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# HOW TO PERFORM A RISK ASSESSMENT STEP BY STEP FOR OCCUPATIONAL HEALTH AND SAFETY<sup>1\*</sup>

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## **ABSTRACT**

*The use of risk assessment methods carried out in enterprises within the framework of Occupational Health and Safety differs from sector to sector today. With the Labor Law No. 4857 and the Occupational Health and Safety Law No. 6331, businesses that are obliged to make risk assessments regardless of their scale are trying to find appropriate methods in order to apply and obtain more reliable and accurate results. The differences between the results of the methods; In risk analyses performed at decision points where experts are inadequate or hesitate while applying the methods, the results of erroneous prioritization of hazards and misclassification of related hazards emerge. In this study, it was emphasized that how risk assessment should be done on the basis of engineering, and which parameters should be considered in the basic steps. Thus, a road map has been drawn to help minimize work accidents and occupational diseases by evaluating the risks that may occur in the workplace environment in a more scientific and systematic way.*

**Keywords:** Risk, Risk assessment, Risk analysis, Occupational health and safety

## **1. INTRODUCTION**

Risk assessment is simply prior to expiry or tax valuation, without a simple estimation of what will be delivered in the trade. According to Peter L. Bernstein, risk management and the history of risk are traced back to the games of bone and dice that were played by the Ancient Greeks and Arabs. Bernstein states that the games in question are derived from

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the fear of “hazard” from the expedition to Europe with the crusaders and even from the “al zahr” meaning six in Arabic [1].

Terje Aven, on the other hand, mentions that the basic rules of risk assessment in the modern sense were determined in 1970 and 1980, and he mentions that today, risk analysis methods are applied in many subjects from ecology, environment, occupational safety and law [2].

Risk analysis also constitutes the most important part of the systematic of the Occupational Health and Safety Law No. 6331 (OHS Law). After the Occupational Health and Safety Law came into force in 2013, the Occupational Health and Safety Risk Assessment Regulation (Regulation) was issued and the details of the risk assessment outlined in the OHS Law were determined. Today, there are many studies on risk assessment and management; There are also international standards ISO 31000 and ISO 31010 describing the methods in question. Risk and hazard definitions are terms that should be well known before starting risk assessment studies. Risk according to the regulation; defined as the probability of loss, injury or other harmful consequence resulting from the hazard; the definition in question is close to the definition of risk in standards and international documents. The regulation defines hazard as “the potential for harm or damage that exists in the workplace or may arise from outside that may impact the employee or the workplace.” The steps of risk assessment for all workplaces are described in the regulation, beginning with the design or establishment stage, identifying hazards, identifying and assessing risks, deciding on risk control methods, documentation, updating the work done, and renewing when necessary.

As it is known, in most of the regulations that came into force in accordance with the Labor Law No. 4857, the assessment of occupational health and safety risks is a legal obligation. In addition, the OHSAS 18001 Occupational Health and Safety Management System Standard also requires a risk assessment [3].

The importance of the quality of the work on the assessment of occupational health and safety risks in terms of the prevention of work accidents and occupational diseases is obvious. However, the biggest problem experienced in risk assessment practices both in developed countries and in our country is; There is no agreed method on how risk assessment should be done. Currently used in occupational health and safety risk assessments; Although many methods such as What if, Job Safety Analysis, Failure Mode and Impact Analysis (FMEA), Hazard and Operability Studies, Preliminary Hazards Analysis, Fault Tree Analysis are used, none of these methods are sufficient for a holistic assessment of an organization’s occupational health and safety risks [4].

Therefore, considering the risk assessments made in practice; Some very inadequate and some extremely complex risk assessments can be encountered. On the other hand, since the assessment of occupational health and safety risks is not only a work that should be done by experts, but also requires the participation of the workforce, the method to be applied must be a simple, easy-to-understand method that will lead to detailed results [5].

The purpose of this statement; It is the presentation of a practical 10-step approach developed for the assessment of occupational health and safety risks in an organization. Although the method in question has been developed especially for workplaces with 50 or more employees and counted from the industry, the contents of the steps can be applied to any workplace by changing the contents of the organization when necessary.

## **2. WHY A RISK ASSESSMENT MUST BE DONE?**

At the point we have reached today, risk management and assessment constitute the most important element of the philosophy of a new approach to occupational health and safety. The most important reasons for this can be listed as follows. The old approach to OHS was based on hazard-based thinking.

