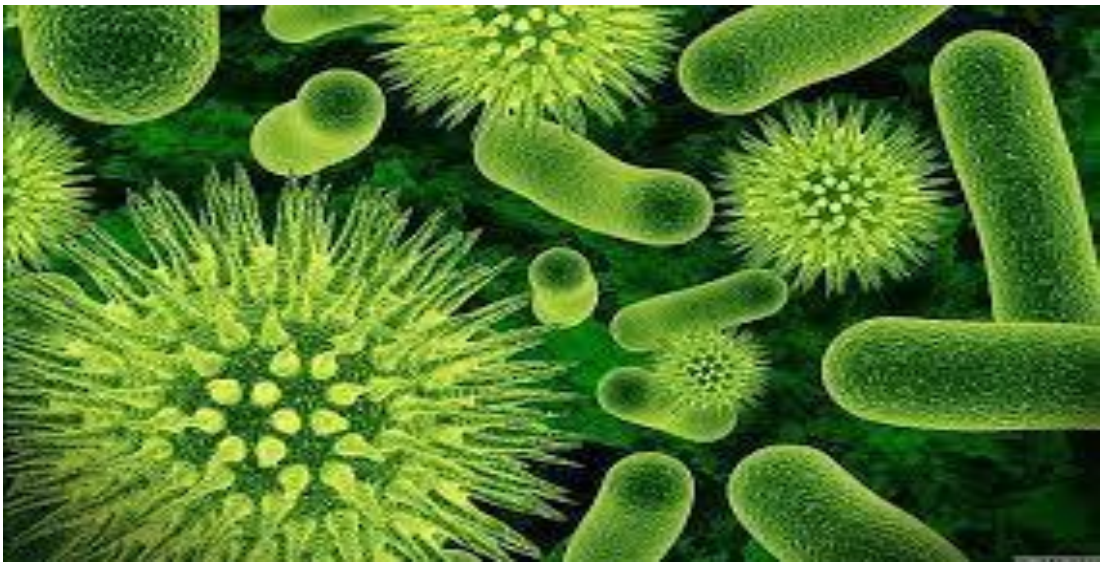
NATIONAL OPEN UNIVERSITY OF NIGERIA

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCES

COURSE CODE: EHS 321



COURSE TITLE: HEALTH SAFETY AND ENVIRONMENT

COURSE GUIDE

EHS 321: HEALTH SAFETY ENVIRONMENT

Course Developer/Writer: **Dr. Sylvanus Chukwudi Ugoh**
Department of Microbiology
University of Abuja

Course Editor: **Dr.A. S. Dan-kishiya**
Department of Biological Sciences
University of Abuja

Course Coordinator: **Professor Grace C. Okoli**
Department of Environmental Health Science
National Open University of Nigeria

Programme Coordinator: **Professor Grace C. Okoli**
Department of Environmental Health Science
National Open University of Nigeria

National Open University of Nigeria
Headquarters
91 Cadastral Zone
Nnamdi Azikiwe Expressway,
Jabi Abuja
Nigeria

Abuja Annex

245 Samuel Adesujo Ademulegun Street
Central Business District
Opposite Arewa Suites
Abuja
E-mail:centralinfo@nou.edu.ng

URL: www.nou.edu.ng

First Printed 2018

ISBN:

Printed by…….

For

National Open University of Nigeria

Headquarters
91 Cadastral Zone
University Village
Nnamdi Azikiwe Express Way
Jabi, Abuja

e-mail:
centrainfo@nou.edu.ngur/:
www.nou.edu.ng

COURSE GUIDE

CONTENTS **PAGE**

Introduction

According to the Wikipedia, Environmental health and safety is a discipline and specialty that studies and implements practical aspects of environmental protection and safety at work. In simple terms it is what organizations must do to make sure that their activities do not cause harm to anyone. The essence of Environmental health and safety is to create a healthy workplace. An optimum healthy workplace ensures better health condition for workers with little or no hazards to the lives of employees and management who are often involved and are found in the same environment.

Environmental health and safety as a discipline can for convenience be grouped into two major aspects: the "environmental aspect" and the "safety and health aspect" The environmental aspect involves creating a systematic approach to complying with environmental regulations in any state or country. This could comprise of the management of air emissions to reduce the company‟s carbon footprint and managing the wastes generated by the organization. Carbon footprint can be described as the amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organization, or community.

The health and safety aspect involves creating organized efforts and procedures for identifying workplace hazards and reducing accidents and exposures to harmful situations and substances. This includes the training of personnel in accident prevention, accident prevention, accident response, emergency preparedness and use of protective clothing and equipment.

A healthy workplace can therefore be defined as a working environment in which there is not only an absence of harmful conditions that can cause injury and illness, but an abundance of health promoting ones (WHO, 2010). A working environment can have a significant impact on the health and well-being of employees. The average employee spend about one-third of the life in the place of work. Therefore whatever happens at the workplace will have a significant impact the life of workers.

What you will learn in this course

In this course, you have the course units and a course guide. The course guide will tell you what the course is all about. It is general overview of the course materials you will be using and how to use those materials. It also helps you to allocate the appropriate time to each unit so that you can successfully complete the course within the stipulated time limit.

The course guide also helps you to know how to go about your Tutor-Marked Assignment which will form part of your overall assessment at the end of the course. Also, there will be regular tutorial classes that are related to this course, where you can interact with your facilitator and other students. Please, I encourage you to attend these tutorial classes.

Course Aim

The aim of the course is to give a vivid understanding of Environmental Health and Safety.

Course Objectives

To achieve the aim set above, there are objectives. Each unit has a set of objectives presented at the beginning of the unit. These objectives will guide you on what to concentrate / focus on while studying the unit. Please read the objective before studying the unit and during your study to check your progress.

The Comprehensive Objectives of the Course are given below. By the end of the course/after going through this course, you should be able to understand:

- The concepts of Environmental Health and Safety
- Types of Emergencies and services required
- Emergency collaboration agencies
- Resource mobilization, allocation and management
- Roles of Environmental Health officers in emergencies
- Forecasting, Preparedness and Response in Emergencies

Working through this course

To successfully complete this course, you are required to read each study unit, read the textbooks materials provided by the National Open University.

Reading the referenced materials can also be of great assistance.

Each unit has self-assessment exercises which you are advised to do and at certain periods during the course you will be required to submit your assignment for the purpose of assessment.

There will be a final examination at the end of the course. The course should take you about 17 weeks to complete.

This course guide will provide you with all the components of the course how to go about studying and hour you should allocate your time to each unit so as to finish on time and successfully.

The Course Materials

The main components of the course are:

- The Study Guide
- Study Units
- Reference / Further Readings
- Assignments
- Presentation Schedule

Study Unit

The study units in this course are given below:

MODULE ONE: Concepts of Environmental Health and Safety

Unit 1: Basic Concepts in Environmental health and Safety

Unit 2: Principles of Environmental health and Safety

Unit 3: Environmental Health and Safety Rights of Workers

MODULE TWO: Types of Emergencies and services required

Unit 1: Environmental Health and Safety Emergencies

Unit 2: Types of Emergencies

Unit 3: Emergency Response Service

MODULE THREE: Emergency collaboration agencies

Unit 1: Emergency Management Collaboration Agencies

Unit 2: International Emergency Collaboration Agencies

MODULE FOUR: Resource mobilization, allocation and management

Unit 1: Resource Mobilization in Emergencies

Unit 2: Resource Allocation in Emergencies

Unit 3: Resource Management in Emergency Response

MODULE FIVE: Forecasting, Preparedness and Roles of Environmental Health officers in emergencies

Unit 1: Forecasting Environmental Health Emergencies

Unit 2: Preparedness in Environmental Health Emergencies

Unit 3: Roles of Environmental Health Officers in Emergencies

There are activities related to the lecture in each unit which will help your progress and comprehension of the unit. You are required to work on these exercises which together with the TMAs will enable you to achieve the objectives of each unit.

Presentation Schedule

There is a time-table prepared for the early and timely completion and submissions of your TMAs as well as attending the tutorial classes. You are required to submit all your assignments by the stipulated time and date. Avoid falling behind the schedule time.

Assessment

There are three aspects to the assessment of this course.

The first one is the self-assessment exercises. The second is the tutor marked assignments and the third is the written examination or the examination to be taken at the end of the course.

Do the exercises or activities in the unit by applying the information and knowledge you acquired during the course. The tutor-marked assignments must be submitted to your facilitator for formal assessment in accordance with the deadlines stated in the presentation schedule and the assignment file.

The work submitted to your tutor for assessment will count for 30% of your total course work.

