

# MAKE MY WORKPLACE SAFE AND HEALTHY: A TRADE UNION GUIDE TO FIGHTING BACK AGAINST BEHAVIOUR-BASED SAFETY

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*When promoting health and safety control measures to protect food processing workers and to counter company led BBS initiatives/programs, this trade union guide recognizes that the terms “hazard control” and “risk control” are often used interchangeably in everyday speech.<sup>1</sup> Therefore, to avoid confusion, this trade union guide will refer to both these types of health and safety controls because they both aim to (i) improve levels of health and safety protection for workers, and (ii) clearly define the legal duties and responsibilities of employers on health and safety at work.*

*It should also be noted that the 110<sup>th</sup> International Labour Conference 2022 has added safety and health to ILO’s Fundamental Principles and Rights at Work. The landmark decision means that all ILO Member States commit to respect and promote the fundamental right to a safe and healthy working environment, whether or not they have ratified the relevant Conventions; Occupational Safety and Health will become the fifth category of Fundamental Principles and Rights at Work.*

*The new Fundamental Conventions will be the Occupational Safety and Health Convention, 1981 (No. 155), and the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187).<sup>2</sup>*

1 **Note:** In this Trade Union Guide, the IUF uses the following definitions:

A **HAZARD** is anything that has the potential to cause harm, whether to the detriment of the health or safety of a person, or damage to property, equipment, or the environment. The potential for harm is inherent in the substance or machine or poor work practice, etc.

A hazard can, therefore, be anything – work materials, machinery, equipment, chemicals, pesticides, tools, dust,

disease-causing micro-organisms, extreme temperatures, electricity, noise, vibration, transport, poor workplace layout, poor work organization, methods or practices, systems of work, stress, sexual harassment and violence (including domestic violence), attitudes – that has the potential to injure people and/or damage their health. There are an unlimited number of hazards that can be found in almost any workplace.

**RISK** is the probability (likelihood) that a hazard will actually result in injury or disease/illness or damage to property, equipment or the environment, together with an indication of how serious the harm could be, including any long-term consequences.

**Risk = probability of harm x severity of harm**

When deciding on the acceptability of risk, it is important to take into account the gender, age and health of the workers for whom the assessment is being conducted and also to bear in mind their input to the process.

Source: ILO 2013. [Training Package on Workplace Risk Assessment and Management for SMEs](#)

Please also note that the terms occupational health and safety (OHS) and occupational safety and health (OSH) are often used interchangeably.

2 Source: ILO 2022. [International Labour Conference adds safety and health to Fundamental Principles and Rights at Work](#)





## I. WHAT IS BEHAVIOUR-BASED SAFETY?

Many employers have adopted behaviour-based safety (BBS) programs to weaken trade union organization and undermine solidarity at the workplace. BBS programs expose workers to hazards and the risks arising from them which threaten their lives and health<sup>3</sup> and safety. They negate the responsibility of the employer to provide a safe and healthy workplace and shift responsibility onto workers, arguing that their individual behaviour and “unsafe acts” are the cause of fatalities, injuries, and occupational diseases.

### **BBS programs have a number of identifiable characteristics.**

#### **These include:**

- Employers requiring workers to make a certain number of safety and health observations, often of their co-workers, within a certain period of time;
- Incentive programs or injury discipline policies which suppress reporting of occupational health and safety accidents/incidents;<sup>4</sup>
- Pitting one department against another by using prizes to reward the department or group of workers that achieves the lowest injury/illness rates;
- Management bonus schemes linked to low recordable injuries/occupational diseases;<sup>5</sup>
- Training workers to be observers of “critical behaviours” or “unsafe acts;”
- An emphasis on “proper lifting techniques” as a substitute for redesigning a job using ergonomic principles.

Employer attendance (bonus) schemes, which reward workers for perfect or near-perfect attendance, can also be problematic as they can incentivize workers to report to work when ill. This has proved to be problematic in the context of the COVID-19 pandemic as these attendance schemes increase the risk not only for getting other workers sick, but also the broader public/community.

**This guide details what trade unions can do to fight back against or to keep BBS programs from being implemented in the first place.**

International standards and guidelines are founded on the principle that it is an employer's responsibility to provide safe and healthy working conditions and working environments.

The United Nations International Labour Organization Constitution sets forth the principle “that workers should be protected from sickness, disease and injury arising from their employment.” Policies are to be written and implemented “to prevent accidents and injury to health arising out of, linked with or occurring in the course of work, by minimising, so far as is reasonably practicable, the causes of hazards inherent in the working environment.”<sup>6</sup>

Under ILO Convention 184 (2001) on Safety and Health in Agriculture, the most recently adopted sectoral convention on health and safety, Article 7 (a) also states that employers shall “Carry out appropriate risk assessments in relation to the safety and health of workers and, on the basis of these results, adopt preventive and protective measures to ensure that under all conditions of their intended use, all agricultural activities, workplaces, machinery, equipment, chemicals, tools and processes under the control of the employer are safe and comply with prescribed safety and health standards.”<sup>7</sup>

3 Note: The term **health**, in relation to work, indicates not merely the absence of disease or infirmity; it also includes the physical and mental elements affecting health which are directly related to safety and hygiene at work. ILO Convention 155 on Occupational Health and Safety, Article 3.e.

