Agricultural TVET College

Small Scale Irrigation Development

NTQF Level IV

Learning Guide#08

Unit of Competence

Monitor Environmental Policies Implementation

Module Title:

Monitoring Environmental Policies Implementation

LG Code: AGR SSI4M08 0816

TTLM Code: AGR SSI4 TTLM10 1218V1

Instruction Sheet	Learning Guide 08

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

- Provide information to the work team
- Implement and monitor operational procedures
- Implement and monitor change and continuous improvement
- Implement and monitor recording procedure
- Implement and monitor an environmental management training program

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- ✓ Screen environmental Impact
- ✓ Describe relevant legislation from all levels of government that affects business operation
- ✓ Communicate with others to ensure information
- ✓ Comprehend documentation
- ✓ Plan and organize activities

Learning Activities

1. Read the specific objectives of this Learning Guide.
2. Read the information written in the “Information Sheet”
3. Accomplish the “Self-check”.
4. If you earned a satisfactory evaluation proceed to the next “Information Sheet”. However, if your rating is unsatisfactory, see your facilitator for further instructions or go back to Learning Activity.
5. Submit your accomplished Self-check. This will form part of your training portfolio.
6. Read and Practice “Operation Sheets”.
7. If you think you are ready proceed to “Job Sheet”.
8. Request you facilitator to observe your demonstration of the exercises and give you feedback.

INFORMATION SHEET#1	Provide information to the work team

INTRODUCTION

The National Sustainable Agriculture Coalition supports an immediate and environmentally beneficial transition to a resilient agri-food production system based on sustainable agricultural systems and practices. We call upon federal and state governments to prioritize sustainable agriculture systems and policies that enable farmers, ranchers and rural communities to address through a variety of mechanisms the challenges posed by a changing climate.

The Coalition and its members believe that it is possible and necessary to begin building this resilient agricultural system and employing sustainable practices immediately. We also believe that implementing sustainable practices will be affordable and cost-effective, and that higher energy costs affecting all parts of the farm system make these shifts to sustainable agriculture essential.

Climate change poses a serious threat to our environment, our rural communities, our farmers and ranchers, and the millions of Americans who rely on them for food and fiber. Shifting to a more resilient, sustainable agricultural system will mitigate climate change while building an agri-food system that is better for our planet and its people. Failing to do so will result in devastating consequences for agriculture and the environment.

1.1. Terminologies and definitions related to environmental policies

Policies;- A line of argument rationalizing the course of action of a government**.** It is a guideline/document, which shows the direction for the benefit of the public

Policy is any course of action intended to guide decisions about whether and how to protect or restore the environment

Public policies:- It is a general guideline principle (roadmap) in which government action, societal problems are identified, prioritized, acted up on to achieve the maximum possible societal benefits within the limits of achievable resources. It is a broad statement of goal (framework), thoughtful guide to action, expressive of intent by government for the common good of societal at large.

Strategy:- A package of action plan, means and method by which the government and concerned executive body will achieve the stated policy goal.

Legislations:- The act of making or enacting laws

Law:- It is a system of binding rules a government (society) set to maintain the order and regulate societal behavior for common good. **It** Is package of specific instrument (sanction) to enforce policy goal.

Rule: - A principle or condition that customarily governs behavior. A basic generalization that is accepted as true and that can be used as a basis for reasoning or conduct. It is dominance or power through legal authority.

By laws;- A rule adopted by an organization in order to regulate its own affairs and the behavior of its members. They are subsidiary laws that are enacted by the local governments

Local convention;-It is described as all agreements between social groups in order to preserve the environment and their own interests. An agreement – written or not – between two or more local actors, namely the social groups (socio–professional groups, associations, villages communities or factions), the local administration (State's representatives or decentralized bodies), the technical offices and NGOs, determining rules of access and utilization of natural resources for their conservation and sustainable exploitation.

The Policies are:

- To ensure that individual program and project monitoring becomes the responsibility of the appropriate federal and/or regional implementing and/or mandated agencies;
- To ensure that the monitoring of the overall impacts of the implementation of the Federal Environmental Policy on the country's renewable natural resources and environmental support systems, and that the compilation of recommendations for any modification that is required, should be consistent with the institutional arrangement specified in the CSE and also be responsive to popular opinion;
- To ensure that the Environmental Protection Authority carries the overall monitoring of the Policy implementation and is responsible for proposing modifications, in consultation with the mandated line ministries and/or the opinion of stakeholder communities and groups, and for having them approved by the Inter-Ministerial Environmental Protection Council;
- To ensure that line ministries and regional and lower level bureaus and branches of bureaus monitor the overall impact of the implementation of this Federal Environmental Policy on those sectors and elements for which they have the legal mandate;
- To ensure that, starting with the Community Environmental Coordinating Committee and aggregating upwards through the appropriate level offices of Water Resources, Mines and Energy, Agriculture, and Economic Development and Cooperation, reviews of the status of natural resources and the environment, including evaluation of the implementation of this Federal Environmental Policy, are completed annually at the appropriate levels; and to ensure that the Environmental Protection Authority will be responsible for prompting the compilation of the reports and for reporting on the process;

Rules and regulations: sets forth the operational powers or provisions and the use restrictions adopted by the association. Or Specific articles describing and/or prohibiting behavior, actions or conduct

1.2. Conveying oral Laws Relevant to EIA

It has been recognized that activities in the various economic sectors have the greatest impact on natural regulations and decision-making process in such sectors is crucial. The following section describes the sector-specific laws and regulations in most countries into which EIA should be integrated.

1. Business law

Business is one of the economic activities that has an impact on the environment. Thus EIA should be integrated into the laws and regulations that regulate the licensing and operation of businesses.

The proclamation requires that any commercial activity should be undertaken in compliance with environmental protection regulations. It regards the observance of environmental protection laws both as a pre-condition for issuance, and the ground for suspension and revocation of, a business license. The proclamation may also states that, if a licensed business is ascertained to have violated environmental protection laws, its license may be suspended until the violation is rectified.