The new approach is based on risk-based thinking. In the old approach, personal protection measures came to the fore rather than collective protection measures. In the new approach, collective protection measures, which we call proactive and preventive measures, gained importance. While in the old approach, the contribution of professional experts who were trained on OHS is not legally required, in the new approach, it is obligatory to receive services from OHS experts for workplaces that are considered to be industry and employ 50 or more workers. While the old approach did not certify that work equipment will not harm human health in manufacturing, in the new approach, the CE certification system, which provides the way to safely manufacture work equipment in manufacturing, has been made mandatory. For the reasons listed here, one of the basic principles of the new approach has been risk assessment. Because risk assessment is a scientific study to determine the precautions to be taken within a preventive logic without paying a price. Workplaces and even our daily environment are full of dangers and the risks that these dangers may cause. This is what we are faced with, sometimes made safe by preventive measures that will not harm us. For these reasons, we do not perceive them as a risk for ourselves. Likewise, all the equipment, facilities, and energy sources we use for production purposes in the workplaces are constantly tried to be made safe in a way that will not harm the employees. In risk assessment studies, it is the whole of the studies carried out to determine whether this safety equipment is sufficient and if not, what new measures to be taken are.

Today, countries have made a concerted effort to limit the material and moral losses caused by workplace accidents and occupational diseases, as well as to recoup the material values lost in this manner. Developed countries that take a scientific approach to occupational health and safety have been able to decrease these losses to very low levels. However, in our country, which is a growing country, the direct and indirect costs of workplace accidents and occupational diseases impose a significant financial burden on the national economy [6].

Making a risk assessment is the scientific technique to begin preventative efforts in respect to the identified high-level hazards. The workplace is riddled with both obvious and subtle hazards. The greatest science-based study to follow to foresee the dangers from these hazards and eliminate the unacceptable is risk assessment.

### **3. RISK ASSESSMENT STEPS**

#### **3.1 STEP 1: ESTABLISHING THE RISK ASSESSMENT PROJECT TEAM**

A “Project Team” is established, which includes representatives from all units within the scope of risk assessment in an organization, who have information about all activities carried out in those units, the occupational health and safety officer and the workplace doctor. Preferably, the task and responsibility of the “Project Coordinator” is given to the occupational health and safety officer. The task of the Project Team; It should be ensured that the risk assessment studies to be carried out in the organization are carried out in a timely and effective manner by coordination [7].

#### **3.2 STEP 2: DEFINING THE AREAS AND ACTIVITIES FOR RISK ASSESSMENT**

All activities carried out by the members of the Project Team in all areas within the facility and around the facility, which are within the responsibility areas of their units in the organization, and in each area;

- Activities under normal conditions
- Occasional activities such as cleaning, commissioning, stopping, maintenance-repair
- Supplier, subcontractor, etc. activities and
- Visitor activities including defined.

In addition, facilities, highways, railways, airports, settlements, rivers, etc. that may create risks for the organization outside the workplace. All locations are defined [7].

Buildings should be viewed as a source of danger when discovering danger, particularly work equipment and systems, and the issue of how damage will occur from this source should be asked. The answers to this question will disclose the threats that will occur as a result of that source. This way, it is possible to predict that more than one risk will arise from a single cause. In other words, several dangers emerge from a single cause, and multiple risks emerge from each hazard. Within this systematic approach, hazards in a workplace can be detected in the following ways [8]:

a- Reviewing past records:

- Examining the ambient measurement reports,
- Examining work accident and near miss reports,
- Evaluation of the annual activity reports of the OHS Board,
- Examining the reports of public and private auditors,
- Examining the technical periodic control reports

b- Examining the current situation:

- List of chemicals, physical and biological factors
- Inspection of work equipment,
- Examining the working environment,
- Examination of ergonomic conditions
- Review of business activities
- Evaluation of manufacturer data
- Examining the organization

c- Examination of legislation and literature

- Examining the OHS legislation,
- Examining other relevant legislation,
- Examining the standards,
- Examining ILO norms,
- Literature review,
- Evaluation of manufacturer data,
- Benefiting from expert comments

