REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS

FOR

ENVIRONMENTAL MANAGER

LEVEL 6

TVET CDACC
P.O. BOX 15745-00100
NAIROBI

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FOREWORD

The provision of quality education and training is fundamental to the Government's overall strategy for social economic development. Quality education and training will contribute to achievement of Kenya's development blueprint, Vision 2030 and sustainable development goals.

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution of Kenya 2010 and this resulted in the formulation of the Policy Framework for Reforming Education and Training (Sessional Paper No. 14 of 2012). A key feature of this policy is the radical change in the design and delivery of the TVET training. This policy document requires that training in TVET be competency based, curriculum development be industry led, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programmes.

These reforms demand that industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that these Occupational Standards were developed for the purpose of developing a competency-based curriculum for Environmental Management level 6. These Occupational Standards will also be the basis for assessment of an individual for competence certification.

It is my conviction that these Occupational Standards will play a great role towards development of competent human resource for the Environment sector's growth and sustainable development.

PRINCIPAL SECRETARY, VOCATIONAL AND TECHNICAL TRAINING
MINISTRY OF EDUCATION

PREFACE

Kenya Vision 2030 aims to transform the country into a newly industrializing, "middle-income country providing a high-quality life to all its citizens by the year 2030". Kenya intends to create a globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through life-long education and training. TVET has a responsibility of facilitating the process of inculcating knowledge, skills and attitudes necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency Based Education and Training (CBET).

The Technical and Vocational Education and Training Act No. 29 of 2013 and Sessional Paper No. 14 of 2012) on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification. This called for a shift to CBET in order to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labour force.

The TVET Curriculum Development, Assessment and Certification Council (TVET CDACC), in conjunction with Environment Sector Skills Advisory Committee (SSAC) have developed these Occupational Standards for Environment. These standards will be the basis for development of competency-based curriculum for Environmental Management level 6.

The occupational standards are designed and organized with clear performance criteria for each element of a unit of competency. These standards also outline the required knowledge and skills as well as evidence guide.

I am grateful to the Council Members, Council Secretariat, Environment SSAC, expert workers and all those who participated in the development of these Occupational Standards.

CHAIRMAN, TVET CDACC

ACKNOWLEDGMENT

These Occupational Standards were developed through combined efforts of various stakeholders from private and public organizations. I am thankful to the management of the organizations for allowing their staff to participate in this course. I wish to acknowledge the invaluable contribution of industry players who provided inputs towards the development of these Standards.

I thank TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) for providing guidance on the development of these Standards. My gratitude goes to Environment Sector Skills Advisory Committee (SSAC) members for their contribution to the development of these Standards. I thank all the individuals and organizations who participated in the validation of these Standards.

I acknowledge all other institutions which in one way or another contributed to the development of these Standards.

CHAIRPERSON
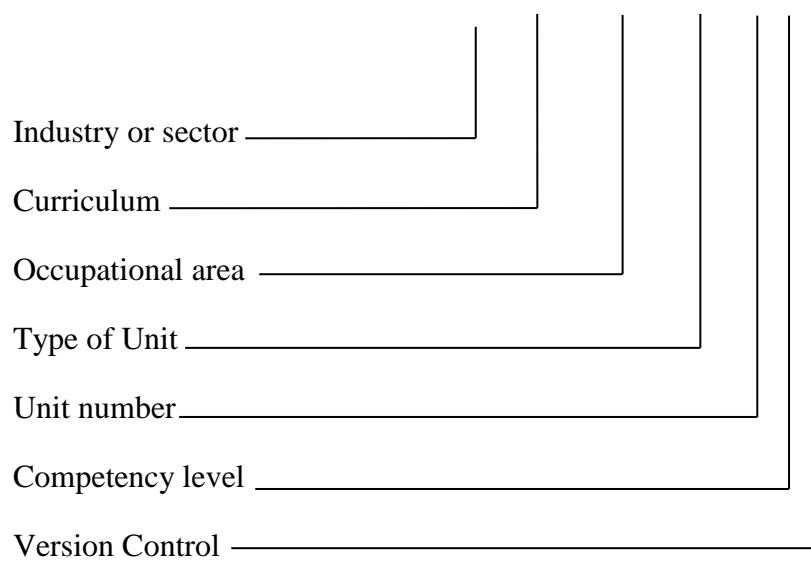**ENVIRONMENT SECTOR SKILLS ADVISORY COMMITTEE**

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ACRONYMS

BC   : Basic Competency
CC   : Common Competency
CDACC   : Curriculum Development, Assessment and Certification Council
CPU   : Central Processing Unit
CR   : Core Competency
ENV   : Environment
ICT   : Information Communication Technology
KCPE   : Kenya Certificate of Primary Education
KCSE   : Kenya Certificate of secondary Education
KNQA   : Kenya National Qualifications Authority
MGT   : Management
OS   : Occupational Standards
OSHA   : Occupation Safety and Health Act
OSHS   : Occupation Safety and Health Standards
PC   : Personal Computer
PPE   : Personal Protective Equipment
SOPs   : Standard Operating Procedures
SSAC   : Sector Skills Advisory Committee
TVET   : Technical and Vocational Education

KEY TO UNIT CODE

ENV/ OS/ MGT/ BC /01 /6/A

Industry or sector ——————

Curriculum ——————

Occupational area ——————

Type of Unit ——————

Unit number ——————

Competency level ——————

Version Control ——————

OVERVIEW

Environmental Manager Level 6 qualification consists of competencies that a person must achieve to manage disaster and risk, manage water resources, manage environmental pollution and waste, manage marine and wetland resources, manage rangeland and wildlife resources and manage energy resources. It also enables an individual to manage forest resources, apply environmental law, manage greenhouses and manage fisheries resources

The units of competency leading to Environmental Manager Level 6 qualification include the following competencies:

BASIC UNITS OF COMPETENCY

Unit Code	Unit Title
ENV/OS/MGT/BC/01/6/A	Demonstrate communication skills
ENV/OS/MGT/BC/02/6/A	Demonstrate numeracy skills
ENV/OS/MGT/BC/03/6/A	Demonstrate digital literacy
ENV/OS/MGT/BC/04/6/A	Demonstrate entrepreneurial skills
ENV/OS/MGT/BC/05/6/A	Demonstrate employability skills
ENV/OS/MGT/BC/06/6/A	Demonstrate occupational safety and health practices

COMMON UNITS OF COMPETENCY

Unit Code	Unit Title
ENV/OS/MGT/CC/01/6/A	Conduct project research
ENV/OS/MGT/CC/02/6/A	Perform safety and survival techniques
ENV/OS/MGT/CC/03/6/A	Build capacity for community development
ENV/OS/MGT/CC/04/6/A	Manage climate change and global warming
ENV/OS/MGT/CC/05/6/A	Plan and manage land use
ENV/OS/MGT/CC/06/6/A	Plan and manage projects
ENV/OS/MGT/CC/07/6/A	Apply Basic Principles of Environment
ENV/OS/MGT/CC/08/6/A	Assess environmental and social impact

CORE UNITS OF COMPETENCY

Unit Code	Unit Title
ENV/OS/MGT/CR/01/6/A	Manage disaster and risk
ENV/OS/MGT/CR/02/6/A	Manage water resources
ENV/OS/MGT/CR/03/6/A	Manage environmental pollution and waste
ENV/OS/MGT/CR/04/6/A	Manage marine and wetland resources
ENV/OS/MGT/CR/05/6/A	Manage rangeland and wildlife resources
ENV/OS/MGT/CR/06/6/A	Manage energy resources
ENV/OS/MGT/CR/07/6/A	Manage forest resources

ENV/OS/MGT/CR/08/6/A	Apply environmental law
ENV/OS/MGT/CR/09/6/A	Manage greenhouses
ENV/OS/MGT/CR/10/6/A	Manage fisheries resources

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BASIC UNITS OF COMPETENCY

DEMONSTRATE COMMUNICATION SKILLS

UNIT CODE: ENV/OS/MGT/BC/01/6/A

UNIT DESCRIPTION

This unit covers the competencies required to demonstrate communication skills. It involves meeting communication needs of clients and colleagues, developing communication strategies, establishing and maintaining communication pathways, conducting interviews, facilitating group discussion and representing the organization.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Meet communication needs of clients and colleagues	1.1 Specific communication needs of clients and colleagues are identified and met based on workplace requirements 1.2 Different communication approaches are identified and applied according to clients' needs 1.3 Conflict is identified and addressed as per the standards of the organization
2. Develop communication strategies	2.1 Strategies for effective internal and external dissemination of information are developed as per organization's requirements 2.2 Special communication needs are considered in developing strategies according workplace procedures 2.3 ***Communication strategies*** are analyzed, evaluated and revised based the workplace needs
3. Establish and maintain communication pathways	3.1 Pathways of communication are established as per organization policy 3.2 Pathways are maintained and reviewed according to organization procedures
4. Promote use of communication strategies	4.1 Information is provided to all areas of the organization as per strategy requirements 4.2 Effective communication techniques are articulated and modeled according work requirements 4.3 Personnel are given guidance about adapting communication strategies as per organization procedures
5. Conduct interview	5.1 A range of appropriate communication strategies are employed in ***interview situations*** based on the workplace requirements

	5.2 Records of interviews are made and maintained in accordance with organizational procedures
	5.3 Effective questioning, listening and nonverbal communication techniques are used as per needs
6. Facilitate group discussion	6.1 Mechanisms to enhance *effective group interaction* are identified and implemented according to workplace requirements
	6.2 Strategies to encourage group participation are identified and used as per organizations' procedures
	6.3 Meetings objectives and agenda are set and followed based on workplace requirements
	6.4 Relevant information is provided and feedback obtained according to set protocols
	6.5 Evaluation of group communication strategies is undertaken in accordance with workplace guidelines
	6.6 Specific communication needs of individuals are identified and addressed as per individual needs
7. Represent the organization	5.1 7Relevant presentation are researched and presented based on internal or external communication forums requirements
	5.2 Presentation is delivered in a clear and sequential manner as per the predetermined time
	5.3 Presentation is made as per appropriate media
	5.4 Difference views are respected based on workplace procedures
	5.5 Written communication is done as per organizational standards
	5.6 Inquiries are responded according to organizational standard

RANGE

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

Variable	Range
1. Communication strategies may include but not limited to:	☐ Language switch
	☐ Comprehension check
	☐ Repetition
	☐ Asking confirmation
	☐ Paraphrase
	☐ Clarification request

		☐ Translation
		☐ Restructuring
		☐ Approximation
		☐ Generalization
2. Effective group interaction may include but not limited to:		☐ Identifying and evaluating what is occurring within an interaction in a nonjudgmental way
		☐ Using active listening
		☐ Making decision about appropriate words, behavior
		☐ Putting together response which is culturally appropriate
		☐ Expressing an individual perspective
		☐ Expressing own philosophy, ideology and background and exploring impact with relevance to communication
3. Situations may include but not limited to:		☐ Establishing rapport
		☐ Eliciting facts and information
		☐ Facilitating resolution of issues
		☐ Developing action plans
		☐ Diffusing potentially difficult situations

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

☐ Communication
☐ Active listening
☐ Interpretation
☐ Negotiation
☐ Writing

Required Knowledge

The individual needs to demonstrate knowledge of:

☐ Communication process
☐ Dynamics of groups
☐ Styles of group leadership
☐ Key elements of communications strategy

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Developed communication strategies to meet the organization requirements and applied in the workplace 1.2 Established and maintained communication pathways for effective communication in the workplace 1.3 Used communication strategies involving exchanges of complex oral information
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct observation 3.2 Oral questioning 3.3 Written texts
4. Context of Assessment	Competency may be assessed 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE NUMERACY SKILLS

UNIT CODE: ENV/OS/MGT/BC/02/6/A

UNIT DESCRIPTION
This unit describes the competencies required to demonstrate numeracy skills. It involves; applying a wide range of mathematical calculations for work; applying ratios, rates and proportions to solve problems; estimating, measuring and calculating measurement for work; using detailed maps to plan travel routes for work; using geometry to draw and construct 2D and 3D shapes for work; collecting, organizing and interpreting statistical data; using routine formula and algebraic expressions for work and using common functions of a scientific calculator.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range.***
1. Apply a wide range of mathematical calculations for work	1.1 Mathematical information embedded in a range of workplace tasks and texts is extracted as per workplace procedures. 1.2 Mathematical information is interpreted and comprehended as per job specifications 1.3 A range of mathematical and problem solving processes are selected and used as per job specification 1.4 Different forms of fractions, decimals and percentages are flexibly used as per SOPs 1.5 Calculation performed with positive and negative numbers as per SOPs 1.6 Numbers are expressed as powers and roots and are used in calculations as per SOPs 1.7 Calculations done using routine formulas as per SOPs 1.8 Estimation and assessment processes are used to check outcome as per workplace procedures 1.9 Mathematical language is used to discuss and explain the processes, results and implications of the task as per workplace procedures
2. Use and apply ratios, rates and proportions for work	2.1 Information regarding ratios, rates and proportions extracted from a range of workplace tasks and texts as per SOPs 2.2 Mathematical information related to ratios, rate and

		proportions is analysed as per SOPs
		2.3 Problem solving processes are used to undertake the task as per workplace procedures
		2.4 Equivalent ratios and rates are simplified as per SOPs
		2.5 Quantities are calculated using ratios, rates and proportions as per SOPS
		2.6 Graphs, charts or tables are constructed to represent ratios, rates and proportions as per SOPs
		2.7 The outcomes reviewed and checked as per job specifications
		2.8 Information is record using mathematical language and symbols as per workplace procedures
3.	Estimate, measure and calculate measurement for work	3.1 Measurement information embedded in workplace texts and tasks are extracted and interpreted as per job specifications
		3.2 Appropriate workplace measuring equipment are identified and selected as per job specifications
		3.3 Accurate measurements are estimated and made as per SOPs
		3.4 The area of *2D shapes* including compound shapes are calculated as per SOPs
		3.5 The volume of 3D shapes is calculated using relevant formulas as per SOPs
		3.6 Sides of right angled triangles are calculated using Pythagoras' theorem as per SOPs
		3.7 conversions are perform between units of measurement as per job specification
		3.8 Problem solving processes are used to undertake the task as per workplace Procedures
		3.9 The measurement outcomes are reviewed and checked as per workplace procedures
		3.10 Information is recorded using mathematical language and symbols appropriate for the task as per workplace procedures
4.	Use detailed maps to plan travel routes for work	4.1 Different types of maps are identified and interpreted as per job requirements
		4.2 Key features of maps are identified as per job requirements
		4.3 Scales are identified and interpreted as per job requirements