4 Note: The US Occupational Safety and Health Administration (OSHA) refers to “accidents” as “incidents;” A *fatality, injury, illness, or close call* are all defined as workplace “incidents” by OSHA (Source: <https://www.osha.gov/incident-investigation>)

5 Source: International Labour Organization (ILO). 2010. [List of occupational diseases](#)

6 Source: [ILO C155](#), Occupational Safety and Health Convention (1981)

7 Source: Ibid

## WHY ARE BBS PROGRAMS DANGEROUS AND WHY SHOULD YOUR UNION CARE?

- BBS systems shift the responsibility of maintaining a safe and healthy workplace from employers onto workers. This is in violation of ILO conventions<sup>8</sup>, national laws and standards, and the OECD Guidelines for Multinational Enterprises<sup>9</sup>, which place the responsibility to provide safe and healthy working conditions and environments on the employer;
- BBS programs undermine union health and safety representatives, union-based health and safety committees and workplace solidarity based on collective bargaining by turning workers against workers;
- BBS can incentivize the underreporting of injuries, occupational diseases, hazards and the risks arising from them;
- BBS programs shift the focus away from identifying hazards and controlling the risks arising from them;
- Hazards and risks that are not eliminated or reduced will continue to harm the health and safety of workers and the general environment (e.g., protection of the community, local drinking water, etc.).

**The most effective way to combat behaviour-based safety programs is for unions to organize to ensure that employers implement health and safety systems and procedures based on sound principles of occupational health and safety.**

Along with the active participation of their workforces, employers must develop comprehensive workplace health and safety risk management policies and programs and implement appropriate risk controls/ hazard controls using the Hierarchy of Risk Controls/ Hierarchy of Hazard Controls.

8 Source: ILO 2022. [International Labour Conference adds safety and health to Fundamental Principles and Rights at Work](#)

9 Note: [The OECD Guidelines for Multinational Enterprises](#), Chapter V., Employment and Industrial Relations, states, *Enterprises should, within the framework of applicable law, regulations and prevailing labour relations and employment practices and applicable international labour standards:*  
4c) *Take adequate steps to ensure occupational health and safety in their operations.*

10 Note: MSDs are sometimes referred to as “ergonomic risks”. Ergonomics is the science/study of fitting the job to suit the worker, and not trying to fit the worker to the job. (Source: Ergonomic Checkpoints in Agriculture. ILO SAFEWORK programme, International Ergonomics Association, 2012; [http://www.ilo.org/global/publications/books/WCMS\\_168042/lang--en/index.htm](http://www.ilo.org/global/publications/books/WCMS_168042/lang--en/index.htm)) Designing tasks, tools, equipment and workstations to suit the user can reduce human error, accidents and ill health. (Source: Swedish Working Environment Authority, 1998. *Ergonomics for the Prevention of Musculoskeletal Disorders*. AFSp. 10; <http://www.av.se/dokument/inenglish/legislations/eng9801.pdf>)

## II. A UNION APPROACH TO HEALTH AND SAFETY AS AN ALTERNATIVE TO BBS

A union approach to safety and health focuses on working with employers in identifying work hazards and the risks that arise from them. In any workplace there are usually a wide range of hazards and risks.

A common way to classify hazards and risks in food processing, **not** listed in any order of importance or priority, is:

- **ORGANIZATIONAL HAZARDS AND RISKS:** Many injuries occur and much disease/ill-health occurs simply because the employer has not thought through and improved safe and healthy work organization, and managers, supervisors and workers are not well informed about, or properly trained to implement, safe systems of work, correct health and safety procedures, and instructions. Poor work organization which puts workers at risk also includes blocked exits, especially fire exits; poor housekeeping with cluttered work areas and passages; long hours of work, including shift work and night work, and a lack of days off.
- **BIOLOGICAL HAZARDS AND RISKS:** Workers are at risk from occupational diseases such as allergic respiratory diseases (e.g., asthma and popcorn/farmer’s lung), bacterial and viral diseases (e.g., COVID-19), wound pathogens (e.g., tetanus), and blood-borne pathogens.
- **CHEMICAL HAZARDS AND RISKS:** Workers are at risk of acute and chronic exposure to toxic/ hazardous chemicals. Examples comprise pesticides including residues in food products, solvents, commodity chemicals such as strong disinfectants and cleaning compounds, genetically modified compounds and nanotechnologies. Exposure to toxic and flammable products such as fuels and oils may also pose risks.
- **PHYSICALLY DEMANDING AND/OR REPETITIVE WORK HAZARDS AND RISKS:** Examples include carrying/handling heavy and/or awkward loads, repetitive and often forceful movements, awkward postures, standing for long periods, poorly designed workstations, poorly designed tools and work equipment. Workers in these situations are at risk of developing a wide range of musculoskeletal disorders including repetitive strain injuries.<sup>10</sup>





- **MACHINERY GUARDING AND SAFETY HAZARDS AND RISKS:** Workers are at risk of fatal and serious injuries from unguarded or poorly guarded high-speed dangerous machinery on both fixed and mobile machinery. Machines should be fitted with emergency stop buttons. Swift replacement of damaged guards is important, as are correct maintenance procedures which avoid leaving machines unguarded for long periods.
- **PHYSICAL HAZARDS AND RISKS:** Workers are at risk from, for example, sharp and pointed cutting tools, hot and cold conditions (extreme temperatures), falls from height, slips, trips and falling over, stacked objects falling on them (e.g., boxes, crates), noise, organic dust/poor ventilation, working in confined spaces, welding (non-ionising radiation), vibration, magnetic fields, pressure extremes (high pressure or vacuum), and a lack of lock-out and tag-out systems.
- **PSYCHOSOCIAL HAZARDS AND RISKS:** Examples include stress, sexual harassment and workplace violence, domestic violence, production pressure, line speeds, and a lack of adequate staffing.
- **ELECTRICITY HAZARDS AND RISKS:** Workers are at risk of electrocution, electric shocks and burns when working with mains (electrical power grid) and industrial voltage electricity, especially

in wet/damp conditions. Risks also include the use of portable electrical equipment and cables (e.g., electrical pressure washers).