At the end of this course, you have to sit for a final or end of course examination of about a three hour duration which will count for 70% of your total course mark.

Tutor-Marked Assignment

This is the continuous assessment component of this course and it accounts for 30% of the total score. You will be given four (4) TMAs by your facilitator to answer. Three of which must be answered before you are allowed to sit for the end of course examination.

These answered assignments are to be returned to your facilitator.

You‟re expected to complete the assignments by using the information and material in your readings references and study units.

Reading and researching into you references will give you a wider via point and give you a deeper understanding of the subject.

1. Make sure that each assignment reaches your facilitator on or before the deadline given in the presentation schedule and assignment file. If for any reason you are not able to complete your assignment, make sure you contact your facilitator before the assignment is due to discuss the possibility of an extension. Request for extension will not be granted after the due date unless there in exceptional circumstances.

2. Make sure you revise the whole course content before sitting or the examination. The self-assessment activities and TMAs will be useful for this purposes and if you have any comment please do before the examination. The end of course examination covers information from all parts of the course.

Course Marking Scheme

Assignment	Marks
Assignments 1 – 4	Four assignments, best three marks of the four count at 10% each–30% of course marks.
End of course examination	70% of overall course marks
Total	100% of course materials.

Facilitators/Tutors and Tutorials

Sixteen (16) hours are provided for tutorials for this course. You will be notified of the dates, times and location for these tutorial classes.

As soon as you are allocated a tutorial group, the name and phone number of your facilitator will be given to you.

These are the duties of your facilitator: He or she will mark and comment on your assignment. He will monitor your progress and provide any necessary assistance you need. He or she will mark your TMAs and return to you as soon as possible.

(You are expected to mail your tutored assignment to your facilitator at least two days before the schedule date).

Do not delay to contact your facilitator by telephone or e-mail for necessary assistance if you do not understand any part of the study in the course material. You have difficulty with the self-assessment activities. You have a problem or question with an assignment or with the grading of the assignment.

It is important and necessary you acted the tutorial classes because this is the only chance to have face to face content with your facilitator and to ask questions which will be answered instantly. It is also period where you can say any problem encountered in the course of your study.

Summary

This course gives a well-articulated training in Environmental health and safety. Participants are trained to be good managers in Environmental health and safety issues. Environmental Health and Safety (EHS) targets creating a healthy workplace. According to WHO (2010) A healthy working environment is one in which there is not only an absence of harmful conditions that can cause injury and illness, but an abundance of health promoting ones. EHS involves two major aspects: the environmental aspect and the health and safety aspect. The environmental aspect deals with the management of air emissions and all aspects of environmental pollution while the health and safety aspect involves identifying workplace hazards and reducing accidents and exposures to harmful situations and substances in the work environment and preparedness in emergency response.

I wish you success in this course.

Course Code: EHS 321

Course Title: Environmental Health and Safety

Course Developer/Writer: **Dr. Sylvanus Chukwudi Ugoh**
Department of Microbiology
University of Abuja

MODULE ONE: Introduction to Environmental health and Safety

Unit 1: Basic Concepts in Environmental health and Safety

Unit 2: Principles of Environmental health and Safety

Unit 3: Environmental Health and Safety Rights of Workers

UNIT 1: Basic Concepts in health Safety and Environment

CONTENTS

1.0 Introduction

According to the Wikipedia, Environmental health and safety is a discipline and specialty that studies and implements practical aspects of environmental protection and safety at work. In

simple terms it is what organizations must do to make sure that their activities do not cause harm to anyone. The essence of Environmental health and safety is to create a healthy workplace. An optimum healthy workplace ensures better health condition for workers with little or no hazards to the lives of employees and management who are often involved and are found in the same environment.

Environmental health and safety as a discipline can for convenience be grouped into two major aspects: the "environmental aspect" and the "safety and health aspect" The environmental aspect involves creating a systematic approach to complying with environmental regulations in any state or country. This could comprise of the management of air emissions to reduce the company‟s carbon footprint and managing the wastes generated by the organization. Carbon footprint can be described as the amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organization, or community.

The health and safety aspect involves creating organized efforts and procedures for identifying workplace hazards and reducing accidents and exposures to harmful situations and substances. This includes the training of personnel in accident prevention, accident prevention, accident response, emergency preparedness and use of protective clothing and equipment.

A healthy workplace can therefore be defined as a working environment in which there is not only an absence of harmful conditions that can cause injury and illness, but an abundance of health promoting ones (WHO, 2010). A working environment can have a significant impact on the health and well-being of employees. The average employee spend about one-third of the life in the place of work. Therefore whatever happens at the workplace will have a significant impact the life of the worker.

2.0 Objectives

At the end of this unit, you will get to know in detail the basic concepts in Environmental health and Safety

3.0 Main content

3.1 Concept of Environmental health and safety

Definition of Environmental health and safety

According to the Wikipedia, Environmental health and safety (EHS) is a discipline and specialty that studies and implements practical aspects of environmental protection and safety at work. In simple terms it is what organizations must do to make sure that their activities do

not cause harm to anyone. The essence of Environmental health and safety is to create a healthy workplace.

Environmental health and safety (EHS) can also be referred to Health safety and environment (HSE) EHS aims to prevent and reduce accidents, emergencies, and health issues at work, along with any environmental damage that could result from work practices. EHS is motivated by the intention to achieve:

1. The protection of workers, their health, and the natural environment
2. Compliance with legal requirements and regulatory standards
3. The increase in productivity, profit, and morale that comes with a safe and healthy workforce.

3.2 Environmental health and safety plan

An Environmental health and safety plan is a document which provides a framework for ensuring compliance with regulations pertaining to protection of personnel and environment. The primary purposes of the EHS plan are to provide:

1. Safety information for employees in an organization,
2. To provide documentation of compliance with occupational and environmental regulations.
3. To provide information to the EHS Department for use in determining job specific training requirements.

According to WHO global plan of action for workers health, Capacities should be built for primary prevention of occupational hazards, diseases and injuries, including strengthening of human, methodological & technological resources, training of workers and employers, introduction of healthy work practices and work organization and of a health-promoting & protecting culture at the workplace (WHO, 2012).

Strategic priorities of EHS plan are made to include the environment, health and safety.

Environment: To provide the guide for an environmentally responsible organization that preserves and protects the natural resources.

Health: To provide the framework needed to minimize exposure to health risks and protect the well-being of employees and management.

Safety: To provide workers the knowledge the need to work in a safe environment without hazards.

3.3 Essential Elements of health and safety plan

According to McLeod and Ketcham, 2007 an effective environmental health and safety plan will include the following essential elements.

1. **Hazard recognition, evaluation and control**

   This involves proactive recognition in terms of environment, the people actually doing the work, equipment/materials used in the work process and the processes/practices involved. Once hazards have been identified and prioritized they be controlled. The generally accepted hierarchy of control is elimination/substitution, engineering controls, personal protective equipment and administrative controls.

2. **Workplace design and Engineering**

   In designing a workplace safety of life and environment must be of paramount importance. Some of the safety codes are already done by building codes through legislation. These include electrical and fire suppression standards. Other aspects involve ventilation, equipment/machine safeguarding processes

3. **Workplace planning and staffing**

   For an effective environmental health and safety plan, an effective human resource management is critical. It includes the development of accurate job descriptions to take into consideration job duties (such as respirator use or hearing protection use, manual material handling, exposure to allergens) that may trigger the need for pre-employment evaluations and medical surveillance. Limiting exposures by administrative controls or other safety considerations and development of safety rules would both be considered in this element (McLeod and Ketcham, 2007).

4. **Environmental Management**

Environmental management is a very important element of the EHS plan. The plan takes into consideration the air emissions and all aspect of the environmental pollution. Issues from proper permitting to preventing potential environmental liability are considered in this element.

5. **Organizational Communication**

Communication within the organization keeps employees informed of new and existing policies, procedures, lessons learned, and missions. Likewise it provides avenues from the front line to upper management for consideration in the development and revision of those polices. The flow of information in both directions is critical for an effective Environmental health and safety plan ((McLeod and Ketcham, 2007).

6. **Occupational Health**

   The nature and scope of an occupational health program can vary widely from company to company. Often in animal care settings one might expect pre-employment health evaluations, periodic medical surveillance, injury protocols (including first aid and bite/scratch procedures) and maintenance of medical records, and coordination with the departments when work related health and safety issues arise. One might typically find coordination of respiratory protection and hearing conservation programs within the Occupational Health component of a program ((McLeod and Ketcham, 2007).