### **3.3 STEP 3: ESTABLISHMENT OF RISK ASSESSMENT TEAMS AND CREATION OF RISK ASSESSMENT PLAN**

OSHA (Occupational Safety and Health Administration) indicates that one of the most important factors that cause accidents in the workplace is the inability to detect the haz-

ards in the workplace [8]. The first phase of the risk assessment process is the hazard identification phase. As stated above, it is necessary to determine the existing hazards in the workplace in accordance with the hazard definition. To this end, the Regulation states what information will be collected to identify hazards. It described the identification of hazards in the simplest way in the risk assessment guide published by HSE (Health and Safety Executive), walk around the workplace, and think about what could harm workers. In addition, it recommends checking the machine information provided by the manufacturer, the records of past work accidents and occupational diseases, non-routine operations (such as maintenance and repairs), and long-term harmful factors (such as noise, exposure to dangerous dusts) [7]. In the 8th article of the regulation, the places to look for to identify the hazards are listed as a minimum. Before the risk assessment is carried out, the issues stated in the 8th article should be checked and the hazards should be determined.

In order to evaluate the risks of the areas defined by the project team and the activities carried out in these areas, risk assessment teams are formed, preferably consisting of a maximum of 5 people, in terms of effectiveness. The following points are considered in the formation of Risk Assessment Teams [9,10,11]:

- It is preferred that the occupational safety officer and the occupational physician, who have knowledge in the field of occupational health and safety, participate in the work of all teams that make risk assessments. However, if the workplace is very large and it is not practically possible for the occupational safety officer and the occupational physician to participate in these studies, the occupational safety officer and the occupational physician will check the risk assessment studies of each team. In the next steps after this step, they make the necessary additions or corrections together with the team, to the place where the activity is carried out. Any risk assessment study that is not approved by the occupational safety officer and the occupational physician will not be put into effect.
- At least one of the persons to be assigned in the Risk Assessment Teams will be a person who works in the field or activity to be examined and has detailed information about the field or activity.
- If there are special risks such as risks related to hazardous chemicals, biological risks, and radiation risks in the area or activity to be examined, at least one of the people who will work in the Risk Assessment Teams will be informed about these risks. If there is no person who has sufficient knowledge about these issues in the workplace, support can be obtained from experts in related fields outside the organization.
- If work equipment is used in the area or activity to be examined, Risk Assessment Teams include people who use the relevant work equipment, people who have technical knowledge about the work equipment, if necessary, and those who are involved in the mechanical and electrical maintenance of the relevant work equipment. If the relevant work equipment is a special equipment and peo-

ple who have technical knowledge about that equipment are not present at the workplace, support can be obtained from experts about the relevant equipment outside the organization.

- Occupational physicians must be included in the risk assessment team if there is such a case as exposure to hazardous chemicals/noise/vibration/dust/smoke/ray/radiation/cold/heat, use of screened vehicles, manual handling, ergonomic risks that may pose an occupational disease risk in the area or activity to be examined. Task is provided.
- In order to minimize the deficiencies that may arise from business blindness in the risk assessment, it would be beneficial to ensure that at least one person completely independent of the area or activity to be risk assessment is included in the Risk Assessment Team.
- One person from each Risk Assessment Team is given the task and responsibility of coordinating the entire team. After defining the areas where risk assessment will be made in the workplace, the activities carried out in the areas and the teams that will make the risk assessment, a risk assessment plan is created by taking the opinions of the Risk Assessment Teams.

### **3.4 STEP 4: TRAINING OF RISK ASSESSMENT TEAMS**

What is expected from each Risk Assessment Team is to define their own areas of responsibility and the hazards and risks related to occupational health and safety of the activities carried out in these areas, to determine the degree of importance of the identified risks, and to evaluate the existence and adequacy of the existing control measures against these risks. For this reason, it is important to provide the following trainings to all risk assessment team members to gain this competence [9,10]:

- Occupational health and safety legislation and other conditions, if any, that are obliged to comply
- The basic rules of occupational health and safety and risk management principles, varying according to the type of workplace
- Evaluation of applied occupational health and safety risks on sample activities in the field.

The said trainings can be given in coordination by the occupational safety officer and the workplace doctor within the organization, or they can be provided by outsourcing the organization.



### **3.5 STEP 5: PREPARATION OF RISK ASSESSMENT TEAMS**

Each Risk Assessment Team, which will carry out risk assessment in the areas and activities under the control of the organization, shall obtain the following information to be used in the risk assessment before carrying out the risk assessment work in its area of responsibility [11].