- **TRANSPORT HAZARDS AND RISKS:** Food processing workers are at risk of being run over by self-propelled machinery such as forklift trucks or tractors; they are also at risk for turnover accidents with mobile machinery. Riding on trailers and falling off them is a risk. Workers often complain of sub-standard transport to and from work and the risk of traffic accidents.

## RISK ASSESSMENT BY THE EMPLOYER WITH THE ACTIVE PARTICIPATION OF THE WORKFORCE

Workplace health and safety risk assessment is essentially a careful examination by the employer – with the active participation of the workforce – of what in its business(es) could cause injury or occupational disease to workers, members of the public affected by its work activities, and even the general environment. The employer must then weigh the degree of the risk(s) involved for each hazard, taking into account the effectiveness of existing control measures already in place to reduce the risks, and decide if more has to be done to ensure that no one is harmed. The aim is to ensure that no one gets hurt or falls ill by remedying problems before exposing people or the environment to harm.<sup>11</sup> The risk assessment must also be gender sensitive/gender-proofed.

<sup>11</sup> Source: ILO SAFEWORK. 2013. *Training Package on Workplace Risk Assessment & Risk Management for Small & Medium-Sized Enterprises*

## A gender-sensitive risk assessment – what does this mean?

Women and men have physical, physiological, and psychological differences that can determine how they are affected by hazards and the risks arising from them.

The world of work has primarily been created for men, by men; women have entered many occupations after men. The safety and health hazards and risks associated with work dominated by male workers are therefore generally better-known, and many preventive measures have been identified.

Therefore, to ensure continual improvement in workplace safety and health conditions for both women and men, gender differences must be taken into account in:

- Company OHS policies;
- Systems of work resulting from these policies – covering work organization, work schedules, workplace design/layout, and systems of worker OHS representation;
- Provision of washing, sanitary, hygienic- and welfare facilities including provision of separate rest and locker rooms;
- Employer/company workplace health and safety assessments and the implementation of any preventive controls identified in the assessments;
- Extra training of competent persons on OHS to ensure their gender sensitivity. Including external bodies providing OHS services to companies must also ensure their staff are competent and trained on gender issues;
- Provision of tools and equipment, including personal protective equipment, taking into account the differences between women and men;
- National health and safety policies and laws, including gender-sensitive government labour inspection services.



The simplest and most straightforward way to carry out a workplace health and safety risk assessment is for the employer or designated representative – with the active involvement of the workforce – to follow the five steps below of risk assessment and implement the risk controls as appropriate (in the order in the hierarchy) **before** exposing workers to risk, and then to fill in the form.

The employer can decide who carries out the risk assessment:

- A management representative(s),
- Even a worker(s) designated by the employer, or
- An outside service or external assessors hired for the task.

Whoever is designated, that person(s) must be a competent person on health and safety.

While the employer can designate or seek assistance from and work with one of the above third parties, **it is the employer who is ultimately legally responsible for this assessment and for implementing the risk controls decided on in the assessment**. The employer cannot transfer its legal responsibility on risk assessment and on improving health and safety conditions to a third party. There is often confusion on this point.

The workplace health and safety committee may also assist with risk assessments, but it is neither its function to carry out the risk assessments, nor to decide on or implement the risk controls. The committee may make observations/recommendations to help the employer, but such advice in no way relieves the employer of its legal duty to protect the health and safety of its workers. The employer cannot transfer legal responsibility to this committee. Again, there is often confusion on this point.

## The five steps of a workplace health and safety risk assessment are:

**STEP 1:** Identify the hazards.

**STEP 2:** Who is at risk and how? Assess the degree of risk for each hazard.

**STEP 3:** Following the order in the hierarchy of risk controls (see below), identify and implement the health and safety risk controls.

**STEP 4:** Record who is responsible for implementing which risk controls and by when.

**STEP 5:** Record your findings. Monitor and review your risk assessment. Update.

## HIERARCHY OF WORKPLACE HEALTH AND SAFETY RISK CONTROLS (STEP 3)

**RISK CONTROL 1:** Elimination or substitution of hazards.

**RISK CONTROL 2:** Tools, equipment, technical and engineering controls.

**RISK CONTROL 3:** Safe work organization, systems, practices, information, and training.

**RISK CONTROL 4:** Water, sanitation, hygiene, first aid and welfare.

**RISK CONTROL 5:** Personal protective equipment.

**RISK CONTROL 6:** Health/medical surveillance.

This is a **hierarchy**, **not** a list of controls. Therefore, Risk Control 1 gives the highest level of protection compared to the other risk controls. Risk Controls 2-3, which give collective protection of a work area, provide higher levels of protection than Risk Control 5.

For **each** hazard, the employer must work through the risk controls following the order in which they are listed in the hierarchy. Therefore, you do **not** start lowering risks by using personal protective equipment as the first risk control. You start with Elimination – Risk Control 1 – and then work your way down the hierarchy.

## HEALTH AND SAFETY CHECKS/ MONITORING

Monitoring can be done by the employer with periodic health and safety checks between risk assessments. The aim of such checks is to verify that the risk control measures put in place by the employer after the last risk assessment are still effective in reducing risks to workers (and the public and environment if they are also seen as target groups). The occupational health and safety manager is normally the person in charge of carrying out the checks, with the participation of the workers who have actively assisted in the earlier risk assessment(s).