2. Investment law

Investment is an expenditure of capital by private individuals to establish a new business or to expand or upgrade a business that already exists. Legislation often seeks to provide incentives to promote private capital investment, especially by promoting participation of foreigners in the national economy. In

Ethiopia, where investment has boomed in recent years, causing deleterious effects on the environment and natural resource base of the country, it is crucial that EIA be integrated with the current legal framework for investment. The Investment Proclamation № 280 of 2002 (as amended by Proclamation № 375/2003) and Investment Regulation № 84 of 2003 are the laws that regulate investment activities in the country at present. Investors must acquire operation (trade) license prior to commencing production or provision of service. This means that an investment permit serves only for the period of construction/establishment of the business project. The key purpose of investment permit is thus to facilitate acquisition of land and services such as power, water, telecommunication and other infrastructure services, apart from authorizing foreign nationals to undertake business activities in the country and entitling domestic investors to investment incentives. The issuance of an investment license provides an opportunity for EIA. According to the Investment Proclamation (Proclamation № 375/2003), investment permits can be obtained upon submission of a completed application form to investment authorities. The application form requires the applicant to provide information relating to the status of the applicant, the kind of the intended investment activity, the investment capital, the investment area (region only), the kind and size of intended production or service, and the number off jobs the investment shall create. Apart from these, the application form does not require presentation of an

EIA or any information related to the environmental impact of the intended investment project.

Investment authorities issue an investment permit within a matter of hours upon submission of a properly completed application form, and notify by letter the concerned sect oral institutions, of which the competent environmental agency is one, requesting the necessary support and follow-up of the implementation of the investment project according to the relevant laws of the country.

The monitoring of investment projects provides another opportunity for the application of EIA. The Investment Proclamation specifies the grounds for the suspension and revocation of investment licenses. An investment license may be suspended or revoked if the investor obtained the investment permit fraudulently or presented false information; transferred the investment permit to a third person without permit from the investment authority; failed to renew the investment license in due time; misused or illegally transferred incentives to third parties; or engaged in commercial activity without obtaining a business license. Clearly, the Investment Proclamation does not include the commencing of an investment project without first obtaining EIA authorization as grounds for suspension or revocation of a license.

The other aspect of the Investment Proclamation with potential relevance to EIA relates to the issuance of an operator's license to provide a product or service. Proclamation № 375/2003 gives authorities the power to issue trade/operation license to investors, upon commencement of production and service, representing business licensing institutions and in accordance with the relevant laws of the country. Nevertheless, Article 24(5) of the proclamation stipulates that investment authorities may only issue a business license upon the investor's signed pledge to respect the relevant laws and directives of the country, notwithstanding the provision of Article 22(2) of the Commercial Registration and Business licensing Proclamation № 67/1997. Article 24(5) of the Investment Proclamation № 375/2003 in effect repeals article 22(2) of the Commercial Registration and Business licensing Proclamation № 67/1997, which h makes presentation of authorization from environmental agencies a requirement for issuance of business license. The Investment Proclamation № 375/2003 creates a loophole for investment activities to begin before going through an EIA, thereby rendering the EIA meaningless. In other words, the current process for issuing investment licenses does not force investors to comply with the EIA requirement. This allows reckless investors, or investors who are ignorant of the EIA requirement, to inflict damage on the country's environment and natural resources.

3. Land law

The legal framework governing how land is allocated for investment presents other possibilities for the incorporation of EIA. Regarding the utilization of land for investment, Ethiopia's 1995 Constitution for the right of investors to obtain land for investment purpose on lease in accordance with conditions to be specified by subsidiary laws (Art. 40). In line with this, the Rural Land Administration and Use Proclamation (Proclamation № 456/2005) recognizes the right of investors to obtain and use rural land, provided that priority is given to peasants and pastoralists (Art. 5(4)(a)). Once land has been allocated, the proclamation obliges landholders to sustainably use and manage the property. Land users thus face the threat of losing their right to the land in the case that the holding is damaged due to misuse and mismanagement, in

accordance with details to be specified by regional land laws. Having provided the guiding rules, the Rural Land Administration and Use Proclamation (Proclamation № 456/2005) leaves the particulars to be legislated by regional states, allowing for the spirit of the law to be interpreted in harmony with the situation on the ground in their respective regions. Accordingly, regions have issued their regional rural land laws in recognition of the rights of investors to obtain and use rural land. The Rural Land Administration and Utilization Proclamation of the Southern Regional State

(Proclamation № 110/2007), for instance, recognizes the rights of private investors to obtain rural land for investment, with priority given to peasants and pastoralists (Art. 5(15). and Art. 10(5) of the proclamation further stipulate that the development plan submitted by investors seeking land must not lead to the degradation of the land or surrounding environment). In addition, it obliges investors to sustainably manage their holding, including any and all natural resources therein (Article 10(6)).

While the rural land law of the Southern Nations Regional State stipulates that the development plan that investors present to obtain rural land must not lead to land or environmental degradation, it fails to subject the allocation of rural land to the requirement of EIA.

4. Fishery law

The government has ratified fishery legislation with a view to ensure the conservation, development and of fishery resources in the country (Proclamation № 315 of 2003). Fishery laws seek to ensure the sustainable use of fishery resources in the country. To this end, the proclamation stipulates that federal or regional organs should ensure that development programs and projects will not have a negative impact on the fishery resources of a basin (Art. 8). In addition, it states that any subsidiary fishery laws and regulations to be developed under the proclamation should incorporate EIA.

Furthermore, it states that permits for the establishment and operation of an aquaculture for commercial purposes shall not be issued unless there is sufficient land and water resources and unless it has been ascertained by the competent authorities that the intended aquaculture will not cause negative impact on the surrounding environment and natural resources (Art. 6). While the proclamation contains important provisions that support EIA relevant to the sustainable utilization of fishery resources, it does not specifically require fishery developers to submit an EIA report to environmental agencies.

