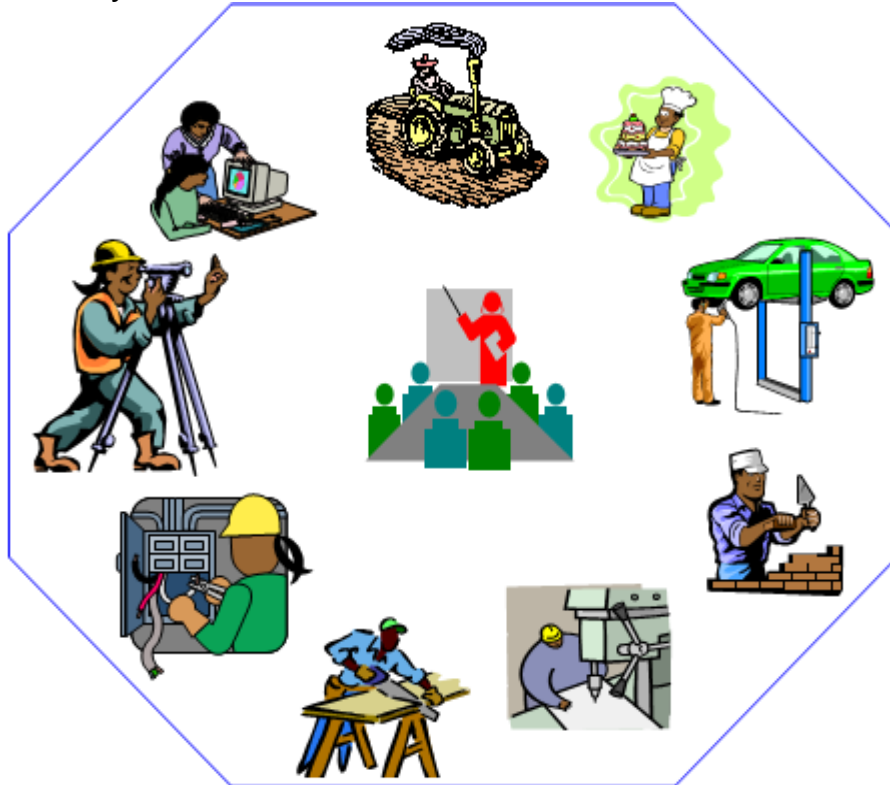# Fruit and Vegetable processing level-III

Based on May 2019, Version 2 OS and March, 2021, V1 Curriculum

Module Title: - Implementing and Monitoring Environmentally Sustainable Work Practices

LG Code: IND FVP3 M18 LO (1-4) LG (62-65)

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Table of content

LG #62	**LO#1-Investigate current practices in relation to resource usage**

Instruction sheet

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

LO1.Investigate current practices in relation to resource usage
- Identifying environmental regulations to enterprise
- Evaluating Procedures for assessing compliance
- Collecting Information on environmental , resource efficiency systems and procedures
- Measuring and documenting Current resource usage
- Analyzing and documenting Current purchasing strategies
- Analyzing Current work processes

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 environmental regulations to enterprise
- Evaluate Procedures for assessing compliance
- Collect Information on environmental, resource efficiency systems and procedures
- Measure and document Current resource usage
- Analyse and document Current purchasing strategies
- Analyse Current work processes

Learning Instructions:

Read the specific objectives of this Learning Guide.
1. Follow the instructions described below.
2. Read the information written in the information Sheets.
3. Accomplish the "Self-Checks" which are placed following all information sheets.
4. Ask from your trainer the key to correct your work.

1.1. Environmental regulations

Over the last few years, environmental controls and regulations have become increasingly strict. This reflects the growing understanding to be more careful about the resources used, the wastes and pollution produced. Care must be taken unless food processing business causes an incredible damaging effect on the environment.

Ethiopia's Constitution incorporates a number of provisions relevant to the protection, sustainable use, and improvement of the country's environment. Article 44 guarantees "the right to a clean and healthy environment," while Article 43 pledges "the right to sustainable development."

Environmental Policy like the Constitution, the Environmental Policy of Ethiopia ("EPE") prioritizes improving the well-being and quality life of Ethiopians and the promotion of sustainable development. One implementation strategy is the effective management of natural and environmental resources from the federal level down to the woreda and community levels. Another strategy envisaged within the Policy is to assign resource management to one organization and protection, regulation, and monitoring to another.

1.1. Identifying environmental regulations

Ethiopian environmental regulation for industrial hazards and wastes are set in the constitution as follows

a. To adhere to the precautionary principle of minimizing and where possible preventing discharges of substances, biological materials or their fragments from industrial plants and personal or communal appliances or any other external sources that could be harmful, and to disallow the discharge when they are likely to be hazardous;

b. To adopt the "polluter pays" principle while endorsing the 16 precautionary principle since pollution is likely to occur, and ensure that polluting enterprises and municipalities and wereda councils provide their own appropriate pollution control facilities

c. To establish clear linkages between the control of pollution and other policy areas including water resources, agriculture, human settlements, health and disaster prevention and preparedness;

d. To ensure that pollution control is commensurate with the potency, longevity and potential to increase or reproduce of the pollutant;

e. To establish safe limits for the location of sanitary landfill sites in the vicinity of wells, bore holes and dams, and issue regulations to enforce them;

f. To review and develop guidelines for waste disposal, public and industrial hygiene and techniques to enable the cost-effective implementation of defined standards of control, and to issue regulations to enforce them;

g. To establish a system for monitoring compliance with land, air and water pollution control standards and regulations, the handling and storage of hazardous and dangerous materials, public and industrial hygiene, waste disposal, and water quality;

h. To maintain an up-to-date register of toxic, hazardous and radioactive substances, and to make the information available on request;

I. To maintain regular environmental audits to ensure the adoption of environmentally sound practices in all industrial activities.

K. To enforce the exhaustive labeling and detailing of the contents usage and expiry date of foods when any of the contents are poisonous or dangerous in any other way, the fixing of strikingly visible labels to that effect.

L. To promote waste minimization processes, including the efficient recycling of materials wherever possible;

M. To create by law an effective system of control, distribution, utilization and disposal after use or expiry of chemicals, biological organisms or fragments of organisms that could be hazardous but are required for use;

N. To prohibit from importation to and from transit through Ethiopia hazardous materials, organisms or fragments of organisms as agreed by African states in Bamako;

O. To hold as legally liable an employer who deploys employees in using or handling hazardous materials without adequately training them on how to deal with the hazard and without adequate equipment to protect each one of them for physical harm or disease that is caused by working conditions whether the harm or disease starts in the place of work or away from it;

P. To foster better understanding of the dangerous effects of chemicals and organisms and their fragments through the provision of information in a form understandable to users, and provide or enforce the provision of information on the appropriate methods and technologies for the treatment and disposal of wastes.

Self-check 1	Written test

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

Test I Answer the questions as required

1. list environmental regulations for industrial waste and hazards by your own words. (16pts)

2. What does article 43 of the Ethiopian constitution states? (2pts)

Note: **Satisfactory rating above- 9 points   Unsatisfactory - below 9points**

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

Score = _____
Rating: _____

2.1. Compliance

The term "compliance" describes the ability to act according to an order, set of rules or requests. A business's state of compliance can be evaluated at two levels:

- Compliance with the external rules imposed upon the business as a whole by government or industry body regulations, including compliance with laws or ethical standards; and
- Compliance with the internal systems of control imposed by the business to help it achieve compliance with those externally imposed rules.

So compliance seen as two things: compliance with the laws and regulations set out for a business to operate in good standing within a particular jurisdiction, or the internal compliance systems imposed by a legal department to ensure it runs smoothly and in accordance with rules and processes. In either case, in order to understand the level of compliance and where any gaps are, a business needs to know how to measure its state of compliance.

2.2. The Importance of Measuring Compliance

In any business there are risks and challenges to overcome, milestones to hit and deadlines to meet; there will be responsible persons and stakeholders to manage.

The act of setting key performance and risk indicators (KPIs and KRIs) give a goal to aim for, a way to evaluate risk and success.

First compliance obligation must be determined, how often to evaluate compliance, responsible person for taking actions and monitoring those actions, and who will oversee the ongoing maintenance of that state of compliance. All of this needs to be clearly and accurately documented and stored in a central repository that's easy for all to access.

Evaluating legal compliance used to be difficult, with proof of compliance often falling on showing the code of conduct was being followed or that training was completed

appropriately. Today, compliance Key performance indicator can be used as an early warning system to detect potential compliance issues and businesses to work to remedy them before they become major issues.

Using compliance metrics

- prevent regulatory action such as fines and sanctions,
- Prevent bad press and media issues
- Prevent employee dissatisfaction.

