

## Chapter Three: General Workplace Conditions

### 3.1. Introduction

All work has health and safety problems associated with it and the garment industry in Cambodia is no exception. Whether it be overcrowding because the building is too small, inadequate fire safety because the factory is old and not purpose-built, obsolete machinery, high dust levels in the cutting section or dangerous chemicals used in the spot cleaning area – all represent health and safety issues that need to be addressed, often as a matter of some urgency. Some hazards<sup>1</sup> found in the workplace are obvious (e.g. unguarded machinery) whereas others are much more insidious and difficult to detect (e.g. some of the chemicals used in the factory).

When comparing different industrial activities, some people could suggest that there “appear to be few health and safety problems in the garment sector” – look for example at the following pictures and compare the hazards. These Cambodian port workers unloading a cargo of cement from the hold of a ship are working in very hot, humid conditions. The cement dust is everywhere in the hold and sticking to the workers’ sweat on their skin (look at the legs and hands of the workers). They are also breathing in the dust and are not wearing their dust masks. They have little in the way of personal protective equipment (PPE) – no overalls, safety shoes etc. The cement bags are very poorly stacked and liable to fall. Most observers would consider such conditions to be extremely hazardous.



**Picture 1: Port workers at Sihanoukville unloading a cargo of cement from the hold of a ship.**

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<sup>1</sup> Hazard – The inherent potential to cause injury or damage to people’s health.

Other hazards are not so obvious – look at this woman worker carrying this bag of cement.



**Picture 2: A woman worker stacking 50kgs bags of cement.**

This woman worker is carrying twice the legal maximum load<sup>2</sup> in a way that may lead to back injury. The weight distribution is not even as she climbs up the bags of cement and she has no PPE.

So what about workers in the garment industry? What hazards do they face at work?



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<sup>2</sup> Prakas 124 on Lifting of Heavy Objects by Physical Strength specifies 25kg as the maximum load permitted to be lifted by females of 18 years and over. Special rules apply to pregnant or new mothers.

### **Picture 3: Workers in a Cambodian garment factory – what hazards are there?**

#### **3.2. Core Information**

Although most people have a clear idea of what safety in the workplace means, there is often a very narrow perspective of the scope of **occupational health**. The most widely accepted definition is that of the Joint ILO/WHO Committee<sup>3</sup> on Occupational Health, namely:

**Occupational health should aim at:**

- **the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations;**
- **the prevention amongst workers of departures from health caused by their working conditions;**
- **the protection of workers in their employment from risks resulting from factors adverse to health;**
- **the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities.**

**To summarise:**

- **the adaptation of work to man and of each man to his job.**

Some of the key points to remember here is that the definition looks at the mental and social well-being and not just the physical aspects – in other words it looks at all aspects of workers health. Further, the definition covers **promotion, prevention and protection** in order to develop a holistic approach to health and safety at work thereby leading to improved working conditions, a positive social climate and enhanced productivity.

#### **What Types of Hazards are Found in the Workplace?**

Most workplaces have a number of different hazards, which can be divided into the following broad categories:

- Mechanical;
- Physical;
- Chemical;
- Biological;
- Ergonomic; and
- Psychosocial.

(Each of these categories will be examined in more detail later in the manual in terms of the sources of the hazards, their effects and methods of control).