5. Wildlife law

The management and utilization of wildlife resources in the Country was regulated, until recently, by the wildlife legislation Issued in 1980 (Proclamation № 192 of 1980), which remained unchanged in spite of the new trends in wildlife management. A new Wildlife Proclamation was finally enacted with the view to adapt the management of wildlife to existing realities

(Proclamation № 541/2007). Recognizing that the previous strategy to conserve wildlife was not working, the new Wildlife Proclamation seeks to enable the active participation of local communities living around wildlife conservation areas and private investors in the conservation, development and utilization of wildlife resources; and to enhance the contribution of wildlife resources to poverty reduction by maximizing their economic benefit. In relation to maximizing the economic benefit from the wildlife resources of the country, the proclamation encourages investment in wildlife-based tourism, to be conducted in such a way that shall not endanger the ecological integrity of protected areas (Art. 11). In addition, it requires that any economic activity to be undertaken in wildlife conservation areas shall be carried out in accordance with the proclamation, and its corresponding regulations and directives (Art. 10). While the proclamation's assertion that wildlife based tourism should not endanger the ecological integrity of the protected areas is a positive measure, the proclamation fails to subject the granting of permits for development of wildlife tourism infrastructures such as hotels, camp or other facilities in protected areas to the EIA process. Unless the regulations and directives envisaged to be issued under the Wildlife Proclamation address this issue, there will be a legislative gap in integrating EIA with wildlife-based tourism development.

6. Water law

The conservation, utilization and development of water resources in the country at present is regulated by the 2000 Water Resources Proclamation (Proclamation № 197/2000) and the 2005 water resources regulation (Regulations № 115 of 2005). The Water Resources Proclamation aims to ensure that the water resources of the country are duly conserved and protected from harmful effects and utilized for the highest social and economic benefits of the country. Accordingly, the proclamation describes the measures that must be taken for the conservation and protection of waterways and the conditions under which water resources may be exploited. The proclamation prohibits the release of any waste that endangers the lives of humans, animals or plants into water bodies. In addition, it prohibits the clearing of trees or vegetation and the construction of residential houses along the banks of water bodies so as to ensure their protection. Related to the utilization of water resources, the proclamation establishes a system of water resource utilization based on permits. For example, permits are required for the construction of waterworks and for the supply or transfer of water, even if the water is received from another supplier. The water resources regulation lays out the conditions for the issuance, suspension or termination of a water use permit. In this regard, it stipulates that a water use permit will not be issued if the plans entail the creation of pollution or harmful effects to the water resources and the environment. In addition, it states that a water use permit may be terminated or suspended if the water resource in use is temporarily or permanently depleted, or if the usage of the water resource has caused negative impact on the environment. While the water law seeks to ensure the sustainable use of water resources, it falls short of making EIA a mandatory requirement for the issuance of water use and development permits.

7. Mining law

The Mining Proclamation (Proclamation № 52/1993) and the Mining Operations Regulation (regulation

№ 182/1994) regulate the mining of mineral resources in the country. These mining laws contain provisions aimed at ensuring that mining activities are carried out in a way and manner that shall not cause significant damage to the environment. In this respect, the mining laws determine the rules on the utilization of water and timber resources in a mining area. While the mining law allows a miner to use water and timber found in the leased area for the mining operation, it requires at the same time that the use of water should not result in substantial reduction of the quantity of quality of the water needed by other users. It also stipulates that one cannot construct dam or divert watercourses without the prior approval of the appropriate government body. With the exception of the clause on pollution, the mining law does not strictly prohibit uses of water by miners that may cause other environmental problems, such as damage the ecosystem, reduce biodiversity or degrade water resources. Holders of a mining license may log and use timber as dictated by other applicable laws and must submit a restoration plan. Moreover, the mining law obliges a licensee to conduct the operation in a manner that minimizes damage or pollution to the environment. It also requires a licensee to immediately notify the licensing authority of anything likely to jeopardize the property or the environment and to immediately take the necessary steps to mitigate the impacts.

8. Genetic resource law

Following the Convention on Biological Diversity, the government of Ethiopia enacted legislation which provides for community rights and access to genetic resources and traditional knowledge (Proclamation № 482/2006). The proclamation subjects access to genetic resources and community knowledge in the country to the requirement of permit from the Institute of Biodiversity Conservation, and stipulates the conditions under which access to genetic resources may be denied. Though the proclamation does not directly stipulate that an access application should first go through an EIA process as such, it does contains provisions meant to ensure that access to genetic resources is carried out without causing harm to the environment. In this regard, it states that access may be denied if the planned use may cause, *inter alia*, an undesirable impact on the environment, an ecosystem, human health or the cultural values of local communities (Art. 13). It also obliges an access permit grantee to respect the laws of the country, particularly those relating to sanitary control, bio-safety and environmental protection (Art. 17). Again, however, the law fails to require applicants wishing access to genetic resources to conduct a formal EIA process.

1.3. Explaining the Institutional Framework of EIA

The current system of government in Ethiopia is organized into a federal structure, comprised of a federal government and nine regional states. Government administration of EIA in Ethiopia is thus shared between the federal government and regional states.

Environmental protection organs

The Environmental Protection Organs Establishment Proclamation (Proclamation № 295/2002) established the institutions responsible for regulation of EIA; these include the Environmental Protection Authority, Regional Environmental Agencies and the Sect oral Environmental Units.

Environmental protection authority

The Environmental Protection Authority (EPA) is the lead federal environmental organ with the objective of formulating policies, strategies, laws and standards to ensure social and economic development activities in the country sustainably enhance human welfare and the safety of the environment (Art. 6). The regulation of EIA is one of the key responsibilities entrusted to the EPA. In this respect, EPA is responsible for establishing a system for undertaking EIA on public and private projects as well as on social and economic policies, strategies, laws and programs.

Specifically, it is responsible for developing a directive that identifies

1.4. Providing other information for the employee or the team

Information provided to the work team should be explained in a clear and concise manner and is readily accessible by all employees.