Metrics

- One-dimensional, based on one data attribute
- Qualitative, based on intangible or subjective measures
- Quantitative, based on tangible and concrete metrics that are easily measured
- Multidimensional, based on multiple data attributes
- Predictive, leveraging past data and trends to make predictions about potential future compliance risks

Key performance indicators (KPIs)

- The number of compliance issues opened
- The number of employee relations issues opened
- The percentage of outstanding post-audit issues
- The compliance investigation time cycle
- The percentage of internal audits completed on time

Comprehensive compliance program includes seven elements

- Standards, policies and procedures
- Compliance program administration
- Screening and evaluation of employees, vendors and other agents
- Communication, education and training on compliance issues
- Monitoring, auditing and internal reporting systems
- Discipline for non-compliance
- Investigations and remedial measures

2.3. Procedures to assess compliance

There are five procedures that are followed during compliance assessment.

Step One: Determining Benchmark and Setting KPIs

It cannot be measured if it is not known. so the essential first step is to determine what the best metrics are to display compliance. There is no single metric that can be used to evaluate compliance, so compliance leaders rely on a range of different metrics. Strong metrics combine both qualitative and quantitative data sources, such as the hard stats of compliance training vs. focus group feedback on knowledge retention. Once decisions are made on metrics, performance is benchmarked and KPIs are set.

Step Two: Tracking Compliance Metrics

Data sources are gathered together and records of performance against those KPIs kept. At this point having a single source of truth for all data and compliance information becomes essential, like with like compared.

Step Three: Conducting Audit and Evaluating Compliance Metrics

At regular intervals usually once each year an internal audit is conducted in order to check the state of compliance across the business, including all individual entities, bearing in mind that compliance requirements differ across jurisdictions. Note the data of each metric, and plot it in all charts and compliance risk assessment plans kept.

Step Four: Making Necessary Changes, Monitoring and Evaluating Regularly

If the audit and evaluation exposes issues, necessary steps are determined and taken to remediate the issue. Updating or installing new training processes, establishing a process to meet a new filing requirement, creating new codes of ethics, or recruiting specialist staff are among the necessary steps. These remediation steps should be monitored and evaluated at regular intervals to ensure good progress toward achieving compliance at the next audit. Record of all audit outcomes have to be kept as this used to prove compliance to regulator or industry body that needs proof.

Step Five: Communicating Compliance State

Communication is key for compliance, so anyone necessary, from the board down to the frontline workers have to be informed and involved. The board itself have compliance responsibilities, and want to know how the organization is monitoring risks,

controls and mitigation efforts; meanwhile, staff need to know what's expected of them and when. Bring compliance processes into the onboarding of new staff and ensure regular communications to all staff about compliance and ethics.

Self-Check – 2	Written test

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

Test I: answer the following questions as required

1. List the importance of measuring compliance.(5pts)

2. Define compliance.(3pts)

3. Why does setting key performance and risk indicators (KPIs and KRIs) is important in measuring compliance?(3pts)

Test II: Choose the best answer. (2pts)

1. Compliance leaders relay on a single metrics.

    A. True   B. False

2. Which one of the following is key performance indicator?

    A. Compliance program administration

    B. Screening and evaluation of employees, vendors and other agents

    C. The compliance investigation time cycle

    D. Communication, education and training on compliance issues

Note: **Satisfactory rating – 7.5 points**   **Unsatisfactory - below 7.5 points**

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

Score = _____
Rating: _____

Information Sheet 3- Collecting Information on environmental, resource efficiency systems and procedures

Introduction

Data is one of the most valuable resources today's businesses have. Data collection is defined as the procedure of collecting, measuring and analyzing accurate insights using standard validated techniques. A researcher can evaluate their hypothesis on the basis of collected data. In most cases, data collection is the primary and most important step in investigating environmental, resource efficiency systems and procedures. The approach of data collection is different depending on the required information. The most critical objective of data collection is ensuring that information-rich and reliable data is collected for statistical analysis so that data-driven decisions can be made to investigate environmental, resource efficiency systems and procedures.

3.1. Primary Data Collection

The term "primary data" refers to data collected by the person himself rather than another party initially recorded it. Primary data is information obtained directly from the source. The person who collect the data will be the first party to use this exact set of data.

First-party data differs from second-party and third-party data. Second-party data is the first-party data of another company. Second-party data can be purchased directly from the organization that collected it. Third-party data is information a company has pulled together from numerous sources.

3.2.Quantitative vs. Qualitative Data

Primary data is categorized into two categories: quantitative and qualitative.

Quantitative data comes in the form of numbers, quantities and values. It describes things in concrete and easily measurable terms. Because this kind of data deals with numbers, it is very objective and has a reputation for reliability.

Qualitative data is descriptive, rather than numeric. It is less concrete and less easily measurable than quantitative data. This data may contain descriptive phrases and opinions.

Qualitative data helps explains the "why" behind the information quantitative data reveals. For this reason, it is useful for supplementing quantitative data, which will form the foundation of your data strategy.

3.3. Data Collection process

There are many different techniques for collecting different types of quantitative data, but there's a fundamental typical process to follow, no matter which method of data collection used, This process consists of the following five steps.

1. Determining type of Information

The first thing is to choose what details to collect. what topics the information will cover, from whom to collect and how much data to collect all these things needs decision. The goal— what is hoped to be accomplished using the data — determines the answers to the questions.

2. Setting a Timeframe for Data Collection

In the early stages of planning process, a timeframe should be established for data collection. Some types of data needs to be gathered continuously.

3. Determining data collection method

To select the right collection method, the type of information to collected is considered, the timeframe and other aspects are determined.

4. Collect the Data

Once the plan is finalized, data collection strategy implemented and data collection is started. Data is organized and stored. Schedule is created to check data collection proceeding.

5. Analyzing data and implementing findings

Once data is collected, findings have to be analyzed and organized. The analysis phase is crucial because it turns raw data into valuable insights that can be used used to make decisions.

3.4. Data collection methods

There are various methods of collecting primary, quantitative data.

Essentially there are four choices for data collection – in-person interviews, mail, phone and online.

In-person interviews always are better, but the big drawback is the fail if it is not regularly done. It is expensive to regularly conduct interviews and not conducting enough interviews results inadequate data. Validating the investigation is as important as designing and conducting it. To avoid such failures, it is strongly recommend that data-collection be done on an "ongoing and regular" basis. The other issue here is sample size. To be confident with the investigation interviewing enough people weeds out the fringe elements.

Self-Check – 3	Written test

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

Test I: Answer Questions as required

1. Which one of the following is correct?(2pts))

   A. Quantitative data answer the question why

   B. Quantitative data is numerical

   C. Primary data gained directly from the initial source

   D B &C

   E. Quantitative data is very objective and has a reputation for reliability

2. Explain the data collection procedures.(5pts)

3. What is data collection. (5pts)

4. What are the drawback of personal interview data collection technic(5pts)

Note: **Satisfactory rating – 8.5 points   Unsatisfactory - below 8.5 points**

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

| Score = _____ |
| Rating: _____ |

4.1. Resource

A resource is anything that can be used as an input in creating a product or service. Resources are either renewable or non-renewable.

Renewable resources are resources which are replaced over time by natural processes if they are used and managed in a sustainable way. They include soil, water, forest, plant. Nonrenewable resources take millions of years to form naturally and cannot be replaced as fast as they are consumed they include coal, oil or natural gas, and minerals such as gold ,iron ore, uranium

Working sustainably is all about making the most efficient use of natural resources, and producing the least amount of waste and pollution possible. But before looking for ways of improving efficiency, it is necessary to know current resource usage of the industry. This gives a benchmark to compare any improvement. It also allows to see how much is the saving, and which production methods work best and are the most economical.

It is not always easy to measure all the resources uses, especially if is not visible. For example, electricity consumption is hard to quantify unless a power meter is put on every electrical item used in the process. Usage levels are also hard to pin down if only a small proportion of a resource is used in the production process such as a water for cooling.

However, there are still ways of measuring the usage of various resources, so that you can make comparisons between the quantities being consumed over time.

4.2. Documenting and measuring resource usage

4.2.1. Identifying resource usage

In a workplace there will be opportunities to use resources more effectively but first, it is necessary to identify environmental and resource efficiency issues which include:

- usage of natural resources e.g. electricity, water and gas
- the volume of material usage
- Waste management system.

Typical resources that are consumed at work include things such as energy and water. Energy comes in many forms. The most obvious form is electricity, which is used in the workplace to power up appliances, and computers. Gas is another form of energy that used in workplace for heating. There is also fuel that workplaces use for their vehicles.

Water is used in many work environments, obviously in the toilets and bathrooms, and also for drinking. Paper is another typical resource used in the workplace. Paper obviously comes from trees, so it comes from a natural resource. Also the buildings in the workplace actually are made up of a variety of things such as bricks, metal and glass. Most of these products have obviously at some stage been mined from the ground, so there has been an environmental impact at that point.

Once resource efficiency issues are identified, methods for improving organization's environmental performance can be suggested.

Identifying, documenting and measuring resource usage is often called **"auditing"**. Once the resources currently in use are identified it is possible to measure current level of usage and record findings.

The first step is to talk the manager and colleagues and finds out if there is existing documentation on measuring resource usage such as electricity bills or paper supply invoices. The workplace may have tools, such as digital power meters, to measure energy use for machines or appliances or existing checklists and records.

4.2.2. Measuring resource usage

In order to minimize workplace environmental impact, identifying the current level of resource usage is important. There are two ways of measuring resource usage.