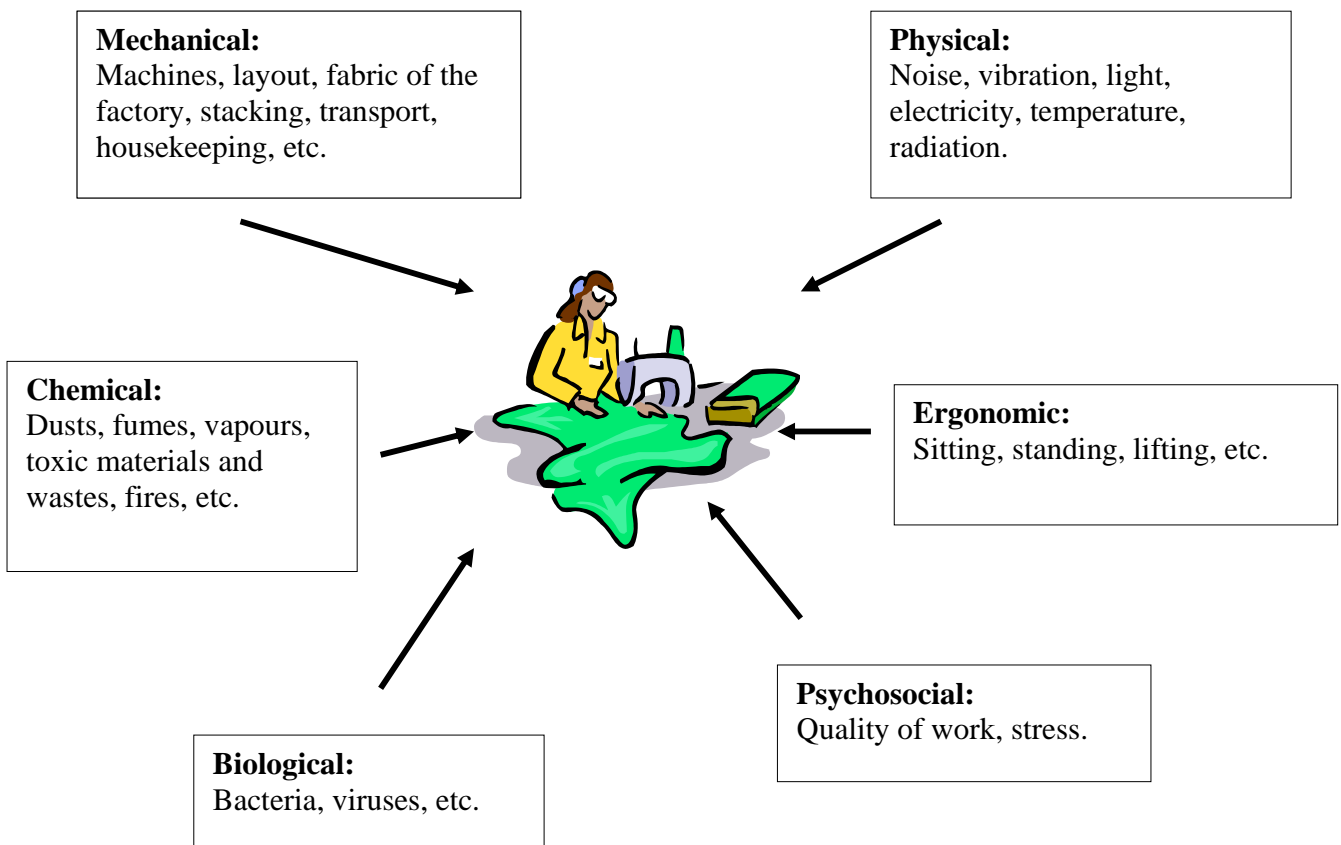
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<sup>3</sup> This definition was first adopted in 1950 and revised by the Joint ILO/WHO Committee on Occupational Health in 1995.

### What Hazards do Workers in the Garment Industry Face?

Figure 3 indicates the broad range of hazards faced by workers including those in the garment industry:

**Figure 3:**



These hazards are common to many occupations and workers are often exposed to more than one at a time. For example it is not difficult to imagine a worker in a garment factory being in a hot, noisy environment and using an unguarded machine. With the worker feeling tired and losing concentration in such an environment, there is the potential for an accident if any guards are missing off the machines.

Workers do not create hazards – in many cases the hazards are built into the workplace. It is essential that work is made safer and healthier by modifying the workplace and any unsafe work processes.