		4.4 Scales are applied to calculate actual distances
		4.5 Positions or locations are determined using directional information as per job requirements
		4.6 Routes are planned by determining directions and calculating distances, speeds and times as per job requirements
		4.7 Information is gathered and identified and relevant factors related to planning a route checked as per job requirements
		4.8 Relevant equipment is select and checked for accuracy and operational effectiveness as per job requirements
		4.9 Task is planned and recorded using specialized mathematical language and symbols appropriate for the task as per job requirements
5.	Use geometry to draw 2D shapes and construct 3D shapes for work	5.1 A range of 2D shapes and 3D shapes and their uses in work contexts is identified as per job specifications
		5.2 Features of 2D and 3D shapes are named and described as per job specifications
		5.3 Types of angles in 2D and 3D shapes are identified as per job specifications
		5.4 Angles are drawn, estimated and measured using geometric instruments as per job requirements
		5.5 Angle properties of 2D shapes are named and identified as per SOPs
		5.6 Angle properties are used to evaluate unknown angles in shapes as per SOPs
		5.7 Properties of perpendicular and parallel lines are applied to shapes as per SOPs
		5.8 Understanding and use of symmetry is demonstrated as per SOPs
		5.9 Understanding and use of similarity is demonstrated as per SOPs
		5.10 The workplace tasks and mathematical processes required are identified as per workplace procedures
		5.11 2D shapes is drawn for work as per job specification
		5.12 3D shapes is constructed for work as per job specification
		5.13 The outcomes are reviewed and checked as per workplace procedures
		5.14 Specialized mathematical language and symbols

		appropriate for the task are used as per SOPs
6. Collect, organize, and interpret statistical data for work	6.1	Workplace issue requiring investigation are identified as per workplace procedures
	6.2	Audience / population / sample unit is determined as per workplace procedures as per workplace procedures
	6.3	Data to be collected is identified as per workplace procedures
	6.4	Data collection method is selected as per workplace procedures
	6.5	Appropriate statistical data is collected and organized as per SOPs
	6.6	Data is illustrated in appropriate formats as per SOPs
	6.7	The effectiveness of different types of graphs are compared as per SOPs
	6.8	The summary statistics for collected data is calculated as per SOPs
	6.9	The results / findings are interpreted as per SOPs
	6.10	Data is checked to ensure that it meets the expected results and content as per workplace procedures
	6.11	Information from the results including tables, graphs and summary statistics is extracted and interpreted as per workplace procedure
	6.12	Mathematical language and symbols are used to report results of investigation as per workplace procedure
7. Use routine formula and algebraic expressions for work	7.1	Understanding of informal and symbolic notation, representation and conventions of algebraic expressions is demonstrated as per SOPs
	7.2	Simple algebraic expressions and equations are developed as per job specification
	7.3	Operate on algebraic expressions as per job requirement
	7.4	Algebraic expressions are simplified as per job requirement
	7.5	Substitution into simple routine equations is done as per SOPs
	7.6	Routine formulas used for work tasks are identified and comprehended as per SOPs
	7.7	Routine formulas are evaluate by substitution as per SOPs
	7.8	Routine formulas transposed as per SOPs

	7.9 Appropriate formulas are identified and used for work related tasks as per workplace procedures
	7.10 Outcomes are checked and result of calculation used as per workplace procedures
8. Use common functions of a scientific calculator for work	8.1 Required numerical information to perform tasks is located as per job specification
	8.2 The order of operations and function keys necessary to solve mathematical calculation are determined as per job specification
	8.3 Function keys on a scientific calculator are identified and used as per SOPs
	8.4 Estimations are referred to check reasonableness of problem solving process as per workplace procedures
	8.5 Appropriate mathematical language, symbols and conventions are used to report results as per workplace procedures

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
2D shapes may include but not limited may include but not limited to:	☐ Triangles ☐ Square ☐ Rectangle ☐ Triangle

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit of competency.

Required Skills
The individual needs to demonstrate the following skills:
- ☐ Measuring
- ☐ Logical thinking
- ☐ Computing
- ☐ Drawing of graphs
- ☐ Applying mathematical formulas
- ☐ Analytical

Required knowledge

The individual needs to demonstrate knowledge of:

- Types of common shapes
- Differentiation between two dimensional shapes / objects
- Formulae for calculating area and volume
- Types and purpose of measuring instruments
- Units of measurement and abbreviations
- Fundamental operations (addition, subtraction, division, multiplication)
- Rounding techniques
- Types of fractions
- Different types of tables and graphs
- Meaning of graphs, such as increasing, decreasing, and constant value
- Preparation of basic data, tables & graphs

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Developed communication strategies to meet the organization requirements and applied in the workplace
	1.2 Established and maintained communication pathways for effective communication in the workplace
	1.3 Used communication strategies involving exchanges of complex oral information
2. Resource Implications	The following resources should be provided:
	2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place
	2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through:
	3.1 Observation
	3.2 Oral questioning
	3.3 Written test
	3.4 Portfolio of Evidence
	3.5 Interview

		3.6 Third party report
4.	Context of Assessment	Competency may be assessed 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE DIGITAL LITERACY

UNIT CODE: ENV/OS/MGT/BC/03/6/A

UNIT DESCRIPTION

This unit describes competencies required to demonstrate digital literacy. It involves, identifying computer software and hardware, applying security measures to data, hardware, and software in automated environment, applying computer software in solving task, applying internet and email in communication at workplace, applying desktop publishing in official assignments and preparing presentation packages.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Identify appropriate computer software and hardware	1.1 Concepts of ICT are determined in accordance with computer equipment 1.2 Classifications of computers are determined in accordance with manufacturers specification 1.3 Appropriate computer software is identified according to manufacturer's specification 1.4 Appropriate computer hardware is identified according to manufacturer's specification 1.5 Functions and commands of operating system are determined in accordance with manufacturer's specification
2. Apply security measures to data, hardware, software in automated environment	2.1 ***Data security and privacy are classified*** in accordance with the prevailing technology 2.2 ***Security threats*** reidentified ***and control measures*** are applied in accordance with laws governing protection of ICT 2.3 Computer threats and crimes are detected in accordance to Information Management security guidelines 2.4 Protection against computer crimes is undertaken in accordance with laws governing protection of ICT
3. Apply computer software in solving tasks	3.1 ***Word processing concepts*** are applied in resolving workplace tasks, report writing and documentation as per the job requirements 3.2 ***Word processing utilities*** are applied in accordance with workplace procedures 3.3 Worksheet layout is prepared in accordance with work procedures

	3.4	Worksheet is build and data manipulated in the worksheet in accordance with workplace procedures
	3.5	Continuous data manipulated on worksheet is undertaken in accordance with work requirements
	3.6	Database design and manipulation is undertaken in accordance with office procedures
	3.7	Data sorting, indexing, storage, retrieval and security is provided in accordance with workplace procedures
4. Apply internet and email in communication at workplace	4.1	Electronic mail addresses are opened and applied in workplace communication in accordance with office policy
	4.2	Office internet functions are defined and executed in accordance with office procedures
	4.3	*Network configuration* is determined in accordance with office operations procedures
	4.4	Official World Wide Web is installed and managed according to workplace procedures
5. Apply Desktop publishing in official assignments	5.1	Desktop publishing functions and tools are identified in accordance with manufactures specifications
	5.2	Desktop publishing tools are developed in accordance with work requirements
	5.3	Desktop publishing tools are applied in accordance with workplace requirements
	5.4	Typeset work is enhanced in accordance with workplace standards
6. Prepare presentation packages	6.1	Types of presentation packages are identified in accordance with office requirements
	6.2	Slides are created and formulated in accordance with workplace procedures
	6.3	Slides are edited and run in accordance with work procedures
	6.4	Slides and handouts are printed according to work requirements

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Appropriate computer hardware may include but not limited to:	Collection of physical parts of a computer system such as; □ Computer case, monitor, keyboard, and mouse □ All the parts inside the computer case, such as the hard disk drive, motherboard and video card

2. Data security and privacy may include but not limited to:	☐ Confidentiality of data ☐ Cloud computing ☐ Integrity -but-curious data surfing
3. Security and control measures may include but not limited to:	☐ Counter measures against cyber terrorism ☐ Risk reduction ☐ Cyber threat issues ☐ Risk management ☐ Pass-wording
4. Security threats may include but not limited to:	☐ Cyber terrorism ☐ Hacking

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit of competency.

Required Skills
The individual needs to demonstrate the following skills:

☐ Analytical skills
☐ Interpretation
☐ Typing
☐ Communication
☐ Computing (applying fundamental operations such as addition, subtraction, division and multiplication)
☐ Using calculator
☐ Basic ICT skills

Required Knowledge
The individual needs to demonstrate knowledge of:

☐ Software concept
☐ Functions of computer software and hardware
☐ Data security and privacy
☐ Computer security threats and control measures
☐ Technology underlying cyber-attacks and networks
☐ Cyber terrorism
☐ Computer crimes
☐ Detection and protection of computer crimes
☐ Laws governing protection of ICT
☐ Word processing;

- o Functions and concepts of word processing.
- o Documents and tables creation and manipulations
- o Mail merging
- o Word processing utilities

- Spread sheets;
  - o Meaning, formulae, function and charts, uses and layout
  - o Data formulation, manipulation and application to cells

- Database;
  - o Database design, data manipulation, sorting, indexing, storage retrieval and security

- Desktop publishing;
  - o Designing and developing desktop publishing tools
  - o Manipulation of desktop publishing tools
  - o Enhancement of typeset work and printing documents

- Presentation Packages;
  - o Types of presentation Packages
  - o Creating, formulating, running, editing, printing and presenting slides and handouts

- Networking and Internet;
  - o Computer networking and internet.
  - o Electronic mail and world wide web

- Emerging trends and issues in ICT;
  - o Identify and integrate emerging trends and issues in ICT
  - o Challenges posed by emerging trends and issues

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Identified and controlled security threats
	1.2 Detected and protected computer crimes
	1.3 Applied word processing in office tasks
	1.4 Designed, prepared work sheet and applied data to the cells in accordance to workplace procedures
	1.5 Opened electronic mail for office communication as per workplace procedure
	1.6 Installed internet and World Wide Web for office tasks in accordance with office procedures
	1.7 Integrated emerging issues in computer ICT applications
	1.8 Applied laws governing protection of ICT

2.	Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place
3.	Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Written test 3.4 Portfolio of Evidence 3.5 Interview 3.6 Third party report
4.	Context of Assessment	Competency may be assessed 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE UNDERSTANDING OF ENTREPRENEURSHIP

UNIT CODE: ENV/OS/MGT/BC/04/6/A

UNIT DESCRIPTION

This unit covers the competencies required to demonstrate understanding of entrepreneurship. It involves demonstrating understanding of an entrepreneur, entrepreneurship, and self-employment, identifying entrepreneurship opportunities, creating entrepreneurial awareness, applying entrepreneurial motivation, developing business innovative strategies and developing business plan.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
1. Demonstrate understanding of an Entrepreneur	1.1 Entrepreneurs and Business persons are distinguished as per principles of entrepreneurship 1.2 **Types of entrepreneurs** are identified as per principles of entrepreneurship 1.3 Ways of becoming an Entrepreneur are identified as per principles of Entrepreneurship 1.4 **Characteristics of Entrepreneurs** are identified as per principles of Entrepreneurship 1.5 Factors affecting Entrepreneurship development are explored as per principles of Entrepreneurship
2. Demonstrate understanding of Entrepreneurship and self-employment	2.1 Entrepreneurship and self-employment are distinguished as per principles of entrepreneurship 2.2 Importance of self-employment is analysed based on business procedures and strategies 2.3 Requirements for entry into self-employment are identified according to business procedures and strategies 2.4 Role of an Entrepreneur in business is determined according to business procedures and strategies 2.5 Contributions of Entrepreneurs to National development are identified as per business procedures and strategies 2.6 Entrepreneurship culture in Kenya is explored as per business procedures and strategies 2.7 Born or made Entrepreneurs are distinguished as per entrepreneurial traits
3. Identify Entrepreneurship opportunities	3.1 Sources of business ideas are identified as per business procedures and strategies 3.2 Business ideas and opportunities are generated as per

		business procedures and strategies
		3.3 Business life cycle is analysed as per business procedures and strategies
		3.4 Legal aspects of business are identified as per procedures and strategies
		3.5 Product demand is assessed as per market strategies
		3.6 Types of business environment are identified and evaluated as per business procedures
		3.7 Factors to consider when evaluating business environment are explored based on business procedure and strategies
		3.8 Technology in business is incorporated as per best practice
4.	Create entrepreneurial awareness	4.1 Forms of businesses are explored as per business procedures and strategies
		4.2 Sources of business finance are identified as per business procedures and strategies
		4.3 Factors in selecting source of business finance are identified as per business procedures and strategies
		4.4 Governing policies on Small Scale Enterprises (SSEs) are determined as per business procedures and strategies
		4.5 Problems of starting and operating SSEs are explored as per business procedures and strategies
5.	Apply entrepreneurial motivation	5.1 Internal and external motivation factors are determined in accordance with motivational theories
		5.2 Self-assessment is carried out as per entrepreneurial orientation
		5.3 Effective communications are carried out in accordance with communication principles
		5.4 Entrepreneurial motivation is applied as per motivational theories
6.	Develop innovative business strategies	6.1 Business innovation strategies are determined in accordance with the organization strategies
		6.2 Creativity in business development is demonstrated in accordance with business strategies
		6.3 Innovative business strategies are developed as per business principles
		6.4 Linkages with other entrepreneurs are created as per best practice
		6.5 ICT is incorporated in business growth and

	development as per best practice
7. Develop Business Plan	7.1 Identified Business is described as per business procedures and strategies
	7.2 Marketing plan is developed as per business plan format
	7.3 Organizational/Management plan is prepared in accordance with business plan format
	7.4 Production/operation plan in accordance with business plan format
	7.5 Financial plan is prepared in accordance with the business plan format
	7.6 Executive summary is prepared in accordance with business plan format
	7.7 Business plan is presented as per best practice