This information may include:

- organizational policies and procedures
- relevant environmental legislation requirements
- voluntary environmental agreements entered into with external organizations
- continuous improvement policies and processes for the organization environmental data

Organization's activities/performance in regard to environmental management and business sustainability are conveyed to work team where required. A sustainable business in this sense is profitable and competitive for the foreseeable future. Effective management of environmental impacts and opportunities can contribute to business sustainability by reducing costs, differentiating goods and services and contributing to a better corporate image. Links between environmental, financial, safety and other risk areas and how these are integrated in organizational policies and practices should be explained. That means there should be an integrated approach to systems within the organization

Legislation requirements

Legislation, codes and national standards relevant to the workplace which may include:

- instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination relevant industry codes of practice.

Knowledge of legislation, codes, national standards, industry codes of practice and workplace policies and procedures must:

- be strictly relevant to the particular workplace role and is not intended to include detailed technical aspects of environmental science and
- details of legislation must be directly relevant to the workplace role, and would normally be delivered as a general awareness issue and still generally work according to workplace policies and procedures

Self check # 1	Knowledge questions

Name: _________________________ Date: _______________

Directions: Answer the following questions in the space provided

1. Discus the water law principles *(10 points)* _ _ _ _ __ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ __
2. What is the difference between policy and strategy *(10 points)* _ __ _ _ _ _ _ _ __ _ _ _ _ _ __ _ _ _ _ _ _ __ _ _ _ _ _ _ __ _ _ _ _ _ _ __ _ _ _ _ _ _ __ _ _ _ _ _ _ __ _ _ _ _ _ _ __ _ _ _ _ _ _ _ _ _ _ __ _ _ _ _ _

Note: satisfactory Rating-10 and above pts. Unsatisfactory Rating-below 10 pts.

You can ask your teacher for the copy of the correct answers

INFORMATION SHEET#2	Implement and monitor operational procedures

2.1. Identify existing and potential environmental risks

Steps in solving any case problem (environmental wastes)

- Step 1: Identify a need/issue/problem and develop a problem statement
- Step 2: Define the current situation - break down problem into component parts, identify major problem areas, develop a target improvement goal
- Step 3: Analyze the problem - identify the root causes of the problem and use charts and diagrams as needed.
- Step 4: Develop an action plan - outline ways to correct the root causes of the problem, specific actions to be taken, identify who, what, when and where
- Step 5: Look at the results - confirm that the problem and its root causes have decreased, identify if the target has been met and display results in graphic format before and after the change
- Step 6: Start over - go back to the first step and use the same process for the next problem.

The actual and potential environmental risks or wastes are:

2.1.1 Surface Water, Groundwater and Soils Management

Demonstration farms or Dairies use a considerable amount of water for

Milking machines

Dairy shed cleaning, yard

Pad wash down and

Stock drinking

This water must be managed so that the integrity of the water resource and the ecosystems that it supports are not compromised. Transfer of organic matter (such as manure, milk, nutrients, salts, micro-organisms and chemicals) to surface water and groundwater must be avoided.

2.1.2 Odor

Odor is a major potential source of complaint against dairies, especially those that are restricted or have restriction facilities.

2.1.3 Effluent and Nutrient Reuse, Farm Wastes and Disposal of Dead Livestock

Effluent management on a dairy involves control of both solid and liquid effluent, as well as its sustainable reuse as a source of nutrients and as a soil conditioner.

2.1.4 Noise

Noise from dairy farms may be intermittent or continuous, depending upon the size and complexity of the dairy operation, and the time when the milk is collected by tanker.

There will be instances when noise is unavoidable.

2.1.5 Dust

Dust occurs when dry particles of matter are disturbed and lifted into the air. Dust particles can contaminate the udders of cattle and be a contaminant of milk. Eye irritation and respiratory disease can occur in both people and cattle.

2.1.6 Light

Stray lighting from vehicle headlights, security lighting and sheds can be intrusive to neighbouring residences.

2.1.7 Traffic

Movement of vehicles and accommodation of farm vehicles can affect the safety and amenity of the public and neighbor's. The problems of odor, noise, dust, and vehicle lights can be associated with traffic movement.

2.1.8 Pests and Vermin

Pests increase the risk of introduction and spread of diseases (including leptospirosis, salmonellosis and toxoplasmosis) on farm. They can decrease milk production, and result in livestock losses through direct attack or injury (e.g. foxes, dogs). They can also be a nuisance and a health hazard for farm workers and neighbors.

2.1.9 Weeds

Weeds are plants that are unwanted in a given situation, and may be harmful, dangerous or economically detrimental. If not controlled, they can:

- compete with pasture
- poison stock

- harbor disease and vermin
- taint milk
- harm human health
- harm the environment
- disrupt water flows
- contribute to land degradation

Noxious weeds may be declared on a state, regional or local basis, and so their status may vary from area to area and control requirements.

2.1.10 Chemical Use

The use and storage of agricultural chemicals poses potential risks for users, consumers, community and the environment. Agricultural chemicals used on dairy farms include herbicides, pesticides and veterinary medications. Minimization of risk to human health and the environment is achieved through good planning and management.

2.1.11 The impacts of Urbanization, Modernization, and Technology

On a global level, modernization and technology have also brought about changes in land-use patterns as did the urbanization. A somewhat less consequential but serious (in terms of rural lives disrupted) agent of change in rural landscapes in the latter half of the 20th century is commercial farming and the building of dams for hydroelectric power. The construction of dams has given rise, among other things, to "…social, environmental, and economic problems by increasing the relocation of communities against their will and inducing watershed land degradation".

The expansion of the cropland to adjacent slopes and increasing population pressure has led to severe environmental degradation of the steep and vulnerable slopes.

Urbanization has been a double-edged sword. On the one hand, it acted as a pressure valve (as it did in all regions of the world) to relieve the environmental and land-use stress on rural farms. On the other, it has led to an intense concentration of people in places like Addis Ababa where pollution of land, water, and air is becoming a significant health concern.

2.2. Implementing organizational environmental policies and procedures

The right to live in a clean and healthy environment has been promulgated in the Constitution of the Federal Democratic Republic of Ethiopia. The commitment of the government has also been shown by its

approving a relevant environmental policy, laws and regulations, standards as well as strategies that can help to improve the country's environmental conditions.

