations <p>Humidity : not too dry nor too humid</p> <p>No draughts: by the windows and the doors</p> <p>Cold, heat and humidity sources</p> <ul style="list-style-type: none"> ✦ Removed: water, vapour, machines, sun... <p>Clothing</p> <ul style="list-style-type: none"> ✦ Comfortable: overalls, laboratory apron... <p>Protective clothing</p> <ul style="list-style-type: none"> ✦ If necessary (insulating, water-proof, anti-radiations...) ✦ Quality, appropriate and comfortable <p>Drinks: available in case of conditions too hot or too cold</p>	

Aspects to study more in detail



13. Vibration

To be discussed

The vehicles (lifting trucks...)

- ✧ Appropriate for the work to be performed
- ✧ The floor, the circulation paths, the tires, the suspensions, the seats are in good condition

Vibrating machines (grinders, drills...)

- ✧ Appropriate for the work to be performed
- ✧ Not too heavy and without vibration
- ✧ In good condition and regularly maintained

Tools, bits, discs...: adequate and in good condition

Training

- ✧ Vehicles, machines and tools well used
- ✧ Good work postures, forces, work with 1 or 2 hands....

Who can do what in practice and when?

Aspects to study more in detail



14. Autonomy and personal responsibilities

To be discussed

Orders and expectations: no contradictions

Range of initiative

- ✧ Everyone can adapt the way he works without disturbing the team work

Autonomy

- ✧ Everyone can leave his workstation and take a short break (toilets, drinks) without disturbing the production

Freedom of contact

- ✧ Everyone takes himself the contacts considered as necessary with peripheral (maintenance, purchase, quality...) or external departments

Degree of attention: average according to

- ✧ The seriousness of the actions to be taken
- ✧ The unpredictable nature of the events

Decisions

- ✧ Limited number of possible choices
- ✧ Information available
- ✧ Decisions not too difficult to take
- ✧ Required speed of reaction normal

Responsibilities

- ✧ Neither too many nor too few
- ✧ Everyone knows his own responsibilities and appreciate them

Errors

- ✧ Everyone can correct his errors by himself

Who can do what in practice and when?

Aspects to study more in detail



15. Work content	
<p style="text-align: center;">To be discussed</p> <p>Work interest: interesting and diversified</p> <ul style="list-style-type: none"> ✦ Preparation tasks, quality control, final improvement, maintenance... <p>Qualifications</p> <ul style="list-style-type: none"> ✦ Everyone's work corresponds to his function and his professional capacities ✦ It makes it possible to use and develop these capacities <p>Information and training</p> <ul style="list-style-type: none"> ✦ Of everyone (young, temporary and older workers) ✦ Specific to everyone's work ✦ About the procedures, the risks and the prevention methods ✦ When taking on the job and periodically thereafter <p>Emotional load: dramatic errors, environment (hospital)...</p> <ul style="list-style-type: none"> ✦ Not too heavy 	<p style="text-align: center;"><i>Who can do what in practice and when?</i></p>
Aspects to study more in detail	
	

16. Time constraints	
<p style="text-align: center;">To be discussed</p> <p>Work schedules and work program</p> <ul style="list-style-type: none"> ✦ Received sufficiently in advance ✦ Allow everyone to organize his working day as he wants ✦ Flexible within given margins <p>Work rate: not excessive</p> <ul style="list-style-type: none"> ✦ Lost production can be made up rapidly <p>Group autonomy: the group organizes himself concerning</p> <ul style="list-style-type: none"> ✦ The work schedules and holidays ✦ The work distribution, breaks, rotations ✦ The production delays ✦ The overtime ✦ The peak and drop periods of work (short-time working) ✦ Additional and last minute work <p>Work interruptions: Few unexpected events</p> <p>Breaks</p> <ul style="list-style-type: none"> ✦ Frequent and short ✦ Organized taking into consideration the workload, the postures hardness, the repetitive constraints, and the mental fatigue. 	<p style="text-align: center;"><i>Who can do what in practice and when?</i></p>
Aspects to study more in detail	
	

17. Work relationships between workers and with the hierarchy

To be discussed

Communications during work

- ✧ Always possible, on matter related or unrelated to the work
- ✧ The work and spaces organization allows to see each other

Allocation of work: impartial within the group

- ✧ Everyone knows exactly his work and his role

Mutual assistance between workers for work problems

Consultation about the work : regular

- ✧ Between the workers, the departments and the hierarchy
- ✧ To define, plan and allocate the work
- ✧ To solve the problems

The hierarchy: known, appreciated and respected

Relations with the hierarchy

- ✧ Harmony, confidence, cooperation and good social climate
- ✧ No strained relations, no conflicts of interest...
- ✧ Support in case of work or personal difficulties
- ✧ Delegations...

Workers suggestions and remarks

- ✧ Encouraged, heard and taken into account
- ✧ The problems are reported

Evaluations

- ✧ Everyone knows how his work is evaluated
- ✧ When and how he is monitored
- ✧ Evaluation criteria and consequences are known
- ✧ Everyone is informed about his evaluation results
- ✧ Everyone's work is correctly appreciated

Who can do what in practice and when?

✧

Aspects to study more in detail



18. Psychosocial environment

To be discussed

Promotions: possible

- ✧ According to clear and unbiased criteria known and approved by all
- ✧ On the basis of the evaluations and according to the performances

Discriminations

- ✧ None according to age, sex, origins or personal characteristics
- ✧ Neither to be hired nor to be promoted

Employment

- ✧ Stable
- ✧ Confidence in the company integrity and future
- ✧ Substitutions in case of diseases and the use of temporary workers are well managed

Salary

- ✧ Correspond to the required capacities and work performed

Company council and safety comities: satisfactory

Psychosocial problems

- ✧ Dissatisfaction, stress, harassment, personal problems...
- ✧ Support facilities and procedures exist and are used
- ✧ Information is given
- ✧ Preventive actions are carried on

Living conditions in the company

- ✧ Allow personal and professional development
- ✧ Compatible with private life (family...)
- ✧ All the workers are on the whole satisfied

Who can do what in practice and when?

Aspects to study more in detail



Synthesis

Report here the general appreciations of the headings, by colouring the box in green 😊 yellow 😐 or red 😞

Work situation			
1. Premises and working areas	😊	😐	😞
2. Work organization	😊	😐	😞
3. Work accidents	😊	😐	😞
4. Electricity, fire and explosions	😊	😐	😞
5. Controls and signals	😊	😐	😞
6. Work material, tools, machines	😊	😐	😞
7. Work postures	😊	😐	😞
8. Efforts and handling operations	😊	😐	😞
9. Lighting	😊	😐	😞
10. Noise	😊	😐	😞
11. Chemical and Biological risks	😊	😐	😞
12. Thermal environments	😊	😐	😞
13. Vibration	😊	😐	😞
14. Autonomy and individual responsibilities	😊	😐	😞
15. Work content	😊	😐	😞
16. Time constraints	😊	😐	😞
17. Relationships between workers and with the hierarchy	😊	😐	😞
18. Psychosocial environment	😊	😐	😞

Inventory of the proposed improvement measures and of the complementary studies to realize

N°	Who?	Does what and how?	Cost	When?	
				Projected	Realized