RANGE

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

Variable	Range
1. Types of entrepreneurs may include but not limited to:	□ Innovators □ Imitators □ Craft □ Opportunistic □ Speculators
2. Characteristics of Entrepreneurs may include but not limited to:	□ Creative □ Innovative □ Planner □ Risk taker □ Networker □ Confident □ Flexible □ Persistent □ Patient □ Independent □ Future oriented □ Goal oriented
3. Requirements for entry into self-employment may include but not limited to	□ Technical skills □ Management skills □ Entrepreneurial skills □ Resources

	☐ Infrastructure
4. Internal and external motivation may include but not limited to:	☐ Interest ☐ Passion ☐ Freedom ☐ Prestige ☐ Rewards ☐ Punishment ☐ Enabling environment ☐ Government policies
5. Business environment may include but not limited to:	☐ External ☐ Internal ☐ Intermediate
6. Forms of businesses may include but not limited to:	☐ Sole proprietorship ☐ Partnership ☐ Limited companies ☐ Cooperatives
7. Governing policies may include but not limited to:	☐ Increasing scope for finance ☐ Promoting cooperation between entrepreneurs and private sector ☐ Reducing regulatory burden on entrepreneurs ☐ Developing IT tools for entrepreneurs
8. Innovative business strategies may include but not limited to:	☐ New products ☐ New methods of production ☐ New markets ☐ New sources of supplies ☐ Change in industrialization

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

☐ Analytical
☐ Management
☐ Problem-solving
☐ Root-cause analysis
☐ Communication

Required Knowledge

The individual needs to demonstrate knowledge of:

- Decision making
    - Business communication
    - Change management
    - Competition
    - Risk
    - Net working
    - Time management
    - Leadership
- Factors affecting entrepreneurship development
- Principles of Entrepreneurship
- Features and benefits of common operational practices, e. g., continuous improvement (kaizen), waste elimination,
- Conflict resolution
- Health, safety and environment (HSE) principles and requirements
- Customer care strategies
- Basic financial management
- Business strategic planning
- Impact of change on individuals, groups and industries
- Government and regulatory processes
- Local and international market trends
- Product promotion strategies
- Market and feasibility studies
- Government and regulatory processes
- Local and international business environment
- Relevant developments in other industries
- Regional/ County business expansion strategies

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate:
	1. 1 Distinguished entrepreneurs and businesspersons correctly
	1. 2 Identified ways of becoming an entrepreneur appropriately
	1. 3 Explored factors affecting entrepreneurship development appropriately
	1. 4 Analysed importance of self-employment accurately

	1. 5 Identified requirements for entry into self-employment correctly
	1. 6 Identified sources of business ideas correctly
	1. 7 Generated Business ideas and opportunities correctly
	1. 8 Analysed business life cycle accurately
	1. 9 Identified legal aspects of business correctly
	1. 10 Assessed product demand accurately
	1. 11 Determined Internal and external motivation factors appropriately
	1. 12 Carried out communications effectively
	1. 13 Identified sources of business finance correctly
	1. 14 Determined Governing policy on small scale enterprise appropriately
	1. 15 Explored problems of starting and operating SSEs effectively
	1. 16 Developed Marketing, Organizational/Management, Production/Operation and Financial plans correctly
	1. 17 Prepared executive summary correctly
	1. 18 Determined business innovative strategies appropriately
	1. 19 Presented business plan effectively
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place
3. Methods of Assessment	3.1 Written tests 3.2 Oral questions 3.3 Third party report 3.4 Interviews 3.5 Portfolio of Evidence
4. Context of Assessment	Competency may be assessed 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE EMPLOYABILITY SKILLS

UNIT CODE: ENV/OS/MGT/BC/05/6/A

UNIT DESCRIPTON

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating interpersonal communication, critical safe work habits, leading a workplace team, planning and organizing work, maintaining professional growth and development, demonstrating workplace learning, problem solving skills and managing ethical performance.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range*
1. Conduct self-management	1.1 Personal vision, mission and goals are formulated based on potential and in relation to organization objectives 1.2 Emotional intelligence is demonstrated as per workplace requirements. 1.3 Individual performance is evaluated and monitored according to the agreed targets. 1.4 Assertiveness is developed and maintained based on the requirements of the job. 1.5 Accountability and responsibility for own actions are demonstrated based on workplace instructions. 1.6 Self-esteem and a positive self-image are developed and maintained based on values. 1.7 Time management, attendance and punctuality are observed as per the organization policy. 1.8 Goals are managed as per the organization's objective 1.9 Self-strengths and weaknesses are identified based on personal objectives
2. Demonstrate interpersonal communication	2.1 Writing skills are demonstrated as per communication policy 2.2 Negotiation and persuasion skills are demonstrated as per communication policy 2.3 Internal and external stakeholders' needs are identified and interpreted as per the communication policy 2.4 Communication networks are established based on

	workplace policy	
	2.5 Information is shared as per communication policy	
3. Demonstrate critical safe work habits	3.1 Stress is managed in accordance with workplace policy.	
	3.2 Punctuality and time consciousness is demonstrated in line with workplace policy.	
	3.3 Personal objectives are integrated with organization goals based on organization's strategic plan.	
	3.4 *Resources* are utilized in accordance with workplace policy.	
	3.5 Work priorities are set in accordance to workplace goals and objectives.	
	3.6 Leisure time is recognized and utilized in line with personal objectives.	
	3.7 *Drugs and substances of abuse* are identified and avoided based on workplace policy.	
	3.8 HIV and AIDS prevention awareness is demonstrated in line with workplace policy.	
	3.9 Safety consciousness is demonstrated in the workplace based on organization safety policy.	
	3.10 *Emerging issues* are identified and dealt with in accordance with organization policy.	
4. Lead a workplace team	4.1 Performance targets for the *team* are set based on organization's objectives	
	4.2 Duties are assigned in accordance with the organization policy.	
	4.3 *Forms of communication* in a team are established according to organization's policy.	
	4.4 Team performance is evaluated based on set targets as per workplace policy.	
	4.5 Conflicts are resolved between team members in line with organization policy.	
	4.6 Gender related issues are identified and mainstreamed in accordance workplace policy.	
	4.7 Human rights and fundamental freedoms are identified and respected as Constitution of Kenya 2010.	
	4.8 Healthy relationships are developed and maintained in line with workplace.	
5. Plan and organize work	5.1 Work plans are prepared based on activities and budget.	
	5.2 Assigned tasks are interpreted and expectations identified as per the workplace instructions.	
	5.3 Task occupational safety and health requirements are identified and observed regulations.	

		5.4 Work rresources are identified, mobilized, allocated and utilized based on organization work plans.
		5.5 Work activities are monitored and evaluated in line with work plans and workplace policy.
		5.6 Work plans are reviewed based on target and available resources.
6.	Maintain professional growth and development	6.1 Personal training needs are identified and assessed in line with the requirements of the job.
		6.2 *Training and career opportunities* are identified and utilized based on job requirements.
		6.3 Resources for training are mobilized and allocated based organizations and individual skills needs.
		6.4 Licensees and certifications relevant to job and career are obtained and renewed as per policy.
		6.5 Work priorities and personal commitments are balanced and managed based on requirements of the job and personal objectives.
		6.6 Recognitions are sought as proof of career advancement in line with professional requirements.
7.	Demonstrate workplace learning	7.1 Learning opportunities are sought and managed based on job requirement and organization policy.
		7.2 Improvement in performance is demonstrated based on courses attended.
		7.3 Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job
		7.4 Time and effort is invested in learning new skills based on job requirements
		7.5 Initiative is taken to create more effective and efficient processes and procedures in line with workplace policy.
		7.6 New systems are developed and maintained in accordance with the requirements of the job.
		7.7 Awareness of personal role in workplace *innovation* is demonstrated based on requirements of the job.
8.	Demonstrate problem solving skills	8.1 Creative, innovative and practical solutions are developed based on the problem
		8.2 Independence and initiative in identifying and solving problems is demonstrated based on requirements of the job.
		8.3 Team problems are solved as per the workplace guidelines
		8.4 Problem solving strategies are applied as per the workplace guidelines
		8.5 Problems are analyzed and assumptions tested as per the context of data and circumstances

Variable	Range
9. Manage ethical performance	9.1 Policies and guidelines are observed as per the workplace requirements 9.2 Self-worth and professionalism is exercised in line with personal goals and organizational policies 9.3 Code of conduct is observed as per the workplace requirements 9.4 Integrity is demonstrated as per legal requirement

RANGE

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

Variable	Range
1. Drug and substance abuse may include but not limited to:	Commonly abused ☐ Alcohol ☐ Tobacco ☐ Miraa ☐ Over-the-counter drugs ☐ Cocaine ☐ Bhang ☐ Glue
2. Feedback may include but not limited to:	☐ Verbal ☐ Written ☐ Informal ☐ Formal
3. Relationships may include but not limited to:	☐ Man/Woman ☐ Trainer/trainee ☐ Employee/employer ☐ Client/service provider ☐ Husband/wife ☐ Boy/girl ☐ Parent/child ☐ Sibling relationships
4. Forms of communication may include but not limited to:	☐ Written ☐ Visual ☐ Verbal ☐ Non verbal ☐ Formal and informal

5. Team may include but not limited to:	☐ Small work group ☐ Staff in a section/department ☐ Inter-agency group
6. Personal growth may include but not limited to:	☐ Growth in the job ☐ Career mobility ☐ Gains and exposure the job gives ☐ Net workings ☐ Benefits that accrue to the individual as a result of noteworthy performance
7. Personal objectives may include but not limited to:	☐ Long term ☐ Short term ☐ Broad ☐ Specific
8. Trainings and career opportunities may include but not limited to	☐ Participation in training programs ☐ Serving as Resource Persons in conferences and workshops
9. Resource may include may but not limited to:	☐ Human ☐ Financial ☐ Technology
10. Innovation may include but not limited to:	☐ New ideas ☐ Original ideas ☐ Different ideas ☐ Methods/procedures ☐ Processes ☐ New tools
11. Emerging issues may include but not limited to:	☐ Terrorism ☐ Social media ☐ National cohesion ☐ Open offices
12. Range of media for learning may include but not limited to:	☐ Mentoring ☐ peer support and networking ☐ IT and courses

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit of competency.

Required Skills
The individual needs to demonstrate the following skills:

- Interpersonal
- Communication
- Critical thinking
- Organizational
- Negotiation
- Monitoring
- Evaluation
- Record keeping
- Problem solving
- Decision Making
- Resource utilization
- Resource mobilization

Required Knowledge

The individual needs to demonstrate knowledge of:

- Work values and ethics
- Company policies
- Company operations, procedures and standards
- Occupational Health and safety procedures
- Fundamental rights at work
- Workplace communication
- Concept of time
- Time management
- Decision making
- Types of resources
- Work planning
- Organizing work
- Monitoring and evaluation
- Record keeping
- Gender mainstreaming
- HIV and AIDS
- Drug and substance abuse
- Professional growth and development
- Technology in the workplace
- Innovation
- Emerging issues

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Conducted self-management 1.2 Demonstrated interpersonal communication 1.3 Demonstrated critical safe work habits 1.4 Demonstrated the ability to lead a workplace team 1.5 Planned and organized work 1.6 Maintained professional growth and development 1.7 Demonstrated workplace learning 1.8 Demonstrated problem solving skills 1.9 Demonstrated the ability to manage performance ethically
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace where assessment can take place 2.2 Appropriately simulated environment where assessment can take place
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Written test 3.4 Portfolio of Evidence 3.5 Interview 3.6 Third party report
4. Context of Assessment	Competency may be assessed 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

DEMONSTRATE OCCUPATIONAL SAFETY AND HEALTH PRACTICES

UNIT CODE: ENV/OS/MGT/BC/06/6/A

UNIT DESCRIPTION

This unit specifies the competencies required to demonstrate occupational health and safety practices. It involves identifying workplace hazards and risks, identifying and implementing appropriate control measures to hazards and risks and implementing OSH programs, procedures and policies/guidelines.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Identify workplace hazards and risk	1.1 ***Hazards*** in the workplace are identified ***based their indicators*** 1.2 Risks and hazards are evaluated based on legal requirements. 1.3 ***OSH concerns*** raised by workers are addressed as per legal requirements.
2. Control OSH hazards	2.1 Hazard prevention ***and control measures*** are implemented as per legal requirement. 2.2 Risk assessment is conducted and a risk matrix developed based on likely impact. 2.3 ***Contingency measures***, including ***emergency procedures*** during workplace ***incidents and emergencies*** are recognized and established in accordance with organization procedures.
3. Implement OSH programs	3.1 Company OSH program are identified, evaluated and reviewed based on legal requirements. 3.2 Company OSH programs are implemented as per legal requirements. 3.3 Workers are capacity built on OSH standards and procedures as per legal requirements 3.4 ***OSH-related records*** are maintained as per legal requirements.