7. **Collection of information**

   Information collection aids proper decision making in designing an EHS plan. Equally important to collection of information is its subsequent management. The safety and health information collected must be managed properly to maintain regulatory compliance.

8. **Involvement of employee**

   The involvement of employee in all aspects of a safety and health plan benefits both the employees and management. It also serves as a bridge of understanding for actions taken by the employer in terms of health and safety.

9. **Motivation, Behavior, and Attitudes**

   The goal of this element is to change behavior and attitude to promote a safer and healthier workplace. It places great value on visible management leadership and support for changing unsafe behaviours, attitudes, and work processes.

4.0 Conclusion

An Environmental health and safety plan is a written document that provides for safety to environment and personnel in a workplace. It ensures compliance of procedures and guidelines. Effective Environmental health safety plan makes use of some essential elements.

5.0 Summary

Environmental health safety plan provides a framework for ensuring compliance with regulations pertaining to protections of personnel and environment. EHS plan takes into consideration the three main aspects of environment, health and safety.

6.0 Tutor-Marked Assignment

-Define the term Environmental health and safety plan

Solution

An Environmental health and safety plan is a document which provides a framework for ensuring compliance with regulations pertaining to protection of personnel and environment. The primary purposes of the EHS plan are to provide:

1. Safety information for employees in an organization,

2. To provide documentation of compliance with occupational and environmental regulations.

3. To provide information to the EHS Department for use in determining job specific training requirements.

7.0 Reference

Kavianian, H.R. (1990). Occupational and Environmental Safety Engineering and Management. Van Nostrand Reinhold Company, New York.

McLeod, V. and Ketcham, G.R. (2007). 14 Essential Elements for a Successful Health and Safety Programme.

Rokho, K. (2012). WHO and Well-being at Workplace. World Health Organization Regional Office for Europe

Wikipedia (Accessed December, 2018). Environmental health and safety. http://en.wikipedia.org/org/wiki/Environment_health_and_safety.

World Health Organization (2010).WHO healthy workplace Framework and Modelling.

UNIT 2: PRINCIPLES OF ENVIRONMENTAL HEALTH AND SAFETY

CONTENTS

1.0 Introduction

The ILO estimates that 2.02 million people die each year from work-related accidents or diseases. A further 317 million people suffer from work-related diseases, and there are an estimated 337 million fatal and non-fatal work-related accidents per year (ILO, 1981). The suffering caused by such accidents and illnesses to workers and their families is incalculable. In economic terms, the ILO has estimated that 4% of the world‟s annual GDP is lost as a consequence of occupational diseases and accidents (ILO, 1981).

2.0 Objectives

At the end of this unit, you will know the principles of Environmental health and safety.

3.0 Main content

3.1: The Principles of Environmental health and safety.

All the tragedies in the workplace can be avoided by sound prevention, reporting and inspection practices. The global strategy to improve occupational safety and health adopted in 2003 by the ILO included the introduction of a preventive safety and health culture, promotion and development of relevant instruments, and technical assistance.

The ILO has adopted more than 40 standards specifically dealing with occupational safety and health, as well as over 40 Codes of Practice. Nearly half of ILO instruments deal directly or indirectly with occupational safety and health issues (ILO 1981).

The principles of Environmental health and safety targets the protection and safety of working men and women. In any country these can be achieved through the setting and enforcing standards, the provision of education, outreaches and assistance, issuing of permits, licenses, certificates, registrations and approvals.

The EHS principles cover areas that are specific to each organization as well as those that are general to most organization. The major areas are:

1. Environment
2. Occupational health and safety
3. Community health and safety

The environment can be subcategorized into:

- Air emissions and ambient air quality
- Energy conservation
- Wastewater and ambient water quality
- Water conservation
- Hazardous materials management
- Waste management
- Noise
- Contaminated land

The occupational health can be subcategorized into:

- General facility design and operation
- Communication and training
- Physical hazards
- Chemical hazards
- Biological hazards
- Radiological hazards
- Personal protective equipment (PPE)
- Special hazard environments
- Monitoring

Community health and safety can be subcategorized into:

- Water quality and availability
- Structural safety of project infrastructure
- Life and fire safety (L&FS)
- Traffic safety
- Transport of hazardous materials
- Disease prevention
- Emergency preparedness and response

3.2: **The Practical Approach**

The Environmental health and safety principles can be discussed under the following principles according to Knoll, 2014.

1. Protection of the Biosphere

"To make continued progress toward reducing or eliminating the release of any hazardous substance in an effort to safeguard all habitats affected by our operations" This principle can be achieved by:

- The reduction of the use and/or emissions of hazardous air pollutants and volatile organic

compounds from manufacturing operations through the introduction of clean technologies.

- The provision of water treatment facilities that meet or exceed discharge criteria.
- The monitoring of storm water, conserve water use and develop processes

to efficiently use water and minimize water pollution.

2. Sustainable Use of Natural Resources

"To make the best use of renewable resources, such as water, soil and forests, and conserve nonrenewable resources. This principle can be achieved by:

- Sustainable use of renewable natural resources through efficient use and careful planning.
- Seeking opportunities to use wood from sustainable forests in products.
- An attempt to recycle or make beneficial use of wood scrap generated in manufacturing operations.
- Recycling steel, aluminum and other metal components.
- Being environmentally responsible in the purchase of materials.

3. Waste Reduction and Disposal

"To reduce, recycle, and where possible, eliminate waste and disposing of all waste using safe and responsible methods with the intention of eliminating the landfilling of waste" This principle can be achieved by:

- An attempt to seek opportunities to reduce waste and introduce recycling process in an organization‟s operations.
- Disposing of wastes only in well-operated and permitted facilities.

4. Conservation

"To conserve energy by improving the efficiency of internal operations". This principle can be achieved by:

- Making every effort to use environmentally safe and sustainable energy sources.
- Conserving energy and improve energy efficiency.

5. Risk Reduction

"To strive to minimize the environmental health and safety risks to employees and the communities in which the industries operate through safe technologies, sound transportation practices, safe facilities and operating procedures, and preparing for emergencies" This principle can be achieved through:

- The designing of processes to prevent injury to the health and welfare of workers, the community and the environment.
- The development and implementation of health and safety policies and programs to help prevent injury and illnesses to workers.
- The development and implementation of health and wellness awareness and illness prevention programs.
- Designing and developing training programs to provide workers with the necessary skills and knowledge to fulfill the objectives of the Environmental, Health and Safety Plan.

6. Safe Products and Services

"To reduce and, where possible, eliminate the use, manufacture or sale of products and services that cause environmental damage or health or safety hazards" This principle can be achieved through:

- The provision of independent testing to assure the safety of products.

7. Environmental Restoration

"To comply responsibly with the law to address conditions caused by the industrial process that could endanger health, safety or the environment"

8. Public Information

"To comply with the law to inform on a timely manner those who may be affected by conditions caused by operations that might endanger health, safety or the environment and will encourage employees to report dangerous incidents or conditions to management"

4.0 Conclusion

A proper understanding and implementation of the principles of environmental health and safety will reduce not only the hazards imposed to the health of workers and communities in areas of operation but will reduce environmental pollution and occupational hazards. This will lead to the protection of the biosphere and conserve the natural resources.

5.0 Summary

In this unit, you have learnt,

-That over 2 million people die each year from work-related accidents and diseases.

- That the suffering caused by work-related accidents and illnesses can be eradicated by adhering to the principles of EHS.

- That the principles of EHS target the protection and safety of working men and women.

- EHS principles cover areas of environment, occupational health and safety

- The practical approach of the principles of EHS

6.0 Tutor-Marked Assignment

Outline the major areas and the subcategories that the principles environmental health and safety cover.

Solution:

4. Environment
5. Occupational health and safety
6. Community health and safety

The environment can be subcategorized into:

- Air emissions and ambient air quality
- Energy conservation
- Wastewater and ambient water quality
- Water conservation
- Hazardous materials management
- Waste management
- Noise
- Contaminated land

The occupational health can be subcategorized into:

- General facility design and operation
- Communication and training
- Physical hazards
- Chemical hazards
- Biological hazards
- Radiological hazards
- Personal protective equipment (PPE)
- Special hazard environments
- Monitoring

Community health and safety can be subcategorized into:

- Water quality and availability
- Structural safety of project infrastructure
- Life and fire safety (L&FS)
- Traffic safety
- Transport of hazardous materials

- Disease prevention
- Emergency preparedness and response

7.0 References/further reading

International Labour Organization (1981). C155-Occupational Safety and Health Convention.

Knoll (2014). Environmental Health and Safety Management Plan.