- Using existing records and documents

As an example to look at the electricity usage of the business, these bills will not only show the cost of industry electricity, but also the amounts consumed.

- Physically monitoring, measuring and recording the usage of the resources

For instance to know how much paper the company was using, measuring the amount of paper being used by the photocopiers, the printers etc. shows the usage.

Self-Check – 4	Written test

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

Test I: Answer Questions as required

1. Identify the difference between renewable and non-renewable resource(5pts)
2. Explain sustainability of work(5pts)

Test II: choose the best answer (2pts)

1. Which one of the following is different?

A .Oil   B. Coal   C. Water   D. Gold

2. Identifying, measuring and documenting resource usage is called_____.

A. renewable resource   B. Data collection   C. Auditing

D. Recording data

Note: **Satisfactory rating - 7 points   Unsatisfactory - below 7 points**

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

Score = _____

Rating: _____

5.1. Purchasing strategies

Every purchasing agent will be in a much better position if is armed with the correct purchase-making skills..

While there are a variety of purchasing strategies out there from which companies could choose from, it really all comes down to the method that works best for each individual business and company. Some companies will use a blend of procurement strategies to secure their goods.

There is no one or right way to obtain the goods that you will need for business, however, some of the purchase-making strategies and skills are more proven and have a longer history of success than others.

The following are 9 fundamental purchasing strategies**;**

Supplier Optimization: Supplier optimization chooses a solid mix of vendors who can provide the goods that the company will need in order to meet its business needs. Suppliers who cannot meet both the pricing and quantity of goods that companies need are being weeded out. This is the most common of the common fundamental purchasing strategies for businesses. The biggest advantage to this strategy for companies is that only the best suppliers are left and their needs are more likely to be met.

Total quality management (TQM): Total quality management is another common way that industries are optimizing their supply of goods and products. The TQM procedure allows businesses and companies to help increase the quality of their products while also reducing their total cost to obtain the supplies. The lesser the costs a company incurs to acquire the product, the more the company can cut prices to customers while not sacrificing their bottom birr or profit margin. In fact, many companies will see profit margins increase as products become more affordable and more people can afford to do business with the company.

Centralized Purchasing: Centralized purchasing help to limit waste as all products are purchased from one central location. In many ways, it can also help optimize the supply of products as there is only one variable in the process of getting the needed supplies or products to the consumer as there are less factors to rely on as less vendors are providing the product.

Risk Management: Businesses and companies all operate in a world of some uncertainty. This uncertainty can pertain to a variety of things from how the market will perform to how the business will do in the upcoming year and everything in between. Chains of supply can be interrupted for a variety of different reasons, which means that many companies will have to study these risks and understand which risks are reasonable and which ones are not. Other risks include everything from the potential for things like labor stoppages to supply chain issues to inventory issues that may arise throughout the time a business is operational.

Global Sourcing: Global sourcing allows a company to reach out to other parts and places in the world to get the supplies it need to run its business when those resources are not readily available at a reasonable price in their homeland. Global sourcing allows economies to intertwine with each other as products are not shipped only throughout the same country, but between nations all throughout the world. This allows people throughout the entire world to be more productive when they have the materials they need to run their businesses by reaching out to others who have the "pieces of the puzzle" that they don't.

Vendor Development: The world of business is a fierce competition and this holds true for vendors, too. Companies look for vendors who are continually developing and offering new, better products to the businesses looking to purchase them. The businesses and companies that seek vendors who are constantly developing and improving their products sooner will be the ones that end up getting ahead in the competitive business world simply by having a better product to offer the consumer.

Focus on Quality: Companies and businesses need to focus on only purchasing from vendors that offer top-quality products. In a world where the costs of living are consistently rising, many more people are much more aware of every birr they spend. They expect quality for the money they are spending on the product. Ensuring that

vendor that supplies top-quality products will entice more people to buy the industries product and improve sales as well as revenue.

Green Purchasing: Green purchasing is becoming more and more common as more companies seek to move to "green" production of their goods. Abiding by "green" standards is not only better for the government, but many consumers will opt to choose those products over those that are not proven to be as good for the environment around them. In many cases, businesses and companies who produce "green" products experience cost reductions in creating their products. Many also experience an increase in consumer spending on their products as more and more people purchase their product that is "green" and environmentally friendly, rather than a competitor's product that is not environmentally friendly.

Continue Negotiations: Continue negotiations with vendors on a consistent basis to ensure getting the best prices for the products purchasing. As costs to produce goods lower over time, some vendors may have better prices available for businesses that use them as a supplier. Constantly negotiating ensures getting the best prices and quality of goods possible at any given time.

These are the fundamental purchasing strategies that will help companies and businesses get the quality goods and products that are needed for their businesses to operate optimally. While there is no one single method that is better than another or more recommended than another, it will all depend on the business or company and what strategy (or combination of strategies) can best meet those needs.

Self-Check – 5	Written test

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

Test I: Short Answer Questions

1. List purchasing strategies (5pts).

2. Explain Total quality management purchasing strategies (5pts)

Test II: Choose the best answer (2pts)

1_____purchasing strategy allows a company to reach out to other parts and places in the world.

    A. Total quality management   B. Global sourcing   C. Risk management

    D. Vendor Development

2. Supplier optimization purchasing is better than risk management.

                A. True   B. False

3. In vendor development purchasing industries prefer vendors with lower Prices.

                A. True   B. False

Note: Satisfactory rating - 8 points   Unsatisfactory - below 8 points

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

Score = _____
Rating: _____

6.1. Work process

A process is a series of steps or tasks that lead to an end goal. Processes exist in all departments.

Executive management has the responsibility of overseeing all work processes in a general sense, as well as directing the work processes within their own offices. It is also their responsibility to fully utilize the resources of the organization and to keep the industry fiscally stable. They are responsible for organizational strategy and providing the structural guidelines to provide value for their customers. Departments have the responsibility of analyzing and improving their own areas and supporting the executive management team in the overall vision for the organization. Analyzing work processes is necessary to discover where improvements can be made, and to discover areas where tradition is not serving the best interests of the industry.

Work process analysis is a methodology to understand the health of different operations within a business to improve process efficiency. It's a specialized method within the broader context of work process management to analyze whether current processes are meeting their goals.

Using work process analysis helps to identify the detrimental elements in an operation and identify how to overcome obstacles.

When applied to the right 'as-is' process, business process analysis gives a clear understanding to the process owners so that a sound judgement can be made.

Work process analysis is used when;

- Unidentified issues like regular delays or increased customer complaints
- Process stakeholders are unclear about how to carry out a process
- Before introducing automation to make sure the process is optimized
- A team wants to replace a process with a new version

6.2. Analyzing work process

Work process analysis follows a 4-step plan:

Identifying the Process: The first step is to choose the 'as-is' process to be analyzed and identify the stakeholders who handle it. Be sure to have a clear starting and stopping point for the process.

Collecting Process Information: Next, gather as much information about the process as possible to understand the issues it faces, the objectives, the scope of improvement, and other goals of the analysis.

Analyzing As-Is Process: Implement a business process analysis plan. Get to the bottom of the identified process, define the process in flowcharts and other diagrams, and measure its effectiveness.

Developing To-Be Plan: Finally, use the analysis to make recommendations how a 'to-be' process should look. Point out the requirements, suggest resources and changes, define a timeline, etc.

6.3. Importance of work Process Analysis

Work process analysis gives companies a better understanding of how processes are running and how they can be improved. The following are importance of work process analysis:

- Clear documentation of the process and greater understanding
- Robust data on how the process is performing
- Identify the obstacles that cause delay to certain processes
- Identify which user actions are hindering the process and where inefficiencies are
- Better training for new employees taking on the process

Self-Check – 6	Written test

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

I. Answer the following questions as required

1. Define process. (2pts)

2. List importance of work process analysis (5pts)

3. List the steps followed in analyzing work process. (5pts)

Note: Satisfactory rating above- 6 points   Unsatisfactory - below 6 points

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

Score = _____
Rating: _____

Instruction sheet

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

- Seeking input from stakeholders, key personnel and Specialists
- Accessing external sources of information and data
- Evaluating alternative solutions to workplace environmental issues
- Setting efficiency target.

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**:

- Seek input from stakeholders, key personnel and Specialists
- Access external sources of information and data
- Evaluate alternative solutions to workplace environmental issues
- Set efficiency target.

Learning Instructions:

Read the specific objectives of this Learning Guide.

1. Follow the instructions described below.

2. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.

3. Accomplish the "Self-checks" which are placed following all information sheets.

4. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).

Information Sheet 1- Seeking Input from stakeholders, key personnel and Specialists

Introduction

Establishing green workplace procedure can reduce an organizations environmental impacts .it is important to set clear targets for improvement that provide goal for the organizations to work towards and help to ensure there is continued focus on the goal .to succeed ,new policies and procedures need to be thoroughly researched discussed with expert and key stakeholder and customized to suit the organization. Bottom of Form

Targets are dim or become ambiguous. The forthcoming ISO Environmental Management Standard (ISO 14001) makes a distinction between the two types that is worth mentioning here

Environmental objective— overall environmental goal, arising from the environmental policy that an organization sets itself to achieve, and which is quantified whenever practicable.