Federal laws on environmental organs establishment, environmental pollution control, solid waste management, and environmental impact assessment (EIA) as well as effluent emission standards have been issued. Ethiopia, like many African countries, has endorsed the Millennium Development Goals. It has also elaborated a national development strategy which has passed through 3 stages of implementation, each of which has been for 5 years.

2.3. Task allocation and outcome monitoring

An inclusive approach to establishing measured performance goals and client outcomes, indicators, and sources of data ensures broad based support for useful performance and outcomes measurement.

A **Quality circle** is a small group that autonomously practices quality control activities in the same work group where superiors and subordinates come together and act as one to improve the quality of their work, products, and services. In order to make **TQM** activity successful, it is absolutely necessary that highly motivated Quality Circle activities are practiced steadily in all sections of the company/organization. Quality Circle activities are indispensable in TQM.

Quality Circle activities which are the basis for supporting TQM are developed for the following purposes

①All members must concretely think and execute quality improvement.

②Achieve the improving physical conditions of the company from the first line in the work site.

③Develop multi-skilled workers who can flexibly response to the changes

④Make work site constitution that always studies widely and improves.

⑤Increase the ability or device that works by thinking the cooperation as a group

⑥Make the work site comfortable where working with colleagues is something to live for.

⑦Quality assurance through works by each worker

QC Circle activities aim to:

- To develop members **capabilities** and achieve **self-actualization.**
- To make the workplace more pleasant, vital and satisfying.
- To improve customer satisfaction and contribute to society.
- To create good **workers relationship** or **team spirit** through close discussion.
- To develop recognition of importance of workers and raise responsibility.

- To establish discipline in workplace and do proper work by reducing mistakes.

2.4. Implementing contingency plan

Something set aside for unforeseen emergency: provision made against future unforeseen events, e.g. an allocation of funds in a budget

Establishment of a National Steering Committee in Ethiopia

A Global environmental funds (GEF) National Steering Committee has been established. The Committee comprises of representatives from federal sectoral agencies, academic and NGOs. The Steering Committee is chaired by the GEF Focal Point institution, the Environmental Protection Authority of the Federal Democratic Republic of Ethiopia.

Self check # 2	Knowledge questions

Name: _____ Date: _____

Directions: Answer the following questions in the space provided

1. Discuss the organizations represented in the GEF National Steering Committees with their respective representatives in Ethiopia for environmental protection authority. (10 points) _____

Note: satisfactory Rating- 5 and above pts. Unsatisfactory Rating-below 5 pts.

You can ask your teacher for the copy of the correct answers

INFORMATION SHEET#3	Implement and monitor change and continuous improvement

3.1 Implementing environmental improvement plans.

What is an environment improvement plan (EIP)?

An **Environment Improvement Plan** (EIP) is a public commitment by a company to **improve** its **environmental** performance. An EIP outlines areas for **improvement** including measuring, monitoring and recording environmental performance, and continually setting targets for measurable improvements all aspects of environmental performance including energy use, waste minimization, recycling, transport use actions and time lines in Developing an EIP is a dynamic process and putting the **plan** together requires effective collaboration with all those involved.

An EIP is a tool that helps organizations manages the environmental impact of their activities. They are normally developed in consultation with nearby or affected communities, either as a statutory requirement or voluntarily as part of good business practice.

Environmental improvement plans include:

EIPs are important because they:

- improve environmental performance of businesses beyond standard statutory requirements
- improve community-level engagement, transparency and accountability, and
- Provide the level of assurance required for continuous compliance, improvement and safety.

What are the benefits of EIPs?

Benefits include:

- improved environmental performance standards
- improved accountability and transparency between businesses and communities
- Improved environment stewardship.

How do you develop an EIP?

The content and structure of EIPs may vary according to business types, but their objective remains the same. Some key considerations when developing all EIPs include:

- working in partnership with the community
- genuine commitment
- community accessibility
- integration with existing environmental policies
- tailoring the EIP for a specific business and site
- monitoring aspects
- Reporting of EIP implementation.

The Environment Manegement Seystem (EMS) is based around identifying the environmental risks associated with environmental solutions, operations and developing strategies to mitigate these risks. To manage environmental issues effectively we need to be aware of how our work can affect the environment and what the legislative and other requirements are. This information is used in business planning, in setting environmental objectives and targets and when planning our work. Currently, there are three (3) environmental aspects relevant to environmental solutions. These are:

- Environmental Management Governance
- Energy Usage
- Waste Management

Environmental Aspects and Impacts Process

Environmental aspects and impacts are identified using the following method, and recorded in the available Risk Register:

1. Identify all the activities, process and services relevant to your work place.
2. Identify associated aspects which have, or may potentially have, an environmental impact (positive or negative). Consider those that the organisation can control and those over which it can influence.
3. For each activity, process and service, identify the associated actual and potential impacts of the environmental aspects for normal operations, uncommon events, and incidents.
4. The environmental impacts are assessed for significance using: frequency or probability of occurrence of the impact; and severity of the impact, as per organizational Risk Management Methodology.
5. Any environmental aspect: with an inherent risk rating of Medium or higher, or under control of a given organizational standard, and related to the organization's environmental objectives and targets or legal obligations, is defined as "Significant". The environmental aspects associated with identified significant environmental impacts are managed in this EMS.
6. For each activity with a significant aspect, the evidence / controls to mitigate the environmental impact are to be included in the register.

7. The residual risk rating is determined by considering the controls in place and their effectiveness. Any environmental aspect with a residual risk rating of "Medium" or above is managed in accordance with the standard Risk Management Methodology.
8. The Register of Environmental Aspects and Impacts is reviewed and revised annually or as required when: activities, processes or services change significantly; or the organization undertakes new activities, processes or services. The review, and the outcome of the review, shall be documented.

Legislative and Other Requirements

It is fundamental to our principles, that in the course of conducting our business, we will endeavor to comply with laws, regulations and codes of practice. To achieve the objective of a compliant organization, un environmental act utilizes a Legal Compliance Framework. This framework may includes a process to identify and have access to applicable legal and other requirements related to the Act for environmental aspects.

