



Oil Seed and Pulse Processing

Level-II

**Based on September 2019, Occupational
standards (OS) Version2**

**Module Title: Implement Environmental Policies
and Procedures**

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LG #64	LO #1 Conduct work in accordance with environmental policies and procedures
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Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Checking immediate work area
- Identifying, removing and reporting environmental hazards
- Following workplace procedures and work instructions
- Meeting control requirements and reporting incidents
- Setting parameters for environmental aspects
- Minimizing and handling waste
- Recording Environmental data
- Accessing and applying workplace information on environmental Policies and procedures

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Check immediate work area
- Identify, removing and reporting environmental hazards
- Follow workplace procedures and work instructions
- Meet control requirements and reporting incidents
- Set parameters for environmental aspects
- Identify waste minimization and handling
- Record environmental data
- Access and apply workplace information on environmental Policies and procedures



Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks
5. Perform Operation Sheets
6. Do the “LAP test”



Information Sheet 1 Checking Immediate Work Area

1.1 Introduction

The immediate surrounding area is defined as an area around the working area with a width of at least 0.5 meters. The size of the immediate surroundings should be determined by the planner and may need to be increased to a width greater than 0.5 meters, for specific types of workplaces and the working area is defined, as the area of the workplace where tasks are performed. For areas where the size and/or placement of the working area is unknown, the area where the tasks may be performed is to be considered as the working area. The working area is usually made up of the entire workplace/workstation. For example, in an office workplace, the working area is made up of a small surface where paper work is carried out. Work with a monitor and keyboard usually demands a lower illuminance than when paper work is performed. The illuminance level needs to be adjustable for work with monitors and to help achieve a suitable balance with the surrounding area. Adjust relative to the surrounding areas illuminance. In an office where paper work is carried out the workspace can be made up of an entire work table. In industry, the size of the working area can be harder to define e.g. workplaces for work involving microelectronics or a production line for assembling cars.

1.2 Definition of terminologies

Work place: is any land, location or a site at, up on in or near which a worker works.

Environment: refers to all the physical surroundings on Earth that includes everything living and everything nonliving.

Sustainability: it means meeting our own needs without compromising the ability of future generations to meet their own needs.

Resource: may refer to a stock or supply of money, materials, staff, and other assets that can be drawn on by a person or organization in order to function effectively.

Hazard: is anything (condition, situation or practice) that has the potential to cause harm including injury, disease, death, environmental or property and equipment.

Safety: refers to the condition of workers and animals being freedom from danger, harm, or risk.

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OHS Procedures: refers to guidelines and/ or technical reference documents with general used to avoid risk techniques.

Risk: Risk is the significance of the hazard in terms of likelihood and severity of any possible injury.

1.3 Principles of establishing the work area and surrounding

1.3.1 Lighting of the immediate surroundings

The lighting of the immediate surrounding area should relate to the lighting level within the working area and additionally create the conditions for a well-balanced luminance distribution within the normal field of vision. Extensive changes to the lighting level around the working area can cause visual stress and discomfort. The size of the immediate surroundings can be increased:

- When the size of the working area is small.
- If the illuminance within the working area is high.
- With active work.

The illuminance in the immediate surrounding area can be lower than within the working area, but should not fall below the values stated in the table to the right. The variation of the illuminance, i.e. the ratio between the lowest illuminance in relation to the average illuminance in the immediate surroundings, should be as small as possible and not fall below 0.4.

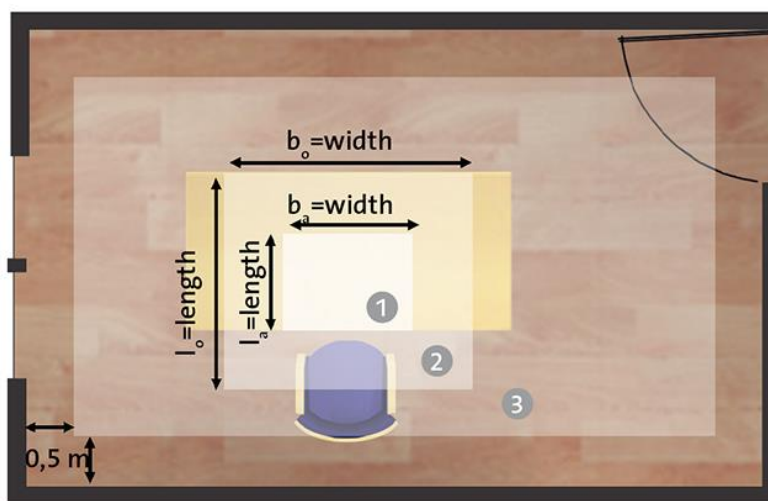


Figure 1 work area lay out



- Working area ($I_a \times w_a$)
size and position are established by the light planner.
- Immediate surrounding area ($I_o \times w_o$)
The size to be established by the light planner. ($I_a + 2x \geq 0.5 \text{ m}$) \times ($W_a + 2x \geq 0.5 \text{ m}$).
- Peripheral surrounding area
0.5 meters from the room's walls.

1.3.2 Lighting of the peripheral surroundings

There are no defined demands on the illuminance within the peripheral surrounding areas. This area is defined as the area outside the immediate surrounding areas, to a distance of 0.5 meters from the room's walls, or to a band around the immediate surroundings with a width of at least 3 m. The illuminance within the peripheral surroundings must be at least a third of the illuminance in the immediate surroundings. The lighting around the working area should contribute towards good visual adaptation, as recommended in the luminance distribution and luminance limitations section of the report. As a rule, in work areas with bright walls, the relation between the illuminance within the working area and the average illuminance on the room's walls should not exceed 3:1.

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Self-check 1	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: short answer

1. Define the following? (3 points)
 - a. Immediate working area
 - b. Sustainability
 - c. Hazard
 - d. Safety
2. Explain principles of establishing the work area? (5 points)

Note: Satisfactory rating - 15 points Unsatisfactory - below 15 points

You can ask you teacher for the copy of the correct answers.



Information Sheet 2 Identifying, removing and reporting environmental hazards

2.1 Identifying workplace environmental hazards

An environmental hazard is anything that can cause harm to the environment and may also cause harm to people. When considering what environmental hazards might exist in a workplace, think about what might happen if things go wrong. There are different Hazards exists specifically associated in the oil seed and pulse processing operations due to different activities which include the following:

2.1.1 Physical Hazards

Physical hazards include exposure to same-level fall hazards due to;

- Slippery conditions,
- The use of machines and tools,
- Collisions with internal transport equipment (e.g. forklift trucks and containers).

Guidance and recommendations on general workplace conditions include;

- Safe design and maintenance of working and walking surfaces;
- Maintain walking and working surfaces clean and dry;
- Provide workers with training in the proper use of equipment and PPE;
- Demarcate transport corridors and working areas;
- Ground all electrical equipment and installations in wet rooms.

2.1.2 Mechanical Hazards

These are types of hazard which are related from lifting, Work Posture Injuries & Noise and Vibrations from machines and equipments. Oil seed and pulse processing activities may include a variety of situations in which workers can be exposed to lifting, carrying, repetitive work, and work-posture injuries. Such injuries may result from heavy manual lifting and repetitive work, including the operation of slicing and vacuum-packing machines and poor working postures caused by inadequate workstation and process activity design. Recommended management approaches, including the use of mechanical equipment where necessary to reduce these injuries are discussed in the General Environmental health and safety (EHS) Guidelines.