Environmental target—detailed performance requirement, quantified wherever practicable, applicable to the organization or parts thereof, that arise from the environmental objectives and that needs to be set and met in order to achieve these objectives.

In contemplating the setting of goals, one should examine these distinctions very carefully. Broad, policy-like statements or goals are fundamentally the exposition of a vision of a desirable future. They set a direction, but not specific actions to be taken to move in that direction.

Targets represent promises to achieve a determinable end-state by some certain time The completion of a promise can be observed by examining the degree to which the target is satisfied at the time set.

which the target is satisfied at the time set. Fulfillment of promises depends on the resources available to the actors, their competence, and the strength of their intention to do what they have said.

Goals and targets may be set by individual firms, by industries as a whole, or by external agents (i.e., regulators set targets for environmental and safety performance, and government consortia set goals for economic or trade performance of certain industries).

Sources of input

Input is defined as an apparently real input to measurement system that is actually caused by a change in the environmental condition surrounding the measurement system .The basic inputs of the system are materials, people, technology, and time .process of sometime of work must be accomplished in the system.

The stakeholder, key personnel and specialist are groups who conduct with in and external to the organizations have direct and in direct interest in the organizations action, product and service .those include

- Client
- Employees
- Government
- Investors
- Local communities
- Suppliers

Stakeholders, key personnel and specialists include:

- individuals and groups both inside and outside the Organization, that have some interest in the Enterprise's conduct, actions, products and services:
- Employees at all levels of the organization
- Customers
- Suppliers

- Community

- Local administration

- Farmers' association/cooperative

- Regulators

- Industry associations

Environmental objectives are goals that you would like to meet in the f Targets are the means for providing verifiable evidence that you have actually met the objective. For example, your environmental objective may be to reduce the generation of hazardous wastes. Your may then set your target at 20 percent reduction within 12 months. In the parlance of ISO 14001, objectives are "documents" whereas targets are "records." Documents can be modified while records cannot. For example, you can modify your objectives, but you cannot change having messed your targets.

In setting targets, make sure you are not overly ambitious—especially during the first year of implementation. Set a target that is realistic and reasonably easy to achieve in the first year. don't want organization to fail the first time it tries to meet an environmental target. Failure can be very demoralizing to your team members. It is much better to set an achievable target and meet it the first year and then set progressively more aggressive targets in following years.

Remember that the fundamental basis of an effective environmental management program consists of top-down support and bottom-up involvement. Always get senior management to buy in on the objectives and targets, and make sure you communicate the objectives clearly to the employees. After all, the employees are the ones who are going to make it happen.

 Examples

Here are some examples of environmental objectives:

- Minimize raw material use.

- Minimize releases of air contaminants to the environment.

- Comply with all applicable environmental laws.

- Use recycled products where feasible.

- Stop purchasing chemicals that contain carcinogens.

- Safeguard the environment for future generations.

- Be a responsible neighbor.
- Foster openness with employees and the public.

Examples of environmental targets:

- Reduce sanitary waste from routine operations by 25 percent by 2014, using a 2005 baseline.
- Recycle 45 percent of sanitary wastes from all operations by 2014 and 50 percent by 2020.
- Reduce fleet petroleum consumption by 20 percent by 2014, using a 2000 baseline.
- Ensure that 75 percent of new light-duty vehicles purchased each year are alternative-fuel vehicles.

Below some examples of environmental objectives and specific target dates Listed:

Table 1enviromental objective and specific target dates

Objectives	Targets	Involved Parties
Reduce water consumption.	Set water use baseline by 12/1/2012. Benchmark each plant by 3/1/2013. Put program in place by 7/1/2013.	Production and maintenance staff Engineering department Accounting department
Reduce chemical spills.	Train all employees by 9/1/2012. Reduce number of spills 50% by 1/1/2013.	Production and maintenance Shipping and receiving Environmental training group
Stop buying chemicals that contain carcinogens.	Evaluate alternatives by 1/1/2013. Set purchase policy by 3/1/2013.	Product development group Purchasing department
Improve employee awareness.	Train employees within a year.	All staff

Self-Check – 1	Written test

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 object (3pts)
2. Define input. (5pts)

Test II: Write true if the statement is correct and false if the statement is incorrect

1 The basic inputs of the system are materials, people, technology, and time .process of sometime of work must be accomplished in the system. (2pts)

2. Establishing green workplace procedure can reduce an organizations environmental impacts.(2pts)

Note: Satisfactory rating - 9 points   Unsatisfactory - below 9 points

Information Sheet 2- Accessing external sources of information and data

2.1 sources of information

Primary information

A primary source of information is one that provides data from an original source document. This may be as simple as an invoice sent to a business or a cherub received. It may be more complex, such as a set of sales figures for a range of goods for a tinned food manufacturer for one week, or it may be a set of sales figures over several weeks and several locations. There are many examples of primary sources in many walks of life, but generally a primary source is defined as being where a piece of information appears for the first time.

Secondary information

A secondary source of information is one that provides information from a source other than the original. Secondary sources are processed primary sources, second-hand versions. Examples of secondary sources could be an accounts book detailing invoices received, a bank statement that shows details of cherubs paid in and out. Where statistical information is gathered, such as in surveys or polls, the survey data or polling data is the primary source and the conclusions reached from the survey or the results of the poll are secondary sources.

Internal information

All organizations generate a substantial amount of information relating to their operation. This internal information is vital to the successful management of the organization. The information may be available from a number of sources within the organization, for example:

- Marketing and sales information on performance, revenues, markets shares, distribution channels, etc.
- Production and operational information on assets, quality, standards, etc.
- Financial information on profits, costs, margins, cash flows, investments, etc.
- Internal documentation such as order forms, invoices, credit notes, procedural manuals.

External information

An external source of information is concerned with what is happening beyond the boundaries of the organization. This covers any documentation relating to a subject area produced as a summary or detailed report by an agency external to an

organization. Such information may be obtainable from government agencies or private information providers. Examples might include:

- census figures
- telephone directories
- judgments on court cases
- computer users' yearbook
- legislation, for example
- Gallup polls the Data Protection Act
- national opinion polls
- trade journals
- Ordnance Survey maps
- professional publications
- financial services agencies such
- industry standards as Dunn and Bradstreet
- the Internet

2.1.1 Accessing external sources of information and data

Accessing external sources of information is connected with what is happening beyond the boundaries of the organization.

This covers any documentation relating to subject area produced as a summary or detailed report by an agency external to an organization.

These include

- Professional or industry association
- Faith based institution
- Supply chain partner
- Media source
- Interpersonal source
- Intra organizational source

The internal sources are the sources comes from the internal stakeholder.

The information sources investigated included external association sources, media sources, supply-chain sources, interpersonal sources, and intraoral notational sources.

- Important external information sources include professional/industry associations, faith-based institutions, and supply-chain partners. Important internal sources include

supervisors, company meetings, and the company sustainability report. Those who think sustainability is important to their organization's long-term success were interested in learning more about sustainability. Awareness of the organization's sustainability initiatives is related to the belief sustainability is important to the organization's success. Research limitations/implications - Limitations include a cross-sectional study, single-item measures, and nominal data. Practical implications - Companies launching sustainability initiatives need to understand and manage the information sources their employees utilize.

Self-Check – 2	Written test

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. List the five factor of variation of equipment? (3pts)
2. How environment create equipment variation? (2pts)

Test II: Write true if the statement is correct and false if the statement is incorrect

1. Whether a manufacturing process uses simple or complex equipment, changes in the equipment can cause variation. (2pts)

2. Changes in the environment have the ability to trigger changes in raw materials, equipment and human action. (2pts)

Note: Satisfactory rating - 9 points   Unsatisfactory - below 9 points

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

Score = _____

Rating: _____

Information Sheet 3- Evaluating alternative solutions to workplace environmental issues

3.1. **Alternative solutions to workplace environmental issues**

Environmental issues in the workplace are a growing concern for companies, especially around employee health and safety. Here are five common environmental issues to address in your business**.**

Employees spend almost a quarter of their lives at work, which means workplace environments are a very important part of most people's lives. Working in a safe, healthy environment is important for your physical safety, mental well-being and work productivity.

Bad air quality and ventilation, as well as asbestos-riddled structures, can lead to sick building syndrome, which can compromise the health and comfort of your employees. Not only can poor workplace environments reduce productivity, but research has shown they may be linked to asthma, lung cancer and other medical problems.

Employers need to take affirmative steps to ensure the health and welfare of their workers. Confronting the problem makes business sense by way of health management savings as well as low absenteeism and contained insurance premiums. To make sure your business is complying with the law, you should consult EPA and OSHA guidelines and follow directives. If necessary, contact an environmental consultant to determine cost-effective ways to handle workplace environment issues.