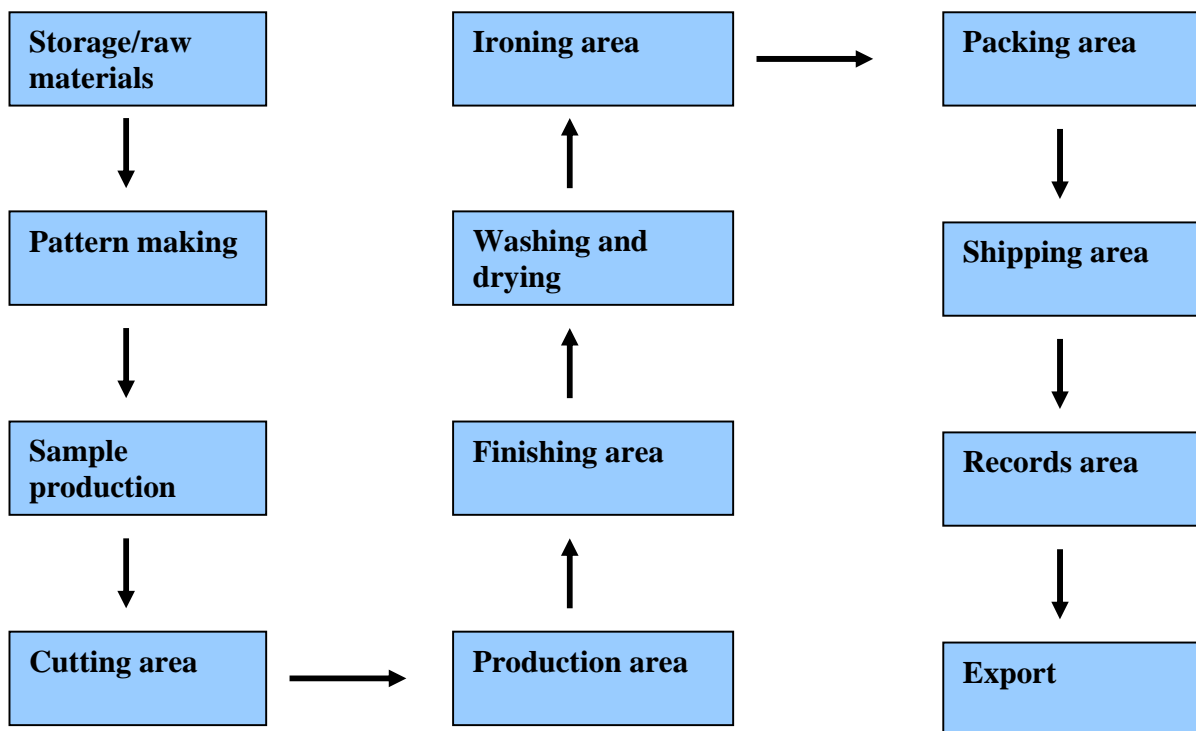
**REMEMBER:**

**Some workplace hazards are obvious, others are more insidious and difficult to assess. As a factory owner or manager, you should always be on the lookout for health and safety problems.**

**Are Specific Hazards Found in Certain Parts of the Factory?**

If you look at a production flow diagram for a typical garment factory (Figure 4), it is easy to match potential hazards with certain processes in the factory.

**Figure 4 : Production process flow chart**



Some of the hazards could include:

- Poor stacking in the storage area;
- Potential for back problems through lifting heavy boxes or rolls of materials incorrectly;
- High dust levels in the cutting area;
- Danger of serious injuries from using electric or pressurised air operated cutting machines without the appropriate guards or correct fitting chain-mail gloves;
- Unguarded machines and dust levels in the production and finishing areas;

- Chemical hazards in the spot cleaning areas;
- Poor lighting in the production and finishing areas;
- Ergonomic problems associated with poor seating or standing work positions;
- High temperatures in the washing and ironing sections;
- Slippery floors and the use of chemicals in the washing area;
- Electrical and fire safety problems in all areas.