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2.1.3 Biological Hazards

Exposure to biological and microbiological agents may be associated with inhalation and ingestion of dust and aerosols, particularly in oil processing operations. Dust from the ingredients used in oil seed and pulse processing and high levels of humidity may cause skin irritation or other allergic reactions.

Guidance and recommendations to control biological hazards include;

- Avoid dust- and aerosol-generating activities and, where they cannot be avoided, provide proper ventilation of enclosed or semi-enclosed areas;
- Install exhaust ventilation equipped with filters at sources of dust;
- Provide workers with PPE that is appropriate for the process activity;
- Avoid direct contact with non-conforming products.

2.1.4 Chemical Hazards

Exposure to chemicals typically involves chemical-handling activities related to cleaning operations and disinfection of process areas, in addition to the maintenance of heating and cooling systems. Operators in oil seed processing facilities may be exposed to hazardous substances via, inhalation of hexane or other solvents used for extraction; inhalation of toxic chemicals (e.g., sodium methylate can cause burns on the skin and lung tissue if inhaled); eye or skin exposure to acids or bases; inhalation of dust from the transportation of raw materials (e.g., seeds and beans to the crushing plant); inhalation of dust from meal treatment and shipment; inhalation of dust from bleaching earth, filter aid, and nickel catalyst; and inhalation of aflatoxins present in raw materials. The General environmental health and safety (EHS) Guidelines provide guidance on the management of chemical hazards in the workplace

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- **Exposure to heat, cold, and radiation**

Workers at edible oil processing facilities may be exposed to heat from process activities and to cold in refrigeration areas and rooms. Recommendations for the management of exposure to heat and cold are presented in the General EHS Guidelines.

2.1.5 Reporting workplace environmental hazards

Once you have identified a breach or potential breach in your processing organization, you should report it to the appropriate personnel. This can be difficult when you have identified a breach or potential breach performed by another employee. Most people do not like to feel like they are creating trouble for their peers or colleagues. However, you must remember that breaches can put you, other employees or the environment at risk. You should find out who in your organization is responsible for managing breaches or potential breaches of workplace procedure, particularly those relating to environmental regulations. Different breaches may need to be reported to different people, particularly in larger organizations. Your supervisor should be able to advise who a breach is reported to. Even if you report it to another supervisor or manager, you should still inform your supervisor.

Things that might affect who you report a breach to include:

- Where the breach occurred,
- The time at which the breach was observed and who is available to report it to
- Whether it is an actual breach that is currently occurring and represents a risk, or a potential breach that requires preventative action.

There are three steps used to manage health and safety at work.

- **Spot the Hazard (Hazard Identification):** - Identify hazards and risk factors that have the potential to cause harm.
- **Assess the Risk or risk analysis, and risk evaluation (Risk Assessment):**- Analyze and evaluate the risk associated with that hazard.
- **Make the Changes (Risk Control):**- Determine appropriate ways to eliminate the hazard, or control the risk when the hazard cannot be eliminated.

Generally, reporting work place hazards is important for the organization to measure its production and productivity in order to know the organization's profitability by taking a appropriate corrective action for hazards occurred.

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Environmental hazard report form

Grade:

Incident No.:

Date entered:

Name:

This section is to be completed by the employee involved and handed to the manager or supervisor within 24 hours.

Employer: Sustainable Workplace,

This is an: Incident Accident Near Miss Minor injury, Major injury, Property damages

Other (Specify):

.....

Time of occurrence: am/pm Date of occurrence:

Location/address of occurrence:

Describe what happened and include: exact location of the occurrence within the workplace; details of any plant and equipment involved; the process or substance involved. Attach separate sheet if insufficient space:.....

.....

.....

Name of person/s involved in the incident or injured:

First name: Surname:

Position:

(If more than one person attaches a separate sheet).

Risks or potential risks identified:.....

.....

.....

Witnesses:

.....

.....



Self Check 2	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations.

Instruction I: Give short answer. (15 point)

1. Mention at least five workplace hazards that may occur in your organization? (5 point)
2. Elaborate things that might affect who you report a breach to? (3 point)
3. Write down the three steps used to manage health and safety at work?(4points)
4. Discuss the merit of reporting workplace hazards? (3points)

You can ask you teacher for the copy of the correct answers.

Note: Satisfactory rating – 10 points Unsatisfactory - below 10 points



Information Sheet 3 Following workplace procedures and work instructions

3.1 Following work place procedures

Establishing effective policies and procedures does not begin and end with regulations. It takes the right amount of collaboration, the right types of distributive mediums, and the right methods to measure understanding. All of these things take an enormous amount of time and energy, but automating them with a software solution can increase efficiency, and ensure compliance with your policies and procedures. All in the operation area should be performed in accordance with procedures including all relevant workplace procedures, work instructions, and relevant industry and government codes and standards in order to minimize hazards and risks, cost of production, enhance productivity and production and increase profitability of the dairy processing plant. Procedures are an important part of almost every successful company. Steps to ensure compliance, and what software features to look for to choose the best possible solution includes;

- Meet with divisional leaders to ensure the policies and procedures being created are feasible to individual departments.
- Determine the best format of policies for your different audiences.
- Make policies and procedures easily accessible to your employees.
- Set deadlines for each policy and procedure to be acknowledged.
- Determine the best way to measure the understanding of your employees.

Generally, the Legal and commercial aspects of plant design consider Safety and good working conditions are very necessary in a proper plant layout. Minimized hazards at the working stations, in material handling, storage, maintenance operations and so on are features of good plant layout.

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3.2 Work place instructions

The workplace instruction is one page long and contains the most important information for the employee applied to the product and possibly to your company, your specific workplaces, and work situations. Work instructions are an important tool in maintaining quality, as they ensure tasks are carried out in the same way each time, thereby controlling task deviations. Workplace personnel who are competent and skilled in a task/s may be the authors of work instructions. So, to perform safe and quality task all activities should be conduct in accordance with the manufacturer's instructions.

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Self Check- 3	Written Test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations.

Instruction I: Give short answer.

1. Mention the steps of compliance? (5 point)
2. Discuss the merit of ensuring compliance for your organization. (5 point)

You can ask you teacher for the copy of the correct answers.

Note: Satisfactory rating – 5 points Unsatisfactory - below 5 points



Information Sheet 4 Meeting control requirements and reporting incidents

4.1 Meeting control requirements

4.1.1 Environmental control

Environmental control is the degree to which individuals, groups or business units can modify and adapt features of their physical workplace to enhance work and business effectiveness.

4.1.2 Environmental requirements

Environmental management is paramount to all our business activities and we are committed to the protection and enhancement of the environment. Our approach is driven by the commitment to our Environmental Policy. It is displayed in each workplace and personnel are made aware of the policy, commitments, associated roles and responsibilities, and their ability to influence environmental outcomes through their activities.