Here are three things you can do to combat environmental health issues in the workplace:

1. Educate yourself on environmental issues in business to ensure compliance.
2. Consult environmental experts to handle health issues in the workplace.
3. Train your employees on environmental issues in business.
4. **How to combat environmental health issues in the workplace**

1. Educate trainees on environmental issues in business to ensure compliance.

2. Consult environmental experts to handle health issues in the workplace.

3. Train your employees on environmental issues in business.

While training employees on business environmental issues is vital to complete workplace compliance and helps them assess potential health issues, it can be difficult

to know where to start. Before making companywide policies or training employees, understand the environmental laws and regulations that may impact industry.

Common types of environmental issues in the workplace

1. Poor air quality and ventilation

Poor air quality is most common in manufacturing or work sites that release pollutants but can also be found in standard office buildings. Air quality issues, including excessively high or low humidity, can lead to eye irritation as well as sinus and respiratory issues.

These issues are compounded in workplaces with poor ventilation, which can circulate viruses, allergens, or even gases and residue from cleaning supplies. Extended exposure to poor air quality increases the risk of lung cancer, cardiovascular disease and other long-term infections. Employees with asthma or compromised immune systems are at especially high risk of health issues due to air quality and ventilation issues.

2. Asbestos

Asbestos is an effective insulator that is often used to strengthen or fireproof materials. However, asbestos exposure can lead to major health issues, so it has been banned in several countries (though it is still legal in the United States). It's especially dangerous because some of the asbestos fibers can remain stuck in the body for decades.

Breathing , in asbestos can lead to inflammation and respiratory or lung disease, including lung cancer. Employees who smoke or have asthma are at higher risk from asbestos exposure.

3. Mold

Mold can form wherever moisture lives and reproduce through small spores, making it a common workplace environmental issue. It grows from excess humidity, condensation, leaking pipes, drips or flooding, all of which are easy to miss if you're not looking for them.

Unchecked mold can not only lead to long-term building damage but also impact your employees' health. Exposure to damp and moldy environments can cause eye and throat irritation, nasal congestion, coughing or wheezing, and even skin irritation. While the severity of these symptoms varies, respiratory complications are more common and severe in individuals with asthma.

4. Noise

Noise may not be the first environmental issue that comes to mind – after all, ambient noise is present in nearly every workplace. However, consistently excessive noise levels can increase stress and decrease quality of work. Employees may find it hard to concentrate on tasks or understand their co-workers, which can quickly affect productivity.

Noise pollution also carries short- and long-term health risks for employees. Not only can excess noise cause headaches or migraines, but repeated exposure can lead to hearing loss and even heart disease.

5. Ergonomics

The study of ergonomics covers the working conditions that factor into employees' productivity and well-being. Poor workplace ergonomics can cause fatigue and health issues, reducing productivity and work quality.

Two common issues that negatively impact employee health are poor lighting and uncomfortable desk chairs. Insufficient or excessively bright lighting can not only cause eye strain but also impact decision-making when it comes to visually assessing a product's quality. Uncomfortable chairs can lead to poor posture and a variety of muscular, joint and bone disorders – potentially increasing your company's healthcare costs and employee absenteeism.

By understanding the environmental issues that are most likely to affect your workplace, you will be better equipped to identify and combat them. If you take steps toward a greener workplace, it will improve your employees' health and productivity in both the short term and long term

Environmental and resource efficiency issues

Environmental and resource efficiency issues revolve around an organization's efforts to maximize its performance while minimizing its waste and environmental impact

Improving environmental performance may be done as part of good business practice (since it often reduces costs), from a desire to improve the environment or to improve relations with employees, customers, local communities and the general public.

Ways to reduce environmental impacts in the work place

- Watch water usage
- Recycling the waste if needed
- Use recycle product
- Look for power saving

- Contact energy provider

- Be smart company vehicles

- Clean and maintain regularly

Self-Check – 3	Written test

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.list ways to reduce environmental impacts in the workplace.(5pts)

Test II: Write true if the statement is correct and false if the statement is incorrect

1. Improving environmental performance may be done as part of good business

practice(2 pts)

2. Extended exposure to poor air quality increases the risk of lung cancer,

cardiovascular disease and other long-term infections.(2pts)

Note: Satisfactory rating – 9 points   Unsatisfactory - below 9 points

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

Score = _____
Rating: _____

4.1 **setting Efficiency Targets**

Energy efficiency improvement goals, known as efficiency target.

Targets are useful because they can encourage decision makers to improve the use of energy in their communities and operation.

Efficiency is target to achieve more output for a unit of input.

Before developing goals and working toward them, it's important that decision makers consider what makes for a good target. To be effective, a target should quantify the desired energy reduction, specify a baseline or starting point, include a clear timeframe, and identify the main actors. All targets should be clearly stated so that progress towards the target can be easily tracked and communicated, and those responsible for achieving them can be held accountable. Furthermore, targets should be based on the best data regarding what is realistically achievable for local businesses and organizations, and be directly aligned with incentives to spur action.

To set efficiency target

1. Have a clear measurable out comes
2. Define the time period for achieving those outcomes
3. Determine the performance
4. Identify the performance measures need to improve
5. Establish the purpose of the performance
6. Asses the target
7. Choose the target value
8. Develop an action plan
9. Implement plan action
10. Monitor report and evaluate.

Name……………………………………… ID………………………… Date…….

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

Test I: Short Answer Questions

Test II: Write true if the statement is correct and false if the statement is incorrect

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

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

Score = _____

Rating: _____

LG #64	LO #3-Implement performance improvement strategies

Instruction sheet

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

- Sourcing Techniques and tools

- Applying improvement strategies and communicating idea and solutions

- Integrating environmental and resource efficiency improvement plans

- Seeking suggestions and ideas to improve the management of environmental and resource efficiency

- Implementing costing strategies.

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**:

- Source Techniques and tools

- Apply improvement strategies and communicating idea and solutions

- Integrate environmental and resource efficiency improvement plans

- Seek suggestions and ideas to improve the management of environmental and resource efficiency

- Implement costing strategies.

Learning Instructions:

Read the specific objectives of this Learning Guide.

1. Follow the instructions described below.

2. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.

3. Accomplish the "Self-checks" which are placed following all information sheets.

4. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).

Information Sheet 1- Sourcing Techniques and tools

1.1 Introduction

Sourcing tools are software applications that help hiring managers and recruiters find potential employees proactively by searching through profiles, resumes, or other data about candidates. Sourcing tools may also help with collecting information on potential candidates and contacting them.

Sourcing tools for recruitment include:

- Applicant tracking systems
- Collaboration tools.
- Mobile recruiting tools.
- Location technology.
- Video interviewing.
- Internet sourcing

Fruit Processing: outline the steps of fruit juice processing, including extractor, plate heat exchanger pasteurization and sterilization, aseptic packaging & implement good manufacturing practices to produce high quality of fruit processing.

Equipment's and machines used for fruit juice handling and processing include;

✓ **Juice extractor:** equipment which used to extract juice from higher-concentration to lower concentration.

Figure 1: juice extractor machine

Juice pasteurizer: equipment which used to preserve fruit and vegetable processing.

Figure 2: juice pasteurizer machine

Figure 3 juice containers

Consumable Materials, **tools and personal protective equipment** used in fruit and vegetables processing plant include;

- Water

- personal protective equipment's

- packaging materials

- Detergents

- Chemicals

- Shoes

- Glove

- Google eyes, etc.

Fruit and vegetables processing facilities consume considerable amounts of **energy** which are used to generate produce steam for process applications, drive processing machinery, pasteurization, evaporation and cleaning purposes. Energy consumption resources may use in fruit and vegetables processing plant include;

- Electricity

- Diesel

- Coal

- Natural gas, etc.

Self-Check – 1	Written test

Name……………………………………… ID……………………… Date…….

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

Test I short answer

1. What is sustainability means?

2. What is hazard means?

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

Information Sheet 2- Applying continuous improvement strategies and communicating idea and solutions

2.1. Continuous improvement business strategy

It's also known as continual /continuous improvement process. It's an ongoing process to improve the products, services or processes of an organization. The improvements sought can be incremental over time or achieved with a breakthrough moment.

Types of wastes

In fruit processing plant there are various wastes which discharge from the processing operation. These wastes may be classified based on their state as:

Solid Waste

Solid organic waste in fruit processing facilities mainly originates from production processes and includes nonconforming products (the reason why loss brix) and product losses like:

- UN appropriate temperature adjusted
- Packaging waste
- Pressing
- pomace or inedible parts

Recommended measures to reduce and manage solid waste include the following:

- Optimize product filling and packaging equipment to avoid product and packaging material waste;
- Optimize the design of packaging material to reduce the volume of waste

b. liquid Wastes /Wastewater

- Organic content; Biochemical Oxygen Demand & Chemical Oxygen Demand.
- Wastewater may also contain acids, alkali, and detergents with a number of active ingredients, and disinfectants, including chlorine compounds, hydrogen peroxide.