Checks may also be an opportunity for members of the health and safety committee to participate and see for themselves how risk control measures are being implemented.

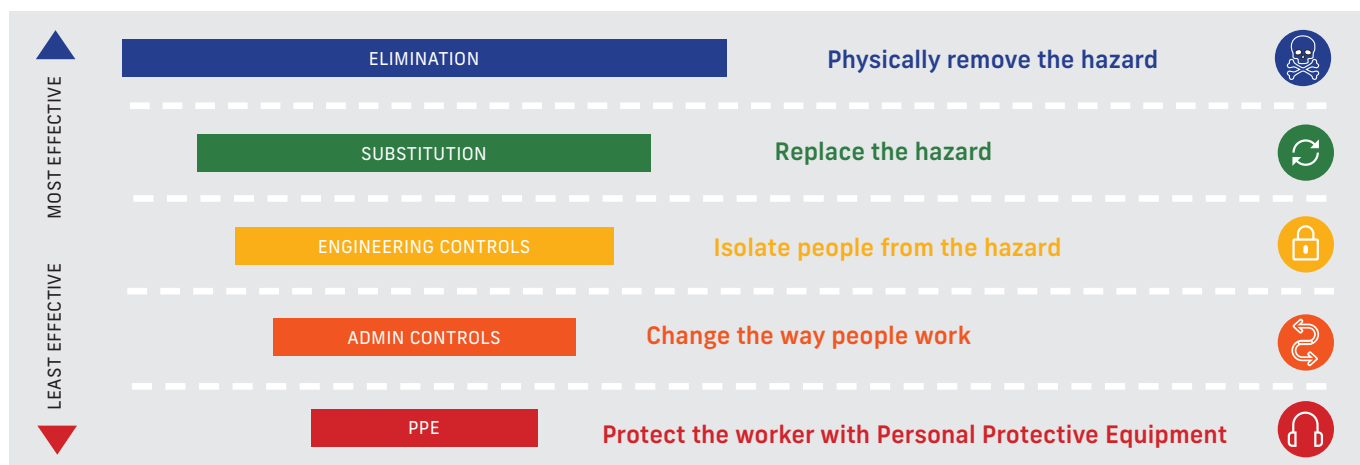
## HAZARD CONTROL

*The Hierarchy of Workplace Health and Safety Risk Controls approach and the Hierarchy of Hazard Controls approach are both used around various areas of the world. This sub-section is specific to the Hazard Controls approach.*

Occupational health and safety programs and policies should aim at both prevention and protection; they should defend and enhance workers' rights to safe and healthy working conditions and environments. These programs establish processes and programs in which workers are involved in all aspects of the program, especially worker health and safety representatives. In addition, where properly organized and democratically constituted, joint union management committees provide a valuable framework for discussion and for concerted action to improve health and safety.

Hazard control methods should be decided as part of the risk assessment which also includes hazard identification, in which the hazards and risks have been evaluated and prioritized for action.

## HIERARCHY OF CONTROLS





## The main ways to control a hazard include:

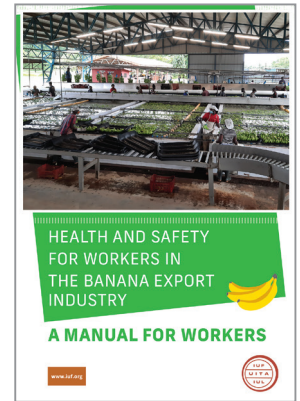
- **ELIMINATION (INCLUDING SUBSTITUTION):** remove the hazard from the workplace, or substitute (replace) hazardous materials or machines with less hazardous ones.
- **ENGINEERING CONTROLS:** includes designs or modifications to plants, equipment, ventilation systems, and processes that reduce the source of exposure.
- **ADMINISTRATIVE CONTROLS:** controls that alter the way the work is done, including timing of work, policies and other rules, and work practices such as standards and operating procedures (including training, housekeeping, and equipment maintenance, and personal hygiene).
- **PERSONAL PROTECTIVE EQUIPMENT:** gender sensitive equipment worn by individuals to reduce exposure such as contact with chemicals or exposure to noise. Further information on the need for gender sensitive PPE is available in IUF's **Making Women Visible in Occupational Health and Safety**<sup>12</sup>. See more below on PPE.

The **hierarchy of hazard controls** is a system for **controlling** risks in the workplace. It is a step-by-step approach to eliminate hazards and control risks, working from the highest level of protection (elimination or substitution) and reliability through to the lowest and least reliable protection (PPE).