Our Environmental objectives are linked to the Environmental Policy and have been developed to improve environmental performance. The key environmental issues considered include:

- Sustainable use of resources
- Minimizing impacts to water, air and land from operations
- Meeting or exceeding the environmental performance objectives of clients
- Meeting or exceeding stakeholder expectations of our environmental performance
- Understanding and delivering on compliance obligations

The Environmental Management System applies to the full scope of business activities over which we have the ability to control or influence with due consideration to the life cycle perspective and stakeholder relationships. When considering the level of influence and potential environmental outcomes, the business ensures that positive and negative effects on the environment are assessed as they relate to organizational stakeholders which include:

- Our clients on construction projects undertaken by the business
- The communities in which we work
- Regulatory authorities relating to environmental management and environmental approvals and compliance
- Financiers
- Our supply chain partners



- Our construction industry peers and partners

The system is certified to ISO 14001 and addresses the environmental management activities associated with the project lifecycle. Refer to SR Life Cycle Perspective for more information. Responsibilities for implementing the environmental system are defined in organization charts, job descriptions, Environmental Management Plans and other organizational procedures.

4.2 Reporting environmental incidents

Reporting of environmental incidents is an essential part of any companies' environmental management system, because it means that lessons are learnt from the incidents to improve the environmental controls and prevent reoccurrence of environmental incidents. Environmental incidents which involve the planned or unplanned releases of substances from our processing plant and equipment that could be environmentally harmful to air, water, and/or land, including both noise and radiation and the discovery of historical contamination that has the potential for impacting nearby sites. These could also result in breaches of plant permits or complaints of nuisance/ irritation from our neighbors' as well as environmental damage. Environmental incidents specifically associated with dairy processing facilities may include the following:

- Industrial Process Wastewater
- Solid waste
- Emissions to air
- Energy consumption

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Self-Check – 4	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. What are the key environmental issues? (5 points)
2. Mention and Discuss environmental incidents? (5 point)
3. Discuss the merit of reporting environmental incidents? (5 point)

Note: Satisfactory rating - 5 points Unsatisfactory - below 5 points
 You can ask you teacher for the copy of the correct answers.



Information Sheet 5 Setting Parameters for Environmental Aspects

5.1 Parameters for environmental aspects

Environmental parameters provide information regarding the system's internal state and surroundings. The Environmental Management System must manage all aspects which are found to be significant. Those not found to be significant do not need to be managed by the Environmental Management System. There is no single accepted method for evaluating significance. What is significant for one organization will not necessarily be significant to another. Determining which environmental impacts are significant does not require an “Environmental Impact Assessment” and taking a lifecycle approach does not require a full “Life Cycle Analysis” to be undertaken.

When determining which aspects are significant, the organization needs to adopt an approach that works for its specific circumstances considering its size, the site, and the nature of the business conducted. The approach taken should consider the significance of each aspect under the following circumstances:

- Normal operating conditions
- Abnormal operating conditions (e.g. start-up, shutdown, maintenance)
- Accidents and emergencies
- Past activities
- Planned activities

Environmental Aspects include:

- Emissions to air
- Releases to groundwater
- Releases to surface water
- Use of water
- Waste management and disposal
- Contamination of land
- Impact on communities
- Use of raw materials
- Use of energy

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- Use of radioactive material
- Use of natural resources

5.2 Environmental impacts of the oil industry

The edible oil industry holds a potential of hazards for the environment, and may impact it at different levels: air, water, soil, and consequently all living beings on our planet. When determining the environmental impact of each of the identified aspects consider:

- Existing controls
- Severity of the impact
- Frequency or probability of occurrence
- Duration of the impact
- Effect on public image
- Cost of changing the impact
- Difficulty of changing the impact
- Effect of change on other activities or processes
- Concerns over potential regulatory or legal exposure
- Concerns of interested parties

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The organization may wish to determine impacts at local, regional, national or global scale. The assessment of significance needs to consider both past and future activities. E.g. the use of the site before the organization took ownership may have caused land contamination. A register of significant environmental aspects is usually produced to meet the requirement to maintain documented information of environmental aspects and associated impacts and of significant environmental aspects. The register must be kept up to date, and will need to be reviewed periodically (e.g. annually) or when new aspects are identified; when processes are changed or in the event of an environmental incident, accident or emergency. Register of Aspects and Impacts – Quick Check

The register of aspects and impacts register include:

- All inputs to the organization’s activities, products or processes?
- All outputs to the organization’s activities, products or processes?
- All direct and indirect air emissions from activities, products or processes?
- All controlled and uncontrolled effluents from the organization’s activities, products or processes?
- The generation or disposal of solid and other waste associated with the organization’s activities, products or processes
- Any contamination of land as a result of the organization’s activities, products or processes?
- All uses of raw materials and natural resources associated with the organization’s activities, products or processes?
- All other discharges or emissions, such as heat, energy, noise, odour, dust, vibration or visual impact, associated with the organization’s activities, products or processes?
- All environmental issues of local or community relevance associated with the organization and its environmental performance?



Self-Check – 5	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. Write the main environmental aspects? (5 points)
2. Mention considerations in determination of environmental impacts? (10 points)

Note: Satisfactory rating - 5 points Unsatisfactory - below 5 points
 You can ask you teacher for the copy of the correct answers.



Information Sheet 6 Minimizing and Handling Waste

6.1 Wastes in oil seed and pulse Processing plant

6.1.1 Types of wastes

In oil seed and pulse processing plant there are various wastes which discharge from the processing operation. These wastes may be classified based on their state as;

- Solid waste and by-products
- Water consumption and management
- Energy consumption and management
- Atmospheric emissions
- Greenhouse gas emissions
- Hazardous materials

• **Solid Waste and by-products**

Oil seed and pulse processing activities generate significant quantities of organic solid waste, residues and by-products, such as empty seed bunches and waste palm kernels from palm oil processing or olive oil cake and pulp from olive processing. The amount of waste generated depends on the quality of the raw materials and on process efficiency. Wastes, residues, and by-products may be used for producing commercially viable by-products or for energy generation. Other solid wastes from the seed oil manufacturing process include soap stock and spent acids from chemical refining of crude oil; spent bleaching earth containing gums, metals, and pigments; deodorizer distillate from the steam distillation of refined edible oils; mucilage from degumming; and spent catalysts and filtering aid from the hardening process.

Recommended techniques for minimizing the volume of solid waste and by-products for disposal include the following:

- ✓ Reduce product losses through better production/storage control (e.g., monitor and adjust air humidity to prevent product losses caused by the formation of molds on edible materials).

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- ✓ Collect residues from the raw material preparation phase for conditioning (drying) and reprocessing (grinding) to yield by-products (e.g., animal feed).
- ✓ Return waste and residues to fields to assist in soil nutrient management
- ✓ Use waste and residues for energy generation in the project plant's boiler(s).
- ✓ Investigate the following options for the responsible disposal of spent bleaching earth:
 - ✓ Use as fertilizer, if not contaminated with heavy metals such as nickel, pesticide residues, or other contaminants.
 - ✓ Recover non-food-grade oils from spent bleaching earth that could be used in other applications (feedstock for conversion to biodiesel or in bio-lubricants).
 - ✓ Avoid direct recycling on agricultural land. Add spent earth to other organic waste and compost to avoid contact with air and risk of spontaneous combustion of spent bleaching earth.
 - ✓ If contaminated, manage according to the waste management guidance presented in the General EHS Guidelines.
 - ✓ Consider use as a feedstock for brick, block, and cement manufacturing.