The following recommended techniques can be used to prevent the contamination of the wastewater stream:

- by-product losses through the adoption of good manufacturing procedures and facility maintenance;

- Separate and collect product waste, including rinse waters and by-products;
- Pipes and tanks should be self–draining, with appropriate procedures for product discharge prior to, or integral with, cleaning procedures;
- Adopt best-practice methods for facility cleaning, which may involve manual or automated compatibility with subsequent wastewater treatment processes.

c. Air Emissions

Exhaust Gases; this type of waste is released from the processing plant due to using Energy consumption resources and there will be discharge or Emissions to the air. Exhaust gas emissions result from the combustion of gas includes;

- Carbon Dioxide (CO_2)
- Nitrogen Oxides (NO_2)
- Carbon monoxide (CO)
- ozone

- **Dust-** Emissions of dust during fruit processing activities include raw material residues in the exhaust air from the spray drying systems and bagging of product.
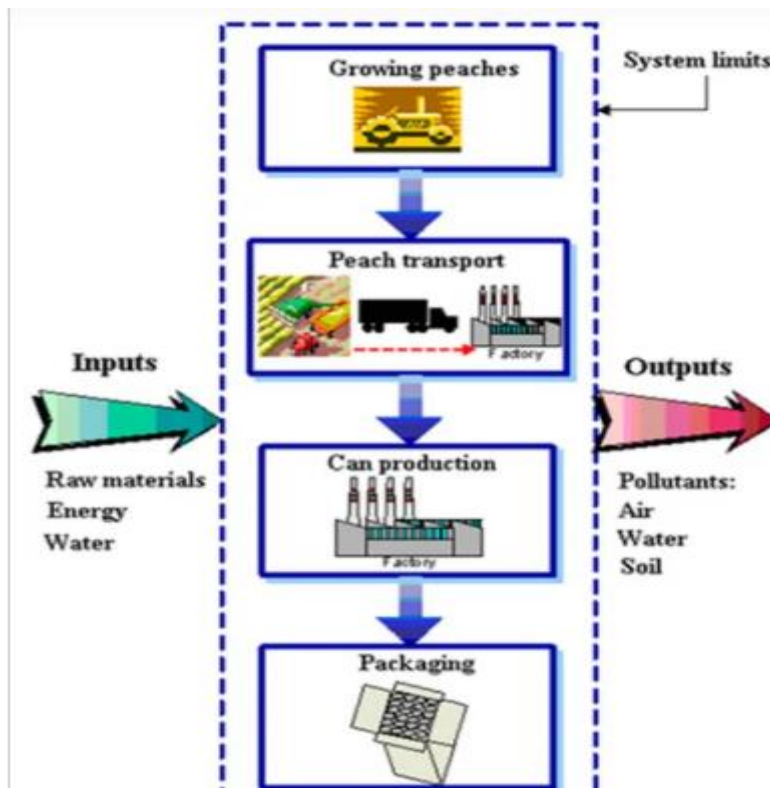

Figure 4 for air Emission

Reduce heat loss by:

- Using continuous, instead of batch, pasteurizers
- Partially homogenizing fruit juice to reduce the size of heat exchangers
- air pipes close
- Eliminating steam leakage and using water blending valves

Improve cooling efficiency by:

- At room temperatures / areas
- Installing automatic door closing and applying airlocks.

Reporting 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 irritation from our neighbors' as well as environmental damage.

Self-Check – 2	**Written test**

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

Instruction I: Give short answer. (6 point)

1. Write down types of waste in fruit processing plant?(2points)
2. List waste minimization techniques?(2points)
3. What is Continuous improvement business strategy?(points)

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

Note: Satisfactory rating – 6 points   Unsatisfactory - below 6 points

3.1. Environmental and resource efficiency improvement plans

The Environmental Resource Efficiency Plan (EREP) program is developed for one stop computers to encourage carbon reduction of their product portfolio, improve the protection of human health and the environment and demonstrate responsibility of safe use of chemicals in the industry.

Equipment recycling, consumable waste and energy conservation are all initiatives that should be considered to improve environmental performance and sustainability.

Environmental and resource efficiency issues revolve around the fruit processing organization's efforts to maximize its performance while minimizing its waste and environmental impact. Improving environmental performance may be done as part of good business practice (since it often reduces costs), from a desire to improve the environment or to improve relations with employees, customers, local communities and the general public.

Environmental Sustainability

Environmental sustainability: 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. Sustainability in fruit and vegetable processing is known as the best technique to undertake juice processing in more suitable and sustainable condition which ensure the continuity of the practices, guarantee the economics, social of the people and also preserved the good environment. In order to reduce the impact our daily activities have on the environment related to fruit and vegetables processing, it is important to understand some of the key environmental and resource efficiency issues.

Generally, sustainable fruit processing is defined as an approach to ensure economic, social and ecological sustainability mentioned that to achieve sustainability, the

development process should include the three dimensions of environment, economic and social whereby the protection and effective management of natural resources provides environmental sustainability, long-term employment and income stability. This, in turn, will move towards economic sustainability, and strong participation from the industry community will thus lead to the attainment of social sustainability.
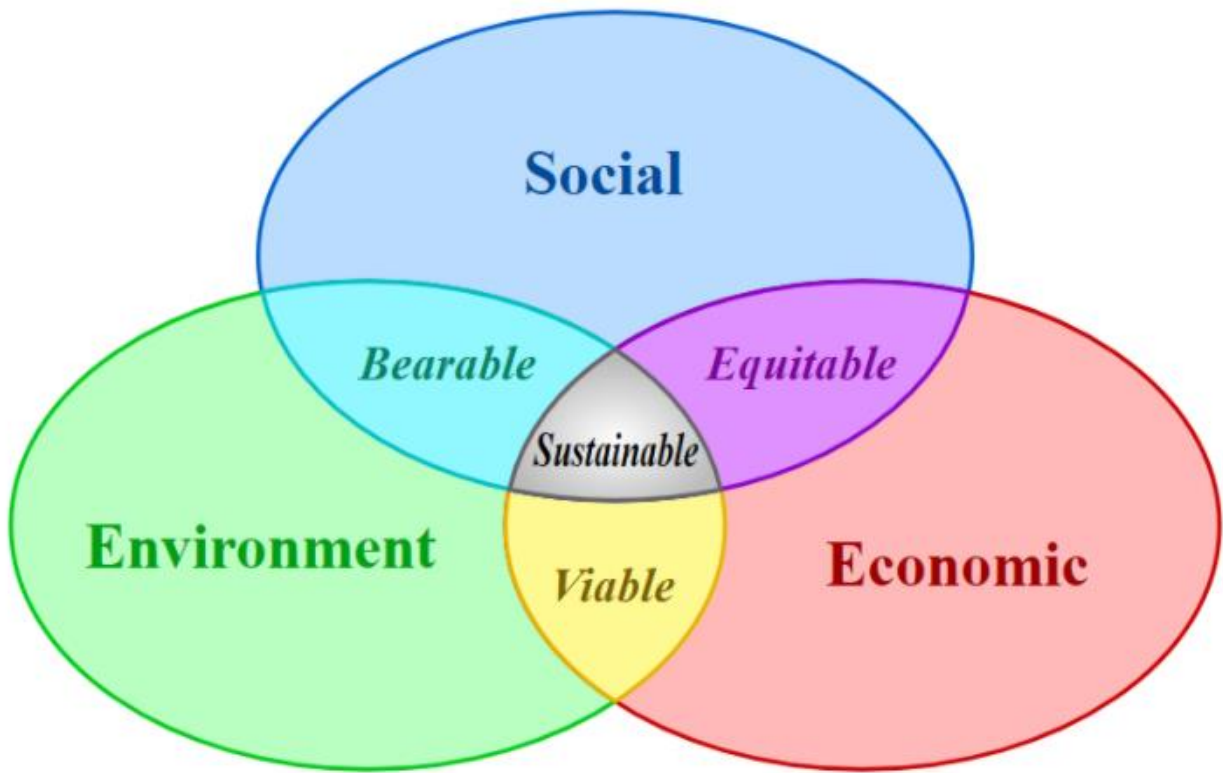

Figure1: The 3 pillars of sustainability

Environmental and resource efficiency issues may include:

- Minimization of environmental risks related to the processing plant.

- Maximization of opportunities to improve business environmental performance.

- Promote more efficient production and consumption of natural resources.

- Establishment of wise use of resources.

The fruit processing plant requires different types of resources and these resources may be renewable. A renewable resource is one that can be used repeatedly and does not run out because it is naturally replaced.

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 not only industry but also environmental impacts. 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, fruit and vegetables processing etc.

- Encouraging re-use, recycling and recovery.

- Handling and storing products in good storage at room temperature.

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.

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.

Figure: 4 Waste Management Hierarchies

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.

All resources which are found in the processing plant should be utilized effectively and efficiently to minimize wastage and cost of production since the profitability of the organization is determined by this resource utilization. One reason why companies end up compromising their profits is due to the inefficient use of the resources at hand. Strategies used to manage and utilize resources effectively;

A. Planning: is important when it comes to being efficient to operate processing properly. After figuring out what you will need, you can then plan their use by dividing the project up into stages.

- Identify resources that are needed for completion of the project.
- Analyze and put up an estimate of the time each resource needs.
- Go through the outline of the entire project and ensure that no resource is left out.
- Finalize the list of resources and their details before the project can officially begin.