The work steps of each activity in the areas where risk assessment will be made are defined with the logic of process management. E.g; Possible steps of material handling activity with forklift to warehouse may be forklift picking up the material, bringing it to the warehouse and leaving it at the appropriate places in the warehouse. Among the following, those related to the area or activity for which risk assessment will be made are examined [10,11,12]:

- Related occupational health and safety legislation and other conditions
- Dangerous chemicals used, their dangerous properties, safety data sheets, labels, usage, storage, transportation, and exposure types (respiration/skin contact/ingestion), characteristics of their packaging, emergency eye and neck showers and locations, response equipment for chemical substance leaks, gas detectors, alarms, etc.
- Water, energy, packaging, raw materials, etc. Conditions of use, use, transportation, storage
- Types of liquid, solid, gaseous wastes, storage, transportation, and disposal methods
- Used work equipment, user manuals, use and maintenance-repair instructions, dangerous features during use and maintenance, machine protectors, if any, emergency stop buttons, sensors, etc. Features and placement of control buttons, conditions for the use of work equipment, characteristics of the environment in which work equipment is used, etc.
- In manual handling works, the load carried, the mode of transportation, the frequency of transportation, the transportation distance, ambient temperature, humidity, ventilation, etc. Conditions and characteristics of the ground
- The characteristics of the electrical installation used, the placement of the control buttons, the maintenance and repair of the electrical installation
- Dangerous properties of the pressure cylinders used conditions of use, transportation and storage
- Forklift, pallet truck, truck, etc. Use of vehicles, usage patterns, movement routes, load they carry, loading patterns, parking areas, etc. Features, speed limits,
- Use of vehicles such as passenger cars, shuttle buses, characteristics of

movement routes, parking areas, speed limits

- Characteristics of the task and work environment that requires working at height
- Characteristics of the working environment, floor structure, walkways, ventilation, lighting, etc. Conditions
- Near-miss events, accidents, occupational diseases records, statistics that occurred in that area or activity
- Occupational health and safety audit records
- Records of nonconformity/corrective/preventive action regarding occupational health and safety
- Monitoring measurement records such as noise, ambient air, radiation, vibration, lighting
- Existing plans, procedures, instructions
- Employee health surveillance records, statistics
- Personal protective equipment used by employees and their features
- Professional and occupational health and safety training records of employees, personal characteristics of employees, professional qualifications, procedures for selecting personnel and submitting work
- Consistency of the job and job descriptions of the employees
- Safety and health signs available in that environment
- Emergency plans and procedures, emergency teams, emergency response equipment, evacuation routes, exercise scenarios, drill records, experienced emergency records, emergency training records, etc., concerning the relevant area and activity.
- Personnel receiving first aid training, first aid cabinets, materials and
- Any other information that may be required in the risk assessment study

To identify the dangers and risks that may come from places outside the organization that are not under the control of the organization; Methods such as collecting information about places and facilities outside the organization by the responsible team, visiting places outside the organization and, if appropriate, facilities can be used.

### **3.6 STEP 6: IDENTIFICATION OF OCCUPATIONAL HEALTH AND SAFETY HAZARDS AND RISKS**

This step is the most important step of the occupational health and safety risk assessment. Because it is clear that it will not be possible to control and manage unidentified hazards and risks [11].

After the preliminary study is carried out by each Risk Assessment Team regarding the areas and activities under the control of the organization, regarding the issues specified in STEP 5, the occupational health and safety hazards and risks related to each step of each activity carried out in the areas and areas that are responsible using the method below. Risks are identified and recorded in an “Occupational Health and Safety Risk Assessment Form” to be prepared [11,12]:

- On-site observation of the relevant area and activity is the most important step in hazard and risk identification. Wherever possible, on-site observations are made by all members of the Risk Assessment Team in the relevant area and at each step of the activity.
- Even if they are in the team, interviews are made with other employees in the relevant field and activity, and their opinions are taken about the OHS hazards and risks related to the area or the activity, the current risk control measures applied against the risks and the additional risk control measures they want to be taken.
- If there are activities that cannot be observed during risk assessment, such as annual maintenance on tanks, interviews can be used as the only way to identify hazards and risks associated with these tasks initially, provided they are observed later during the activity.