The Environmental Protection Act *is* the primary environmental legislation in a given country that establishes a framework for environmental protection. Under the Act, there is a "general environmental duty" which applies to all people in the country. To fulfill duty of the Act at work, every employee and contractor must identify likely risks and impacts associated with their work, and take all reasonable and practicable measures to prevent and minimize harm.

3.2. Identifying, implementing and monitoring best practice approaches

Best practice approaches to improving environmental performance by reducing environmental risk and waste should be identified, implemented and monitored Many of these ideas may already be used in your workplace. Others may be suitable and should be introduced.

Choosing Energy Sources

- ✓ Use alternative energy sources such as solar, bio-ethanol and wind energy.
- ✓ Use a clean fuel such as LPG or methanol. Use fuels with the least greenhouse impact.

Using energy and resources carefully-Lighting

- ✓ Switch off the office lights when no one is in the room.
- ✓ Use the most efficient lights possible to save power as well as reduce air conditioning loads and reduce labor needed to change globes.
- ✓ Install skylights or look at ways to maximize the use of natural daylight.
- ✓ Use voltage reduction equipment wired into the lighting power supply to reduce the voltage applied to all lights.

Energy saver functions

- ✓ Turn on the energy saver feature on computers and other office equipment.
- ✓ Use energy efficient office equipment and power saving functions where they will be most effective.
- ✓ Insulate rooms to minimize energy waste. Fit self closing doors to reduce heat (or cold) loss from draughts.

Office equipment

- ✓ Use plug-in timers on equipment to avoid it being left on unnecessarily
- ✓ Activate the sleep mode of equipment.
- ✓ Check regularly that sleep mode stays activated Purchase one machine that photocopies, faxes, scans and prints to save on maintenance and operating costs
- ✓ Instead of setting your computer to have a screen saver come on after a period of inactivity, set it to shut down the monitor and save energy.
- ✓ Encourage the use of refilled ink and toner cartridges.

Paper utilization

- ✓ Send a message by email instead of a paper memo or fax.
- ✓ Photocopy only the pages you need. Don't make extra copies unless you are told to.
- ✓ Make the size of the print font smaller so more words can fit on the page.
- ✓ Reuse paper by using both sides where possible ie use the back page to receive faxes or use old paper as notepads.

Water consumption

- ✓ Don't waste water or avoid using water wherever possible — use a dry technique such as a broom, vacuum cleaner or compressed air jet.
- ✓ Fix dripping taps and leaking pipes and install water saving accessories around your

Waste handling and disposal techniques

- ✓ Make sure you know where every type of waste should go.
- ✓ Dispose of materials using a reputable and correctly licensed contractor.
- ✓ Clearly label recycling and waste bins.
- ✓ Use color coding and/or pictures to indicate what each bin's purpose is.

Chemical use and storage of chemicals

- ✓ Substitute toxic materials with non-toxic materials where possible.
- ✓ Have a material safety data sheet (MSDS) for all chemicals to ensure appropriate skills and capacity to store and use the product properly.
- ✓ Ensure lighting is adequate to avoid accumulation of mess and to allow fault detection
- ✓ Store materials where a spill cannot contaminate the soil and ensure that materials in storage cannot collect, contaminate or mix with rainwater
- ✓ Store liquids indoors or undercover, on a sealed surface and within a bundled area.
- ✓ Ensure chemicals cannot react with others stored nearby. For example, acids should not be stored beside alkalis as they can react together violently.
- ✓ Include planning for fire and other emergencies when planning storage locations.

Protect the waterways/ control washing and spills

- ✓ Ensure that all storm water drains and sewer entry points are correctly and clearly marked.
- ✓ Prevent contamination of rainwater by roofing over areas where spills can occur.
- ✓ Avoid washing equipment, transferring chemicals, opening liquid containers and filling tanks where spillage could flow to a creek or storm water drain.
- ✓ Never tip oils, paints, solvents or any pollutant onto the ground or down a drain. Ensure workers can quickly and effectively block storm water drains in an emergency.

Reducing odor and air emissions

- ✓ When working with solvents and odorous materials, use a fume hood or spray booth to reduce the Vapors leaving the area.
- ✓ Use low odor products and materials. Minimize the quantities of solvents and other volatile materials used.

Some approaches to improving environmental performance may include but are not restricted to preventing and minimizing the production of pollution (e.g. discharges to air, land and water, hazardous waste) improving housekeeping (e.g. using a broom instead of a hose, using old rags for cleaning instead of toxic cleaners or water) substituting materials (e.g. replacing toxic solvent based coatings with water based ones) changing processes (e.g. mechanical cleaning, re-design of products/ procedures so that materials are used more efficiently)

3.3. Seeking and acting suggestions and ideas about environmental management

Impacts of farming practices and farm inputs on environment

Agriculture is not just affected by climate change - agricultural production systems also have the potential to mitigate or exacerbate climate change trends. This section looks at agriculture both as a significant emitter of GHGs and as a potential sink for GHGs.

Agriculture as a contributor to climate change

The Intergovernmental Panel on Climate Change (IPCC) concluded that worldwide, agriculture exacerbates climate change trends by contributing about 13.5 percent of global GHG emissions. The major GHGs emitted by agricultural production sources include carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O). U.S. agricultural production is a relatively minor producer of CO2 from on-farm energy use, but it is a major source of CH4 and N2O emissions. As a GHG, CH4 has a greater global warming potential than CO2 but a shorter atmospheric life. Over a 100-year period, CH4 is 23 times as potent as CO2. N2O has a relatively low warming effect but a very long atmospheric life and over 100 years has a global warming potential that is about 310 times that of CO2. Both CH4 and N2O, while released in smaller over-all volumes than CO2, have significantly higher global warming potential than CO2. The term CO2eq (carbon dioxide equivalents) provides a measure that combines the global warming potential of these different GHGs from a source into one measurement

Agricultural Soil Management covers a broad array of practices including fertilization with synthetic fertilizer and animal manures; manure deposition by grazing animals, soil cultivation; production on N-fixing crops and forages; irrigation and other practices. The category covers GHG emissions from both cropland and grasslands.

Enteric Fermentation is primarily methane produced by the digestive processes of agricultural animals which are emitted from the animals as gas.