### **Examples of the Range of Hazards Found in a Garment Factory**

Let us look at some examples of the categories of hazards found in a typical garment factory in Cambodia. Some of the pictures illustrate examples of good practice.

#### **1. Mechanical hazards**

##### **Sources include:**

- Machines and machine parts;
- Transport, aisles;
- Floors, platforms;
- Ladders and other means of access;
- Poor housekeeping.

##### **Effects:**

- Cuts, wounds, loss of fingers, hands etc;
- Bruises, sprains, fractures and, in extreme cases, death.

Here are some typical examples from some Cambodian factories:



**Picture 4:** Unguarded machine in the weaving shed of a factory. Note that the machine is covered with dust, which also represents a hazard (see later).



**Pictures 5 and 6:** Unguarded belts above and below the sewing table. It is easy for loose hair, clothes and necklaces etc. to get caught.





**Picture 7:** Clearly marked and unobstructed aisle.



**Picture 8:** Poor stacking. The rolls of material could easily fall and cause injury.



**Pictures 9 and 10: Examples of bad and good housekeeping.**



What we have seen so far are some of the typical mechanical hazards found in garment factories. One of the most common findings is poor housekeeping i.e. untidiness, disorder, poor storage of materials and stock. On an inspection visit you can usually see threads and trimmings all over the workbenches and floors. Any cleaning programme

appears to take place on an occasional ad-hoc basis<sup>4</sup>. Such disorder and clutter not only reduces productivity by “blocking” the smooth flow of materials through the factory, it often represents a fire hazard as boxes, thread, trimmings and other combustible material is left everywhere. It also can encourage vermin and their associated health hazards. Factories which have introduced regular cleaning programmes using industrial vacuums (see later) not only reduce levels of dust and dirt in the factory, they improve the general working environment and workers’ health. They also reduce maintenance costs as the machines remain cleaner for longer, there is less absenteeism through sickness and ultimately the factory has a competitive advantage through improved productivity.

It is also essential to organise better storage of raw materials, stock, and “work-in-progress” goods throughout the factory. All unnecessary items should be removed as well as all waste. A cluttered factory:

- reduces the work space for each worker and will thereby reduce productivity;
- impedes the free movement of workers and goods;
- represents a fire hazard;
- hinders egress in the case of an emergency;
- makes it more likely for goods to become spoiled;
- reduces the free flow of air (and therefore raises the temperature) in the factory. For example, we often see boxes or racks of finished goods being piled high for export in a few days time. They often block windows, air bricks, fire exits, etc thus creating other hazard situations.

Often employers complain about the lack of space in the factory and the workers talk of overcrowding and hot temperatures<sup>5</sup>. For this reason it is essential to make much better use of the available space through better housekeeping, storage etc.

**Some simple suggestions:**

- **Remove old stock, scrap material and all obsolete machines;**
- **Plan a better layout/production flow;**
- **Avoid placing materials on the floor;**
- **Use multi-level racks to gain productive space;(see Picture 11)**
- **Provide containers for materials to be used and for all waste;**
- **Use mobile storage e.g. racks on wheels (these only work well if the floors are in good condition and have non-slip surfaces as necessary).**
- **Have marked aisles that are kept clear at all times.**

<sup>4</sup> Prakas 125 on Air Circulation and Cleaning of Workplace specifies that the employer shall make an arrangement to have a good/clean atmosphere at the workplace in order to maintain health and safety of employees.

<sup>5</sup> Prakas 147 on Thermal Environment at the Workplace, Article 2, specifies that each worker shall have a space of at least 10 cubic metres (in trying to measure the floor area per worker some authorities use a calculated height limit of about 3 metres even though the factory ceiling may be much higher).



**Picture 11:** Use racks to store materials and finished goods.

As we will see in the section on *Machine Guarding*, it is very common to see guards missing from machines – sometimes because the machines are old and the guards have been removed or were not present in the first place. Some factory managers indicate that they are “replacing the machines” in the near future and so “it’s not worth replacing the guards and the new machines will have every protective device”. Look closely at the pictures below – you can see the folly of waiting for new machine guards.