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Hazards may include but not limited to:	☐ Physical hazards – impact, illumination, pressure, noise, vibration, extreme temperature, radiation ☐ Biological hazards- bacteria, viruses, plants, parasites, mites, molds, fungi, insects ☐ Chemical hazards – dusts, fibers, mists, fumes, smoke, gasses, vapors ☐ Ergonomics ☐ Psychological factors – over exertion/ excessive force, awkward/static positions, fatigue, direct pressure, ☐ Varying metabolic cycles ☐ Physiological factors – monotony, personal relationship, work out cycle ☐ Safety hazards (unsafe workplace condition) –confined space, excavations, falling objects, gas leaks, electrical, poor storage of materials and waste, spillage, waste and debris ☐ Unsafe workers' act (Smoking in off-limited areas, Substance and alcohol abuse at work)
2. Indicators may include but not limited to:	☐ Increased incidents of accidents, injuries ☐ Increased occurrence of sickness or health complaints/ symptoms ☐ Common complaints of workers related to OSH ☐ High absenteeism for work-related reasons
3. OSH concerns may include but not limited to:	☐ Workers' experience/observance on presence of work hazards ☐ Unsafe/unhealthy administrative arrangements (prolonged work hours, no break time, constant overtime, scheduling of tasks) ☐ Reasons for compliance/non-compliance to use of PPEs or other OSH procedures/policies/guidelines
4. Safety gears /PPE (Personal Protective Equipment) may include but not limited to:	☐ Arm/Hand guard, gloves ☐ Eye protection (goggles, shield) ☐ Hearing protection (ear muffs, ear plugs) ☐ Hair Net/cap/bonnet ☐ Hard hat ☐ Face protection (mask, shield) ☐ Apron/Gown/coverall/jump suit ☐ Anti-static suits ☐ High-visibility reflective vest

5. Appropriate risk controls may include but not limited to:	☐ Appropriate risk controls in order of impact are as follows:
	☐ Eliminate the hazard altogether (i.e., get rid of the dangerous machine)
	☐ Isolate the hazard from anyone who could be harmed (i.e., keep the machine in a closed room and operate it remotely; barricade an unsafe area off)
	☐ Substitute the hazard with a safer alternative (i.e., replace the machine with a safer one)
	☐ Use administrative controls to reduce the risk (i.e., train workers how to use equipment safely; train workers about the risks of harassment; issue signage)
	☐ Use engineering controls to reduce the risk (i.e., attach guards to the machine to protect users)
	☐ Use personal protective equipment (i.e., wear
	☐ gloves and goggles when using the machine)
6. Contingency measures may include but not limited to:	☐ Evacuation
	☐ Isolation
	☐ Decontamination
	☐ (Calling designed) emergency personnel
7. Incidents and emergencies may include but not limited to:	☐ Chemical spills
	☐ Equipment/vehicle accidents
	☐ Explosion
	☐ Fire
	☐ Gas leak
	☐ Injury to personnel
	☐ Structural collapse
	☐ Toxic and/or flammable vapors emission.
8. OSH-related Records may include but not limited to:	☐ Medical/Health records
	☐ Incident/accident reports
	☐ Sickness notifications/sick leave application
	☐ OSH-related trainings obtained

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit of competency.

Required Skills
The individual needs to demonstrate the following skills:

☐ Communication

☐ Interpersonal

- Presentation
- Risk assessment
- Evaluation
- Critical thinking
- Problem solving
- Negotiation

Required Knowledge

The individual needs to demonstrate knowledge of:

- General OSH Principles
- Occupational hazards/risks recognition
- OSH organizations providing services on OSH evaluation and/or work environment measurements (WEM)
- National OSH regulations; company OSH policies and protocols
- Systematic gathering of OSH issues and concerns
- General OSH principles
- National OSH regulations
- Company OSH and recording protocols, procedures and policies/guidelines
- Training and/or counseling methodologies and strategies

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Identified hazards in the workplace based their indicators
	1.2 Evaluated workplace hazards based on legal requirements.
	1.3 Addressed OSH concerns raised by workers as per legal requirements.
	1.4 Implemented hazard prevention and control measures as per legal requirement.
	1.5 Conducted risk assessment as per legal requirement.
	1.6 Developed risk matrix based on likely impact.
	1.7 Recognized and established contingency measures in accordance with organization procedures.
	1.8 Identified, evaluated and reviewed company OSH program based on legal requirements.
	1.9 Implemented company OSH programs as per legal requirements.
	1.10 Capacity built workers on OSH standards and procedures as per legal requirements
	1.11 Maintained OSH-related records as per legal requirements.

2. Resource Implications	The following resources should be provided: 2.3 Access to relevant workplace where assessment can take place 2.4 Appropriately simulated environment where assessment can take place
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Written test 3.4 Portfolio of Evidence 3.5 Interview 3.6 Third party report
4. Context of Assessment	Competency may be assessed 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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COMMON UNITS OF COMPETENCY

CONDUCT PROJECT RESEARCH

UNIT CODE: ENV/OS/MGT/CC/01/6/A

UNIT DESCRIPTION
This unit describes the competencies required to prepare project proposal, collect and analyse data and prepare project report.

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range.*
1. Prepare project proposal	1.1 *Cover page details* are outlined based on SOPs 1.2 Project *summary* is prepared 1.3 Project literature is reviewed based on previous research. 1.4 Project *methodology* is outlined 1.5 Project limitations and assumptions are noted. 1.6 Project *plan* is outlined 1.7 Project *cost* is outlined 1.8 Project proposal report is prepared and presented for approval
2. Collect data	2.1 Reconnaissance is conducted 2.2 Sources of data are determined based on the reconnaissance. 2.3 Data is collected based on the type of project 2.4 Data is gathered and organized based on the research
3. Analyze data	3.1 Data is *pre-processed* 3.2 Data is *processed* into information 3.3 Data is interpreted based on the results 3.4 Recommendations are noted.
4. Prepare project report	4.1 Research report is prepared based on the proposal findings 4.2 Copies of the research report are made based on the number of stakeholders involved in its development. 4.3 Research report is presented and submitted to *relevant stakeholders*

RANGE
This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Cover page details may include but not limited to:	□ Name of the Organization □ Project Title □ Project Time-frame □ Project Contacts
2. Summary may include but not limited to:	□ Background information □ Problem statement □ Scope □ Project Objectives □ Project justification □ Research questions □ Project hypothesis □ Significance of the study
3. Methodology may include but not limited to:	□ Project Approach Summary □ Work Breakdown □ Task Time Estimates □ Project Deliverables □ Research questions
4. Plan may include but not limited to:	□ Proposal development □ Data collection □ Time frame □ Activity
5. Cost may include but not limited to:	□ Project Budget □ Budget Narrative □ Additional Financial Statements
6. Pre-processed may include but not limited to:	□ Sorted □ Cleaned
7. Processed may include but not limited to:	□ Tabulated □ Using computer software like GIS □ Used in mathematical functions □ Modelled
8. Relevant stakeholders may include but not limited to:	□ Institution □ Supervisor □ Any company that helped in the research.

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Research
- Planning
- Organizing
- Data collection
- Excellent analytical
- Data presentation
- Communication
- Budgeting
- Basic ICT
- Time management
- Report writing
- Data processing

Required knowledge

The individual needs to demonstrate knowledge of:

- Literature review
- Project proposal format
- Project research report format
- Data acquisition
- Data analysis
- Work plans

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Prepared project proposal 1.2 Collected data 1.3 Analyzed data 1.4 Prepared and presented project research report
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation

	3.2 Oral Questioning 3.3 Practical reports 3.4 Project	
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment	
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.	

PERFORM SAFETY AND SURVIVAL TECHNIQUES

UNIT CODE: ENV/OS/MGT/CC/02/6/A

UNIT DESCRIPTION

This unit describes the competencies required to perform safety and survival techniques. It involves administering first aid, observing safety in the wilderness, demonstrating team building skills and conducting solo expedition. It also entails demonstrating bush craft skills.

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range.*
1. Administer first aid	1.1 Victim is handled based on the cause of accident 1.2 First aid is conducted to the victim 1.3 Further medical services are sought based on the nature of the injury.
2. Observe safety in the wilderness	2.1 PPEs are gathered and used as per SOPs 2.2 Animal migratory corridors are noted and avoided
3. Demonstrate team building skills	3.1 People are grouped based on their *skills* 3.2 All the members are involved in all the activities 3.3 Nature trails are tracked 3.4 Movement is performed in groups
4. Conduct solo expedition	4.1 Location is *surveyed* 4.2 Shelter is constructed using *available natural resources* 4.3 Firewood is collected 4.4 Fire is made naturally 4.5 Cooking areas are prepared 4.6 Food is hunted, gathered and prepared 4.7 Water is purified naturally
5. Demonstrate bush craft skills	5.1 *Crafts materials* are identified and gathered 5.2 Rocks and sticks are curved into tools 5.3 Baskets are woven 5.4 Fire is made naturally and cooking area prepared 5.5 Pots are made from soil or rocks 5.6 Bird traps are constructed 5.7 Ropes are plaited 5.8 Nature trails are identified

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Skills may include but not limited to:	☐ Weaving ☐ Pitching tents ☐ Fire making ☐ Smearing ☐ Hunting and gatherers ☐ Coaching skills
2. Surveyed may include but not limited to:	☐ Wild animals in the area ☐ Plants ☐ Weather conditions ☐ Available natural resources ☐ Maps
3. Available natural resources may include but not limited to:	☐ Leaves ☐ Sticks ☐ Shrubs ☐ Climbers ☐ Grass ☐ Tree branches and trunks
4. Craft materials may include but not limited to:	☐ Sticks ☐ Leaves ☐ Grass

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- ☐ Crafts
- ☐ Navigation
- ☐ Map interpretation
- ☐ Management
- ☐ Gathering
- ☐ Observation
- ☐ First aid

- ⬜ Decision making
- ⬜ Research
- ⬜ Creative
- ⬜ Problem solving

Required knowledge

The individual needs to demonstrate knowledge of:

- ⬜ Fauna and flora
- ⬜ Safety precautions
- ⬜ Natural resources
- ⬜ Water purification
- ⬜ Animal tracking and trapping
- ⬜ Animal behaviour
- ⬜ Ecosystem
- ⬜ Animal territory

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Administered first aid 1.2 Gathered and used PPEs as per sops 1.3 Demonstrated team building skills 1.4 Tracked nature trails 1.5 Conducted solo expedition 1.6 Demonstrated bush craft skills
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Demonstration with Oral Questioning 3.3 Written tests
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

BUILD CAPACITY FOR COMMUNITY DEVELOPMENT

UNIT CODE: ENV/OS/MGT/CC/03/6/A

UNIT DESCRIPTION

This unit describes the competencies required to build capacity for community development. It involves mobilizing stakeholders in resource management, applying participatory approaches in community development, performing participatory planning and applying participatory technologies (PTD). It also entails resolving natural resource use conflicts.

ELEMENTS **These describe the key outcomes which make up workplace function.**	PERFORMANCE CRITERIA **These are assessable statements which specify the required level of performance for each of the elements.** *Bold and italicized terms are elaborated in the Range.*
1. Mobilize stakeholders in resource management	1.1 ***Resources*** in the community are identified 1.2 Stakeholders are identified 1.3 Stakeholders are prioritized and classified based on their power and interest in the project 1.4 Engagement/communication plan is developed 1.5 ***Target stakeholders*** are identified 1.6 People are mobilized through ***different means*** 1.7 People are sensitized, and their views evaluated 1.8 Decision is made as per the agreement made by the stakeholders
2. Apply participatory approaches in community development	2.1 ***Participatory approaches*** for community involvement are applied in resource management 2.2 ***Participatory Appraisal techniques*** and methods are applied
3. Perform participatory planning	3.1 Community plan is developed as per the stakeholder's agreement 3.2 Community plan is implemented and decommissioned to the community
4. Apply participatory technologies (PTD)	4.1 Participatory technologies are identified 4.2 Participatory technologies are applied as per community needs
5. Resolve natural resource use conflicts	5.1 Nature of conflict is identified 5.2 Conflict resolution strategies are developed and implemented based on policies and regulations

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Resources may include but not limited to:	☐ Water ☐ Soil ☐ Forests ☐ Minerals ☐ Wildlife ☐ Rangelands
2. Different means may include but not limited to:	☐ Electronic Media ☐ Social Media ☐ Local Barazas. ☐ Crusades.
3. Target stakeholders may include but not limited to:	☐ Youths ☐ Women ☐ Men ☐ Children ☐ Elderly ☐ People living with disability ☐ Indigenous communities
4. Participatory approaches may include but not limited to:	☐ Rapid Rural Appraisal (RRA) ☐ Participatory Rural Appraisal (PRA) ☐ Participatory Learning and Action (PLA)
5. Participatory appraisal techniques may include but limited to:	☐ Community Mapping ☐ Social Mapping ☐ Wealth/Well-Being Ranking ☐ Transect Walks ☐ Venn Diagrams ☐ Livelihoods Analysis

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

☐ Sensitizing

- Budgeting
- Conflict resolution
- Interpersonal
- Proposal writing
- Problem solving
- Analytical

Required knowledge

The individual needs to demonstrate knowledge of:

- Stakeholder analysis
- Local knowledge
- Political knowledge
- Governance
- Land tenure systems
- Resource conservation
- Project management
- Donor funding
- Monitoring and evaluation

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Mobilized stakeholders in resource management 1.2 Applied participatory approaches in community development 1.3 Performed participatory planning 1.4 Applied participatory technologies (PTD) 1.5 Resolved natural resource use conflicts
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Demonstration with Oral Questioning 3.3 Written tests
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment

5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.	

MANAGE CLIMATE CHANGE AND GLOBAL WARMING

UNIT CODE: ENV/OS/MGT/CC/04/6/A

UNIT DESCRIPTION
This unit describes the competencies required to manage climate change and global warming. It involves managing effects of climate change and global warming, applying responses, mitigation and adaptation strategies and applying international policies and interventions to climate change.

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range.*
1. Manage effects of climate change and global warming	1.1 *Effects of global warming and climate change* are identified 1.2 *Greenhouse gases* emission is controlled as per SOPs. 1.3 *Alternative sources of energy* are identified and applied based on available resources. 1.4 *Indicators* of global warming are monitored.
2. Apply responses, mitigation and adaptation strategies to climate change.	2.1 *Resource efficiency mechanisms* for resolving climate change issues are adapted locally and internationally. 2.2 Conference of parties (COP) recommendations are applied 2.3 *Technologies* are developed and transferred internationally.
3. Apply international policies and interventions	3.1 Carbon trading is implemented 3.2 Policies are regulated and enforced based on UNFCC (United nations Framework on climate change) 3.3 Relationship between climate and development is analysed. 3.4 Community is sensitized.