After the hazards are determined, the process to be done is the determination and analysis of the risks; In the Regulation, this process is defined as follows: “By considering each of the identified hazards separately, it is determined how often the risks that may arise from these hazards may occur, and who, what, how and in what severity may be harmed by these risks. While making this determination, the effect of existing control measures is also taken into consideration. Quantitative methods are generally used in risk assessment in our country; mostly used methods are 5×5 or 4×4 matrix method and Fine Kinney method. In addition to these, Decision Matrix Method, Fault Tree Analysis Method, Fault Type Effect Analysis Method, Checklist Method, If It Happens Method, Event Tree Analysis Method and Cause and Effect Analysis methods are among the known methods.

Although the methods to be chosen are left to the employer while conducting the risk analysis, it should be determined who, what, and to what extent will be affected in the

method to be chosen. Risk is usually calculated as the probability of error multiplied by the result of the error. As stated above, the regulation also requests that who or what will be affected be added to this.

### **3.7 STEP 7: DETERMINING THE SIGNIFICANCE OF RISKS**

Once the hazards have been identified, they should be decreased to tolerable levels. Regulation acceptable level; it is described as the amount of risk that, in compliance with legal duties and the workplace's prevention program, would not cause loss or injury. A risk level that is acceptable is one that will not result in loss or injury. The risk-mitigation process includes the processes of planning in accordance with the Regulation, deciding on risk-mitigation measures, implementing risk-mitigation measures, and monitoring practices. During the planning phase, the risks should be prioritized in order of importance, and a battle plan should be devised. The precautions to be taken during the decision-making phase of risk management measures should be eliminated first; if this is not possible, a non-hazardous method, chemical, or equipment should be chosen; and if this is insufficient, the possibility of causing harm should be avoided. The decided control measures should next be applied, and at this stage, the persons who will apply the measures in the workplace should be determined; this issue is critical for determining who is liable in future incidents. While the measures are being implemented, the work and process steps of the measure, the person or workplace section, the start and finish date of the measure, and the start and end date of the measure must be defined. During the implementation monitoring phase, it was mentioned that the implementation procedures should be frequently reviewed and audited by the employer.

The degree of importance of the occupational health and safety hazards and risks defined for each activity is determined by the Risk Evaluation Teams using a sample method and discussed, and recorded in the "Occupational Health and Safety Risk Evaluation Form". Since existing risk control measures do not reduce the severity of risks, it is important not to consider the existence of existing risk control measures in determining the severity of risks. E.g; Giving a seat belt to a staff working at height does not reduce the importance of the risk of falling from a height. Because when the person does not use the seat belt even though it is given; The severity of the risk of falling from a height will be the same as if a seat belt is not provided. The severity of a risk can only be lowered when action is taken to reduce the severity of the risk. E.g; such as enabling people to work at lower heights, reducing the noise level by taking precautions at the source [13].

### **3.8 STEP 8: IDENTIFYING WHO MIGHT BE HARMFUL FROM RISKS**

For the protection of persons who may be exposed to risks; It is necessary to determine which people may be exposed to which kinds of risks in order to define the training they should receive, the personal protective equipment and features they should use, the rules

they should follow while working, and the health surveillance that they should be kept periodically at the beginning of the job [11,13].

Some examples of people who may be harmed by risks in the workplace are given below;

- Workers
- Operators
- Maintenance and repair personnel
- Subcontractors
- Cleaners
- Administrative staff
- Visitors
- Interns
- Apprentices
- Those around the organization that may be affected by risks

While determining the persons who may be harmed by the risks in the workplace;

- Disabled
- People's experience
- For pregnant women
- For women who have just given birth
- For personnel working alone
- To visitors
- To interns
- Apprentices and
- The work environment is shared with other personnel special attention should be paid. Because they may be more vulnerable than others.