- **Water consumption and management**

Oil seed and pulse facilities require significant amounts of water for crude oil production (cooling water), chemical neutralization processes, and subsequent washing and deodorization. General recommendations to reduce water consumption, especially where it may be a limited natural resource, are provided in the General EHS Guidelines. Sector-specific recommendations to reduce water consumption, optimize water use efficiency, and reduce subsequent wastewater volumes include the following:

- ✓ When economically viable, consider the use of physical refining instead of chemical refining to reduce water consumption.
- ✓ Replace water-based conveyor systems by mechanical systems (augers or conveyors).
- ✓ Apply Cleaning-in-Place (CIP) procedures to help reduce chemical, water, and energy consumption in cleaning operations.
- ✓ Recover and reuse condensate from heating processes.
- ✓ Upgrade equipment water sprays (e.g., to include jets or nozzles).
- ✓ Use dry cleanup techniques before rinsing floors.
- ✓ Manually clean vessels before rinsing to remove solids for recovery or disposal.

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- ✓ Use high-pressure, low-volume washing systems, and auto shut-off valves.

✚ **Process wastewater treatment:** Techniques for treating industrial process wastewater in this sector include: grease traps, skimmers, or oil water separators for the removal of floatable solids; flow and load equalization; sedimentation for suspended solids reduction using clarifiers; biological treatment typically anaerobic, followed by aerobic treatment for the reduction of soluble organic matter; biological nutrient removal for reduction in nitrogen and phosphorus; chlorination of effluent when disinfection is required; and dewatering and disposal of residuals. In some instances, composting or land application of wastewater treatment residuals of acceptable quality may be possible. Additional engineering controls may be required to contain and neutralize nuisance odors.

✚ **Other wastewater streams:** Guidance on the management of non-contaminated wastewater from utility operations, non-contaminated storm water, and sanitary sewage is provided in the General EHS Guidelines. Contaminated streams should be routed to the treatment system for industrial process wastewater.

- **Energy consumption and management:**

Oil seed and pulse processing facilities use energy to heat water and produce steam both for process applications (especially for soap splitting and deodorization) and cleaning processes. Other common energy consumption systems include refrigeration and compressed air. In addition to the energy conservation recommendations provided in the General EHS Guidelines, sector-specific recommendations include the following:

Improve uniformity of feed to stabilize and reduce energy requirements.

Increase efficiency of air removal in sterilization vessels to improve heat transfer.

Identify and implement opportunities for process heat exchange; e.g., optimized oil-oil heat exchangers in continuous deodorization.

Reduce stripping steam consumption by improving process efficiency.

Consider co-generation (combined heat and power (CHP)) to improve energy efficiency.

Consider more advanced approaches such as: the use of enzymes for processes such as: degumming and oil recovery.

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Where feasible, use anaerobic digestion for wastewater treatment and capture methane for heat and / or power production.

- **Atmospheric emissions**

Process Emissions dust results from the processing, including cleaning, screening, and crushing, of raw materials. The emissions are caused by the use of oil-extraction solvents. Additional emissions will result from the refining process if a fractionation method is used. Small quantities of solvent may be present in the crude seed oil if the oil has been extracted by a solvent and will volatilize during the oil refining process, particularly during deodorization. Odor emissions are produced by multiple sources (e.g., cookers, soap splitting, and vacuum generation).

- **Greenhouse gas emissions (GHG)**

Oil seed and pulse processing produces GHG emissions through the use of fossil energy. Projects should manage energy use in accordance with the General EHS Guidelines. The high nutrient loading of wastewater can be a source of methane (CH₄) when treated or disposed of anaerobically. It can also be a source of nitrous oxide (N₂O) emissions associated with the degradation of nitrogen components in the wastewater (e.g., urea, nitrate, and protein). Recommended measures to prevent and control non-fossil-fuel-related GHG emissions include:

- ✓ Avoid open anaerobic conditions for wastewater treatment by ensuring a regular program of operational maintenance in the wastewater treatment system.
- ✓ Consider biological methods of wastewater treatment, such as anaerobic digestion and methane capture; use of waste effluent for irrigation; co-composting of by-products, where appropriate (e.g., oil palm empty fruit bunches with palm oil mill effluent nutrient waste or olive mill waste residue with wastewater); and detoxification by nitrogen fixation.

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- **Hazardous materials**

Oil seed and pulse processing involves the transport, storage, and use of bulk quantities of acids, alkalis, solvents, and hydrogen during extraction and refining. Their transport, storage, and handling provide opportunities for spills or other types of releases with potentially negative impacts on soil and water resources. Their flammability and other potentially hazardous characteristics also present a risk of fire and explosions. Hazardous materials should be managed according to the guidance presented in the General EHS Guidelines.



Figure 2 plant derived wastes

6.1.2 Waste minimization techniques

Waste minimization can be defined as "systematically reducing waste at the processing plant source". Waste minimization is also known by other terms such as waste reduction, pollution prevention. Traditionally, waste is viewed as an unnecessary element arising from the activities of any industry. In reality, waste is a misplaced resource, existing at a wrong place at a wrong time. Generally, waste minimization means;

- Prevention and/or reduction of waste generated.
- Efficient use of raw materials and packaging.
- Efficient use of resources like fuel, electricity, water, milk and milk products etc
- Encouraging re-use, recycling and recovery.
- Handling and storing products in a good storage room.



The Waste minimization techniques can be classified as;

- Good Housekeeping in the processing plant: Systems to prevent leakages & spillages through preventive maintenance schedules and routine equipment inspections.
- Process Change: Under this head, four Process change techniques are covered:
 - ✓ Input Material Change-
 - ✓ Better Process Control
 - ✓ Equipment Modification
 - ✓ Technology change
- Recycling: means using again or to reuse waste material by converting it into something new. An example of recycle is when you return bottles, which are then processed into new glass products. It can be done;
 - ✓ On-site Recovery and Reuse
 - ✓ Production of Useful by-product
 - ✓ Product Modification- Characteristics of product can be modified to minimize the environmental impacts of its production.

6.1.3 Waste management hierarchy

The waste management hierarchy is a widely accepted order of waste management options. An effective solid waste management program requires the input and involvement of all staff to identify opportunities for minimizing the generation and cost of waste. All successes in reducing solid waste should be promoted among staff to help increase awareness of the plant's commitment to waste reduction.

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Figure 3 waste management hierarchy

The first step is eliminating all unnecessary solid waste if possible. Next, consider how remaining solid waste can be further reduced by reusing product. Opportunities may also exist for recovering by-products that can be either reused onsite or sold. Finally, investigate options for using recycled materials or ways the plant can render its solid waste recyclable after use. The disposal of solid waste should only be a last option after all opportunities in the waste hierarchy have been explored.



Self Check- 6	Written Test
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Name.....ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations.

Instruction I: Give short answer. (15 point)

- 1 Write down types of expected wastes from oil seed and pulse processing plant and give examples. (6 points)
- 2 Define waste and explain the concept of waste minimization? (4 points)
- 3 Write waste minimization techniques? (5 points)

You can ask you teacher for the copy of the correct answers.

Note: Satisfactory rating – 15 points

Unsatisfactory - below 15 points



Information Sheet 7 Recording Environmental data

7.1 Environmental data

Environmental data is that which is based on the measurement of environmental pressures, the state of the environment and the impacts on ecosystems. This is usually the "P", "S" and "I" of the DPSIR model where D = Drivers, P = Pressures, S = State, I = Impact, R = Response.