RANGE
This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Effects of global warming and climate change may include but not limited to:	☐ Drought ☐ Flooding ☐ Discoloration of coral reefs ☐ Invasive species ☐ Diseases (cholera, malaria, sun burns, skin cancer)

2. Greenhouse gases may include but not limited to:	☐ Methane ☐ CO_2 ☐ CfC ☐ Aerosols ☐ Sulphur	
3. Alternative sources of energy may include but not limited to:	☐ Wind ☐ Solar ☐ Geothermal	
4. Indicators may include but not limited to:	☐ Rise of the sea level ☐ Melting of ice and glaciers ☐ Ozone layer depletion ☐ Decrease of snow cover ☐ Temperature rise ☐ Change of rain pattern	
5. Resource efficiency mechanisms may include but not limited to:	☐ Water conservation ☐ Waste management ☐ Energy conservation	
6. Technologies may include but not limited to:	☐ Carbon florocarbons refrigerators ☐ Solar lamps ☐ Electric vehicles	

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- ☐ Monitoring and evaluation
- ☐ Creative and innovative
- ☐ ICT skills
- ☐ Problem solving skills
- ☐ Assessing skills
- ☐ Observation skills
- ☐ Resource mobilization
- ☐ Research skills
- ☐ Interpretation skills

Required knowledge

The individual needs to demonstrate knowledge of:

- Technologies
- Sustainable development
- Causes, impact and adaptation of climate change
- Local and International policies on climate change
- Indigenous knowledge of regions
- Emerging issues
- Integration of scientific perspectives

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified and managed effects of global warming and climate change 1.2 Identified and applied alternative sources of energy 1.3 Adapted mechanisms for resolving climate change issues
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Oral Questioning 3.3 Written tests
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

PLAN AND MANAGE LAND USE

UNIT CODE: ENV/OS/MGT/CC/05/6/A

UNIT DESCRIPTION

This unit specifies the competencies required to plan and manage land use. It involves applying land use management tools, applying land use threshold, preparing an integrated land use plan, resolving land use conflicts and applying land tenure systems.

ELEMENTS **These describe the key outcomes which make up workplace function.**	PERFORMANCE CRITERIA **These are assessable statements which specify the required level of performance for each of the elements.** *Bold and italicized terms are elaborated in the Range.*
1. Apply land use management tools	1.1 *Land use management tools* are identified 1.2 Land use management tools are applied
2. Apply land use threshold	2.1 Soil types are determined. 2.2 Land is characterized as per *suitability* 2.3 Land use utilization is identified 2.4 *Land suitability and utilization classes* are developed and rated 2.5 Land productivity index is conducted based on *physical production* 2.6 *Suitability class specifications* are developed 2.7 Land use *requirements and limitations* are determined.
3. Prepare an integrated land use plan	3.1 Stakeholders are identified 3.2 Objectives of land utilization are identified 3.3 Land suitability is assessed 3.4 Land use plan is approved and implemented 3.5 Land use is Monitored and evaluated against the objectives 3.6 Data is collected and reviewed
4. Resolve land use conflicts	4.1 *Nature* of conflict is identified 4.2 Conflict resolution strategies are developed and implemented based on policies and regulations
5. Apply land tenure systems	5.1 *Land tenure systems* are identified 5.2 Environmental policies and regulations are applied in use of land 5.3 Land use is monitored and assessed 5.4 Land use conflicts are resolved

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Land use management tools may include but not limited to:	☐ Zonation ☐ Building line set back ☐ Carrot approach ☐ Liaison committee ☐ Stick approach
2. Land suitability and recreational classes may include but not limited to:	☐ S1 ☐ S2 ☐ S3 ☐ NI ☐ N2
3. Suitability may include but not limited to:	☐ Transport ☐ Agriculture ☐ Recreational activities ☐ Residential ☐ Commercial
4. Physical production may include but not limited to:	☐ Hectares ☐ Tonnes ☐ Economical returns
5. Suitability class specifications may include but not limited to:	☐ Physical and economic indices
6. Requirements and limitations may include but not limited to:	☐ Cropping system ☐ Irrigation system ☐ Management systems
7. Nature may include but not limited to:	☐ Social ☐ Economic ☐ Cultural ☐ Legal
8. Land tenure systems may include but not limited to:	☐ Free hold ☐ Lease hold ☐ Customary ☐ Public

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Conflict resolution
- Planning and organizing
- Monitoring and evaluation
- Supervisory
- Analytical
- Resource mobilization
- Sensitization
- Research

Required knowledge

The individual needs to demonstrate knowledge of:

- Land economics
- Land tenure systems
- Soil management
- Land laws and policies
- Land survey
- Land use
- Land and SDGs
- Climate change

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Applied land use tools
	1.2 Determined land use threshold
	1.3 Prepared an integrated land use plan
	1.4 Developed conflict resolution strategies
	1.5 Identified land tenure systems
	1.6 Applied environmental policies and regulations in land use
	1.7 Monitored and assessed land use
2. Resource Implications	The following resources should be provided:
	2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place
	2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through:
	3.1 Direct Observation
	3.2 Demonstration with Oral Questioning

	3.3 Written tests	
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment	
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.	

PLAN AND MANAGE PROJECTS

UNIT CODE: ENV/OS/MGT/CC/06/6/A

UNIT DESCRIPTION
This unit specifies the competencies required to plan and manage projects. It involves planning for projects, conducting stakeholder analysis, implementing project, managing project risks and monitoring and evaluation of projects.

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range.***
1. Plan for projects	1.1 Problem is identified and analyzed as per the need 1.2 SMART Objectives are formulated 1.3 Project proposal is developed
2. Conduct stakeholder analysis	2.1 Relevant stakeholders are identified and analyzed as per the project 2.2 Stakeholders are involved in project as per their role
3. Implement project	3.1 Project team is formulated 3.2 Terms of reference are developed 3.3 Resources are mobilized 3.4 Budget is developed 3.5 SWOT analysis is conducted 3.6 Capacity building is conducted 3.7 Resources are utilized as per the project 3.8 Regulations are adhered to. 3.9 Conflicts are resolved 3.10 Project is decommissioned
4. Manage project risks	4.1 Project risks are identified and analyzed 4.2 Project risks are assessed
5. Monitor and evaluate projects	5.1 ***M&E tools*** are developed 5.2 Project is monitored 5.3 M&E report is prepared 5.4 Project is audited and reviewed

RANGE
This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range

1. M&E tools may include but not limited to:	☐ Gant charts ☐ PERT charts ☐ Critical path analysis

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Leadership
- Research
- Conflict resolution
- Monitoring and evaluation
- Appraisal
- Planning and organizing
- Mobilization
- Report writing
- ICT
- Analytical

Required knowledge

The individual needs to demonstrate knowledge of:

- Project planning and implementation
- Risk management
- Stakeholder analysis
- Project sustainability

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Formulated SMART Objectives
	1.2 Developed project proposal
	1.3 Identified and analyzed relevant stakeholders
	1.4 Developed terms of reference
	1.5 Developed budget
	1.6 Resolved conflicts
	1.7 Identified and analyzed project risks
	1.8 Developed M&E tools
	1.9 Prepared M&E report

		1.10 Audited and reviewed project
2.	Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3.	Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Demonstration with Oral Questioning 3.3 Written tests
4.	Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

APPLY BASIC PRINCIPLES OF ENVIRONMENT

UNIT CODE : ENV/OS/MGT/CC/07/6/A

UNIT DESCRIPTION

This unit specifies the competencies required to apply basic principles of environment. It involves applying principles of ecology, managing environmental resources, pollution and wastes and demonstrating sustainable resource use. It also entails applying environmental legislations and implementing and monitoring environmental programs.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range*
1. Apply principles of ecology	1.1 Environmental components are identified and monitored 1.2 Bio-geochemical cycles are identified 1.3 Ecosystems are identified and monitored 1.4 Ecological interactions are determined 1.5 Identify contemporary environmental issues
2. Manage environmental resources	2.1 *Environmental resources* are identified and classified 2.2 Environmental resources are monitored and assessed as per monitoring tool 2.3 Environmental resources are mapped 2.4 Environmental resources are conserved and preserved 2.5 Environmental resource management plan is developed 2.6 Environmental resource policies and regulations are identified
3. Manage pollution and wastes	3.1 *Environmental pollution control measures* are compiled following standard protocol. 3.2 Procedures for solid waste management are observed according Environmental Management and Coordination (Amendment) 2015 3.3 *Waste management procedures* are employed following principles of 3Rs (Reduce, Reuse, Recycle) 3.4 Methods for minimizing *environmental pollution* complied following environmental regulations.
4. Demonstrate sustainable resource use	4.1 Methods for minimizing wastage are complied. 4.2 Methods for economizing or reducing resource

		consumption are practiced.
		4.3 Information on resource efficiency systems and procedures are collected and provided to the work group where appropriate.
		4.4 Current resource usage is measured and recorded by members of the work group.
		4.5 All resource consuming processes are Identified
		4.6 Quantity and nature of Resource consumed is determined
		4.7 Resource flow is analysed through different parts of the process.
		4.8 *Wastes* are classified for possible source of resources.
		4.9 Resource conflicts are resolved
		4.10 Resource conservation plans are developed
5.	Apply environmental legislations	5.1 Environmental *legislations*, multilateral environmental agreements and local ordinances are identified according to the different environmental aspects/impact
		5.2 *Environmental management practices* are described according to the different environmental concerns
6.	Implement and monitor environmental programs	6.1 *Programs/Activities* are identified according to organizations policies and guidelines.
		6.2 Individual roles/responsibilities are determined and performed based on the activities identified.
		6.3 Problems/constraints encountered are resolved in accordance with organizations' policies and guidelines
		6.4 Stakeholders are consulted based on company guidelines
		6.5 Activities are *periodically monitored* and Evaluated according to the objectives of the environmental program
		6.6 Feedback from stakeholders are gathered and considered in Proposing enhancements to the program based on consultations
		6.7 Data gathered are analysed based on Evaluation requirements
		6.8 Recommendations are submitted based on the findings
		6.9 Management support systems are set/established to sustain and enhance the program
		6.10 Environmental incidents are monitored and reported to concerned/proper authorities

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Environmental resources may include but are not limited to:	☐ Electric ☐ Water ☐ Fuel ☐ Telecommunications ☐ Supplies ☐ Materials
2. Environmental pollution control measures may include but are not limited to:	☐ Methods for minimizing or stopping spread and ingestion of airborne particles ☐ Methods for minimizing or stopping spread and ingestion of gases and fumes ☐ Methods for minimizing or stopping spread and ingestion of liquid wastes
3. Waste management Procedures may include but are not limited to:	☐ Sorting ☐ Storing of items ☐ Recycling of items ☐ Disposal of items
4. Environmental pollution may include but are not limited to:	☐ Soil pollution ☐ Air pollution ☐ Water pollution
5. Wastes may include but are not limited to:	☐ Unnecessary waste ☐ Necessary waste
6. Legislations/Conventions may include but are not limited to:	☐ EMCA 1999 ☐ Montreal Protocol ☐ Kyoto Protocol
7. Environmental management practices may include but are not limited to:	☐ ISO standards ☐ Company environmental management systems (EMS)

8. Programs/Activities may include but are not limited to:	☐ Waste disposal (on-site and off-site)
	☐ Repair and maintenance of equipment
	☐ Treatment and disposal operations
	☐ Clean-up activities
	☐ Laboratory and analytical test
	☐ Monitoring and evaluation
	☐ Environmental advocacy programs
9. Periodic may include but are not limited to:	☐ Hourly
	☐ Daily
	☐ Weekly
	☐ Monthly
	☐ Quarterly
	☐ Yearly

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit of competency.

Required Skills
The individual needs to demonstrate the following skills:

- Following storage methods of environmentally hazardous materials
- Following disposal methods of hazardous wastes
- Using PPE
- Practicing OSHS
- Complying environmental pollution control
- Observing solid waste management
- Complying methods of minimizing noise Pollution
- Complying methods of minimizing wastage
- Employing waste management procedures
- Economizing resource consumption
- Listing of resources used
- Measuring current usage of resources
- Identifying and reporting workplace environmental hazards
- Conveying all environmental issues
- Following environmental regulations
- Identifying environmental regulations
- Assessing procedures for assessing compliance
- Collecting information on environmental and resource efficiency systems and procedures, and Providing information to the work group

- Measuring and recording current resource usage
- Analysing and recording current purchasing strategies.
- Analysing current work processes to access information and data and Assisting identifying areas for improvement
- Analysing resource flow
- Determining efficiency of use/conversion of resources
- Determining causes of low efficiency of use
- Developing plans for increasing the efficiency of resource use
- Checking resource use plans
- Complying to regulations/licensing requirements
- Determining benefit/cost of plans
- Ranking proposals based on benefit/cost compared to limited resources
- Checking proposals meet regulatory requirements
- Monitoring implementation
- Making adjustments to plan and implementation
- checking new resource usage

Required Knowledge

The individual needs to demonstrate knowledge of:

- Storage methods of environmentally hazardous materials
- Disposal methods of hazardous wastes
- Usage of PPE Environmental regulations
- OSHS
- Types of pollution
- Environmental pollution control measures
- Different solid wastes
- Solid waste management
- Different noise pollution
- Methods of minimizing noise pollution
- Methods of minimizing wastage
- Waste management procedures
- Economizing of resource consumption
- Principle of 3Rs
- Types of resources
- Techniques in measuring current usage of resources
- Calculating current usage of resources
- Types of workplace environmental hazards
- Environmental regulations
- Environmental regulations applying to the enterprise.