Kavianian, H.R. (1990). Occupational and Environmental Safety Engineering and Management. Van Nostrand Reinhold Company, New York.

Wikipedia (Accessed December, 2018). Environmental health and safety. http://en.wikipedia.org/org/wiki/Environment_health_and_safety.

Unit 3: ENVIRONMENTAL HEALTH AND SAFETY RIGHTS OF WORKERS

CONTENTS

1.0 Introduction

Work provides a lot benefits to the workers which could be economical, social, physical and psychological. Yet a wide array of workplace hazards also present dangers to the health and safety of people at work. Workers form the greater portion of human resources in an organization and of course one of the greatest

assets of any organization. It may also be said that workers are the life-wire of any organization. Being such a vital component, it is expected that the workers be protected from harm or hazards that may be emanating from the organization‟s operations. The Universal Declaration of Human Rights of the General Assembly in the General Assembly Resolution 217A of 1948 of the United Nations, article 23 provides the right to just and favourable conditions of work.

2.0 Objectives

At the end of this unit, you will get to know what is the Environmental Health and Safety Rights of workers or employees.

3.0 Main content

3.1: The Environmental Health and Safety Rights of Workers

The Canadian Centre for Occupational health and safety (2018) outlines the basic Environmental health and safety rights of workers. The employees‟ rights include:

- Right to refuse unsafe work.
- Right to participate in the workplace health and safety activities through the Health and Safety Committee (HSC) or as a worker health and safety representative.
- Right to know, or the right to be informed about, actual and potential dangers in the workplace.

The Maine Department of Labour (2013) expanded the three basic rights of employees include rights to:

- A safe and healthful workplace

- Any information your employer has about any exposure you may have had to hazards such as toxic chemicals or noise.
- To ask your employer to correct dangerous conditions.
- To file a complaint about workplace hazards.
- To participate in enforcement inspections.
- To not be discriminated against for exercising your health and safety rights.
- To refuse work that puts you in immediate danger of serious harm. Before you refuse unsafe work, request that your employer eliminate the hazard and make it clear that you will accept an alternate assignments.
- To information on hazards in your workplace, chemicals used in your workplace, tests your employer has done to measure chemical, noise and radiation levels and what to do if you or other employees are involved in an incident or are exposed to other toxic substances.
- To training from your employer on healthy workplace.

3.2: Responsibilities of Employees

According to the Canadian Centre for Occupational health and safety (2018), the responsibilities of employees include:

- To work in compliance with Occupational Health and Safety acts and regulations.
- To use personal protective equipment and clothing as directed by the employer.
- To report workplace hazards and dangers to the supervisor or employer.
- To work in a safe manner as required by the employer and use the prescribed safety equipment.
- To tell the supervisor or employer about any missing or defective equipment or protective device that may be dangerous.

3.3: The Responsibilities of Employers

According to the Canadian Centre for Occupational health and safety (2018), in line with maintaining a healthy workplace, Employers are expected to discharge the following responsibilities to its Employees.

- To establish and maintain a health and safety committee, or cause workers to select at least one health and safety representative.
- To take every reasonable precaution to ensure the workplace is safe.
- To train employees about any potential hazards and in how to safely use, handle, store and dispose of hazardous substances and how to handle emergencies.
- To supply personal protective equipment and ensure workers know how to use and handle the equipment safely and properly.
- To immediately report all critical injuries to the government department responsible for Occupational Health and Safety.
- To appoint a competent supervisor who tests the standards for performance, and who ensures safe working conditions are always observed.

4.0 Conclusion

The whole essence of enacting and implementing the rights and responsibilities of workers is to reduce the wide array of workplace hazards and dangers to the health and safety of people at work. Being such a vital document in any organization, it is expected that the workers and employees adhere strictly to such laydown rules and reduce workplace hazards and dangers to the lives.

5.0 Summary

In this unit, you have learnt,

- The three basic Environmental Health and Safety rights of Employees
- The three basic rights can further be expanded to give the nine Environmental Health and Safety rights of an employee.
- The Environmental Health and Safety responsibilities of Employees
- The Environmental Health and Safety responsibilities of Employers

6.0 Tutor-Marked Assignment

- What are the basic Environmental Health and Safety Rights of Employees

Solution:

- Right to refuse unsafe work.
- Right to participate in the workplace health and safety activities through the Health and Safety Committee (HSC) or as a worker health and safety representative.
- Right to know, or the right to be informed about, actual and potential dangers in the workplace.

7.0 References

Abrams, H.K. (2001). A Short History of Occupational Health. *Journal of Public Health Policy*: 22 (1):34 -80.

Canadian Centre for Occupational Health and Safety (2018). The Environmental Health and Safety Rights of Employees.

Maine Department of Labour (2013). Know Your Rights.

UNO General Assembly (1948). The Universal Declaration of Human Rights, General Assembly Resolution 217A, Article 23.

MODULE 2: ENVIRONMRNTAL HEALTH AND SAFETY EMERGENCY RESPONSE AND SERVICE

Unit 1: Environmental Health and Safety Emergencies

Unit 2: Types of Emergencies

Unit 3: Emergency Response Service

Unit 1: Environmental Health and Safety Emergencies

CONTENTS

1.0 Introduction

At no time does anyone expect an emergency or disaster. But the truth remains that emergencies and disasters can strike anyone, anywhere and at any time.

Therefore, for an effective Environmental health and safety practice in a workplace, it is expected to bear in mind that emergencies could happen irrespective of the sophistication of the system. This means that employers and employees could be forced to evacuate persons when the least expect it. Most often when emergencies happen, the greatest challenge has always been that people lack ideas of what to do in such circumstances. More lives and property could be saved with adequate information and training of what to do in a workplace. This course is therefore intended to help you plan for the possibility that there could be emergencies in the workplace.

2.0 Objectives

This course is therefore intended to help you know and plan for the possibility that there could be emergencies in the workplace.

3.0 Main content

3.1: Basic Concept of Workplace Emergency

Emergency has been defined by different authors in different ways. Emergency as defined in the Civil Contingencies Act 2004 is a situation or series of events that threatens or causes serious damage to human welfare, the environment or security (Cabinet Office, 2013). This definition covers a wide range of incidents including adverse weather, severe flooding, animal diseases, terrorist incidents and the impact of a disruption on essential services and critical infrastructure.

The US Department of Labour under the Occupational Safety and Health Administration defined Emergency as an unforeseen situation that threatens your employees, customers, or the public; disrupts or shuts down your operations; or causes physical or environmental damage. Emergencies may be divided into two major parts that may be natural or man-made.

For any incident or occurrence to be considered to be an emergency, it must conform to one or more of the following:

- It Poses an immediate threat to life health property or environment
- It has already caused loss of life, health detriments, property damage, or environmental damage
- It has a high probability of escalating to cause immediate danger to life, health, property, or environment.

Emergencies may include the following:

- Floods,
- Hurricanes,
- Tornadoes,
- Fires,
- Toxic gas releases,
- Chemical spills,
- Radiological accidents,
- Explosions,
- Civil disturbances,
- Workplace violence resulting in bodily harm and trauma.

Emergencies cause immediate danger to the lives of people involved. Emergencies can range from affecting a single person such as medical emergencies like Cardiac arrest, heart attack, strokes and injury. It can also involve large numbers of people as in natural disasters such as earthquakes, floods, mudslides, tsunamis, tornadoes and out breaks of diseases like Cholera and Ebola disease.

3.2: Envisaging emergencies in a workplace

The best way to respond effectively to emergencies in a workplace is to prepare for emergencies before they happen. Only very few people can think clearly and logically in the face of danger (Chao and Henshaw, 2001). So it is important to do all the logical thinking when there is time to think thoroughly. This can be achieved through:

- Brainstorm on the worst-case situations
- Find out what would happen in the worst situations.
- What happens if there is fire breakout in your production room?
- Or a hurricane hit your factory building.
- Or a train carrying hazardous waste derailed while passing your loading dock.

Having identified potential emergencies, consider how they would affect the organization staff and what would be the response ((Chao and Henshaw, 2001).

3.3 Emergency Action Plan

An emergency action plan is a written down rules that covers the designated actions employers and employees must take to ensure employee safety from fire and other emergencies. Compiling an emergency action plan is a good way to protect employers, employees and the organizational business during an emergency (Chao and Henshaw, 2001).

An emergency plan should be tailored to suit the type of business an organization is involved in. this should include all the information about all the potential sources of emergencies that can be encountered in that line of business. Developing an emergency action plan should include carrying out a hazard assessment to determine if any biological, physical, chemical hazard in the workplace could cause an emergency ((Chao and Henshaw, 2001).