Manure Management emissions are methane and nitrous oxide released from manure during storage and handling.

Rice cultivation, which in the U.S. done under anaerobic conditions in flooded fields, results in methane emissions.

Field burning of agricultural residues results mostly in CO2 emissions, which are not counted

because it is assumed that CO2 will be reabsorbed by plants in the next growing season. Field burning, however, also results in release of methane, nitrous oxide and other minor GHGs.

Agriculture is the largest anthropogenic source of U.S. N2O emissions. About 75 percent of agricultural emissions of N2O are from nitrogen fertilization of soils, including direct emissions from synthetic fertilizers, biological fixation in crops, and crop residues. There are also indirect emissions attributed to soil leaching of N2O and atmospheric deposition of nitrogenous compounds from agricultural activities.

A large amount of nitrous oxide is also emitted from microbial de-nitrification of solid waste from livestock, primarily cattle. The amount released depends on the size of the animal, the amount of nitrogen in the waste, and the method of managing the waste.

Soils are one of five principal global carbon pools, which also include the oceans, fossil fuel deposits, biotic (plant-based carbon), and the atmosphere. Carbon cycles among these pools, with atmospheric carbon primarily in the form of the GHG CO2. The burning of fossil fuels is the major anthropogenic source of increased atmospheric CO2. The oceans are taking up atmospheric CO2 but this uptake results in chemical reactions which make the oceans more acidic. Oceanic acidification may disrupt important marine ecosystems by interfering with the ability of marine organisms to develop carbonate and by dissolving carbonate sediments.[18]

Overall conclusions from GHG Emission Data for Agriculture

Overall, the EPA GHG emissions inventory leads to the following conclusions:

- Agricultural soil management is the single greatest contributor to GHG emissions from the agricultural production sector.
- Soil management, enteric fermentation from livestock digestive processes particularly of cattle and other ruminants, and manure management are the top three sources of agricultural GHG emissions, representing about 81 percent of total emissions from the U.S. agricultural production sector.

- The conversion of land to cropland from grassland and forest land results in net GHG emissions.

- The U.S agricultural production sector is a moderate source of total U.S. GHG emissions, with an estimated total from major agricultural production activities of 5.8 percent in 2007, ranging up to 8 percent per year when minor sources are also included.

· Most GHG emissions increases from U.S. agricultural production activities currently come from CH4 and N2O. A large amount of CO2 was lost from soils in the past because of conversion of vast acreages of native grasslands and forests to agricultural uses and losses on a smaller scale continue each year.

· ***The agricultural production sector is a net emitter of GHG emission (in developed nations.) That is, agricultural production annually creates more GHG emissions than it captures. There is, however, the potential for the agricultural production sector to sequester significantly higher levels of soil carbon through management and land use changes.***

· ***Despite some improvement since 1990 in certain areas, overall the agricultural production sector has increased its GHG emissions, increasing its impact on climate change.***

The impact of current (U.S. agriculture production) on climate change is significant, but the impact can be alleviated. Sustainable soil, land, and livestock management systems hold great potential to lower GHG emissions from the agricultural production activities and improve the capacity of soils to sequester carbon. These sustainable and organic agricultural production systems can also improve soil quality, productivity and the overall conservation performance of the nation's agricultural land.

Impact of businesses on the environment Even the simple act of switching on a light has an environmental impact. As a business owner, manager, or employee, it is your responsibility to ensure that your environmental impact is managed appropriately and minimized where possible. Now you need to consider how to achieve "sustainable" outcomes. There are legal responsibilities for business owners, managers and employees to manage their environmental impacts. In simple terms those legal responsibilities are that you must not:

Every business should have a series of steps that can be completed to properly manage environmentally sustainable practices. These steps need to be developed to specifically suit an individual business and should include:

- ♦ managing their impact on the environment through developing and implementing sustainable work procedures
- ♦ compliance with legal responsibilities
- ♦ performing regular environmental audits to help assess which areas of the business impact on the environment, and to what extent using sustainable resources
- ♦ employing proper recycling and waste reduction measures

Self check # 3	Knowledge questions

Name: _________________________ Date: _______________

Directions: Answer the following questions in the space provided

1. Discus Environmental improvement plans?*(10 points)* _ _ _ _ __ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ _ __ _ _ _ _ _ _ __
2. Explained the Best practice approaches to improving environmental performance? *(10 points)* _ __ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ __ _ _ _ _ _ __ _ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ _ __ _ _ _ _ _ _ _ _ __ _ _ _ _ _ _

Note: satisfactory Rating-10 and above pts.   Unsatisfactory Rating-below 10 pts.

You can ask your teacher for the copy of the correct answers

INFORMATION SHEET#4	Implement and monitor recording procedures

4.1 Identifying and implementing reporting procedures.

It doesn't matter what environmental measures are put in place, you won't be able to measure the Effectiveness of activities unless appropriate records are maintained in your workplace.

Have you asked your supervisor what records need to be maintained? Keeping environmental records is often necessary for meeting legislative requirements. These are the "must do" records. Other "useful" records, selected as relevant by each business, are vital tools for use by management and workers for improved environmental planning and risk management purposes. You cannot rely on your memory so you need to record activities and decisions that are applicable to the environmental and risk management aspects of your job. You become a very important part of your workplace if you diligently help with completing any required forms or records.

Through correct record keeping processes the business can:

- ✓ Satisfy legal requirements
- ✓ Identify areas where efficiencies can be introduced
- ✓ Enable management to monitor business, exercise control and make informed decisions related to environmental management use information from the past to plan for the future. The records that should be kept will vary between different workplaces; however there are some common sense rules.
  - ➢ Don't waste time keeping records that will never be used
  - ➢ Keep records simple and easy to use to encourage everyone to use the system
  - ➢ Make sure information is recorded accurately. Bad records can lead to poor decisions
  - ➢ Good record keeping will help everyone in the workplace to:
  - ➢ Make better decisions and support each other to minimize environmental risks and hazards
  - ➢ Achieve everyone's commitment to the workplace environmental plan
  - ➢ Analyze where better efficiencies can be introduced

4.2 Maintaining and storing environmental records accurately, legibly and securely.

Environmental records should be accurately and legibly maintained and stored securely in a form accessible for reporting purposes.