Environmental data is typically generated by institutions executing environmental law or doing environmental research. Environment statistics are usually generated by statistical offices and are considered as environmental data, too. Socio-economic data and other statistical data (often the "D" and the "R" of the DPSIR model) are not considered as environmental data. However, they are to be integrated into comprehensive environmental assessments. Usually this kind of data is held by other institutions than the environmental administration (e.g. National Statistical Offices). The same is true for geo-basis data, which are not considered as environmental data, but have to be available for environmental policies and environmental information. In recent years, environmental data has become increasingly important to investors, prompting Bloomberg L.P. to begin providing Environmental, Social and Governance (ESG) data through their terminals.

All data generated by the execution of environmental law are to be considered as environmental data.

7.2 Environmental data management systems (EDMS)

In order to comply with the above requirements and obligations, certain conditions within them must be met. Typically these will include:

Managing monitoring programs or schedules, ensuring that the monitoring required in the permit has been done, at the correct locations, for the correct parameters, and at the correct frequency- Pre-processing, performing calculations and validating the data for compliance with any alert or reporting levels generating routine compliance reports for authorities. The management of the above can be complex and time-consuming, leading to an increasing

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uptake of software systems designed to manage environmental compliance. These are often referred to as 'Environmental Data Management Systems' (EDMS), the selection of which is subject to a number of key criteria.

7.3 Data management requirements

Early attention to data management and archiving is a critical step in ensuring the success of a long-term Climate Data Record (CDR) program. Datasets, and ancillary information such as metadata, must be preserved for decades and stored in ways that promote

- Access as data needs change;
- Reprocessing as errors are discovered or calibration is improved;
- Integration as new data products, algorithms, and data technologies are developed; and
- User-friendly access tools.

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Self-Check – 7	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. What is environment data? (5 points)
2. Write down the meaning of environmental data management systems? (5 points)

Note: Satisfactory rating - 20 points Unsatisfactory - below 20 points
 You can ask you teacher for the copy of the correct answers.



Information Sheet 8 Accessing and applying workplace information on environmental Policies and procedures

8.1 Work place information

Information drives communication in the workplace, and communication in turn allows all the members of the organization, from entry-level people to the CEO, to work in harmony toward accomplishing the company's goals and to maximize productivity. Information Management involves capturing new ideas, organizational knowledge and structuring systems which allow for the information to be used effectively by the organization.

Collection of information is timely and relevant to organizational needs .Each organization must have access to information and data if it is to function efficiently. This information needs to be collected (or created), stored and cared for and be easily accessed or retrieved. Records, then, are sources of information (documents or other items) which the organization wants or needs to retain

8.2 Types of information

The types of records held by an organization vary depending on the business. Common types of workplace information include:

- Messages such as telephone and email
- Correspondence such as letters, memos, faxes and email
- Computer files such as reports and research
- Sales records such as monthly forecasts, targets achieved and sales reports
- Product information such as price lists, catalogues and brochures
- forms such as claim forms, membership forms, order forms and leave forms
- Electronic databases such as customer records, financial records and library catalogues
- Accounts records such as invoices, credit notes and statements (from suppliers and to customers)
- Personnel records such as employee details, salary rates and annual leave
- Minutes of meetings

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- Cash handling such as petty cash receipts, cash takings and register readings.

Other information might include:

- a library collection which could include books, magazines and reports
- Other printed products such as manuals, labels and signs.

8.3 Ways of dealing with information

There are different ways to deal with information. Each business will have a system that suits its needs. For instance, a large company might have a centralized, electronic system that allows its workers to access information from any location throughout the world. A small company may have a specialized system that integrates different types of information into the way staff works (for example, paper-based filing systems and databases). Every organization is different. The most important thing is to know how your workplace operates.

Paper-based records

Examples of paper-based records include:

- Reports
- magazines, journals and newspapers
- project files
- contracts
- minutes of meetings
- business letters
- email messages and memos
- faxes
- forms
- diaries and other note-taking methods

Correspondence, faxes, letters, memos, email, computer databases, customer records, library catalogue, computer files, copies of letters, other documents, sales records, monthly forecasts, targets achieved, forms, membership forms, insurance forms, invoices, accounts from suppliers; to debtors, personnel records, personal details, salary rates, minutes of meetings, staff meetings, board meetings. The overall objective of any records management system is to provide the right information, at the right time, to the right person(s) at an affordable cost. Information is stored so that specific information is available when it is needed and in such a way that security and confidentiality is maintained. Business equipment/technology available in the work area is used to obtain information effectively.



Types of technology or business equipment can assist in the effective collection of information Such as

- Photocopier
- Computer
- Printer
- Binder
- Filing systems manual,

Computerized or electronic

- Answering machine
- Fax machine
- Telephone



All staff should know how to use this technology and equipment. If in doubt staff should ask for training or help to become familiar with the manufacturer's instructions. Someone in the organization should ensure that regular maintenance is carried out and that any faults or hazards are reported immediately; this will ensure the efficient collection of information continues.

8.4 Process work place information

- Use business equipment/technology to process information in accordance with organizational requirements
- Process information in accordance with defined timeframes, guidelines and procedures
- Update, modify and file information in accordance with organizational requirements
- Collate and dispatch information in accordance with specified timeframes and organizational requirements

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Self-Check – 8	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. Write the main objective of record?(5 points)
2. Explain about the need of workplace information (5 point)
3. Write the types of technology used for collection of information? (5 points)
4. Mention and explain the types of information? (5 points)

Note: Satisfactory rating - 15 points Unsatisfactory - below 15 points
 You can ask you teacher for the copy of the correct answers.



Operation Sheet 1 Steps of Identify Environmental Hazards

1.1 Steps of identifying environmental hazards

1. Wear appropriate personal protective equipment's
2. Inspect oil seed and pulse processing working area
3. Inspect oil seed and pulse processing equipments
4. Identify the hazard
5. Identify source of hazard
6. Categorize the hazard based on the source of hazard
7. Identify control measures
8. Record the result of hazard identification





Lap test	Performance test
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Name.....ID.....Date.....

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 1 hour. The project is expected from each student to do it.

1.1 Task-1 identify environmental hazards



LG #65	LO2: Participate in Improving Environmental Practices at Work
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Instruction sheet
<p>This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:</p> <ul style="list-style-type: none"> • Identifying and reporting conditions in environmental outcomes • Taking corrective action as required • Making contributions on managing environmental issues • Requiring a control measure to prevent environmental risks <p>This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:</p> <ul style="list-style-type: none"> • Identifying and reporting conditions in environmental outcomes • Taking corrective action as required • Making contributions on managing environmental issues • Requiring a control measure to prevent environmental risks

<p>Learning Instructions:</p> <ol style="list-style-type: none"> 1. Read the specific objectives of this Learning Guide. 2. Follow the instructions described below. 3. Read the information written in the information Sheets 4. Accomplish the Self-checks



Information Sheet 1 Identifying and Reporting Conditions in Environmental Outcomes

1.1 Scope of environmental outcomes

The environmental risk assessment should be used to determine which environmental risk pathways need to have site-specific environmental outcomes. Environmental outcomes are the acceptable level of impact that must not be exceeded, or a level of protection/performance/result that must be achieved, for the mine site to be considered compliant. Environment outcomes must be achievable and measurable to provide certainty for the proponent. Outcomes only need to be set for those risk pathways that present a moderate to extreme risk (pre-treatment) and any risk pathways that need to be measured to demonstrate/confirm that the project won't have an unacceptable environmental impact. Depending on the risk assessment methodology and site specific conditions, not all moderate risks will require an outcome. It is recommended that outcomes are provided for moderate risks if the residual risk is still moderate post treatment. If treatments are applied which adequately eliminate the risk, then the environmental impacts may be avoided and an outcome may not be required.