### 3.9 STEP 9: PLANNING RISK CONTROL MEASURES

The existence/adequacy of the existing risk control measures is evaluated for each OHS risk whose significance level has been determined, and additional risk control measures are planned considering the risk control hierarchy stated below [10, 12, 13]:

- Elimination of the hazard (For example, the use of a non-hazardous substance instead of a dangerous substance, stopping the use of a noisy machine, manual handling by mechanical means, etc.)
- Risk reduction (For example, replacing a hazardous substance, plant or process with less hazardous ones, replacing a noisy machine with a quieter one, etc.)
- Keeping people away from danger (For example, not allowing people to work near noisy machinery, etc.)
- Encircling the danger (For example, performing all painting operations in a neat and closed painting booth, covering noisy machines with soundproof plates, putting guards on equipment with moving parts, putting railings on high places, etc.)
- Reducing the exposure of workers (For example, each of 4 people is exposed to noise or a chemical vapor for two hours instead of 8 hours of exposure to one person, etc.)
- Improving the work system (For example, establishing written procedures for the painting activity to minimize evaporation, restricting the access of employees to hazardous areas, etc.)
- Use of Personal Protective Equipment (For example, use of helmets, gloves, safety glasses, protective clothing, earplugs, etc.)

When planning risk control measures, first of all, it should be ensured that the relevant legal regulations are met. The scope of risk control measures is quite wide and should be handled with a risk management approach. Below are some examples of administrative or technical risk control measures [12,13,14]:

- Defining and informing all employees of their duties, authorities and responsibilities regarding occupational health and safety in the workplace
- Establishing and implementing procedures and instructions for performing risky activities under safe conditions.
- Preparation and implementation of the instructions for safe use of work equipment
- Implementing preventive maintenance on work equipment

*How to Perform a Risk Assessment Step for Occupational Health and Safety*

- Protective use in work equipment with moving parts and risk of throwing parts.
- Periodic checks of pressure vessels and lifting equipment
- Use of emergency stop systems in work equipment
- Subjecting the personnel to health surveillance at the beginning and periodically in line with the risks they are exposed to
- Staff, subcontractors, suppliers, etc. Informing and educating them about the risks they may be exposed to in the workplace and risk control measures
- Ensuring the professional qualifications of personnel working in risky activities or managing risky activities
- Establishment of consultation and communication mechanisms in order to receive feedback from the personnel regarding risks and risk control measures.
- Establishing mechanisms to be aware of the changes that may occur in the legal legislation and to ensure compliance continuously
- Implementation of the work permit system
- Providing adequate lighting to risky areas
- Creation of internal traffic routes and traffic rules
- Ensuring that dangerous chemicals are stored under appropriate conditions
- Providing ventilation in areas where hazardous chemical vapors are likely to occur
- Providing personal protective equipment
- Creation of emergency plans
- Provision of emergency response equipment
- Provision of emergency lighting equipment
- Establishment of emergency evacuation routes and assembly points
- Creation of emergency communication equipment
- Conducting exercises
- Periodic monitoring and auditing of workplace precautions to check that they are used properly and provide the expected risk reduction.

While planning risk control measures for risks that cannot be prevented at the source

during risk assessment, it is important to pay attention to the reasonable application approach. In most cases, it may be possible to reduce the risk to a very low level. However, it is very important that the risk control measures taken are reasonable. For example, a car can be driven continuously at 30 km/h on the road. This speed can reduce the chance of a collision for the driver and may result in fewer injuries to the driver when a collision occurs. However, driving at 25 km/h is so inconvenient for the driver and other road users that eliminating this inconvenience outweighs the benefits of risk reduction. Therefore, driving at 30 km/h is not a reasonable practice. This principle also applies to work-related studies.

If the cost associated with workplace measures in terms of time, money, effort or inconvenience outweighs the benefits of risk reduction, it is not reasonable to apply that workplace measure. Likewise, it is not a reasonable practice if any of the workplace measures currently implemented in the workplace takes too much time, requires too much effort and is too laborious. Because in this case, there is a risk that the relevant measures are not implemented by the personnel who are exposed to the risk for this reason alone. In this case, the thing to do is; It is the immediate search for less cumbersome and more practical solutions and continuing the old practice until a better solution is found.

Among the risk control measures defined by each Risk Assessment Team in line with the aforementioned, those present in the workplace and the risk control measures to be taken are recorded in the “Occupational Health and Safety Risk Assessment Form”. It is preferred that the occupational safety officer and the occupational physician, who have knowledge in their fields, participate in the planning of risk control measures carried out by all teams. However, if their participation is not practically possible, the “Occupational Health and Safety Risk Assessment” forms not approved by them will not be put into effect [14].