**Pictures 12 and 13:** The results of a missing machine guard. Look closely to see the needle in the finger

## 2. Physical hazards

Noise and vibration

**Sources include:**

- All noisy, unserviced machines.

**Effects:**

- temporary and permanent hearing loss;
- vibration disease such as Vibration White Finger. This condition results from persistent microscopic damage to nerves and tiny blood vessels in the hands and fingers as a result of long-term exposure to vibration.

High noise levels are found in some parts of garment factories. For example, if the factory has associated weaving sheds, these machines are likely to produce noise levels well in excess of what is considered safe<sup>6</sup>. Similarly if many of the sewing machines are old or mounted incorrectly, they are likely to produce high noise levels. Although the Cambodian standard refers to a safe level of 85 dBA, the Labour Inspectorate have no sound level meters to measure the noise levels. Where it has been recognised that there may be a noise problem, the solution appears to rest upon the use of hearing protection rather than look for means of controlling the noise at source or along the pathway before the sound waves reach the workers' ears. The topic of *Noise* will be looked at in detail in the next section of the manual.

**Electricity****Effects:**

- burns;
- electric shock and death.

It is all too common to see frayed wiring, broken plug sockets and wires dangling close to workers in many parts of a garment factory (see below).



**Pictures 14 and 15: A broken electrical socket and frayed electrical cable.**

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<sup>6</sup> Prakas 138 on Sound in Workplaces specifies that the level of daily sound or the average sound that a worker encounters during their work shall not exceed 85 dBA.

Not only is there the danger of electrocution, there is the possibility of starting a fire (see section on *Fire safety*). When considering the poor housekeeping in many factories with combustible materials all over the floors and workbenches, it is easy to see how factory fires can start if the electrical wiring is in poor condition and not maintained on a regular basis.

## Temperature

### Effects:

- heat cramps, exhaustion and stroke (dehydration)
- irritability

Many factories in Cambodia are not purpose built for the garment sector. They tend to be so-called shell factories in which any light manufacturing industry could be set up. When these shell factories are built, little consideration is taken for the type of industry and any potential hazards such as temperature. Many garment workers complain of hot, humid conditions in key sections of the factory such as the ironing area (see picture 16). As a result some managers provide ad-hoc solutions by placing fans in certain locations to try to increase the ventilation. As we will see in the specific section on *Temperature*, such short term “solutions” can prove both inadequate and expensive and create other health and safety problems. From a legal perspective, the Cambodian regulations refer to the need for employers to provide a “thermal environment that meets acceptable standards”<sup>7</sup>



**Picture 16:** These workers are exposed to hot, humid conditions. Managers often try to reduce the temperature by placing fans around the workers or by introducing local exhaust ventilation systems that remove the hot air. The workers must also be provided with adequate drinking stations.

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<sup>7</sup> Prakas 147 on Thermal Environment at the Workplace.

## **Lighting Sources:**

- inadequate lighting from dirty or broken lights;
- inadequate use of natural light;
- dirty windows which block out natural light;
- poorly placed lights so that close work is in shadow;
- too much light from sources without shades;
- lights shining or reflecting directly into workers eyes;
- poor colour design for walls and ceilings.

## **Effects:**

- eye strain, headaches and failing eye sight;
- fatigue;
- accidents.

A common problem found in many Cambodian garment factories is either too much or too little light. In both cases, this can lead to a reduction in quality and productivity as workers either struggle to see their work or find the glare too much for their eyes. For example, it is recommended that workers undertaking fine work need adequate lighting (in the order of 1000 lux), but what they do not need is for the bright light to be shining directly into their eyes. They need the light to shine directly onto the exact area where the fine work is being carried out. Often there are no shades on the lights or they are poorly positioned. In some cases, the shades may be present but the light reflects off a shiny surface and into the workers eyes. As we will see in the section on *Lighting* such problems are easy to identify and not expensive to rectify.