An outcome should:

- Be adapted to the specific environmental risks of the work area.
- Be expressed in the form of a specific outcome. Outcomes should consider:
 - ✓ An impact that will be avoided (e.g. No new weed species introduced by mining activities)
 - ✓ A level of impact that will not be exceeded (e.g. No clearing outside of the approved disturbance envelope or no impact to surface or groundwater acidity beyond the range of natural variability as a result of potentially acid forming material), and
 - ✓ A level of protection that will be achieved (e.g. no impact to corridor vegetation).
- Be capable of objective monitoring, measurement and reporting, and
- Allow for the timely identification, appropriate resolution and the adaptive management of potential problems that may arise through the course of a project that could compromise the achievement of outcomes.

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1.2 Environmental reporting

Environmental reporting is, regardless of its name or disclosure media, to promote communication of organizations, to fulfill its accountability regarding environmental efforts in their activities, and to provide useful information to decision making of interested parties. Environmental reporting refers to systematic and holistic statements of environmental burden and environmental efforts in organizations' activities, such as environmental policies, objectives, programs and their outcomes, organizational structures and systems for the environmental activities, in accordance with general reporting principles of environmental reporting, and that is published and reported periodically to the general public.

1.3.1 Principle and functions of environmental reporting

Environmental reporting has two fundamental functions, external (or social) function and internal function, which promotes environmental efforts in organizations' activities. It plays very important role in strengthening voluntary environmental efforts in organizations activities. The following three are external functions, when environmental reporting is used as a tool for environmental communication between the organization and the public.

- Function to disclose information based on the social accountability of organizations
- Function to provide information that is useful for decision making of interested parties.
- Function to promote environmental activities by “a pledge and review” between organizations and the public. The following two are internal functions.
- Function to establish or revise environmental policies, objectives and programs of organizations.
- Function to motivate the management and employees and to encourage environmental activities of them. When writing and publishing environmental reporting, it is important to design the environmental reporting achieve properly these functions.

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Self-Check – 1	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. Define environmental outcome? (5 points)
2. Write the functions of environmental reporting? (5 points)

Note: Satisfactory rating – 5 points Unsatisfactory - below 5 points

You can ask you teacher for the copy of the correct answers.



Information Sheet 2 Taking Corrective Action as Required

2.1 Taking corrective action as required

Corrective action is a requirement under the Resource Conservation and Recovery Act (RCRA) that facilities that treat, store or dispose of hazardous wastes investigate and clean up hazardous releases into soil, ground water, surface water and air. The Hazardous and Solid Waste Amendments, which granted Environmental Protection Agency (EPA) expanded authority to require corrective action at permitted and non-permitted treatment, storage and disposal facilities (TSDFs). Rather than creating a rigid regulatory framework for corrective action, EPA developed guidance and policy documents to assist facilities conducting cleanups. Some of the resources are broad in scope, while others are more process or media specific.

Corrective action is principally implemented through Resource Conservation and Recovery Act (RCRA) permits and orders. RCRA permits issued to TSDFs must include provisions for corrective action as well as financial assurance to cover the costs of implementing those cleanup measures. Corrective action is largely enforced through statutory authorities established by RCRA. See Frequent Questions About Corrective Action.

2.2 Corrective action facilities

2.2.1 RCRA corrective action baselines

RCRA Corrective Action facilities vary significantly. They include current and former chemical manufacturing plants, oil refineries, lead smelters, wood preservers, steel mills, commercial landfills, federal facilities, and a variety of other types of entities. Size, type and extent of contamination, media affected, environmental characteristics, and geology also differ greatly between facilities. Facilities are generally brought into the RCRA Corrective Action process when:

- There is an identified release of hazardous waste or hazardous constituents, or

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- When EPA is considering a treatment, storage and disposal facility (TSDF) RCRA permit application.

The RCRA Corrective Action program, comprised of EPA and its state partners, oversees almost 4,000 cleanups across the country, including many facilities with risks comparable to Superfund Sites. Information on these individual facilities is available from the Corrective Action Sites around the Nation regional page and in Cleanups in the Community. EPA's Corrective Action program works closely with facilities during the investigation and cleanup process.

2.2.2 The corrective action process

The RCRA corrective action cleanup process focuses on results rather than specific steps, and is flexible, depending on site-specific conditions. A typical cleanup may include steps such as:

- Initial site assessment,
- Site characterization,
- Interim actions,
- Evaluation of remedial alternatives, and
- Implementation of the selected remedy.

Because no one approach is likely to be appropriate for all corrective action facilities, these five elements should not be viewed as prescribed steps in the corrective action process. Instead, they serve as evaluations necessary to make good cleanup decisions within a flexible program. The five elements are described below in more detail. Additional elements of corrective action to keep in mind, and which are also described below, are tracking progress and long-term care. Select the clean-up step to learn more about its function in the RCRA corrective action process. EPA provides links to guidance documents and other information to help the regulated community and program implementers learn about and enforce the corrective action process.

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Self-Check – 2	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. Write the merits of taking corrective actions? (5 points)
2. Write down steps of clean up for making corrective action? (5 points)
3. Mention corrective action facilities? (5 points)

Note: Satisfactory rating - 10 points Unsatisfactory - below 10 points

You can ask you teacher for the copy of the correct answers.

Information Sheet 3 Making contributions on managing environmental issues

3.1 Making contributions on managing environmental issues

3.1.1 Environmental sustainability

Environmental sustainability means that something can be used or produced without affecting the ability of future generations to either have the same thing, or enjoy the natural environment from which it came or where it was used. Sometimes environmental sustainability means taking things from the natural environment at a slower rate.

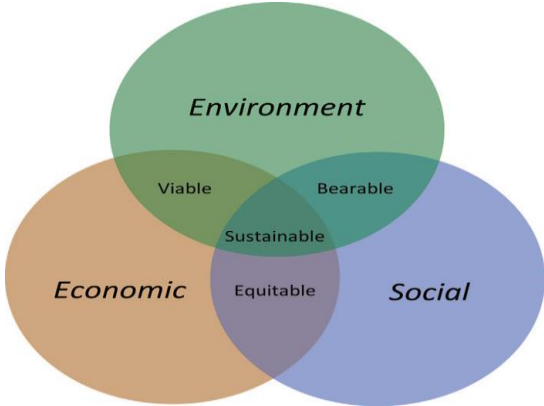


Figure 4 pillars of sustainability

When sustainable products first came into the market, many people bought them because they wanted to do something positive for the environment, or they wanted to try new things. Many people liked the idea of sustainability and the majority of consumers supported the idea. However, very few people actually realized how important sustainability was. Even ten years ago, the idea of sustainability wasn't taken so seriously. But, sustainability and consciousness about the environment among the general population has increased and the idea has become global today.



3.1.2 The necessity sustainability

Sustainability is not only an idea supported, but it has global popularity. However, it is not without its challenges. Many companies lack the knowledge or technical abilities for researching new methods, or they might face difficulties adapting to new methods of production or might not find it profitable when they consider the overheads. Companies may face additional costs of purchasing new equipment, materials and other higher costs associated with shifting to sustainable products.