According to Chao and Henshaw (2001), as required by the US Occupational Safety and Health Administration, an emergency action plan must include the following:

- A preferred method for reporting fires and other emergencies;
- An evacuation policy and procedure;
- Emergency escape procedures and route assignments, such as floor plans, workplace maps, and safe or refuge areas
- Names, titles, departments, and telephone numbers of individuals both within and outside your company to contact for additional information or explanation of duties and responsibilities under the emergency plan
- Procedures for employees who remain to perform or shut down critical plant operations, operate fire extinguishers, or perform other essential services that cannot be shut down for every emergency alarm before evacuation
- Rescue and medical duties for any workers designated to perform them.
- An assembly location and procedures to account for all employees after an evacuation.

4.0 Conclusion

As we went through this Unit of study it was understood that emergencies may not be completely ruled out in workplaces. And because it may not be completely ruled out even in the most sophisticated organizations, it is therefore better to properly understand the concept of emergencies, envisage emergencies and plan before hand for it.

5.0 Summary

In this unit, you have learnt,
What is an emergency is.

The characteristics of an emergency.

Some examples of some emergencies.

How to envisage emergencies

How to draw an Emergency action plan.

6.0 Tutor-Marked Assignment

Outline the components of an emergency action plan

Solution

- A preferred method for reporting fires and other emergencies;
- An evacuation policy and procedure;
- Emergency escape procedures and route assignments, such as floor plans, workplace maps, and safe or refuge areas
- Names, titles, departments, and telephone numbers of individuals both within and outside your company to contact for additional information or explanation of duties and responsibilities under the emergency plan
- Procedures for employees who remain to perform or shut down critical plant operations, operate fire extinguishers, or perform other essential services that cannot be shut down for every emergency alarm before evacuation
- Rescue and medical duties for any workers designated to perform them.
- An assembly location and procedures to account for all employees after an evacuation.

7.0 References

Chao, E.L. and Henshaw, J.L.(2001). How to prepare for workplace emergencies and evacuation. Occupational Safety and Health Administration. OSHA 3088.

Cabinet office (2013). Responding to Emergencies. The UK Central Government Response Concept of Operations.

Unit 2: Types of Emergencies

CONTENTS

7.0 References/Further Reading

1.0 Introduction

There are different types of emergencies. Many hazards in the workplace may constitute emergency situations in the workplace. However these emergencies could be classified into different groups. Actually the type of emergency determines the type of response that may be given in times of emergency occurrence. Emergencies could be classified into Mechanical, biological, chemical, radiological and weather-induced emergencies (New York State Department of Health, 2018).

2.0 Objectives

At the end of this unit, you will get to know the different types of emergencies.

3.0 Main content

3.1 Mechanical emergencies

These include incidents of fire, collapse of buildings, injuries arising from the use of machineries etc.

3.2: Biological Emergencies

Biological emergencies include diseases and biological agents that may be used for bioterrorism. E.g. Anthrax disease, Bird flu, Botulism, Small Pox etc

3.3: Chemical Emergencies

- Chemical emergencies include harmful chemical spills, Toxic gas releases and chemicals that are used in terrorism.

3.4: Weather Emergencies

These include storms, floods, Floods, Hurricanes, and Tornadoes.

3.5: Radiological Emergencies

Radiological emergencies are emergencies involving the release of radiation that could harm people‟s health.

Types of Radiation Emergencies

Radiation emergencies may be intentional (e.g., caused by terrorists) or unintentional. Below are some examples of different types of radiation emergencies (CDC, 2018).

Nuclear Emergencies (CDC, 2018).

A nuclear emergency involves the explosion of a nuclear weapon or improvised nuclear device (IND).

The explosion produces an intense pulse of heat, light, air pressure, and radiation.

Nuclear explosions produce fallout (radioactive materials that can be carried long distances by the wind (CDC, 2018).

Dirty bomb or Radiological Dispersal Device (CDC, 2018).

A dirty bomb is a mix of explosives such as dynamite, with radioactive powder or pellets.

A dirty bomb cannot create an atomic blast.

When the explosives are set off, the blast carries radioactive material into the surrounding area.

Radiological Exposure Device (RED) (CDC, 2018).

A radiological exposure device (also called a hidden sealed source) is made of or contains radioactive material.

REDs are hidden from sight to expose people to radiation without their knowledge (CDC, 2018).

Nuclear Power Plant Accident (CDC, 2018).

An accident at a nuclear power plant could release radiation over an area.

Nuclear power plants have many safety and security procedures in place and are closely monitored by the Nuclear Regulatory Commission (CDC, 2018).

4.0 Conclusion

The knowledge of the different types of occupational emergencies equips somebody with the strategy to adopt in dealing and curtailing emergencies in a workplace with the purpose of creating a health work environment.

5.0 Summary

The different types of emergencies include,

Mechanical emergencies

Biological emergencies

Chemical emergencies

Weather emergencies

Radiological emergencies

6.0 Tutor-Marked Assignment

List the different types of Emergencies

Solution

Mechanical emergencies

Biological emergencies

Chemical emergencies

Weather emergencies

Radiological emergencies

7.0 References

Centre for Disease Control (2018). Types of Emergencies. 800-CDC-INFO (800-232-4636), TTY: 888-232-6348.

New York State Department of Health (2018). Types of Emergencies. https://www.health.ny.gov/environmental/emergency

UNIT 3: Emergency Response and Service

CONTENTS

1.0 Introduction

Experience has shown that despite all attempts to avoid emergencies, it is still a known fact that emergencies still occur. How far lives and property are secured remains a function of the emergency response service that is in place. Emergency responses vary based on the type of emergency that is being dealt with.

2.0 Objectives

At the end of this unit, you will get to know the Emergency Response Services.

3.0 Main content

3.1: Emergency Management

According to the UK Government Response Concept of Operation as contained in the Civil Contingency Act of 2004 there are guiding principles that have been developed to capture the core characteristics of effective emergency response (Cabinet Office, 2004). The following are the principles:

1. **Preparedness**: All individuals and organizations that might have to respond to emergencies should be properly prepared, including having clarity of roles and responsibilities, specific and generic plans, and rehearsing response arrangements periodically.
2. **Continuity:** it should be an arrangement that is continuous and not to be mounted when there is an incident. Although actions will need to be carried out at greater speed, on a larger scale and in more testing circumstances during the response to an incident.
3. **Subsidiarity:** Management decisions should be taken at the lowest appropriate level, monitored at the highest necessary level. Local responders should be the building block of response for an emergency of any scale.
4. **Direction:** Clarity of purpose should be delivered through an awareness of the strategic aims and supporting objectives for the response. These

should be agreed and understood by all involved in managing the response to an incident in order to effectively prioritize and focus the response.

5. **Integration:** Effective co-ordination should be exercised between and within organizations and local, regional and national tiers of a response as well as timely access to appropriate guidance and appropriate support for the local, regional or national level.
6. **Communication:** Good two-way communications are critical to an effective response. Reliable information must be passed correctly and without delay between those who need to know, including the public.
7. **Co-operation:** Positive engagement based on mutual trust and understanding will facilitate information-sharing and deliver effective solutions to arising issues.
8. **Anticipation:** In order to anticipate and manage the consequences of all kinds of emergencies, planners need to identify risks and develop an understanding of both the direct and indirect consequences in advance where possible.

3.2: Phases of Emergency Management

According to Wikipedia, there are many emergency services procedures that apply in an emergency, which can start with prevention before an emergency occurs.

Prevention: This focuses on preventing human hazards, primarily from potential natural disasters or terrorist attacks. Preventive measures are designed to provide more permanent protection from disasters; however, not all disasters can be prevented. The risk of loss of life and injury can be limited with good evacuation plans, environmental planning and design standards.

Preparedness: This is a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action. Training and exercising plans is the cornerstone of preparedness which focuses on readiness to respond to all-hazards incidents and emergencies.

Response: Response is comprised of the coordination and management of resources (including personnel, equipment, and supplies) utilizing the Incident Command System in an all-hazards approach; and measures taken for life/property/environmental safety. The response phase is a reaction to the occurrence of a catastrophic disaster or emergency.

Recovery consists of those activities that continue beyond the emergency period to restore critical community functions and begin to manage stabilization efforts. The recovery phase begins immediately after the threat to human life has subsided. The goal of the recovery phase is to bring the affected area back to some degree of normalcy.

Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters and emergencies. Mitigation involves structural and non-structural measures taken to limit the impact of disasters and emergencies. Structural mitigation actions change the characteristics of buildings or the environment; examples include flood control projects, raising building elevations, and clearing areas around structures. Non-structural mitigation most often entails adopting or changing building codes (Bexar County, 2016).

3.3: Emergency Procedures

The procedures for employees and volunteers to follow in a Workplace emergency situations

(i) Raise alarm and inform the public

(ii) Use of fire extinguishers in cases of fire

(iii) Call the emergency services

(iv) Manage the crowd and evacuate where necessary

(v) Attend to people with disabilities

(vi) Control the traffic

(vii) Give first aid and medical assistance

Emergency Services

Emergency services include:

The Police

The Fire Service

Medical-related emergency services e.g. Search and Rescue

National Emergency Management agency (NEMA)

4.0 Conclusion

Whatever be the emergency in a workplace, the effect on staff the business of the organization so much depend on the Emergency management and response.

5.0 Summary

The core characteristics of Emergency Response

The phases of emergency management

Emergency procedures

Emergency Services

6.0 Tutor-Marked Assignment

List the emergency procedures you will adopt in your workplace if there is a fire outbreak.

Solution

(i) Raise alarm and inform the public

(ii) Use of fire extinguishers in cases of fire

(iii) Call the emergency services

(iv) Manage the crowd and evacuate where necessary

(v) Attend to people with disabilities

(vi) Control the traffic

(vii) Give first aid and medical assistance

7.0 References

Bexar County Emergency Management (2016). The Five phases of Emergency management.

Cabinet office (2013). Responding to Emergencies. The UK Central Government Response Concept of Operations.

HM Government (2013). Emergency Response and Recovery. Non statutory guidance accompanying the Civil Contingencies Act 2004.

WHO (2002). Environmental health in emergencies and disasters: A practical guide.

Wikipedia (2018). Guidelines for dealing with emergencies. https://www.wikipedia.org/wiki/emergency.

MODULE 3: EMERGENCY COLLABORATION AGENCIES

Unit 1: Emergency Management Collaboration Agencies Unit 2: International Emergency Collaboration Agencies **UNIT 1: Emergency Management Collaboration Agencies**

CONTENTS

1.0 Introduction

Most nations all over the world have national disaster management collaboration agencies. The national disaster management collaboration agencies are involved in the most commonly experienced disasters in that country and region. The agencies are saddled with the responsibility of managing the emergencies.

2.0 Objectives

At the end of this unit, you will get to know the Emergency Management Collaboration Agencies.

3.0 Main Content

3.1: Emergency Management Collaboration Agencies in Nations

In Nigeria the nation‟s emergency management agency is known as the National Emergency Management Agency (NEMA). Some states also have emergency intervention agencies. In Lagos State is known as the Lagos State Emergency Management Agency (LASEMA).

The National Emergency Management Agency of Nigeria was established by Decree no 12 of 1999 as amended by Act 50 of 1999, to manage disasters in Nigeria. Therefore, from inception, NEMA has been tackling disaster issues through the establishment of concrete structures and measures. Such measures as the education of the public in order to raise their level of awareness and reduce the effects of disasters in the Country. By the Act establishing NEMA they are empowered to:

(a) formulate policy on all activities relating to disaster management in Nigeria and co-ordinate the plans and programes for efficient and effective response to disasters at national level;

(b) co-ordinate and promote research activities relating to disaster management at the national level;

(c) monitor the state of preparedness of all organizations or agencies which may contribute to disaster management in Nigeria;

(d) collate data from relevant agencies so as to enhance forecasting, planning and field operation of disaster management;

(e) educate and inform the public on disaster prevention and control measures;

(f) co-ordinate and facilitate the provision of necessary resources for search and rescue and other types of disaster curtailment activities in response to distress call;

(g) co-ordinate the activities of all voluntary organizations engaged in emergency relief operations in any part of the Federation;

(h) receive financial and technical aid from international organizations and non-governmental agencies for the purpose of disaster management in Nigeria;

(i) collect emergency relief supply from local, foreign international and non-governmental

(j) distribute emergency relief materials to victims of natural or other disasters and assist in the rehabilitation of the victims where necessary;

(k) liaise with State Emergency Management Committees established under section 8 of this Decree to assess and monitor where necessary, the distribution of relief materials to disaster victims;

(1) process relief assistance to such countries as may be determined from time to time;

(m) liaise with the United National Disaster Reduction Organization or such other international bodies for the reduction of natural and other disaster;

(n) prepare the annual budget for disaster management in Nigeria; and

(0) perform such other functions which in the opinion of the Agency are required for the purpose of achieving its objectives under this Decree (Decree 12 of 1999).

3.2: Lagos State Emergency Management Agency

Lagos State established its Emergency Management Agency (LASEMA) via the LASEMA Law 16 of 2008 for emergency and disaster management in the State to complement activities as spelt out in decree 12 of 1999 that established the National Emergency Management Agency (NEMA).

The Agency is responsible for the overall co-ordination of emergency management in Lagos State.
The Agency was charged to provide adequate interventions in all forms of emergency/disaster situations in the State.

3.3: Other Nation's Emergency Management Collaboration Agencies

In the United States of America, the Emergency management Collaboration agency is the United States Agency for International Development (USAID). In the United Kingdom is the Department for International Development (DFID).

Netherlands – Dutch Ministry for Foreign Affairs Canada -
Canadian International Development Agency Australia –
Australian Agency for International Development Ireland –
Irish Agency for International Development

4.0 Conclusion

The Collaboration agencies collaborate with organizations and different Workplace Emergency Managers to handle cases of emergencies especially when the emergencies are wide spread and beyond the organization‟s capacity.

5.0 Summary

In this Unit, we have learnt the Emergency Collaboration agencies in and some other countries of the World.

6.0 Tutor-Marked Assignment

Outline some of the functions of NEMA in Nigeria

Solutions

(a) formulate policy on all activities relating to disaster management in Nigeria and co-ordinate the plans and programes for efficient and effective response to disasters at national level;

(b) co-ordinate and promote research activities relating to disaster management at the national level;

(c) monitor the state of preparedness of all organizations or agencies which may contribute to disaster management in Nigeria;

(d) collate data from relevant agencies so as to enhance forecasting, planning and field operation of disaster management;

(e) educate and inform the public on disaster prevention and control measures;

(f) co-ordinate and facilitate the provision of necessary resources for search and rescue and other types of disaster curtailment activities in response to distress call;

(g) co-ordinate the activities of all voluntary organizations engaged in emergency relief operations in any part of the Federation;

(h) receive financial and technical aid from international organizations and non-governmental agencies for the purpose of disaster management in Nigeria;

(i) collect emergency relief supply from local, foreign international and non-governmental

(j) distribute emergency relief materials to victims of natural or other disasters and assist in the rehabilitation of the victims where necessary;

(k) liaise with State Emergency Management Committees established under section 8 of this Decree to assess and monitor where necessary, the distribution of relief materials to disaster victims;

(1) process relief assistance to such countries as may be
determined from time to time;

(m) liaise with the United National Disaster Reduction Organization or such other international bodies for the reduction of natural and other disaster;
(n) prepare the annual budget for disaster management in Nigeria; and
(0) perform such other functions which in the opinion of the Agency are required for the purpose of achieving its objectives under this Decree.

7.0 References

National Emergency Management Agency(Establishment ETC) Decree 1999. No 12.
World Conference for Physical Therapy (2016). Organizations Involved in Disaster Management.

UNIT 2: International Emergency Collaboration Agencies

CONTENTS

1.0 Introduction

Disaster management is a complex process involving international, national and local organizations each with a distinct role to play (WCPT, 2016).

2.0 Objectives

At the end of this unit, you will know the International Emergency Collaboration Agencies.

3.0 Main content

3.1 The United Nations Organization (UNO)

The Office for the Coordination of Humanitarian Affairs (OCHA) in collaboration with the Inter-Agency Standing Committee (IASC) is the arm of the United Nations responsible for bringing national and together international humanitarian providers to ensure a coherent response to emergencies. OCHA also ensures that a framework is in place within which each provider can contribute to the overall response effort. It also advocates for people in need, promotes preparedness and prevention and facilitates sustainable solutions (WCPT, 2016).

The Food and Agriculture Organisation of the UN (FAO) provides early warning of impending food crises, and assesses global food supply problems (WCPT, 2016).

The International Organisation for Migration (IOM) is an intergovernmental agency which helps transfer refugees, internally displaced persons and others in need of internal or international migration services (WCPT, 2016).

The Office of the United Nations High Commissioner for Human Rights (OHCHR) provides assistance and advice to governments and other actors on human rights issues, sets standards and monitors rights violations (WCPT, 2016).