- ☐ Procedures for assessing compliance with environmental regulations.
- ☐ Collection of information on environmental and resource efficiency systems and procedures,
- ☐ Measurement and recording of current resource usage
- ☐ Analysis and recording of current purchasing strategies.
- ☐ Analysis current work processes to access information and data Analysis of data and information
- ☐ Identification of areas for improvement
- ☐ Resource consuming processes
- ☐ Determination of quantity and nature of resource consumed
- ☐ Analysis of resource flow of different parts of the resource flow process
- ☐ Use/conversion of resources
- ☐ Causes of low efficiency of use
- ☐ Increasing the efficiency of resource use
- ☐ Inspection of resource use plans
- ☐ Regulations/licensing requirements
- ☐ Determine benefit/cost for alternative resource sources
- ☐ Benefit/costs for different alternatives
- ☐ Components of proposals
- ☐ Criteria on ranking proposals
- ☐ Regulatory requirements
- ☐ Proposals for improving resource efficiency
- ☐ Implementation of resource efficiency plans
- ☐ Procedures in monitor implementation
- ☐ Adjustments of implementation plan
- ☐ Inspection of new resource usage

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Applied Principles of ecology 1.2 Managed environmental resources 1.3 Managed pollution and wastes 1.4 Demonstrated sustainable resource use 1.5 Applied Environmental legislations 1.6 Implemented and monitored environmental programs
2. Resource Implications	The following resources should be provided: 2.1 Workplace with storage facilities 2.2 Tools, materials and equipment relevant to the tasks (e.g.

		Cleaning tools, cleaning materials, trash bags)
		2.3 PPE, manuals and references
		2.4 Legislation, policies, procedures, protocols and local ordinances relating to environmental protection
		2.5 Case studies/scenarios relating to environmental Protection
3.	Methods of Assessment	Competency in this unit may be assessed through:
		3.1 Demonstration
		3.2 Oral questioning
		3.3 Written examination
		3.4 Interview/Third Party Reports
		3.5 Portfolio (citations/awards from GOs and NGOs, certificate of training – local and abroad)
		3.6 Simulations and role-play
4.	Context of Assessment	Competency may be assessed:
		4.1 On-the-job
		4.2 Off-the –job
		4.3 During Industrial attachment
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

ASSESS ENVIRONMENTAL AND SOCIAL IMPACT

UNIT CODE: ENV/OS/MGT/CC/08/6/A

UNIT DESCRIPTION

This unit describes the competencies required to assess environmental and social impact. It involves conducting environmental impact assessment, preparing an environmental and social management plan, conducting strategic environmental assessment, conducting environmental audit and applying legal policy and administrative framework for EIA and EA.

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range.*
1. Conduct Environmental Impact Assessment (EIA)	1.1 Project is ***identified*** as per SOPs. 1.2 Screening of project is done. 1.3 Scope is determined, and terms of reference is prepared 1.4 Impact analysis is carried out together with public participation. 1.5 Measures of mitigation and impact management are developed 1.6 Project budget plan is developed 1.7 EIA Report is prepared 1.8 EIA quality is reviewed against the ***terms of reference***. 1.9 A decision is made to approve, defer or reject the proposal and set the terms and conditions under which it can proceed. 1.10 Implementation and follow up is carried out.
2. Prepare an Environmental and Social Management plan (EMP)	2.1 Potential impacts of the proposal are summarized 2.2 Recommended mitigation measures are described and compliance with relevant standards stated 2.3 Resources and responsibilities for plan implementation are allocated 2.4 Actions to be taken are scheduled 2.5 Programme for surveillance, monitoring and auditing is prepared 2.6 Contingency plan is prepared when impacts are greater than expected.
3. Conduct Strategic Environmental Assessment (SEA)	3.1 Context for SEA is established 3.2 The SEA is ***implemented*** 3.3 ***Decision makers*** are informed and influenced 3.4 Monitoring and evaluation is conducted

4.	Conduct Environmental Audit (EA)	4.1 Audit plan is developed
		4.2 Pre-audit questionnaire is prepared
		4.3 **Back ground information** of the project is reviewed
		4.4 Operational information is reviewed
		4.5 Initial site visit is conducted
		4.6 On-site questionnaires and audit protocols are developed
		4.7 Audit plan is reviewed, and logistics arranged
		4.8 Audit is carried out
		4.9 Information is collated, and outstanding issues followed up
		4.10 Draft audit report is prepared and shared to relevant stakeholders for commenting
		4.11 Final audit report is prepared
		4.12 Environmental audit is followed up.
5.	Apply legal policy and administrative framework for EIA and EA	5.1 Legal policy provisions relating to EIA and EA in Kenya are applied as per EMCA amended 2015
		5.2 Administrative framework for EIA and EA are designed as per EMCA amended 2015

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Identified may include but not limited to:	Type of projects Its size Components Processes expected All stages of implementation
2. Terms of reference may include but not limited to:	Policy framework Institutional framework Legal framework Mitigation measures Project alternative analysis
3. Implemented may include but not limited to:	Scoping SEA study
4. Decision makers may include but not limited to:	Government Public Donors Private sector

5. Background information may include but not limited to:	☐ Site layout plan
	☐ Site history, use and activities
	☐ Blue prints/as built drawings
	☐ Organizational structure at audit site
	☐ Internal environmental policies, procedures and
	☐ Guidelines

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- ☐ Monitoring and evaluation
- ☐ Report writing
- ☐ Auditing and reviewing
- ☐ Sampling
- ☐ Budgeting
- ☐ Record keeping
- ☐ Research
- ☐ Planning and organizing
- ☐ Leadership
- ☐ Management
- ☐ Analytical
- ☐ Interpersonal

Required knowledge

The individual needs to demonstrate knowledge of:

- ☐ Environmental impact assessment guidelines
- ☐ Mitigation measures
- ☐ Project management
- ☐ Audit and review
- ☐ Environmental resources
- ☐ Environmental policies and laws
- ☐ Relevant government authorities

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1.	Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Performed Environmental Impact Assessment 1.2 Prepared EIA Report 1.3 Prepared an environmental and social management plan 1.4 Performed a Strategic environmental assessment 1.5 Performed Environmental Audit 1.6 Applied legal framework and policies
2.	Resource Implications	The following resources should be provided: 1.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 1.2 Materials relevant to the proposed activity or tasks
3.	Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Demonstration with Oral Questioning 3.3 Written tests
4.	Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

CORE UNITS OF COMPETENCY

UNIT CODE: ENV/OS/MGT/CR/01/6/A

UNIT DESCRIPTION

This unit describes the competencies required to manage disaster and risk. It involves classifying disasters, conducting risk vulnerability assessment and preparing for disaster. It also entails preparing for and managing hazards and conducting disaster recovery and response.

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range.*
1. Classify disasters	1.1 *Source* of disasters are identified 1.2 *Disasters* are classified based on their sources
2. Conduct risk vulnerability assessment	2.1 Disaster is identified 2.2 Potential victims are identified as per the hazard 2.3 Risks are evaluated as per the hazard 2.4 Control measures are identified 2.5 Findings are recorded based on the risk assessment 2.6 Contingency plans are developed for residual risks
3. Prepare for disaster	3.1 Early warning systems are installed and monitored 3.2 Good evacuation plans are developed 3.3 Environmental planning and design standards are developed 3.4 *Structural changes* are applied 3.5 Community is sensitized and trained on disaster preparedness, response and management 3.6 National disaster management policy is applied
4. Prepare for and manage hazards	4.1 Hazards are identified 4.2 Hazards are managed as per the type
5. Conduct disaster recovery and response	5.1 Relevant disaster response authorities are notified 5.2 Emergency response contact is set 5.3 Search and rescue is conducted for missing people and animals 5.4 Recovery centers are set up as per nature of disaster 5.5 People and animals are evacuated 5.6 Donations are gathered and distributed 5.7 Damaged resources are recovered or reconstructed back to normalcy

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Source may include but not limited to:	☐ Anthropogenic ☐ Natural
2. Disasters may include but not limited to:	☐ Fire ☐ Floods ☐ Earthquakes ☐ Tsunamis ☐ Volcanic eruptions ☐ Road accidents ☐ Bombs ☐ Building collapsing
3. Structural changes may include but not limited to:	☐ Installation of an earthquake valves ☐ Seismic retrofits of property ☐ mounting of furniture, refrigerators, water heaters and breakables to the walls ☐ Addition of cabinet latches. ☐ In flood prone areas, houses can be built on poles/stilts. ☐ In areas prone to prolonged electricity black-outs installation of a generator ensures continuation of electrical service. ☐ The construction of storm cellars and fallout shelters

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- ☐ First aid
- ☐ Use of fire equipment
- ☐ Planning and organizing
- ☐ Presentation
- ☐ Problem solving
- ☐ Monitoring and evaluation
- ☐ Communication

- Counselling
- Research

Required knowledge

The individual needs to demonstrate knowledge of:

- PPEs
- Types of disasters
- Disaster management cycle
- Resource inventory management
- Early warning systems
- Knowledge on the surrounding
- Disaster management policies
- Indigenous knowledge
- Safety precautions
- Storage of disaster management equipment

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified source of disasters 1.2 Classified disasters 1.3 Identified risks 1.4 Conducted risk vulnerability assessment 1.5 Identified hazards 1.6 Installed and monitored early warning systems 1.7 Developed good evacuation plans 1.8 Developed environmental planning and design standards 1.9 Conducted disaster recovery and response
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Demonstration with Oral Questioning 3.3 Written tests
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance	Holistic assessment with other units relevant to the industry sector,

information for assessment	workplace and job role is recommended.	

MANAGE WATER RESOURCES

UNIT CODE: ENV/OS/MGT/CR/02/6/A

UNIT DESCRIPTION

This unit describes the competencies required to manage water resources. It involves analysing water supply and demand, conserving water, monitoring water quality and controlling water pollution. It also includes managing aquatic weeds.

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range.*
1. Analyse water supply and demand	1.1 *Water sources* are identified and managed 1.2 Water distribution from the source to users is analyzed 1.3 Water supply is evaluated against demand 1.4 Water allocation is *controlled* as per the demand
2. Conserve water	2.1 *Water conservation methods* are identified 2.2 *Water conservation structures* are established 2.3 Water catchment areas are protected 2.4 Policies and regulations applied on the integrated water resource management
3. Monitor water quality	3.1 Water sampling area is located 3.2 Water samples are collected based on SOPs 3.3 Water samples are analyzed and tested based on the *parameters* being monitored 3.4 Report is prepared with recommendations 3.5 Impure water is treated based on the pollutant
4. Control water pollution	4.1 *Sources of water pollution* are identified 4.2 Water pollution prevention measures are applied based on the type of pollutant. 4.3 Effluents are regulated as per Environmental regulations. (Water Act, 2016) 4.4 *Water pollution control measures* are applied 4.5 Community is sensitized
5. Manage aquatic weeds	5.1 Aquatic weeds are identified 5.2 Aquatic weeds are controlled and managed

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Water sources may include but not limited to:	☐ Groundwater ☐ Surface water
2. Controlled may include but not limited to:	☐ Water rationing
3. Water conservation methods may include but not limited to:	☐ Rainwater harvesting ☐ Storm water harvesting ☐ Water reuse ☐ Water recycling
4. Water conservation structures may include but not limited to:	☐ Retention ditches ☐ Check dams ☐ Sand dams ☐ Soak pits ☐ Tanks ☐ Water pans ☐ Gutters Wells
5. Parameters may include but not limited to:	☐ BOD ☐ COD ☐ turbidity ☐ total suspended solids ☐ Total dissolved oxygen ☐ pH
6. Improved may include but not limited to:	☐ Green manures ☐ Mulching ☐ Recycling of crop residues and animal manure
7. Sources of water pollution may include but not limited to:	☐ Point source ☐ Non-point source.
8. Water pollution control measures may include but not limited to:	☐ Environmental regulations ☐ Incentives ☐ Soil erosion control ☐ Biological pest control techniques ☐ Wastewater treatment ☐ Regulation of effluents

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Surveying
- Sampling
- Analytical
- Construction of water conservation structures
- Monitoring and evaluation
- Report writing
- Use of tools and equipment
- Interpersonal

Required knowledge

The individual needs to demonstrate knowledge of:

- Water parameters
- Water pollutants
- Water laboratories
- Water distribution
- Biological pest control
- Water conservation methods
- Water conservation structures
- Meter readings and calibration
- Water supply and demand
- Water policies and regulations
- Water harvesting

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Identified and managed water sources
	1.2 Identified water conservation methods
	1.3 Established water conservation structures
	1.4 Collected water samples
	1.5 Analysed and tested water samples
	1.6 Prepared report
	1.7 Identified sources of water pollution
	1.8 Applied water pollution control measures
2. Resource Implications	The following resources should be provided:
	2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place
	2.2 Materials relevant to the proposed activity or tasks
3. Methods of	Competency in this unit may be assessed through:

	Assessment	3.1 Direct Observation
		3.2 Oral Questioning
		3.3 Written tests
		3.4 Portfolio of Evidence
4.	Context of Assessment	Competency may be assessed:
		4.1 On-the-job
		4.2 Off-the –job
		4.3 During Industrial attachment
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

MANAGE ENVIRONMENTAL POLLUTION AND WASTE

UNIT CODE: ENV/OS/MGT/CR/03/6/A

UNIT DESCRIPTION

This unit describes the competencies required to manage environmental pollution and waste. It involves controlling air, water, soil and noise pollution. It also entails managing wastewater, solid waste, hazardous waste and e-waste and sensitizing the community.

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range.*
1. Control air pollution	1.1 *Sources of air pollution* are identified 1.2 Air quality is monitored as per SOPs. 1.3 Air pollution level is determined and solved 1.4 *Air pollution prevention measures* are applied based on the source of pollution. 1.5 Emissions are regulated as per Environmental regulations. (EMCA, 1999 and amended EMCA 2015) 1.6 Air pollution control measures are applied.
2. Control water pollution	2.1 Water sources are identified. 2.2 Water quality is monitored as per SOPs. 2.3 *Sources of water pollution* are identified 2.4 Effluents are regulated as per Environmental regulations. (Water Act, 2016 and Water Quality Regulations 2006) 2.5 *Water pollution control measures* are applied based on the type of pollutant.
3. Control soil pollution	3.1 *Sources of soil pollution* are identified 3.2 Soil pollution level is determined and solved 3.3 Soil is *treated* based on the nature of pollutant 3.4 *Soil pollution control measures* are applied based on the pollutant.
4. Control noise pollution	4.1 *Sources of noise pollution* are identified 4.2 Noise pollution level is determined and solved 4.3 *Noise pollution control measures* are applied based on the source of pollution. 4.4 Noise is regulated as per environmental regulations (EMCA)
5. Manage wastewater	5.1 *Wastewater* is *collected* as per source. 5.2 Wastewater is *treated* based on the level of pollution 5.3 Sludge is treated and disposed or reused as organic manure 5.4 Treated wastewater is discharged back to the environment.