B. Take a Systematic Approach: One of the most effective ways of using resources is by adopting a systematic approach. This can be achieved by:

- Setting a baseline
- Benchmarking your performance
- Forming an action strategy
- Fixing targets and responsibilities
- Reviewing actions and performance

C. Use Technology where possible: The use of technology goes a long way in speeding and easing up processes significantly. This will in turn minimize the risk of mistakes occurring and free up manpower that can then be reallocated to other projects.

D. Use Resource Management Software: it is a useful tool to significantly enhance the operations of your business. Invest in resource management software that offers a long list of features modified to boost resource management and improve the overall performance and productivity.

Enterprise planning systems address the resources that are available or not available to an enterprise and its ability to produce or process products resources or provide

services. It also considers those factors that will positively or negatively affect the firm's ability to run these actions. Enterprise planning systems will tend to vary and are flexible. Typically, enterprise planning systems are part of a firm's knowledge base or corporate structure whether it formally identified and structured or simply executed these when the need appeared.

An enterprise planning system should have documented policies and procedures and work plans to minimize wastage, increase utilization of various resources, and minimize environmental hazards. Enterprise planning basically used; to study the organizations

- **Survival;** Surviving is doing what is necessary to live or sustain the enterprise.
- **Competition;** It meanwhile, an enterprise will plan for longer term strategic actions to address its competition or improve its competitiveness.
- **Thrive;** it indicates the enterprise's state to do well or flourish vigorously, and it can be applied to effectiveness of the processing operation. Thriving is not being satisfied just surviving, but reaching above this to make continual progress.
- **Opportunities;** most significantly, an enterprise will plan for using the opportunities that are available to it.
- **Vulnerabilities;** a fourth noteworthy purpose for enterprise planning systems is preparedness against risks on the project operation which leads to failure.

Generally, the organization should have a strategic planning system according to Enterprise Resource planning /ERP/ to utilize resource properly to compete. There should be also SOWT analysis in order to minimize or prevent waste in the processing plant and if there is a waste use it by recycling to maximize profitability.

Environmental regulations applying to the enterprises

- Analyze procedures for assessing compliance with environmental/sustainability regulations.

- Collect information on environmental and resource efficiency systems and procedures, and provide to the work group where appropriate.

- Collect analyses and organize information from a range of sources to provide information/advice and tools/resources for improvement opportunities.

- Measure and document current resource usage of members of the work group.

- Analyze and document current purchasing strategies.

- Analyses current work processes to access information and data to assist in identifying areas for improvement. 1

Self-Check – 3	Written test

Name………………………………………… ID………………………… Date…….

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

Instruction I: Give short answer. (8 points)

1.   Write the Waste Management Hierarchies? (4 points)

2.   What is recycling means?(3 points)

Note: Satisfactory rating – 7 points   Unsatisfactory - below 7 points

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

4.1. Suggestion to improve the management

Workplace improvements refer to the tools and equipment's of the processing plant of the organization as well as the members themselves. The importance of making continual workplace improvements revolves around your company's ability to compete in the marketplace and retain employees. Maintaining a dynamic workplace is essential to the growth of your organization.

Fundamentally the processing plant needs to have improvement in terms of:

Productivity: A processing plant should analyze the newest productivity tools and machines or equipment's designed to increase profitability. If you do not keep up with the latest manufacturing processes or customer interaction technologies, then your competition will use them to capture more market share. Productivity tools include customer management software, manufacturing equipment and new and efficient manufacturing methods.

Work Environment: Give your employees input on how to continually improve the work environment to increase retention and help in recruiting. Managers should entertain employee input on job efficiency and workplace culture, and make improvements as needed.

Profitability: Analyzing workplace procedures will find ways to improve efficiency and reduce overhead costs. Lowering the cost of doing business is important to maximizing company profitability. There should be also proper utilization of resources and by-products of the processing plant.

 Before begin drafting this document or presentation, define the problem you want to solve with this document.

Understand the Need: consider what gave rise to the need to communicate. Does someone lack sufficient information to make a decision or take a position on an issue? Did someone request information? Is there some unsatisfactory situation that needs to

be remedied by communicating with your audience? What specifically is unsatisfactory about it? Consider your audience. For example

A potential client lacks sufficient information on whether the solution I have proposed to solve the client's problem will be feasible, affordable, and effective.

My instructor lacks sufficient examples of my written work to assign a grade for how well I met the course learning objectives.

Establish a Goal: consider your purpose in writing. What do you want your reader to do, think, or know? Do you want your reader to make a decision? Change their opinion or behavior? Follow a course of action? What is your desired outcome? And what form and style of communication will best lead to that outcome? For example

Provide the client with enough information, in an effective and readable format, to make a decision (ideally, to hire you to build the solution for the problem).

Provide my instructor with samples of my writing that demonstrate my achievement of the course learning objectives (provide relevant and complete information in a professionally appropriate format, using evidence-based argument)

Define Objectives: consider the specifics of your message and your audience to determine what criteria you should meet. What form should it take? What content elements will you need to include? What kind of research will be required? What information does your audience want/need? What do they already know?*.*

Review the Assignment Description and Grading Rubric for your assignment to determine specific requirements and objectives that your instructor will use to evaluate your work*.*

Identify Constraints: what are the pass/fail conditions of this document? Consider your rhetorical situation. What conditions exist that present barriers or challenges to communication? How can you address them? For example,

How much time is your audience willing to spend on this? How long can you make your document or presentation? (Word length/time limit)

What format and style do they require? Is there a Style Guide you must follow? A template you can use?

How much time do you have to create it? Do you have a deadline? (due date)

Are there requirements for using sources? (Academic integrity rules)

Initial programmer documents, including

- proposed programmes strategy document

- brief project descriptions

- concept papers

- project proposals

- operational plans, including

- proposed security management plans

- logistic system plans

- telecommunications plan

- proposed staffing structure for initial operations

- schedule of required staffing

- initial procurement schedule of immediate supply requirements

- materials for media and communications, including

- press releases

- key messages and talking points

- human interest stories

There are different Ways to improve environmental business performance for processing organizations:

- Reduce material consumption
- Eliminate the use of hazardous and toxic materials
- . Reduce environmental carbon footprint
- Reduce greenhouse gas emissions like CO_2, CO, etc. from energy consumption.

Making suggestion on Areas of improvement for employees like;

- Recognize and reward valuable contributions.
- Build strong coworker relationships /promote a team atmosphere.
- Embrace and inspire employee autonomy.
- Practice flexibility.
- Embrace transparency.
- Communication /Communicate purpose and passion.
- Give and solicit regular feedback.
- Time management.
- Customer service.
- Interpersonal skills, etc. should be major areas of improvements and need making decision.

Ways to improve resource efficiency:

- Conducting a waste assessment.
- Improving purchasing to reduce waste.
- Conserving energy.
- Preserving waterways.
- Keeping waste out of drains.
- Reducing waste outputs.

Reducing risk by improving waste management practices/waste management strategy.

- investment cost in equipment and human competence
- return of investment
- maximal waste exploitation and profitability;
- consumer acceptance and company image upgrade

- Adherence to legal requirements.
- eliminating waste

Ways to improve resource efficiency that can be implemented in day to day operations and that do not require senior management approval and capital expenditure. Initiatives generated from the shop floor might include:

- optimizing production processes for better productivity
- identifying how to reduce down time, rework and scrap
- implementing systems to capture rainwater or to divert and reuse run off water
- reducing fuel consumption through driver training programs and maintaining correct tyre pressure
- Reducing transport and fuel costs by making adjustments to truck capacity and loading techniques.
- More about sustainability The Skills for Sustainability website provides more information about achieving sustainability improvements through business and resource efficiency shows how sustainability improvements can be achieved across other aspects of a business including:
- facility management
- product design, technology and process improvements
- community relationships and profile
- governance and strategy
- Skills for sustainability Key areas of skills which support the viability an organization while benefiting the environment in which the organization operates include:
- managing relationships with the local community
- planning and implementing strategies to reduce water and energy use, waste and emissions
- developing opportunities for recycling, reuse and remanufacturing
- making product improvements and designing 'clever' products
- improving day to day operational resource efficiency
- measuring and reporting environmental/sustainability performance
- assessing environmental risks and developing responses

- Managing the supply chain. Manufacturing Skills Australia has developed leading edge skills solutions to help the manufacturing and related sectors achieve sustainability.

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 exits specifically associated in the fruit processing operations due to different activities which include the following:

a. 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.

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.

b. Mechanical Hazards

These are types of hazard which are related from lifting, Work Posture Injuries & Noise and Vibrations from machines and equipments. Fruit 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. The main sources of noise in fruit processing facility are centrifuges, homogenizers, and filling and packing machinery which are all typically located in enclosed buildings.

Recommended management approaches, including the use of mechanical equipment where necessary to reduce these injuries are discussed in the General EHS Guidelines.

c. Biological Hazards

Exposure to biological and microbiological agents may be associated with inhalation and ingestion of dust and aerosols, particularly in fruit processing operations.