### **3.10 STEP 10: REVIEWING RISK ASSESSMENTS AND REVISING AS NECESSARY**

It is also necessary to document the stages of identifying hazards, analyzing and combating risks. The regulation has specified the information that must be in the documentation of the risk assessment and these are [3];

- The title, address and employer’s name of the workplace,
- Names and titles of the performers, and the document information of those who are occupational safety specialists and occupational physicians, given by the Ministry,
- Date of execution and validity date,



- If the risk assessment is made separately for different departments in the workplace, the name of each,
- Identified sources of danger and hazards,
- Identified risks,
- The method or methods used in risk analysis,
- Analysis results, including the order of importance and priority of the identified risks,
- Corrective and preventive control measures, the dates of their realization and the risk level determined afterwards

The risk assessment should be reviewed and updated on special occasions and periodically. The special cases where the risk assessment should be reviewed are mainly; It can be listed as buying new machines in the workplace, starting to work with new substances, putting new methods into practice, an accident or a near-miss event, or an occupational disease [14].

#### **4. ERRORS MADE IN THE RISK ASSESSMENT**

Employers can make various mistakes in the stages of risk assessment, preparation, identification of hazards, fight against risks, and documentation, and these mistakes can put the employer at a disadvantage before the administration or the courts. Considering the mistakes made during the risk assessment stages and their possible consequences;

Phase of identifying hazards;

- The hazards in the workplace should be characterized in the most basic form possible by visiting the workplace and utilizing the resources indicated in the Regulation. If labor inspectors discover this condition during their inspections, they may request an administrative fine, and if an accident occurs as a result of a readily recognizable and unidentified hazard, the employer's fault rate rises.

Phase of Identification and Analysis of Risks;

- Risk scores are produced after evaluating the dangers and sources of danger in the workplace, taking into account the potential of damage from existing hazards, the number of individuals who will be affected in the event of damage, and the magnitude of the harm. The most typical errors made at this step include determining risk scores without considering objective criteria and standards, resulting in the formation of risk scores that contradict each other.

#### Phase of Combating Risks;

- The phase of dealing with risks is the most important and most neglected phase of risk assessment. The legislation requires that various measures be taken to eliminate the hazards identified during the fight against risks and that the risk scores be reduced to an acceptable level where there is no possibility of loss or injury. After the risk scores are determined in practice, the implementation of the measures to be taken to reduce these scores to an acceptable level is neglected and it is thought that the risk assessment ends with the determination of the risks. This situation leads to the thought that the risks are known but not eliminated in the post-work accident trial, and this increases the employer's fault significantly. As a result of not selecting the responsible and responsible personnel and unit in eliminating the risks, it causes confusion of authority in the workplace and may cause people who are not faulty to be responsible for work accidents.

#### Phase of Documentation and Renewal;

- During the documentation phase, not all of the issues in the regulation, especially in the implementation, are included in the evaluation, there is no support staff's signature, and not every page of the evaluation is initialed.
- In the renewal phase, the risk assessment is not renewed partially or completely, although the changes specified in the regulation occur at the workplace.

## 5. CONCLUSION

In our country; There are many businesses that work without rules and supervision, carry high risks, are far from engineering technique and science, and are operated in completely primitive conditions without the supervision and supervision of trained technical personnel. There is always the risk of an accident in these businesses, and it is a known fact that accidents are not destiny but can be prevented by taking appropriate precautions [15].

There is no world consensus on the ideal method of risk assessment. However, risk assessment is required by law in all developed countries. However, in cases where a standard is not determined on how the risk assessment should be made, it is discussed whether imposing a penalty in case it is not done is in accordance with the legal principles. Similar discussions are taking place in our country. Although risk assessment is required in many regulations, it is not specified how it will be done. Despite this, it is known from events that Labor Inspectors force businesses to make risk assessments, try to have a model applied in line with their personal opinions, and impose fines if they do not do so. In order to ensure a fair application, it is necessary to determine how risk assessment should be done in the legislation and to provide a standard. Errors made during the above-mentioned risk assessment stages increase the responsibilities of employers, employers' representatives, occupational safety specialists and workplace physicians, and administrative fines may be

imposed due to these deficiencies in administrative audits. As a result; It is very important to carry out risk assessment studies in all workplaces and to implement the corrective, preventive and control measures determined as a result of these studies in the workplace for the prevention of work accidents and occupational diseases in that workplace. In our country, the public, employers and employees should be sensitive to this issue and show the necessary care for the formation of an OHS culture.

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