The United Nations Development Programme (UNDP) assists disaster-prone countries in contingency planning and with disaster mitigation, prevention and preparedness measures.

The United Nations High Commission for Refugees (UNHCR) provides international protection and assistance for refugees, stateless persons and internally displaced persons, particularly in conflict-related emergencies (WCPT, 2016).

3.2 The International Federation Red Cross and Red Crescent Societies

The International Federation Red Cross and Red Crescent Societies is the world‟s largest humanitarian organization made up of 186 members of Red Cross and Red Crescent Societies. The International Federation‟s mission is to improve the lives of vulnerable people by mobilizing the power of humanity.

The IFRC coordinates and directs international assistance to victims of natural and technological disasters, to refugees and in health emergencies. It combines its relief activities with development work to strengthen the capacities of National Societies and through them the capacity of individual people. The IFRC acts as the official representative of its member societies in the international field. It promotes cooperation between National Societies, and works to strengthen their capacity to carry out effective disaster preparedness, health and social programmes (WCPT, 2016).

3.3 International Non-governmental Agencies

The International Non-governmental Agencies is leading non-governmental agencies through volunteers to fight poverty in developing countries. Their strong role in development works side by side with the recovery from a. disaster and prevention and preparedness for any future disasters (WCPT, 2016)

International Rescue Committee (IRC)

IRC offers lifesaving care and life-changing assistance to refugees forced to flee from war or disaster and provides emergency response by experienced personnel for short-term assignments.

4.0 **Conclusion**

The impact of the International Emergency collaboration agencies have been felt the world over. They respond in emergencies and disasters. Through their activities many lives and property have been saved and people given hope to live again.

5.0 Summary

In this Unit, we have known the International Emergency Collaboration agencies like the United Nations and its organisations. The International Federation of Red Cross and Red Crescent Societies and the International non-governmental organisations that are involved in emergency managements.

6.0 Tutor-Marked Assignment

List the organizations of the UNO that are involved in the collaboration of emergencies.

Solution

- The Office for the Coordination of Humanitarian Affairs (OCHA).
- The Food and Agriculture Organisation of the UN (FAO).
- The International Organisation for Migration (IOM).
- The Office of the United Nations High Commissioner for Human Rights (OHCHR).
- The United Nations Development Programme (UNDP).
- The United Nations High Commission for Refugees (UNHCR).

7.0 Reference

World Conference for Physical Therapy (2016). Organizations Involved in Disaster Management.

MODULE 4: RESOURCE MOBILIZATION, ALLOCATION AND MANAGEMENT

Unit 1: Resource Mobilization in Emergencies

Unit 2: Resource Allocation in Emergencies

Unit 3: Resource Management in Emergency Response

Unit 1: Resource Mobilization in Emergency

CONTENTS

1.0 Introduction

The main of resource mobilization is to build up capacities to secure resource to manage emergency situations and disasters. Mobilizing resources is becoming increasingly competitive given the numerous emergency situations and disasters coupled with the scarcity of resources arising from the global economic melt-down. In the last ten years, the number of people in need of urgent humanitarian assistance has grown from 32 million to 130 million, with global humanitarian needs quadrupling from $5.2 billion to $22.3 billion in 2017 (CERF, 2017). Resource mobilization (RM) has come to replace the more traditional and narrow term fundraising where „resource refers not only to funds, but also to human resources, goods and services. Therefore the resources include financial resources, human resources, goods and services (FAO, 2012).

2.0 Objectives

At the end of this unit, you will get to know what is meant by Resource Mobilization

3.0 Main content

3.1: Definition of Resource Mobilization

Resource mobilization is the ability of an emergency collaboration agency to acquire resources and mobilize the resources towards accomplishing goals and mandate of the agency concerned. It works towards bringing money, supporters, attention of the media, alliances with those in power, and refining the organizational structure. It includes fundraising, income generation activities,

donations in-kind and other partnerships to strengthen the capacity to better assist more vulnerable people (AFPN, 2013).

Resource mobilization (RM) has come to replace the more traditional and narrow term fundraising where „resource refers not only to funds, but also to human resources, goods and services (FAO, 2012).

Resource mobilization is a very necessary process of obtaining the resources needed by the collaboration agency to enable and enhance the provision of its core services to the most vulnerable. Policies, guidelines and frameworks are established to set out the standards and rules to which to subscribe and adhere in implementing resource mobilization strategies (AFPN, 2013).

Resources needed in emergency management include:

(i) Personnel – This includes all the operations staff and site responders.

(ii) Teams – Specially trained management personnel and equipped responders.

(iii) Equipment – Equipment required

(iv) Facilities – Operation centers and command posts.

(v) Vehicles – Buses, trucks, automobiles

(vi) Aircraft – Needed for surveillance and cargo transportation.

3.2: **Resource Mobilization Cycle**

The Resource mobilization cycle is made up of three components. The components are Plan, Act and Reflect. The plan includes the assessment and design element. The Act – Implementation

Reflect – Lessons learnt

The planning phase

The planning phase should ideally establish a resource mobilization strategy and action plan (for immediate term), describing how particular resource partners will be targeted and for which resources (FAO, 2012).

The Action or Implementation phase

This phase is broken down into five-step process (these steps are not entirely distinct, as each is intertwined and does not always follow a clear sequence). The five steps are:

- Identify
- Engage
- Negotiate
- Manage and report
- Communicate Results

The Reflect Phase

In the reflect phase the resource mobilization effort (strategy and action plan) is monitored and evaluated, specifically reporting on success and failures and working through lessons learned (FAO, 2012).

3.0 Conclusion

Resource mobilization in emergency management is a very vital aspect that most often determines the success and effectiveness of the emergency response. Understanding resource mobilization has become most imperative as the emergency situations are increasing all over the world and yet the resources whether financial or human are dwindling.

5.0 **Summary**

In this Unit, we have learnt

-what resource mobilization is

- Resource mobilization cycle

- The three components of the resource mobilization cycle i.e.,

The planning phase, the Action phase and the reflect phase.

6.0 Tutor-Marked Assignment

What do understand by the term Resource Mobilization?

Solution

Resource mobilization is the ability of an emergency collaboration agency to acquire resources and mobilize the resources towards accomplishing goals and mandate of the agency concerned. It works towards bringing money, supporters, attention of the media, alliances with those in power, and refining the organizational structure. It includes fundraising, income generation activities, donations in-kind and other partnerships to strengthen the capacity to better assist more vulnerable people (AFPN, 2013).

Resource mobilization (RM) has come to replace the more traditional and narrow term fundraising where „resource refers not only to funds, but also to human resources, goods and services (FAO, 2012).

7.0 References/Further Reading

Asian Pacific Fundraisers‟ Network (2013). Resource Mobilization Guidebook, Policies and guidelines Vol 1. Asian Pacific Fundraisers‟ Network and Red Cross Red Crescent.

Food and Agriculture Organization (2012). A guide to Resource Mobilization. Promoting Partnership with FAO.

HM Government (2013). Emergency Response and Recovery. Non statutory guidance accompanying the Civil Contingencies Act 2004.

WHO (2002). Environmental health in emergencies and disasters: A practical guide.

Unit 2: RESOURCE ALLOCATION IN EMERGENCY

CONTENTS

1.0 Introduction

Resources are limited and incidents and occurrence of emergency situations are increasing. To effectively strike a balance between scarce resources and emergencies, adequate resources allocation principles must be followed. Arranging the needs in order of priority and impact on human lives will be helpful.

2.0 Objectives

At the end of this unit, you will get to know what is meant by Resource Allocation.

3.0 Main content

3.1: Definition of Resource Allocation

Resource allocation is the distribution of resources – usually financial, human and material among the competing cases of emergency. In allocating resources for emergency, consideration must be made as touching the highest are of impact. The priority will be given to saving lives of people, followed by socio-economic impact and of course preserving the environment. Since resources of any kind are limited, it must be utilized or apportioned in a way to give maximum benefits.

Emergency resource is important for people evacuation and property rescue when accident occurs. The relief efforts could be promoted by a reasonable emergency resource allocation schedule in advance. The key problem is to determine the optimal stock of emergency resource for supplier centers to improve relief efforts (Zhang *et al.*, 2017).

According to Hanifen (2018) the proponents of expanding fire and police services say that if there is fire station on every corner, we would save all lives.

3.2 Factors that affect Allocation of resources

1. Available Resources

The available resources – financial, human and material is a major factor that affects the allocation of resources. The government structure determines what amount goes to any sector at a time especially the financial resources. The financial resource is the one that drives virtually all the other resources, so the allocation of financial resources affects the availability of the resources.