3.2 Ways of managing environmental issues

3.2.1 Replace disposable items with reusable

Anything you use and throw away can potentially spend centuries in a landfill. See below for simple adjustments you can make to decrease the amount of disposable items in your daily life.

- Carry your own reusable cup or water bottle
- Use airtight, reusable food containers instead of sandwich bags and plastic wrap
- Pack a waste-free lunch: carry your utensils, cloth napkin, and containers in a reusable lunch bag
- Bring your own bags to the grocery store
- Consider buying bulk containers of your preferred beverages and refilling a reusable bottle, instead of buying individually-packaged drinks
- Use rechargeable batteries

3.2.2 Pass on paper

We are living in the Digital Era, but think about all the paper products you use in your daily life. These actions still align with reusing and repurposing, though may take a little more time for transition.

- Join a library instead of buying books or buy a Kindle
- Print as little as possible; and if you must, print on both sides
- Wrap gifts in fabric and tie with ribbon; both are reusable and prettier than paper and sticky-tape

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- Stop using paper towels and incorporate washable cloths
- Look at labels to make sure you only use FSC-certified wood and paper products
- Cut out products made by palm oil companies that contribute to deforestation in Indonesia and Malaysia

3.2.3 Conserve water & electricity

The tips you see below will seem like no-brainers; however, it may take to become more aware of your unconscious habits.

- Turn the sink water off when brushing your teeth
- Water the lawn in the morning or evening; cooler air causes less evaporation
- Switch off anything that uses electricity when not in use (lights, televisions, computers, printers, etc.)
- Unplug devices when possible; even when an appliance is turned off, it may still use power
- Remove chemicals inside of the house; research companies that use plant-derived ingredients for their household cleaning products
- Remove chemicals outside of the house; use eco-friendly pesticides and herbicides that won't contaminate groundwater
- Consider signing up for a renewable energy producer that uses 100% renewable energy to power homes

3.2.4 Support local & environmentally friendly

Here are a few reasons to start buying local:

- Reduces plastic and paper waste
- Boosts cost efficiency
- Enables bulk purchasing
- Helps support your neighbors
- Retains farmland within the community
- Builds up the local economy
- Uses fewer chemicals for both for growing and transporting

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3.2.5 Recycle (& then recycle properly)

Implementing recycling habits into your daily life is one of the most effective ways to help lessen landfill waste, conserve natural resources, save habitats, reduce pollution, cut down on energy consumption, and slow down global warming.

- Confirm you are using the proper separation containers for your household per the local recycling services
- Remember to make sure your trash bags are recycled or biodegradable, and always cut up the plastic rings from packs of beer or soda to prevent wildlife from getting caught
- Educate yourself about what can and cannot be recycled, as not all plastic and cardboard is acceptable (like pizza boxes for example, due to the grease) (click here for a simple 101)
- Learn how to identify and dispose of hazardous waste properly (click here to learn more)

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Self-Check – 3	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: short answer

1. Define environmental sustainability? (5pts)
2. Mention pillars of sustainability? (5 points)
3. Write ways of management for environmental issues? (5 points)

Note: Satisfactory rating - 10 points Unsatisfactory - below 10 points

You can ask you teacher for the copy of the correct answers.



Information Sheet 4 Requiring Control Measure to Prevent Environmental Risks

4.1 prevention of environmental risks

Prevention is defined as the promotion of health by the individual and the community, and includes identifying departures from good health and intervening to correct them or to minimize their effects.

4.2 Types of prevention

4.2.1 Primary poisons prevention activities

Intervene before the event, aiming to prevent it happening, either by controlling the victim's access to the agent, controlling the action of an agent upon the victim, or controlling or changing hostile environmental factors. Primary prevention strategies may be active or passive.

- Active strategies seek to change attitudes, lifestyles and behaviors of individuals and groups, for example, by educating communities and individuals about poison awareness and safety practices, or campaigning for initiatives such as safer packaging, labeling and storage of chemical products.
- Passive strategies automatically protect people, by improving the safety of products and the environment where they are used.

4.2.2 Secondary poisons prevention

Secondary poisons prevention is the action taken after an exposure has occurred, to prevent the poisoning from progressing to a more serious, irreversible or chronic stage and to restore the victim to his/her former state of health. It includes the initial steps to minimize the effects of the toxic agent, the diagnosis, decontamination and first aid treatment, and specific antidote therapy. This may include educating both the community and professionals about how to recognize and manage poisonings and how to give first aid after a toxic exposure by, for example, washing the skin and eyes immediately after contamination by a pesticide.

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4.2.3 Tertiary poisons prevention

Tertiary poisons prevention deals with the diagnosis and treatment of poisoning victims who cannot be treated to full recovery, to prevent death or permanent disability. It is also concerned with educating victims and their relatives about how to make the most of the remaining potential for healthy living, including the avoidance of unnecessary hardships, restrictions and complications, i.e., rehabilitation and physiotherapy in cases of toxic polyneuropathy.

4.3 Benefits of prevention

The prevention of poisonings positively improves the quality of health, and thus the quality of life, of both the individual and the community as a whole. Individuals benefit from information and education that gives them an increased awareness of accident risks, a greater control over their own health and their environments, and more freedom to choose a safe environment and an injury-free lifestyle. This supports personal and social development. The community benefits from knowledge, skills and support in articulating their needs. They are enabled to define problems, set priorities, make decisions, and plan and implement strategies. At the heart of this process is the empowerment of communities, their ownership and control of their own endeavors and destinies.

There are specific health and economic benefits. Prevention activities save resources and contribute to the rationalization of medical care in public health systems.

Benefits include, for example:

- Reduced incidence of unintentional, intentional and occupational poisoning occurring in the home, outdoor and indoor environment, and the workplace
- Use of appropriate first aid measures at the site of exposure in the home or in the field and a reduction in adverse effects resulting from use of outdated, hazardous first aid procedures
- Reduction in the inappropriate use of emergency departments and emergency medical transportation systems

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- Improved care for poisoning victims as a result of education for health care professionals in the management and prevention of poisonings, with a consequent reduction in disabilities and costly long-term medical care
- Early detection and elimination of unusually hazardous commercial products through regulatory measures, repackaging or reformulation.

4.4 Barriers to prevention

Plans to introduce preventive measures must take account of factors that may influence the actions and behavior of people at risk and others affected by the measures. For example, a person may not want to carry out the action if the negative influences seem to outweigh the positive advantages, or if there is a lack of resources to do it.

Some of the negative factors that may influence people and set barriers to prevention are:

- **Difficulty:** the amount of effort needed to implement protection is a disincentive to carrying it out.
- **Cost:** preventive measures may cost more than individuals or communities are able to pay or want to pay
- **Time:** time is needed to introduce safety measures, and to use safe practices at work or in the home.
- **Human resources:** there may not be enough people with the time, expertise or motivation to carry out either some or all aspects of a prevention program.
- **Social pressures:** people are influenced by the beliefs and attitudes of others around them in the community or the workplace.
- **Technical barriers:** technical difficulties of assessing accurately the safety of containers, storage and methods of use may hinder prevention.
- **Political, commercial and financial interests:** prevention strategies attempting social and environmental change may be contentious and politically sensitive.
- **Absence of evidence of efficacy of the poison prevention initiative:** It is difficult to show that prevention activities have had an effect when there are so many other influences that affect attitudes or behavior.