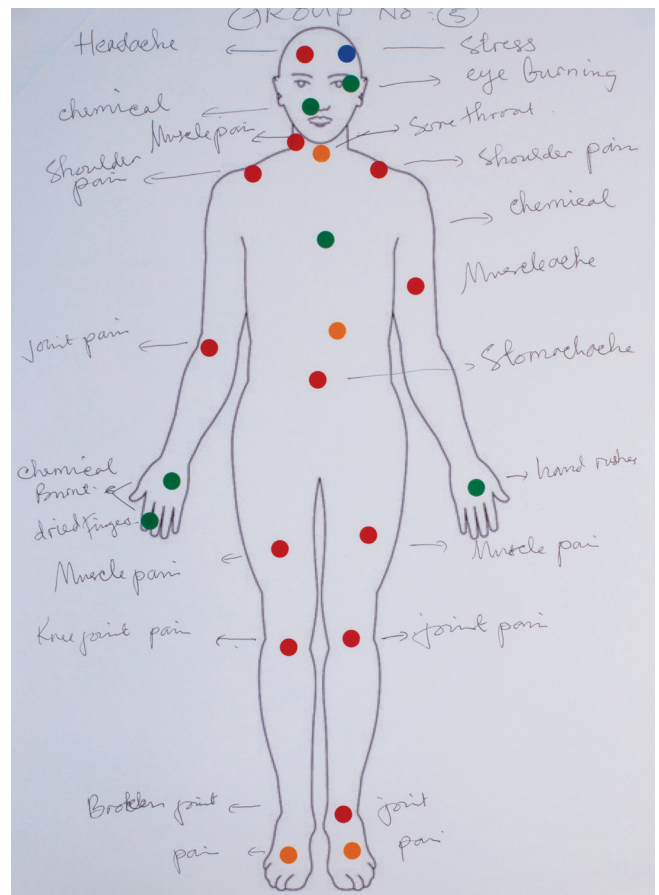
Eliminating the hazard is the highest level of control in the hierarchy, followed by reducing the risk through substitution, isolation and engineering controls, then reducing the risk through administrative controls. Reducing the risk through the use of protective personal equipment (PPE) is only to supplement/boost the other risk/hazard controls that have been implemented. The assessment should give the protection factor afforded by each item of PPE, maintenance schedules, and replacement schedules (see manufacturers' safety data sheets, instruction manuals, etc., for such information, which is increasingly available on the Internet).

## HAZARD IDENTIFICATION AND RISK EVALUATION TECHNIQUES

Unions around the world use mapping techniques to help workers identify health and safety hazards and risks at work. Two of the main training techniques used are hazard mapping and body mapping. Both are collective approaches that provide ways for



workers to use their own experiences to document workplace health and safety problems. These practical and collective approaches not only help identify issues and raise awareness but are also key to recruitment or organizing campaigns. These techniques are participatory methods by which workers gather and analyse their own knowledge and experiences. With the information gained, workers and unions can develop strategies to eliminate workplace hazards and control risks. You can reference Annex 1, pages 8-11 of IUF's **Making Women Visible in Occupational Health and Safety** for more information on mapping techniques. For more information on body mapping, also see IUF's **Health and Safety for Workers in the Banana Export Industry** (2022), Chapter 3.



<sup>12</sup> Note: IUF's **Making Women Visible in Occupational Health and Safety** also details other occupational health and safety issues for women workers including menstruation and period dignity at work and the need for access to clean, safe, secure and separate toilet and welfare facilities at work.

### III. TRAINING AND EDUCATION

Training and education as part of Risk Control 3 (safe work organization, systems, practices, training and information) are vital components of a health and safety management program.

Training and education can be provided by:

- Labor/trade unions
- Employers/companies (they have a legal duty to provide OSH training)

In both cases, those providing training and education must be “competent persons” on health and safety.<sup>13</sup>

In the case of labor/trade unions, by using a “train the trainer” approach, unions can engage in programs where union members and workers can learn how to teach or facilitate classes on health and safety topics for other union members using a participatory popular education approach.

Union officers, representatives, stewards, union health and safety representatives and committee members, and members should receive training and education on the fundamentals of workplace health and safety by competent persons with a focus on the topics below:

- Worker and union roles in workplace health and safety;
- Identifying BBS programs and the damaging effects of BBS programs;
- Risk assessments by the employer, with the active participation of the workforce, followed by implementation by the employer of the risk controls (hazard controls) identified in the risk assessments;
- Legal health and safety rights of workers and unions;
- Effective and legally empowered worker health and safety representatives who are trained and competent on OSH;
- Properly organized, democratically constituted, effective workplace health and safety committees with trained and competent members.



### IV. ESTABLISHMENT OF WORKPLACE HEALTH AND SAFETY COMMITTEES; INCLUDING SELECTION BY WORKERS OF THEIR HEALTH AND SAFETY REPRESENTATIVES TO THE COMMITTEES

The establishment of employer – worker safety and health (OSH) committees<sup>14</sup> and participation of workers’ health and safety representatives can help to promote workers’ active involvement in safety and health. Such committees, or representatives, may be a legal requirement under national laws or the result of a collective bargaining agreement. Legally empowered health and safety representatives are known to be effective in improving health and safety conditions for shop floor operations and in introducing corrective measures where hazards have been identified.

<sup>13</sup> Note: Persons who deal with occupational health and safety must be competent. A competent person is defined as, “A person with suitable training and sufficient knowledge, experience and skill for the safe performance of the specific work”. The competent authority (government) may define appropriate criteria for designating such persons and may determine the duties to be assigned to them.

<sup>14</sup> Note: A joint labour management health and safety committee is defined by the ILO as “[a] committee with representation of workers’ safety and health representatives and employers’ representatives established and functioning at organization level according to national laws, regulations and practice (Source: <http://elcosh.org/document/3629/d001184/iilo-guidelines-for-health-and-safety-management-systems-2001.html>).”





Workplace health and safety committees provide a valuable framework for discussion and for concerted action to improve health and safety. To be effective the committees should meet regularly, periodically check the workplace, and regularly review the employer's risk assessments to ensure that the risk control measures implemented are still effective in protecting workers' health and safety. OSH committees should include workers or their representatives and employers' representatives with the knowledge, experience and skill in matters of OSH (competent persons). Committees should also be representative of those in the workplace (e.g., include women). Employer – worker health and safety committees (or, as appropriate, other workers' representatives) should be:

- Given adequate information and training, by competent persons, on health and safety hazards and risks;
- Consulted when major new health and safety risk controls are envisaged and before they are carried out;
- Consulted in planning alterations of work processes, work content or organization of work which may have safety or health implications for workers.