6. Manage solid waste	6.1 *Solid wastes* are collected as per *SOPs*
	6.2 Wastes are sorted /segregated and *recovered*
	6.3 Collected wastes are transported to designated areas
	6.4 The *7R principles* are adopted
7. Manage hazardous waste	7.1 *Hazardous wastes* are sorted based on their *characteristics*
	7.2 Hazardous wastes are collected and gathered
	7.3 Hazardous wastes are treated and *disposed* based on the waste management regulations 2006 and relevant guidelines.
8. Manage e-waste	8.1 *Electronic wastes* are collected
	8.2 The 7Rs principles are adopted
	8.3 Waste management regulations, WEEE(waste, electrical and electronic equipment) directives and guidelines are applied
9. Sensitize community	9.1 Community is sensitized on environmental pollution impacts and waste management
	9.2 Waste management policies are enforced. (EMCA, 1999 and amended EMCA 2015)
	9.3 Environmental laws are enforced (EMCA, 1999)

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Sources of air pollution may include but not limited to:	Industrial Anthropogenic

2. Air pollution prevention measures may include but not limited to:	Green energy technologies
	   o Solar
	   o Wind
	   o Geothermal
	Carbon sinks
	Environmental plans and regulations

3. Sources of water pollution may include but not limited to:	Point source Non-point source. Oil spills
4. Water pollution control measures may include but not limited to:	Water quality permits Soil erosion control Biological pest control techniques Wastewater treatment Regulation of effluents
5. Sources of soil pollution	Fertilizers

may include but not limited to:	☐ Pesticides ☐ Solid wastes ☐ Overgrazing ☐ Oil spills ☐ Acid rain
6. Soil pollution control measures may include but not limited to:	☐ Use of organic fertilizers and eco-friendly pesticides ☐ Reforestation ☐ Solid wastes management ☐ Soil erosion control
7. Sources of noise pollution may include but not limited to:	☐ Night clubs ☐ Industries ☐ Vehicles
8. Treated may include but not limited to:	☐ Extraction and separation techniques ☐ Thermal methods ☐ Chemical methods ☐ Microbial treatment methods
9. Noise pollution control measures may include but not limited to:	☐ Noise permits ☐ Ear muffs are used in high noise areas ☐ Industries are constructed away from residential areas ☐ Sound proofing buildings ☐ Green technologies
10. Wastewater may include but not limited to:	☐ Black water ☐ Grey water ☐ Yellow water
11. Collected may include but not limited to:	☐ Septic tanks ☐ Sewer systems
12. Solid wastes may include but not limited to:	☐ Biodegradable ☐ Non-biodegradable
13. SOPs may include but not limited to:	☐ Number of containers ☐ Frequency of collection ☐ Types of collection services and routes
14. Recovered may include but not limited to:	☐ Size reduction ☐ Density separation by air classifier ☐ Iron is recovered through magnetism ☐ Glass is screened
15. 7R principles may include but not limited to:	☐ Reuse ☐ Recycle

	☐ Reduce
	☐ Repair
	☐ Rethink
	☐ Refill
	☐ Refuse

16. Treated may include but not limited to:	☐ Chemically
	   o Neutralization
	   o Oxidation or reduction
	   o Hydrolysis
	   o Precipitation
	☐ Physically
	   o Encapsulation
	   o Separation
	☐ Biologically
	   o Using organisms
	☐ Thermally
	☐ Incineration

17. Sludge treatment may include but not limited to:	☐ Sludge thickening ☐ Sludge Stabilization ☐ Sludge Dewatering
18. Hazardous wastes may include but not limited to:	☐ Asbestos ☐ Paints ☐ Automotive wastes ☐ Pesticides ☐ Mercury ☐ Electronics ☐ Radioactive materials ☐ Medical waste
19. Characteristics may include but not limited to:	☐ Ignitability ☐ Reactivity ☐ Corrosivity ☐ Toxicity
20. Disposed may include but not limited to:	☐ Incinerated ☐ Pyrolysis ☐ Landfill ☐ Recycling
21. Electronic wastes may include but not limited to:	☐ Electrical appliances ☐ Microchips

| | ☐ Phones |
| | ☐ Computers |

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- ☐ Monitoring and evaluation
- ☐ Research
- ☐ Analytical
- ☐ Measuring
- ☐ Report writing
- ☐ Problem solving
- ☐ Sorting/Segregation wastes
- ☐ Recovering wastes
- ☐ Recycling wastes
- ☐ First aid
- ☐ Mathematical and physics
- ☐ Resource mobilization

Required knowledge

The individual needs to demonstrate knowledge of:

- ☐ Types of pollutants
- ☐ Sources of pollution
- ☐ Permits
- ☐ Methods of pollution control
- ☐ Environmental laws, policies and regulations
- ☐ Pollution monitoring and evaluation tools
- ☐ Environmental degradation and pollution
- ☐ Safety precautions
- ☐ Types of wastes
- ☐ Technological knowhow
- ☐ Waste inventory
- ☐ Wastewater treatment
- ☐ Hazardous wastes
- ☐ Policy regulations (EMCA,1999)
- ☐ Entrepreneurship
- ☐ Landfills

- Sludge management
- 7Rs
- Sustainable development goals

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Monitored air quality.
	1.2 Applied air pollution control measures.
	1.3 Monitored water quality.
	1.4 Applied water pollution control measures
	1.5 Determined soil pollution level
	1.6 Applied soil pollution control measures
	1.7 Determined noise pollution level
	1.8 Applied noise pollution control measures
	1.9 Treated wastewater
	1.10 Treated and disposed sludge
	1.11 Collected solid wastes
	1.12 Sorted /segregated wastes
	1.13 Adopted the 7R principles
	1.14 Sorted, collected and gathered hazardous wastes
	1.15 Treated and disposed hazardous wastes
	1.16 Collected electronic wastes
	1.17 Applied environmental regulations and policies
2. Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Oral Questioning 3.3 Written tests
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

MANAGE MARINE AND WETLAND RESOURCES

UNIT CODE: ENV/OS/MGT/CR/04/6/A

UNIT DESCRIPTION

This unit describes the competencies required to manage marine and wetland resources. It involves utilizing marine resources, managing marine protected area (MPAs), classifying wetland ecosystems, conserving and restoring wetlands.

ELEMENTS **These describe the key outcomes which make up workplace function.**	PERFORMANCE CRITERIA **These are assessable statements which specify the required level of performance for each of the elements.** *Bold and italicized terms are elaborated in the Range.*
1. Utilize marine resources	1.1 *Marine ecological systems* is identified 1.2 Policy legislations and international conventions are applied 1.3 Classified *MPAs*
2. Manage marine protected area (MPAs)	2.1 *Threats to MPAs* are identified 2.2 Legislative and institutional framework is evaluated 2.3 MPA plan is developed 2.4 Communication strategy for the MPA is developed 2.5 MPAs are monitored and assessed 2.6 Community is sensitized 2.7 Conflicts are resolved
3. Classify wetland ecosystems	3.1 *Wetlands* are identified based on their aquatic ecosystems 3.2 Wetlands are *classified* as per the functions and values
4. Conserve wetlands	4.1 *Threats to wetlands* are identified 4.2 Wetland *management plan* is prepared. 4.3 Wetland management policies and regulations are applied 4.4 Local communities are involved in the conservation
5. Restore wetlands	5.1 Buffer zones placement is established where protective measures are needed 5.2 Water quality is monitored and improved 5.3 Community is sensitized on values and functions of wetlands 5.4 Wetlands are monitored under long term management

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Marine ecological systems may include but not limited to:	▢ Estuaries ▢ Mangroves ▢ Coral reefs ▢ Rocky shores
2. MPAs may include but not limited to:	▢ National nature reserves ▢ Marine national parks ▢ Locally managed marine areas
3. Threats to MPAs may include but not limited to:	▢ Piracy ▢ Pollution ▢ Encroachment ▢ Climate change ▢ Poaching ▢ Sand mining
4. Wetlands may include but not limited to:	▢ Marshy ▢ Swampy ▢ Bog ▢ Fen
5. Classified may include but not limited to:	▢ Vegetation structure and floristic ▢ Geomorphic ▢ Hydrology ▢ Dominant water sources ▢ Hydrodynamics
6. Threats to wetlands may include but not limited to:	▢ Climate change ▢ Human activities ▢ Invasive species
7. Management plan may include but not limited to:	▢ Baseline information ▢ Wetland biodiversity ▢ Monitoring and assessment

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Conflict resolution
- Leadership
- Monitoring and evaluation
- Communication
- Decision making
- Sensitization
- Planning and organizing
- Problem solving

Required knowledge

The individual needs to demonstrate knowledge of:

- Marine ecosystem and biodiversity
- Resource mobilization
- Conservation
- MPA zoning
- Types of wetlands
- Values and functions of a wetland ecosystem
- Hydrological cycle
- Wetland management planning
- Assessment of aquatic biodiversity
- Governance of wetland management
- Flora and fauna
- Water Act and Wildlife Protection Act
- Policies, laws and regulations

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Identified MPAs
	1.2 Identified Marine ecological systems
	1.3 Identified threats to MPAs
	1.4 Developed MPA plan
	1.5 Monitored and assessed MPAs
	1.6 Resolved Conflicts
	1.7 Identified and classified wetlands
	1.8 Prepared wetland management plan.
	1.9 Applied wetland management policies and regulations
	1.10 Established buffer zones placement

2. Resource Implications	The following resource s should be provided:	
	2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place	
	2.2 Materials relevant to the proposed activity or tasks	
3. Methods of Assessment	Competency in this unit may be assessed through:	
	3.1 Direct Observation	
	3.2 Oral Questioning	
	3.3 Written tests	
4. Context of Assessment	Competency may be assessed:	
	4.1 On-the-job	
	4.2 Off-the –job	
	4.3 During Industrial attachment	
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.	

MANAGE RANGELAND AND WILDLIFE RESOURCES

UNIT CODE: ENV/OS/MGT/CR/05/6/A

UNIT DESCRIPTION
This unit describes the competencies required to manage rangeland and wildlife resources. It involves managing rangelands resources, wildlife, human-wildlife conflicts and developing an integrated wildlife and rangeland management plan.

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range.*
1. Manage rangeland resources	1.1 **Rangelands** are identified and classified based on their characteristics 1.2 **Principles of rangeland management** are applied 1.3 **Stakeholders** are involved in rangeland management 1.4 Zoning of **rangeland resources** is conducted 1.5 Soil and water conservation is performed in rangelands 1.6 Stakeholders are involved in rangeland management 1.7 Rangeland product utilization is licensed or moderated.
2. Manage wildlife	2.1 **Wildlife** are identified and classified based on their characteristics 2.2 **Wildlife protection laws and policies** are applied 2.3 Endangered species are protected 2.4 Wildlife product utilization is licensed or moderated.
3. Manage human-wildlife conflicts	3.1 Assess occurrence of conflicts between humans and wildlife 3.2 **Conflict resolution strategies** are determined and applied
4. Develop an integrated wildlife and rangeland management plan	4.1 Community is involved in the planning 4.2 Major conflicts in the area are identified and recorded 4.3 Resolutions are developed based on the conflicts 4.4 Management plan is developed and implemented.

RANGE
This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Rangelands may include but	☐ Natural grassland

not limited to:	☐ Desert shrubland
	☐ Savanna woodlands
	☐ Forests
	☐ Tundra
2. Principles of rangeland management may include but not limited to:	☐ Grazing rotation
	☐ Crop rotation
	☐ Understocking
	☐ Irrigation
3. Stakeholders may include but not limited to:	☐ Pastoralists
	☐ Kenya Wildlife Service (KWS)
	☐ Farmers
	☐ Communities
	☐ Charcoal traders
4. Rangeland resources may include but not limited to:	☐ Minerals
	☐ Soil
	☐ Grass
	☐ Water
	☐ Shrubs
	☐ Trees
5. Wildlife may include but not limited to:	☐ Acacia
	☐ Giraffe
	☐ Zebras
	☐ Antelopes
	☐ Lions
	☐ Elephants
	☐ Rhino
6. Wildlife protection laws and policies may include but not limited to:	☐ Wildlife Conservation Act, 2013
	☐ Water Act, 2013
7. Conflict resolution strategies may include but not limited to:	☐ Education and awareness creation
	☐ Livestock compensation schemes
	☐ Use of chain link fences in homesteads
	☐ Social enterprise
	☐ Relocation of problematic animals
	☐ use of livestock guarding dogs

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Livestock rearing
- Observation
- Conflict resolution
- Public speaking
- Communication
- Interpersonal

Required knowledge

The individual needs to demonstrate knowledge of:

- Wildlife
- Rangelands
- Human wildlife conflicts
- Livestock wildlife conflicts
- Rangeland zoning
- Livestock production
- Conservation strategies
- Laws, policies and Acts
- Vegetation distribution
- Rotational grazing

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Identified and classified rangelands
	1.2 Identified and classified wildlife
	1.3 Applied wildlife protection laws and policies
	1.4 Conducted zoning of rangeland resources
	1.5 Performed soil and water conservation in rangelands
	1.6 Determined and applied conflict resolution strategies
	1.7 Identified and resolved major wildlife-rangeland conflicts
2. Resource Implications	The following resources should be provided:
	2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place
	2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through:
	3.1 Direct Observation
	3.2 Oral Questioning

		3.3 Written tests
4.	Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

MANAGE ENERGY RESOURCES

UNIT CODE: ENV/OS/MGT/CR/06/6/A

UNIT DESCRIPTION
This unit describes the competencies required to manage energy resources. It involves classifying sources of energy, assessing environmental implication of energy sources, preparing energy mix plan, applying energy conservation strategies and performing energy audit.