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- Advertising: advertising for household chemicals, medicines and alcohol, although directed at adults, may nevertheless encourage use by children, especially if the advertisements feature prominent people who are seen by children as role models.
- Interventions attracting undue attention to unsafe behavior: some interventions can worsen the situation, e.g. by calling attention to the behavior and encouraging people to try it.
- Confusing safety measures: unclear messages may increase the risk of toxic exposures.
- Individual rights: the effectiveness of regulations intended to prevent poisoning may be reduced if they have to allow for individual rights

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Self-Check – 4	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. Mention and explain types of prevention? (5 points)
2. Discuss the benefits of prevention? (5 points)
3. Explain barriers of prevention? (5 points)

Note: Satisfactory rating - 10 points Unsatisfactory - below 10 points
You can ask you teacher for the copy of the correct answers.





LG #66	LO3: Respond to an Environmental Emergency
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Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Identifying and reporting emergency situations
- Complying movement around the workplace

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, **you will be able to:**

- Identify and reporting emergency situations
- Comply movement around the workplace

- Learning Instructions:**
1. Read the specific objectives of this Learning Guide.
 2. Follow the instructions described below.
 3. Read the information written in the information Sheets
 4. Accomplish the Self-checks



Information Sheet 1 Identifying and Reporting Emergency Situations

1.1 Identifying emergency situations

An emergency is a situation or state characterized by a clear and marked reduction in the abilities of people to sustain their normal living conditions, with resulting damage or risks to health, life and livelihoods. According to the American College of Emergency Physicians, the following are warning signs of a medical emergency:

- Bleeding that will not stop
- Breathing problems (difficulty breathing, shortness of breath)
- Change in mental status (such as unusual behavior, confusion, difficulty arousing)
- Chest pain
- Choking
- Coughing up or vomiting blood
- Fainting or loss of consciousness
- Feeling of committing suicide or murder
- Head or spine injury
- Severe or persistent vomiting
- Sudden injury due to a motor vehicle accident, burns or smoke inhalation, near drowning, deep or large wound, or other injuries
- Sudden, severe pain anywhere in the body
- Sudden dizziness, weakness, or change in vision
- Swallowing a poisonous substance

Be prepared:

- Determine the location and quickest route to the nearest emergency department before an emergency happens.
- Keep emergency phone numbers posted in your home where you can easily access them. Also enter the numbers into your cell phone. Everyone in your household, including children, should know when and how to call these numbers. These numbers include: fire department, police department, poison



control center, ambulance center, your doctors' phone numbers, and contact numbers of neighbors or nearby friends or relatives, and work phone numbers.

- Know at which hospital(s) your doctor practices and, if practical, go there in an emergency.
- Wear a medical identification tag if you have a chronic condition or look for one on a person who has any of the symptoms mentioned.
- Get a personal emergency response system if you're an older adult, especially if you live alone.

1.2 Reporting emergency situations

1.2.1 Function of emergency situation

An incident report is not part of the patient's chart, but it may be used later in litigation.

A report has two functions:

- It informs the administration of the incident so management can prevent similar incidents in the future.
- It alerts administration and the facility's insurance company to a potential claim and the need for investigation.

1.2.2 When to report

Incidents that must be reported and documented include:

- Exposure Incidents: skin, eye, mucous membrane or parental contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.
- Accident, Injury: patient, visitor, employee slips or falls, or other incident, which results or may result in injury.
- Event, Behaviors, or Actions: incidents those are unusual, contrary to agency policy or procedure or which may result in injury.
- Vaccine Adverse Event Reporting System: reaction to vaccine administered at agency (use VAERS form, instructions and sample in Immunization section).
- Medication reaction: reaction to any drug administered at or provided by health department. Complete Adverse Drug Reaction Form. For more information,

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- Property damage or missing articles.
- Administration of wrong medication or vaccine.
- Improper administration of medication or vaccine.

1.2.3 Who should report

Only people who witness the incident should fill out and sign the incident report. Each witness should file a separate report. Once the report is filed, the nursing supervisor, department heads, administration, the facility's attorney, and the insurance company may review it. Because incident reports will be read by many people and may even turn up in court, you must follow strict guidelines when completing them. If an incident report form does not leave enough space to fully describe an incident, attach an additional page of comments. Document the incident as it occurred in the patient's medical record, "Incident Report Completed" should never appear in the patient's record. The incident report should never be referred to in any way in the medical record.

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Self-Check – 1	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. Define emergency? (5 points)
2. Mention warning signs of medical emergency? (5 points)
3. Write function of emergency situation? (5 points)

Note: Satisfactory rating - 10 points Unsatisfactory - below 10 points

You can ask you teacher for the copy of the correct answers.



Information Sheet 2 Following Emergency Procedures

2.1 Procedures and plans for managing an emergency

A person conducting a business or undertaking must ensure that an emergency plan is prepared for the workplace that provides procedures to respond effectively in an emergency. The emergency procedures must include:

- an effective response to an emergency situation
- procedures for evacuating the workplace
- notification of emergency services at the earliest opportunity
- medical treatment and assistance, and
- Effective communication between the people authorized by the person conducting the business or undertaking to co-ordinate the emergency response and all persons at the workplace.

Incorporate first aid procedures into emergency planning procedures. Emergency procedures should specify the role of first aiders according to their level of qualification and competence. In particular, first aiders should be instructed not to exceed their training and expertise in first aid. Other staff, including supervisors, should be instructed not to direct first aiders to exceed their first aid training and expertise. Further guidance on emergency plans and preparing emergency procedures is available in the Code of Practice.

2.2 First aid procedures

You should develop and implement first aid procedures to ensure that workers have a clear understanding of first aid in their workplace. The procedure should cover:

- The type of first aid kits and where they are located
- The location of first aid facilities such as first aid rooms
- Who is responsible for the first aid kits and facilities and how frequently they should be checked and maintained



- How to establish and maintain appropriate communication systems (including equipment and procedures) to ensure rapid emergency communication with first aiders
- The communication equipment and systems to be used when first aid is required (especially for remote and isolated workers). These procedures should contain information about how to locate the communication equipment, who is responsible for the equipment and how it should be maintained
- The work areas and shifts that have been allocated to each first aider. These procedures should contain the names and contact details of each first aider
- Arrangements to ensure first aiders receive appropriate training
- Arrangements for ensuring that workers receive appropriate information, instruction and training in relation to first aid
- Seeking information when a worker commences work about any first aid needs that may require specific treatment in a medical emergency, such as severe allergies. Information about a worker's health must be kept confidential and only provided to first aiders with the worker's consent
- How to report injuries and illnesses that may occur in the workplace
- Practices to avoid exposure to blood and body substances
- What to do when a worker or other person is too injured or ill to stay at work, for example if they require assistance with transport to a medical service, home or somewhere else where they can rest and recover
- Access to debriefing or counseling services to support first aiders and workers after a serious workplace incident.

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Self-Check – 2	Written test
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Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. Write down emergency procedures? (5 points)
2. Mention first aid procedures? (5 points)

Note: Satisfactory rating - 10 points Unsatisfactory - below 10 points

You can ask you teacher for the copy of the correct answers.



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