4.3. Monitoring information/records to identify trends

Information/records should be monitored to identify trends that may require remedial action, and used to promote continuous improvement of environment performance.

Self check # 4	Knowledge questions

Name: __________________________ Date: ________________

Directions: Answer the following questions in the space provided

1. Write and Discus the recording procedures for implementing and monitoring environmental policies?*(10 points)*
   _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ —
   _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ —
   _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ —
   _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ _ — _ _ _ _ _ _ _ —

Note: satisfactory Rating-10 and above pts.   Unsatisfactory Rating-below 10 pts.

You can ask your teacher for the copy of the correct answers

INFORMATION SHEET#5	Implement and monitor an environmental management training program

5.1 Identifying environmental training needs based on specified gaps.

One of the keys to ensuring a successful implementation of the Environmental management System is the training of staff and contractors. This training is a means of increasing their awareness of the environmental policy, procedures and the requirements of the EMS, and their roles and responsibilities therein.

Solutions for environmental problems, through training and development policies, will:

- ensure that any person performing tasks, for or on behalf of Solutions for environmental problems, that have potential to cause significant environmental impact, are competent on the basis of appropriate education, training or experience;
- Provide environmental awareness training and additional specific briefings and training as appropriate; and *Environmental training* needs should be identified accurately, specifying gaps between Environmental competencies required and those held by group members.

5.2 Making arrangements for fulfilling identified training needs

Arrangements should be made for fulfilling identified training needs for the work group with relevant parties.

Sustainable agriculture systems that mitigate climate change

Biological nitrogen fixation

The conversion of molecular nitrogen (N_2) to ammonia (NH_3) through biological fixation by bacteria begins the process of making nitrogen available to plants. Once this "fixed" nitrogen is incorporated into the plant biomass, it can become part of the soil reservoir and taken up again by plant roots as nitrate (NO_2). Biological nitrogen fixation allows nutrients in soil to be actively cycled in the ecosystem, rather than relying on through flow of nutrients to nourish plants.

Conservation tillage

Conservation tillage refers to strategies and techniques for establishing crops in the previous crop's residues, which are purposely left on the soil surface. The principal benefits of conservation tillage are improved water conservation and the reduction of soil erosion. Additional potential benefits include reduced fuel consumption, planting and harvesting flexibility, reduced labor requirements, and improved soil tithe (NCAT/ATTRA).

Crop residue management

Crop Residue Management refers to any tillage method that leaves crop residue on the surface to reduce erosion. Crop residue left on the surface shields the soil from rain and wind until emerging plants provide a protective canopy. Crop residue also improves soil tilth and adds organic matter to the soil. Less tillage reduces soil compaction and saves farmers time and fuel.

Integrated pest management

Integrated pest management (IPM) is an effective and environmentally sensitive approach to pest management that uses current, comprehensive information on the life cycles of pests and their interaction with the environment to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.

Manure Composting

Composting is the aerobic decomposition of organic matter by certain microorganisms. These microbes consume oxygen and use nutrients including carbon, nitrogen, phosphorus, and potassium as they feed on the organic matter. The resulting composted manure is a humus-like organic material, fine-textured, low-moisture, and with a non-offensive earthy odor. If high enough temperatures have been reached during the composting process, pathogens and weed seeds have been killed.

Nutrient management

Nutrient management is the practice of using nutrients wisely for optimum economic benefit, while minimizing impact on the environment. Proper applications of plant nutrients help achieve optimum crop yields; while improper application can lead to water quality problems.

Organic agriculture

Organic agriculture is a system of agriculture that uses crop rotation, green manure, compost, biological pest control, and mechanical cultivation to maintain soil productivity and control for pests. Organic agriculture does not use synthetic fertilizers or pesticides, plant growth regulators, livestock feed additives or genetically modified organisms.

Poly-culture and crop rotation

Poly-culture is the practice of growing multiple crops in the same space, as crops would grow in a natural ecosystem. Poly-culture includes techniques such as crop rotation (growing different crops in the same area in sequential seasons), multi-cropping (growing different crops simultaneously), and inter-cropping (growing different crops in between rows of a primary crop) Crops grown in this way are less susceptible to disease than monoculture crops, and also increase local biodiversity.

Resource conserving crop rotation

As defined in 2008 Farm Bill at Section 1238G, resource-conserving crop rotation includes at least one resource conserving crop, reduces erosion, improves soil fertility and tilthe, interrupts pest cycles, and in applicable areas, reduces depletion of soil moisture, or otherwise reduces the need for irrigation.

Restoration of degraded soils

Soil restoration seeks to minimize the degradation of soil as a resource that takes hundreds of thousands of years to form, and to promote functional plant-soil systems. Returning soils to their original state as soon as possible after disturbance, stopping application of chemicals, using bacteria to break down pollutants, and applying cover crops are all ways to help restore degraded soil. Without soil restoration, soil erosion and loss of soil organic matter and nutrients damage agricultural outputs in addition to the larger ecosystem.

Rotational grazing

Rotational grazing is periodically moving livestock to fresh paddocks, to allow pastures to re grow. Feed costs decline and animal health improves when animals harvest their own feed in a well-managed rotational grazing system (NCAT/ATTRA).

Seeds and Breeds

The concept of "Seeds and Breeds" refers to the maintenance of genetic resources of plant varieties and animal breeds that are necessary for the survival of sustainable and organic agricultural systems for current and future generations.

Water management

Sustainable agriculture strategies for conserving water include converting cropland to managed grassland in riparian areas, constructing and restoring wetlands, measuring and conserving irrigation water, creating conservation easements, choosing water-efficient crops and resource-conserving crop rotations, and limiting the impact of nitrogen and pesticide runoff from farms into local water supplies. Water management strategies for maximizing carbon sequestration include monitoring soil organic carbon and soil inorganic carbon pools and sediments affected by erosion processes, irrigation, drainage, and sub-irrigation.