For the factory as a whole, there must be good general lighting especially near steps, ramps, exits etc., so that workers can see where they are going and avoid trips and falls. On inspecting many garment factories, you often see lights that are broken and need replacing. In the cases of fluorescent lighting, they are often “flickering” which can be extremely stressful to workers. Months of dust cover the lights and the windows and there appears to be no regular cleaning or maintenance programme in place.

### **Case study:**

**In one Cambodian garment factory, the workers were concerned about the poor lighting outside the factory and on the direct route to town. In this case they were worried about snakes in the grass. Through discussions with management, lights were being installed along the path.**

**In other cases women workers have expressed concern about attacks, especially if they are working late into the evening and it is dark. Again it is management’s responsibility to provide safe travel directly to and from the workers’ homes to their place of work and this includes the provision of adequate lighting outside the factory gates.**

### 3. Chemical hazards

#### Sources:

- workplace chemicals;
- toxic materials and waste;
- fires and explosions.

#### Effects:

- irritant or corrosive;
- allergies;
- fibrogenic;
- asphyxiant;
- narcosis;
- poisonous;
- carcinogenic;
- teratogenic and mutagenic.

Chemicals come in various forms and can produce a variety of effects ranging from burns and allergies to poisoning and cancer. From the perspective of the garment industry, the main chemical problems come from the high dust levels in certain sections of the factory (e.g. the cutting section) and from the choice of chemicals used in the spot cleaning process.

Prolonged exposure to cotton dust can lead to the chronic respiratory disease known as byssinosis characterised by wheezing, chest tightness and a shortage of breath amongst the affected workers (particularly noticeable after the weekend break). All garment factories have dust problems – (look at the machinery in the factory, the workbenches, the lights and even workers' hair – they all have dust fibres on them which have mainly been produced from the cutting and sewing processes). The smallest of these fibres are breathed in by the workers and, over the long term, cause a variety of respiratory problems. The problems are made worse as many factories use brooms and dusters to clean the workplace rather than use industrial vacuums – this simply spreads the dust around the workplace again (see pictures 17 and 18).



**Pictures 17 and 18: Dust in the workplace.**

The problem of dust control is often made worse as workers do not wear their dust masks in the correct fashion (see section on *Chemicals*).

Other chemical problems relate to the use of various spot cleaning agents in the garment factory. Whilst some factories are switching to the safer option of using soap/water mixtures for the cleaning process, other are using various solvents which can have serious health and safety problems if not used in the correct manner. Workers and managers often have little awareness of the dangers of such chemicals as they are not provided with the requisite Material Safety Data Sheets<sup>8</sup> by the manufacturers or, if the MSDSs are available, they are often not in a format or language that can easily be understood by Cambodian workers.



**Picture 19:**

**Look closely at this worker doing spot cleaning. A solvent is being used. Can you see any dangers in the way the chemical is being used?**

**We will return to this example in the section on *Chemicals* to see if you managed to identify the problems and think of any possible solutions.**

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<sup>8</sup> Material Safety Data Sheets (MSDSs) should be available for every chemical used in the garment factory. The MSDS provides basic health and safety information about the chemical.

#### 4. Biological hazards

##### Sources:

- Bacteria;
- Viruses;
- Fungi.

##### Effects:

- occupational diseases;

Biological hazards have little impact in the garment industry. Although some of the raw materials may need treating with chemicals that kill off any biological hazards, most of the problems are associated with the provision of first aid, the state of the washroom facilities and the removal of waste from the factory.

#### 5. Ergonomic hazards

##### Sources include:

- Manual handling of heavy loads;
- Unsuitable tools and controls;
- Poor seating and standing positions;
- Poor working methods.

##### Effects:

- strain injuries often referred to as RSIs (Repetitive Strain Injuries)<sup>9</sup>
- lower back problems;
- fatigue.