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

d. 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. Food additives & processing aids- use of colorants, enzymes, and starter cultures.

- Allergens- through the use of food additives and processing aids.
- Detergents and disinfectants-Alkaline detergents.
- Identify strategies to offset or mitigate environmental impacts
- Reduce chemical use
- Reduce material consumption

4.1.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.

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.

Self-Check – 4	Written test

Name……………………………………… ID………………………… Date…….

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

Test I: write Short Answer Questions (10 points)

1. What is the goal Making suggestion on Areas of improvement for employees (5 points)

2. Write there are different Ways to improve environmental business performance for processing organizations (5 points)

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

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

5.1 Implementing pricing strategies

The papers discuss a variety of topics, notably the implementation of revenue management and pricing in, the implementation of value-based selling and pricing in industrial companies, the design of effective sales force compensation systems to facilitate the implementation of value-based pricing and issues related to price presentation.

Implementation: Fast forward to strategy implementation: competitors that stubbornly fail to behave according to assumptions, new entrants, internal resistance, new opportunities, changing customer preferences, leadership changes, regulatory interventions, or market growth rates that change unexpectedly are some of the intervening variables between the strategy originally developed and the strategy actually implemented.

Pricing is a typical market-oriented instrument that distributes resources to users with high willingness to pay (users with high demand to a certain extent) through price adjustment. It has been widely used in various domains, such as food and commercial housing, and is proven to be useful.

Pricing strategy refers to method companies use to price their products or services. Almost all companies, large or small, base the price of their products and services on production, labor and advertising expenses and then add on a certain percentage so they can make a profit.

Work from the middle out to bring clarity and cohesiveness to the organization's operating model typically working vertically within a single business unit while resolving issues at the business unit boundaries.

- Business strategy
- Operational strategy
- Transformational strategy

1. Business Strategy

The first of the three types of strategy is Business. It is primarily concerned with how a company will approach the marketplace - where to play and how to win.

Where to play answers questions like, which customer segments will we target, which geographies will we cover, and what products and services will we bring to market.

How to win answers questions like, how will we position ourselves against our competitors, what capabilities we will employ to differentiate us from the competition, and what unique approaches will we apply to create new markets?

Senior managers typically create business strategy. After it is created, business architects play an important role in clarifying the strategy, creating tighter alignment among different strategies, and communicating the business strategy across and down the organization in a clear and consistent fashion.

Executives are just beginning to bring advanced, highly credible business architecture practices into the strategy discussions early to provide tools, models, and facilitation that enable better strategy development.

2. Operational Strategy

The second of the three types of strategy is Operational. It is primarily concerned with accurately translating the business strategy into a cohesive and actionable implementation plan. Operational Strategy answers the questions:

- Which capabilities need to be created or enhanced?
- What technologies do we need?
- Which processes need improvement?
- Do we have the people we need?

3. Transformational Strategy

The third of the three types of strategy is Transformational. It is seen less often as it represents the wholesale transformation of an entire business or organization.

Self-Check-5	Written test

Name………………………………………… ID…………………………… Date…….

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

Instruction I: write short answer. (5 points)

1. Write the meaning of pricing strategy. (2 point)
2. Explain unit operation of fruit and vegetable processing   (3 point)

Note: Satisfactory rating 5 points   Unsatisfactory - below 5 points

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

LG#65	LO # 4 Monitor performance

Instruction sheet

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

- Documenting outcomes and communicating report

- Evaluating strategies.

- Investigating strategies and setting new targets and tools.

- promoting strategies and rewarding Successful participants

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:

- Document outcomes and communicate report

- Evaluate strategies

- Investigate strategies and setting new targets and tools

- Promote strategies and reward successful participants

Learning Instructions:

Read the specific objectives of this Learning Guide.

1. Follow the instructions described below.

2. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.

3. Accomplish the "Self-checks" which are placed following all information sheets.

4. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).

5. If you earned a satisfactory evaluation proceed to "Operation sheets

    Perform "the Learning activity performance test" which is placed following "Operation sheets" ,

InformationSheet4-Documenting outcomes and communicating report on targets

4.1 Documenting outcomes and communicating report out comes

Documentation is essential to quality and process control

It encourages knowledge sharing which empowers team to understand how work progress and what finished projects typically look like.

Helpful documentation and communication of project results are essential for effective coordination among all stakeholders. the large number of projects and stakeholders working every countries ,systematic approach to documenting and communicating result is necessary to ensure that every one is on the same page and knows what everybody else is doing

Effective project documentation and communication helps to answer important question about effectiveness of the product.

Ways to effectively communicate with stakeholders

- Schedule a meeting
- Send out a new letter
- Separate online screen to screen
- Project summary report
- Schedule a conference call
- Lunch meeting

Communicating and reporting on an evaluation aims to help staff facilitate learning among individuals, groups and organization by communicating and reporting evaluation process and finding more effectively .a final report is the most important ways to communicate and evaluation.

Self-Check – 1	Written test

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 documentation?(3pts)
2. Write ways to effectively communicate with stakeholder? (5pts)

Test: write true if the statement is correct and false if the statement is incorrect

1. Helpful documentation and communication of project results are essential for effective coordination among all stakeholders(2 pts)
2. Effective project documentation and communication helps to answer important question about effectiveness of the product   (2pts)

Note: Satisfactory rating - 9 points   Unsatisfactory - below 9 points

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

2.1 Introduction

Strategy is an action that managers take to attain one or more of the organization's goals. Strategy can also be defined as "a general direction set for the company and its various components to achieve a desired state in the future. Strategy results from the detailed strategic planning process". Strategy is a well-defined roadmap of an organization.

A strategy is all about integrating organizational activities and utilizing and allocating the scarce resources within the organizational environment so as to meet the present objectives. While planning a strategy it is essential to consider that decisions are not taken in a vacuum and that any act taken by a firm is likely to be met by a reaction from those affected, competitors, customers, employees or suppliers

Principal out comes strategy evaluation are:

- Improving decision making
- Enhance organizational learning
- To contribute to programmes improvement

Figure: evaluating strategies

Self-Check – 2	**Written test**

Name………………………………………… ID………………………. Date…….

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

Instruction I: write short answer. (2 points)

1. Write Principal of the evaluation strategy? (2 point)
2. Write the meaning of strategy?(2pts)

Note: Satisfactory rating above 4 points   Unsatisfactory - below 4 points

Information Sheet 3- setting new targets and Investigating new tool and strategies

3.1 Setting new targets Investigating and tool strategies and strategies

An investigating strategies is needed to locate and gather material effectively

The purpose of an investigate strategy is:

- To identify the most appropriate line of enquiry to pursue
- To determine the objective of pursuing particular line of enquiry
- To identify the inventive action necessary to efficiently achieve the objective ,taking into account resource ,priority, necessity ,and proportionality
- To Direct and conduct investigative action to gather the maximum amount of material which may generate further line of enquiry
- To Understand and manage community impact**.**

Target setting and performance measurement are important to the growth process .while many small businesses can run quite comfortably without much formal measurements or target setting for growing business control.

3.1.1 Setting new targets

Target setting is maintaining consistency with national program, regulation, policies, or laws allow the healthy people to take program and policies to consideration .Setting target goals and action plans is process.

It takes the efforts of team understand the baseline and the vision to determine the most effective set of performance improvement measures for achieving the target goals.

Self-Check – 3	Written test

Name………………………………………… ID………………………… Date…….

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

Test I: Answer the Questions as required

1. Define Target setting (3pts)

2. Write the purpose of investigate strategies (5 pts)

Test II: Write true if the statement is correct and false if the statement is incorrect

1. Setting target goals and action plans is not a process. (2 pts)

2. Target setting and performance measurement are important to the growth process.(2 pts)

Note: Satisfactory rating - 9 points   Unsatisfactory - below 9 points

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

Information Sheet 4- promoting strategies and rewarding participants

4.1. Promoting strategies

Promotional strategy is designed to inform, persuade, or remind target audience about those products because company goals vary widely, so do promotional strategies. the goal is to stimulate action from the people or organization of target market.

In a profit oriented firm, the desired action is for the consumer to buy the promoted item

Promotional goal include:

- Creating awareness
- Getting people to try products
- Providing information
- Retaining loyal customers
- Increasing the use of products, and identifying positional customers, swell as teaching potential service client.

Basic type of promotion:

- Advertizing
- Sales promotion
- Personal selling
- publicity

4.1.1 Rewarding successful participants

Rewarding is something that provides satisfaction or gives a profit.

To the employee reward and recognition program is a special program developed by companies to recognize employees for their contributions to the success of a business .effective employee recognition programs helps to attract and retain top talent ,and ensure that employees feel valued ,appreciated ,and motivated to achieve company goals.

Self-Check – 4	Written test

Name……………………………………… ID………………………… Date…….

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

Test I: Answer the Questions as required

1. List basic type of promotion (3pts)

2. What is promotion (5 pts?)

Test II: Write true if the statement is correct and false if the statement is incorrect

1. Promotional strategy is designed to inform, persuade, or remind target audience about those products because company goals vary widely, so do promotional strategies (2 pts)

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

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

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