Legally-appointed<sup>15</sup> and empowered worker health and safety representatives are the backbone of trade union/ labour union organization on health and safety at work. They are the eyes and the ears of trade unions on workplace occupational health and safety problems and play crucial roles in reducing fatalities, accidents and disease/ ill health at work. Many deal with workplace environmental issues as well. Health and safety representatives help protect workers, the public (including food safety) and the general environment.

Health and safety representatives deal with day-to-day health and safety matters but link to workplace health and safety committees which deal with longer term issues and are usually members of these committees.<sup>16</sup>

## V. STRONG COLLECTIVE BARGAINING LANGUAGE ON HEALTH, SAFETY AND ENVIRONMENTAL ISSUES

Requirements/language in collective bargaining agreements should:

- Give the union the right to participate, as an active partner, in health and safety;
- Create health and safety risk management programs;
- Use these OSH risk management programs and the risk/hazard controls they identify to pre-empt BBS programs;
- Where there are no national laws with such requirements, establish union workplace health and safety representative positions — both general OSH reps and worker reps on workplace OSH committees – and ensure both types of reps are properly trained on OSH by competent persons and provided with appropriate OSH technical and policy support.

**The IUF encourages all its affiliates to make use of this guide; please feel free to share it widely.**

**The IUF and its Food Processing Division also wish to thank all IUF affiliates which provided feedback to this guide.**

15 Note: Laws or regulations in some countries require employers to consult with workers on occupational health and safety. In the United Kingdom, for instance, regulations state that [\[c\]onsultation must be either direct or through a safety representative that is either elected by the workforce or appointed by a trade union.](#)

16 Source: Series of Training Manuals on Health, Safety and Environment for Agricultural Workers. ILO ACTRAV, IUF, ILO Geneva, 2005, Manual 3, pp. 55–75.

## Annex I, Worked example:

### Workplace Occupational Health and Safety Risk Assessment and Risk Controls in a Bakery:

#### Asthma

A commercial bakery which employs X workers and produces a wide range of breads and pastries is experiencing an increase in the number of cases of occupational asthma. X workers have been diagnosed as being at risk of suffering from asthma due to exposure to a range of allergens and sensitizers in the workplace.

The bakery owner/employer and bakery manager, in cooperation with the workforce, are carrying out a workplace risk assessment of the whole bakery to address the problem, using the five-step procedure below. Step 3 involves a re-examination of existing risk controls already in place and their effectiveness in preventing asthma. In Step 3B, any further risk controls which may be needed are identified.

**STEP 1:** Identify the hazards.

**STEP 2:** Who is at risk and how? For each hazard, what are the degrees of risk?

**STEP 3:** Identify and implement the health and safety risk controls in the order of the hierarchy:

Risk Control 1: *Eliminating the hazard or substitution*

Risk Control 2: *Tools, equipment, technical and engineering controls*

Risk Control 3: *Safe work organization, systems, practices, information, training*

Risk Control 4: *Water, sanitation, hygiene, first aid and welfare*

Risk Control 5: *Personal protective equipment*

Risk Control 6: *Health/medical surveillance*

Step 3 is divided into two sub-steps:

**Step 3 A: What are you already doing to control risks?**

**Step 3 B: What further risk controls are needed?**

You must follow and apply the Hierarchy of Risk Controls for **both** these sub-steps:

#### CARRYING OUT THE BAKERY WORKPLACE OHS ASTHMA RISK ASSESSMENT

##### STEP 1: IDENTIFYING THE HAZARD

Numerous allergens in a bakery may induce sensitization and allergic reactions. Particles that are derived from wheat, rye, and oats are reported to be highly allergenic. Baker's yeast, fungal alpha-amylase, dough/flour improvers such as lecithin, soy flour, additives such as malted products, and contaminants that include storage mites and moulds are also sources of sensitization in bakeries.

## STEP 2: WHO IS AT RISK AND HOW? DEGREES OF RISK?

Dough is regularly sprinkled with flour to avoid it sticking to machinery and tools, so exposure levels may be significant.

All workers in the bakery production area are therefore at risk of occupational asthma – approximately X workers in total, working in shifts.

## STEP 3: IDENTIFY AND IMPLEMENT THE HEALTH AND SAFETY RISK CONTROLS AS PER THE HIERARCHY

**Risk Control 1: Elimination of the hazard** was not assessed as bakery work involves routine exposure to allergens such as flour.

### Step 3 A: WHAT ARE YOU ALREADY DOING TO CONTROL RISKS?

The risk assessment first looked at existing risk controls. It identified the use of Respiratory Protective Equipment (RPE – a type of PPE), from the category Risk Control 5, as the main current control method combined with cleaning procedures (Risk Control 3) and concluded that RPE did not offer workers adequate protection against the risk of developing baker's asthma.

### Step 3 B: WHAT FURTHER ACTION IS NEEDED TO CONTROL THE RISKS?

The risk assessment identified the following actions (risk controls) to protect workers' health:

#### Risk Control 1: Substitution

The risk assessment identified the substituting low-dust flour instead of regular flour for baking, as well as using liquid enzymes instead of powder. The low-dust flour is wheat flour that has undergone hydrothermal processing, so there are no additional ingredients which would need to be declared. There is no reported taste difference in finished goods made using low-dust flour. Although there has been an additional cost for low-dust flour over regular flour, annual net cost savings have been made as described below.

The main OHS risk control benefit of substituting low-dust for regular flour is that workers no longer need to wear RPE, they feel more comfortable, can communicate easily, and the company saves on providing PPE. Previously, when regular flour was used, workers needed to wear RPE to prevent the risk of breathing in flour dust and developing so-called "baker's asthma."