Ergonomic problems are common throughout the garment industry. Obsolete machinery, inadequate seating and standing arrangements for workers, and the improper lifting/movement of heavy loads all lead to stresses and strains on the body with a result that workers are often off sick or their productivity is drastically reduced. It is interesting to note that even though Cambodian regulations refer to the maximum loads for lifting (Prakas 124) and for seating at workstations (Prakas 53)<sup>10</sup>, little attention seems to be

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<sup>9</sup> In some countries, RSI are also referred to as *Upper Limb Disorders* and refer to problems with the shoulder and arm, including the forearm, elbow, wrist, hand and fingers. ULDs can also include neck pain. According to the Health and Safety Executive in the UK, in 1995 on average each sufferer took 13 days off work as a result of ULDs/RSIs.

<sup>10</sup> Prakas 53 on Providing Sitting Chairs at Workstations requires that employers shall provide in each workstation suitable chairs for workers when their work requires sitting positions or occasional sitting positions.

paid to these areas. All too often workers are provided with rudimentary benches to sit on as opposed to proper seating with adjustable lower back support (see pictures 20 and 21).



**Pictures 20 and 21: Showing poor ergonomic provision.**



## 6. Psychosocial hazards

### Sources:

- Quality of work (boring, monotonous, repetitive work; continuous alertness, etc);
- Human relations.

### Effects:

- Stress;
- discomfort;
- irritation;
- psychosomatic diseases;
- mental disease.

Stress is the adverse reaction workers have to excessive pressure or other types of demands placed on them at work and by things outside work or both. Work-related stress is not an illness but it can lead to increased problems with ill health. If it is prolonged or particularly intense it can lead to physical effects (such as heart disease and gastrointestinal disturbances leading to ulcers) and psychological effects (such as anxiety and depression). Work-related stressors include:

- lack of communication and consultation between management and workers;
- a culture of blame when things go wrong and denial of potential problems;
- excessively long working hours;
- boring or repetitive work;
- poor relationship with management and fellow workers;
- bullying or sexual harassment.

There are a number of solutions that management can introduce to deal with these stressors, including:

- provide opportunities for staff to participate<sup>11</sup> in planning and organising their own work;
- set up communication channels for workers to talk to management without prejudice;
- make sure that workers have the skills, training and experience to carry out their tasks;
- change the way jobs are done and, where possible, rotate tasks so as to avoid boring, repetitive work;
- provide regular training for all workers;
- look at ways to reduce excessive working hours and provide a number of rest periods;

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<sup>11</sup> *Workers' participation* is a fundamental principle of ILO standards and has been found to produce positive benefits in the area of occupational health and safety.

- provide rest areas/rooms that separate off the working environment from the noise, dust, and general clamour of the factory.

### 3.3. General Workplace Conditions Checklist

	Yes	No	Action Required
Is the factory generally clean and tidy?			
Is dirt and rubbish removed on a regular basis?			
Are the floors washed and swept on a regular basis?			
Are the ceilings in particular kept clean?			
Are worktables and benches kept clear of unnecessary items?			
Are all materials, supplies, stock etc., stacked safely?			
Are all aisles, stairs, passageways etc kept clear of stock items as well as rubbish?			
Are separate containers provided for the collection of stock and rubbish?			
Are floor surfaces level, non-slip and in good condition?			
Are ramps provided for the easy movement of materials and workers?			
Are passageways/aisles of the requisite width and clearly marked with painted lines and kept clear of any obstructions that might hinder the flow of goods and people?			

### 3.4. Summary

Workers in the garment industry face a variety of hazards on a daily basis. Some of these hazards are obvious such as the lack of machine guarding. Others are not so obvious as in the case of exposure to some of the chemicals used in the factory. In both cases, management in consultation with the workers should try to identify the problem, assess the scale of the hazard and then introduce a control mechanism. In each case management should be aware of, and comply with national regulations.