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range.*
1. Classify sources of energy	1.1 *Environmental energy forms* are identified 1.2 *Energy sources* are classified
2. Assess environmental implication of energy sources	2.1 Source of energy is identified 2.2 Potential *effects* of energy forms are determined 2.3 Decision is made based on the degree of impact 2.4 Sustainable energy policies are applied in decision making
3. Prepare energy mix plan	3.1 Energy sources are identified based on availability 3.2 Composition of energy mix is determined based on availability, energy needs to be met and policies
4. Apply energy conservation strategies	4.1 Energy resource policies are applied 4.2 Green energy technologies are applied 4.3 Energy use is monitored and regulated as per workplace procedures 4.4 Impacts of energy resources are observed and controlled if needed.
5. Perform energy audit	5.1 Energy efficiency is determined 5.2 Alternative energy sources are determined 5.3 Audit report is prepared

RANGE
This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Environmental energy forms may include but not limited to:	☐ Renewable ☐ Non-renewable

2. Energy sources may include but not limited to:	☐ Wind
	☐ Solar
	☐ Geothermal
	☐ Electrical
	☐ Biomass
	☐ Chemical
3. Effects may include but not limited to:	☐ Socio-economic
	☐ Environmental
	☐ Cultural

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- ☐ Research
- ☐ Auditing
- ☐ Monitoring and evaluation
- ☐ Report writing
- ☐ Management
- ☐ Planning and organizing
- ☐ Analytical

Required knowledge

The individual needs to demonstrate knowledge of:

- ☐ Energy sources
- ☐ Energy economics
- ☐ Technologies in energy development
- ☐ Energy planning and audits
- ☐ Energy resource policies

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Identified environmental energy forms
	1.2 Classified energy sources
	1.3 Determined potential effects of energy forms
	1.4 Applied sustainable energy policies
	1.5 Determined composition of energy mix
	1.6 Applied green energy technologies

		1.7 Determined energy efficiency
2.	Resource Implications	The following resources should be provided: 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3.	Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Oral Questioning 3.3 Written tests
4.	Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

MANAGE FOREST RESOURCES

UNIT CODE: ENV/OS/MGT/CR/07/6/A

UNIT DESCRIPTION
This unit describes the competencies required to manage forest resources. It involves classifying forests, establishing forests, conserving and certifying forests.

ELEMENTS **These describe the key outcomes which make up workplace function.**	PERFORMANCE CRITERIA **These are assessable statements which specify the required level of performance for each of the elements.** *Bold and italicized terms are elaborated in the Range.*
1. Classify forests	1.1 *Types of forests* are identified based on their characteristics 1.2 Forests are *classified* as per ownerships 1.3 Forests are zoned based on their functionalities 1.4 Land is allocated as per forest activities
2. Establish forests	2.1 Tree species are identified based on the zone 2.2 Tree nurseries are established and managed as per SOPs 2.3 Seedlings are transplanted from the nurseries and grown in the field 2.4 Tree growth is monitored and assessed as per workplace procedures 2.5 Forest biodiversity conservation is observed.
3. Conserve forests	3.1 Forest conservation and management policies are applied 3.2 *Forest conservation strategies* are identified and applied 3.3 Community and stakeholders are involved in forest conservation. 3.4 Forest product utilization is licensed 3.5 *Values* of forests are identified and utilized 3.6 Natural regeneration is observed 3.7 Growth of indigenous and exotic plantations are monitored
4. Certify forests	4.1 Forest certification principles are identified and applied 4.2 Markets for certifying forests are determined 4.3 Certified forests are audited 4.4 Forest audit report is prepared

RANGE
This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Types of forests may include but not limited to:	☐ Tropical rainforests ☐ Temperate deciduous ☐ Temperate coniferous ☐ Boreal forests
2. Classified may include but not limited to:	☐ Public ☐ Community ☐ Private
3. Forest conservation strategies may include but not limited to:	☐ Reforestation ☐ Afforestation ☐ Agroforestry ☐ Soil and water conservation
4. Values may include but not limited to:	☐ Social economic ☐ Cultural ☐ Ecological

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Sensitization
- Report writing
- Record keeping
- Forest auditing
- Farming
- Planning and organizing
- Monitoring and evaluation
- Leadership
- Taking forest inventory
- Analytical
- ICT
- Growing trees
- Research

Required knowledge

The individual needs to demonstrate knowledge of:

- GIS

- Forest certifications
- Indigenous and exotic trees
- Resource mobilization
- Plant morphology
- Forest plantations
- Geography
- Soil and water conservation.
- Classification of forests
- Farming tools and equipment
- Forests Acts
- Value addition
- Characteristics of forests

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Identified and classified forests
	1.2 Identified tree species
	1.3 Established and managed tree nurseries
	1.4 Transplanted seedlings
	1.5 Applied forest conservation and management policies
	1.6 Identified and applied forest conservation strategies
	1.7 Identified and utilized values of forests
	1.8 Prepared forest audit report
2. Resource Implications	The following resources should be provided:
	2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place
	2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through:
	3.1 Direct Observation
	3.2 Oral Questioning
	3.3 Written tests
4. Context of Assessment	Competency may be assessed:
	4.1 On-the-job
	4.2 Off-the –job
	4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

APPLY ENVIRONMENTAL LAW

UNIT CODE: ENV/OS/MGT/CR/08/6/A

UNIT DESCRIPTION

This unit describes the competencies required to apply environmental laws. It involves applying environmental laws, formulating environmental laws and applying Multilateral Environmental Agreements (MEAs).

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range.*
1. Apply environmental laws	1.1 *Environmental laws* are identified as per the name, purpose and year formulated 1.2 Case studies in environmental laws are reviewed 1.3 Environmental laws are applied based on SOPs.
2. Formulate environmental laws	2.1 Problem is identified based on the need 2.2 *Agenda* is formed by the government 2.3 Stakeholder engagement and public participation is observed in formulations 2.4 Bill is passes as a policy. 2.5 Policy is implemented
3. Apply Multilateral Environmental Agreements (MEAs)	3.1 *Multilateral Environmental Agreements* are identified as per the name purpose and year formulated 3.2 Multilateral Environmental Agreements are applied as per their SOPs

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range May include but not limited to:
1. Environmental laws may include but not limited to:	☐ EMCA, 1999 and Amended EMCA 2015 ☐ The Montreal Protocol on substances that deplete the ozone layer, 1987 ☐ The United Nations Conference on human environment, Stockholm, 1972 ☐ The UN conference on environment and development, 1992 ☐ UN general assembly special session on sustainable

	development (the earth summit), 1997
	☐ The World Summit for sustainable development, 2002
2. Agenda may include but not limited to:	☐ Public agenda
	☐ Institutional agenda
3. Multilateral Environmental Agreements may include but not limited to:	☐ Ramser convention on wetlands of international importance, 1971
	☐ UN Framework Convention on Climate Change, 1992
	☐ Convention on the control of transboundary movements of hazardous wastes and their disposal, 1989
	☐ Convention on Biological diversity, 1992

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- ☐ Presentation
- ☐ Reviewing
- ☐ Research
- ☐ Record keeping

Required knowledge

The individual needs to demonstrate knowledge of:

- ☐ Local and International laws, treaties and conventions
- ☐ Policy formulation
- ☐ Case studies
- ☐ Environmental courts
- ☐ Transboundary resources

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Identified and applied environmental laws
	1.2 Formulated environmental law
	1.3 Identified and applied Multilateral Environmental Agreements
2. Resource Implications	The following resources should be provided:
	2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place

	2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Oral Questioning 3.3 Written tests
4. Context of Assessment	Competency may be assessed: 4.1 On-the-job 4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

MANAGE GREENHOUSES

UNIT CODE: ENV/OS/MGT/CR/09/6/A

UNIT DESCRIPTION
This unit describes the competencies required to manage greenhouses. It involves designing greenhouses, establishing greenhouses, managing greenhouse crops and maintaining greenhouses.

ELEMENTS These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. *Bold and italicized terms are elaborated in the Range.*
1. Design greenhouses	1.1 Site location is conducted 1.2 *Design of greenhouse* is developed based on baseline survey report
2. Establish greenhouses	2.1 Materials, tools and equipment are gathered as per sops 2.2 Greenhouse is set out on the ground as per the design 2.3 Greenhouse is constructed 2.4 *Greenhouse apparatus* are installed 2.5 Nursery beds are established in the greenhouse 2.6 Greenhouse crops are identified and planted
3. Manage greenhouse crops	3.1 Plant media is established on the nursery beds based on the crop nutrient requirements 3.2 Seeds are *prepared* and established on the nursery beds 3.3 Crops are *maintained* as per SOPs 3.4 Irrigation is conducted based on the crop water requirement 3.5 Pest and diseases and weeds are *controlled*
4. Maintain greenhouses	4.1 Water tanks are refilled regularly based on their capacities 4.2 Leaks are repaired 4.3 Drains are cleared as per SOPs 4.4 Irrigation kits are maintained. 4.5 Temperature in the greenhouse is monitored. 4.6 Water quality is monitored

RANGE
This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Design of greenhouse may include but not limited to:	☐ Gutter connected greenhouse ☐ Free standing greenhouse

2. Greenhouse apparatus may include but not limited to:	☐ Water tanks ☐ Pipe work ☐ Drains ☐ Irrigation
3. Prepared may include but not limited to:	☐ Seed testing ☐ Seed extraction, preparation and viability testing and storage ☐ Seed pre-treatment ☐ vegetative propagation ☐ Tissue culture
4. Maintained may include but not limited to:	☐ Propagation ☐ Pruning ☐ Thinning ☐ Sticking ☐ Training ☐ Trimming
5. Controlled may include but not limited to:	☐ Physically/ manually ☐ Biologically ☐ Culturally

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

☐ Irrigation
☐ Soil testing
☐ Planting
☐ Farming
☐ Design
☐ Plumbing
☐ Installation of apparatus
☐ Marketing
☐ ICT
☐ Analytical

Required knowledge

The individual needs to demonstrate knowledge of:

☐ Policies

- PPEs
- Greenhouse energy conservation
- Farm practices
- Handling and storage of equipment
- Post-harvest management
- Water management act
- Pesticides, use and safety
- Plant varieties
- Structure, material and layout
- Nutrient management
- Greenhouse designs
- Organic waste management
- Good agricultural practices
- Weed management
- Greenhouse operations
- Pests and diseases

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Designed greenhouses
	1.2 Established greenhouses
	1.3 Established plant media on the nursery beds
	1.4 Prepared and established seeds on the nursery beds
	1.5 Maintained greenhouse
2. Resource Implications	The following resources should be provided:
	2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place
	2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through:
	3.1 Direct Observation
	3.2 Demonstration with Oral Questioning
	3.3 Written tests
4. Context of Assessment	Competency may be assessed:
	4.1 On-the-job
	4.2 Off-the –job

		4.3 During Industrial attachment
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

MANAGE FISHERIES RESOURCES

UNIT CODE: ENV/OS/MGT/CR/10/6/A

UNIT DESCRIPTION

This unit specifies the competencies required to manage fisheries resources. It involves classifying fish, developing fisheries management plan, managing fish farm, harvesting, processing and marketing fish.

ELEMENTS **These describe the key outcomes which make up workplace function.**	PERFORMANCE CRITERIA **These are assessable statements which specify the required level of performance for each of the elements.** *Bold and italicized terms are elaborated in the Range.*
1. Classify fish	1.1 ***Types of fish*** are identified 1.2 Fish habitats are classified
2. Develop fisheries management plan	2.1 Current situation of the fisheries is assessed 2.2 Fish stock status is determined 2.3 Potential impacts of fishing are summarized 2.4 Resources and responsibilities for plan implementation are allocated 2.5 Actions to be taken are scheduled 2.6 Programme for surveillance, monitoring and auditing is prepared
3. Manage fish farm	3.1 Fish ponds are designed and established as per the type 3.2 Fish are fed as per the size 3.3 Ponds are de-silted 3.4 Aquatic weeds are controlled 3.5 sex change is performed on the fish 3.6 Growth of fish is monitored periodically 3.7 Fish records are maintained
4. Harvest fish	4.1 ***Fishing gears*** are gathered and used as per workplace procedures 4.2 Fish are harvested as per the method of fishing 4.3 Fish are preserved and stored as per workplace procedures
5. Process and market fish	5.1 Fish are weighed and packaged as per type of fish and market preference 5.2 Fish waste is managed as per waste management regulations

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Types of fish may include but not limited to:	☐ Tilapia ☐ Nile perch ☐ Sardine
2. Fishing gear may include but not limited to:	☐ Fishing nets ☐ Baits /hook ☐ Trawlers

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- ☐ Fishing
- ☐ Packaging
- ☐ Breeding
- ☐ Design
- ☐ Monitoring and evaluation
- ☐ Marketing
- ☐ ICT
- ☐ Analytical

Required knowledge

The individual needs to demonstrate knowledge of:

- ☐ Types of fish
- ☐ Types of fish ponds
- ☐ Aquaculture
- ☐ Fish preservation
- ☐ Fish handling
- ☐ Fish pests and diseases
- ☐ Water management

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:	
	1.1 Identified types of fish	
	1.2 Classified fish habitats are	
	1.3 Developed fisheries management plan	
	1.4 Designed and established fish ponds	
	1.5 Fed fish	
	1.6 De-silted ponds	
	1.7 Maintained fish records	
	1.8 Harvested fish	
	1.9 Preserved and stored fish	
	1.10 Weighed and packaged fish	
	1.11 Managed fish waste	
2. Resource Implications	The following resources should be provided:	
	2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place	
	2.2 Materials relevant to the proposed activity or tasks	
3. Methods of Assessment	Competency in this unit may be assessed through:	
	3.1 Direct Observation	
	3.2 Oral Questioning	
	3.3 Written tests	
4. Context of Assessment	Competency may be assessed:	
	4.1 On-the-job	
	4.2 Off-the –job	
	4.3 During Industrial attachment	
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.	