#### Risk Control 2: Tools, equipment, technical and engineering controls:

- As a result of replacing regular flour with low-dust flour, dusting is now only required during the first and last pass of the dough through the rollers at the first conveyor line, as the low-dust flour is much better at preventing dough from sticking to the machinery. Significantly less flour is used.
- Further improvements were made to the baking process: The flour dusting dredger was adjusted, reducing the height at which the flour was dropped onto the conveyor belt and narrowing the width of the spread of the dusting flour. This optimized the amount of flour applied by the dredger, minimized airborne flour and reduced flour wastage. A brush attachment was used on the spreader bar on the second conveyor for the main production line to evenly distribute the dusting flour on the conveyor.

Note: Smaller bakeries without automated processes can also use low-dust flour when dusting surfaces, in order to prevent dough sticking to machinery and to reduce workers' exposure to flour dust.



### **Risk Control 3: Safe work organization, systems, practices, training and information:**

Reduced cleaning time: The frequency of carrying out a full wet clean of the conveyor line to remove sticky dough residue has been reduced. Benefits include:

- Using a vacuum cleaner is quicker, easier and cleaner than the previous wet cleaning process
- With no sticky dough remaining on the conveyor belt, cleaning production equipment is now much faster.
- There is a reduced frequency and depth of hygiene cleaning operations (including walls) and high-level cleaning to remove settled dust.

Reduced maintenance: There has been a reduction in equipment failure and breakdowns, due to less flour particles in bearings and other parts of machinery, resulting in cost savings.

Minimizing food waste has been another benefit. When using regular flour, some of the inner layers of the coiled dough would regularly stick together and could not be uncoiled. When this happened, another batch of dough had to be made and rolled out again. Switching to the low-dust flour has reduced food waste and resulted in labour and material savings.

### **Risk Control 4: Water, sanitation, hygiene, first aid, welfare**

Not applicable in this instance.

### **Risk Control 5: Personal protective equipment (PPE)**

Until low-dust flours were introduced, workers wore disposable dust masks (respiratory protective equipment: RPE). While PPE/RPE offers protection, it is generally uncomfortable and used as a last resort. Being able to reduce the risk at source through substitution allows the RPE to be removed, with associated health benefits and cost savings.

### **Risk Control 6: Health/medical surveillance**

A lower level of health surveillance being needed was another benefit. In consultation with the company's occupational health provider, it was agreed that due to the current low-flour dust levels on production lines, the respiratory health surveillance program could be modified for affected workers after they had gathered sufficient data, again resulting in cost savings.

## **STEP 4: RECORD WHO IS RESPONSIBLE FOR IMPLEMENTING WHICH RISK CONTROLS, AND THE TIMEFRAME IN WHICH THEY DO SO.**

Substituting low-dust flour for regular flour and liquid enzymes instead of powdered enzymes was organized by the bakery manager, in consultation with the worker reps, within a four-week period.

The management rep with responsibility for OHS, in cooperation with the OHS reps, explained to workers the reduced risk of baker's asthma due to reduced flour dust levels, and that it was no longer necessary for them to use RPE. After eliminating RPE, it was agreed that occupational hygienists would regularly monitor workers' level of exposure to the new low-dust flour for a three-month period to check that the substitution was effective in protecting workers' health.

Other changes, such as revised machinery maintenance schedules and cleaning schedules, were made under the supervision of the bakery manager within the same timeframe.

## **STEP 5: RECORD YOUR FINDINGS. MONITOR, REVIEW YOUR RISK ASSESSMENT. UPDATE.**

## Annex II, Worked example:

### Workplace Occupational Health and Safety Risk Assessment and Risk Controls in a Bakery:

#### Slips and tripping over

In cooperation with the worker health and safety representatives, the bakery manager is carrying out a workplace occupational health and safety (OHS) risk assessment to help find solutions (risk controls) to persistent and increasing problems of slips and tripping over in the bakery. There has been a spate of recent injuries to workers resulting in sprains and twists and in some cases broken bones. Some injuries to workers have been treated using in-house first aid by worker first aiders. Other injuries have required hospital treatment and involved lengthy periods of convalescence.

The bakery owner/employer and bakery manager realize the need for improvement of the health and safety cleaning systems and other procedures in the bakery. In cooperation with the workforce, they are therefore carrying out a workplace risk assessment of the whole bakery using the five-step procedure below. In Step 3, this involves a re-examination of existing risk controls already in place and their effectiveness in preventing injuries, followed by identifying any further risk controls which may be needed.

Check existing risk controls and decide if further risk controls are needed following the hierarchy of risk controls as outlined in Step 3 below.

**STEP 1:** Identify the hazards.

**STEP 2:** Who is at risk and how? For each hazard, what are the degrees of risk?

**STEP 3:** Identify and implement the health and safety risk controls in the order of the hierarchy:

Risk Control 1: *Eliminating the hazard or substitution*

Risk Control 2: *Tools, equipment, technical and engineering controls*

Risk Control 3: *Safe work organization, systems, practices, information, training*

Risk Control 4: *Water, sanitation, hygiene, first aid and welfare*

Risk Control 5: *Personal protective equipment*

Risk Control 6: *Health/medical surveillance*

Step 3 is divided into two sub-steps:

**Step 3 A: What are you already doing to control risks?**

**Step 3 B: What further risk controls (if any) are needed?**

You must follow and apply the Hierarchy of Risk Controls for BOTH these sub-steps:

#### CARRYING OUT THE BAKERY WORKPLACE OHS RISK ASSESSMENT

##### STEP 1: IDENTIFYING THE HAZARD

The hazard is identified as water and flour spills on the bakery floor resulting in frequent slips and tripping over. The bakery is having difficulty in cleaning the flour build-up on the floor. The flour builds up and gets hard, like a crust on the floor. When water falls on the crust it can become very slippery. The bakery floor is a very large area of 300-400 square meters of concrete.

Some of the floor has a very thin layer of non-slip epoxy paint, which might get damaged when cleaning the floor to free it of flour crust.<sup>1</sup>

What role do work tempo/rates of work play in the slips and tripping over?

Is poor lighting a factor in the slips and tripping over?

## STEP 2: WHO IS AT RISK AND HOW? DEGREES OF RISK?

All workers in the bakery production area are at risk – approximately X workers in total, X workers per shift.

The degree of risk can vary from low- to medium risk or higher, depending on many things: The build-up of the flour crust on the floor, the tempo of work dictating how fast and how frequently workers must cross the floors, and whether they are carrying heavy and/or awkward loads of bakery products. Are cleaning routines damaging the epoxy resin layer and its anti-slip properties?

## STEP 3: IDENTIFY AND IMPLEMENT THE HEALTH AND SAFETY RISK CONTROLS

**Risk Control 1: Elimination of the hazard** of spilled flour and water is not possible due to the nature of the job. Substitution is not applicable here.

## STEP 3A: WHAT ARE YOU ALREADY DOING TO CONTROL RISKS?

### **Risk Control 2: Tools, equipment, technical and engineering controls:**

- Anti-slip epoxy resin surface is provided on all concrete floors;
- Good working conditions demand adequate lighting which neither dazzles nor causes troublesome reflections. Lighting is very important to the health and safety of everyone using the workplace. The quicker and easier it is to see a hazard, the more easily it is avoided, and the risks are lowered. In general, the more detailed the task, the greater the requirements for light. A process control room should be lit at an illuminance of 300 lux, a corridor or walkway may only require 50 lux, whilst studying an engineering drawing may require 750 lux.<sup>2</sup>
- As part of the risk assessment, the employer must measure lighting levels in the bakery, especially in areas where slips and tripping over are most frequent, to check if lighting levels are adequate for workers to see water, congealed flour and similar on the floor.

### **Risk Control 3: Safe work organization, systems, practices, training and information:**

Floors are cleaned at regular intervals – the risk assessment should include details of cleaning schedules, products used, cleaning equipment/machines, information about who carries out the cleaning and who checks their work?

### **Risk Control 4: Water, sanitation, hygiene, first aid, welfare:**

There is a team of trained worker first aiders.

1 Note: Epoxy is a flooring surface made up of multiple layers of epoxy—a combination of resins and hardeners—that is applied to floors to a depth of at least 1 millimeter. Think of this material as you would a paint medium, a substance or “system” that is strong, durable, resistant, and able to bond to a variety of base layers. It is the strength of epoxy flooring that makes it a popular choice in many industrial environments, including factories, warehouses and automotive workshops. Slip-resistant flooring is essential, and for good reason. Thankfully, epoxy coatings come in a variety of finishes, and many of these specialized systems feature extra anti-slip additives. These epoxy coatings in particular work to minimize workplace accidents and enhance the safety of your working environment. Source: <https://cotewell.com.au/how-can-your-workplace-benefit-from-epoxy-flooring/>

2 Source: HSE UK. Undated. Human factors: Lighting, thermal comfort, working space, noise and vibration. <https://www.hse.gov.uk/humanfactors/topics/lighting.htm>



**Risk Control 5: PPE:**

Workers are provided with footwear. The risk assessment will check on the type of footwear provided, the protection factor offered by the footwear (anti-slip properties in this instance), maintenance schedules (for example, cleaning the footwear to remove any deposits of congealed flour from the soles), and replacement schedules for new footwear.

**Risk Control 6: Health/medical surveillance: Not applicable in this instance.****STEP 3B: WHAT FURTHER ACTION DO YOU NEED TO TAKE TO CONTROL THE RISKS?**

The manager and the worker representatives must now systematically work through the possible further risk controls.

**Risk Control 2: Tools, equipment, technology, and engineering controls.**

- Cleaning machinery and equipment: A review of the effectiveness of different cleaning devices is to be carried out as part of the risk assessment.
- Review of how pressure washers are used to clean floors and whether one can mop up floors more effectively afterwards.

**Risk Control 3: Safe work organisation, systems, practices, training and information.**

- Cleaning routines should be re-examined with a view to making improvements.
- An assessment should be done of the equipment/machines used, the frequency of cleaning, the products used, who carries out the cleaning (their level of training), and who checks the finished work?
- There ought to be procedures for rapid mopping-up of flour and water spills.
- Lighting should be reviewed to assess if it is adequate.
- The worker reps also observed that the increased frequency of slips and tripping over is linked to the increased tempo/rates of work. The reps should come up with some suggestions for reduced work tempos.

**Risk Control 4: Water, sanitation, hygiene, first aid, welfare:**

The risk assessment recommends refresher training for worker first aiders on emergency treatment of sprains, twists and broken bones.

**Risk Control 5: Personal protective equipment:**

The employer agrees to provide improved non-slip footwear for all workers.

**Risk Control 6: Health/medical surveillance:**

Not applicable in this instance.

**STEP 4: RECORD WHO IS RESPONSIBLE FOR IMPLEMENTING WHICH RISK CONTROLS, AND THE TIMEFRAME IN WHICH THEY DO SO.****STEP 5: RECORD YOUR FINDINGS. MONITOR, REVIEW YOUR RISK ASSESSMENT. UPDATE.**



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