2. Size of Budget

Beyond the limitation of financial resources and what is budgeted for each sector that is involved in emergency management, the internal limitations can be a factor in determining the success or failure of an agency to provide adequate services. However it is the size of budget given to an agency that will enable such an agency to procure the needed equipment even to hire staff that will be involved in the emergency management.

3 Critical Task Analysis

The critical task analysis should result in a balance of needs and resources. There are many emergency services that need to be conducted simultaneously if the responding units are relatively close to the scene or as series of actions if the equipment pieces are far apart; the first unit on the scene must conduct multiple tasks prior to the arrival of subsequent companies (Hanifen, 2018**).**

4.0 Conclusion

Adequate resource allocation enhances adequate emergency management. Adequate resource allocation arises from understanding the dynamics of crises and emergencies.

5.0 Summary

In this Unit we learnt what resource allocation means and the factors that could affect the allocation of resources

6.0 Tutor-Marked Assignment

Define the term Resource Allocation

Solution

Resource allocation is the distribution of resources – usually financial, human and material among the competing cases of emergency. In allocating resources for emergency, consideration must be made as touching the highest are of impact. The priority will be given to saving lives of people, followed by socio-economic impact and of course preserving the environment. Since resources of any kind are limited, it must be utilized or apportioned in a way to give maximum benefits.

6.0 References/Further Reading

Hanifen, R. (2018). Emergency services resource allocation. Emergency Disater Management, American Military University.

HM Government (2013). Emergency Response and Recovery. Non statutory guidance accompanying the Civil Contingencies Act 2004.

WHO (2002). Environmental health in emergencies and disasters: A practical guide.

Zhang, W., Yan, X., Yang, J. (2017). Optimized maritime emergency resource allocation under dynamic demand. PLoS ONE 12(12): e0189411.

Unit 3: RESOURCE MANAGEMENT IN EMERGENCY RESPONSE

CONTENTS

1.0 Introduction

Emergency situations require response within a short notice. Often times the emergency escalates to disaster level in seconds. Sometimes the

emergency turns out to be a disaster without the responders realizing that is a fully developed disaster until they have arrived on scene. Regardless, once the disaster is assessed additional resources are likely to be needed. Resource management can be very critical especially the first few hours of an incident or disaster as the scope of the disaster is unfolding (Fan *et al.*, 2015). And as such managing the resources becomes of paramount importance. The Management of facilities, equipment, specialized teams is a very delicate and important aspect of response and incident management. So a proper management of resources is the first step for effective emergency management. It therefore means that resource management is an important ingredient need to be incorporated in a response plan.

2.0 Objectives

At the end of this unit, you will get to know the dynamics of resource management in emergency response.

3.0 **Main content**

3.1 Definition of Resource Management in Emergencies

Resource management is the efficient and effective development of an organization's resources when they are needed. Such resources may include financial resources, inventory, human skills, production resources, or Information technology (IT) and natural resources. Organizations usually have a defined corporate resource management process which mainly guarantees that resources are never over-allocated across multiple projects (Wikipedia, 2018).

3.2 Resource Typing

Resource typing is categorizing, by capability, the resources requested, deployed, and used in incidents. Measurable standards identifying resource capabilities and performance levels serve as the basis for categories. Resource kinds may be divided into subcategories to define more precisely the capabilities needed to meet specific requirements (FEMA, 2011).

. Resource typing is a continuous process that facilitates accuracy in requesting and obtaining needed resources. Measurable definitions identifying the capabilities and performance levels for resources serve as the basis for resource typing. Resource typing enhances emergency preparedness, response, and recovery by using consistent definitions that allow Incident Commanders to request and deploy the resources they need, and emergency management personnel to identify, locate, request, order, and track outside resources quickly and effectively (FEMA, 2016).

3.3 Processes of Resource Management

The National Incident Management System (NIMS) (FHWA, 2017) outlined processes that could help the management of resources during emergencies.

1. Identify and Type Resources
2. Certify and Credential Personnel
3. Inventory Resources
4. Identify Resource Requirements
5. Order and Acquire Resources
6. Mobilize Resources
7. Track and Report Resources
8. Recover Resources

3.4 Stages in Resource Management in Emergency situations

According to NIMS the resource management process will involve the following stages:

Acquisition

Requests for resources that cannot be obtained locally are submitted using standardized resource-ordering procedures. These requests are generally forwarded first to an adjacent locality or sub-state region and then to the National.

Mobilization

When resources arrive on scene, they must be formally checked in, which starts the on-scene check-in process and validates the request order

The mobilization process includes:

- Deployment planning
- Equipping
- Training
- Designating assembly points with suitable facilities
- Obtaining transportation to deliver resources

Reporting

This process is conducted prior to, during, and after an incident by all emergency management/response personnel and their affiliated organizations. This stage

- Provides a clear picture of where resources are located
- Helps staff prepare to receive resources
- Protects the safety and security of equipment, supplies, and personnel
- Enables their coordination and movement

Recovery and Demobilization

During this process both nonexpendable and expendable resources are rehabilitated, replenished, disposed of, and/or retrograded. This process should begin as soon as possible to facilitate accountability, and should coordinate between incident(s) and Multiagency Coordination System (MACS) to reassign/prioritize resources. This process should include provisions and processes for:

- Addressing the safe return of resources to their original location and status
- Tracking resources
- Addressing applicable reimbursement
- Transporting resources

Reimbursement

The process includes collecting bills and validating costs against the scope of work. The process serves as a mechanism to recoup funds expended for incident-specific activities.

Inventory

Organizations should inventory and maintain current data on their available resources, and make the data available to communications/dispatch centers, and organizations.

Deployable resources have different inventory, ordering, and response profiles depending on their primary use during the response or recovery phases of an incident.

- **Documentation:** The process entails the objective evaluation and documentation of an individual‟s current certification, license, or degree; training and experience; and competence or proficiency to meet nationally accepted standards, provide particular services and/or functions, or perform specific tasks under specific conditions during an incident

4.0 Conclusion

An effective and efficient resource management will lead to a good emergency response. So one vital factor in achieving an excellent emergency response is to have a well-thought out resource management team.

5.0 Summary

In this Unit, we learnt the Definition of Resource Management in Emergencies,

Resource typing Processes of resource management and stages in resource management in emergency situations.

6.0 Tutor-Marked Assignment

Define the term Resource Management in emergency situation.

Solution

Resource management is the efficient and effective development of an organization's resources when they are needed. Such resources may include financial resources, inventory, human skills, production resources, or Information technology (IT) and natural resources. Organizations usually have a defined corporate resource management process which mainly guarantees that resources are never over-allocated across multiple projects (Wikipedia, 2018).

7.0 References/Further Reading

Altay, N., & Green, W. G. (2006). OR/MS research in disaster operations management. *European Journal of Operational Research*, *175*(1), 475-493.

Fan, Y., French, M.L., Stading, G.L. Bethke, S. (2015). Disaster Response: An Examination of Resource Management in the Early Hours. *Journal of Applied Business and Economics* 17: (2) 22 – 41.

Federal Emergency Management Agency (2016). Resource Typing and Readiness. https://emilms.fema.gov/IS703.

Federal Highway Administration (2017). Resource Management.

Wikipedia (2018).Resource Management. https://en.wikipedia.org/wiki/Resource_management

MODULE FIVE: FORECASTING, PREPAREDNESS AND ROLES OF ENVIRONMENTAL HEALTH OFFICERS IN EMERGENCIES

Unit 1: Forecasting Environmental Health Emergencies

CONTENTS

1.0 Introduction

In this Unit, we will consider a few general principles of good practice and discuss some of the most important issues in making warnings effective. The aim of early warning systems (EWS) is to enable individuals and communities threatened by hazards to act effectively and in sufficient time to reduce the likelihood of death, injury and damage to property and the environment. EWS vary greatly in size, structure, management and technological sophistication, according to the extent of their coverage, the nature of the hazard(s) and the human and material resources available. But they have many features and issues in common. Early warning systems must be understood as working systems with inter-connected components. A weakness or failure in any one component of the system (technical or human/organizational) can potentially undermine the whole (HPN, 2019).

Early warning is a major element of disaster risk reduction. It prevents loss of life and reduces the economic and material impact of disasters. To be effective, early warning systems need to actively involve the communities at risk, facilitate public education and awareness of risks, effectively disseminate messages and warnings and ensure there is constant state of preparedness (EWC III, 2006).

2.0 objectives

At the end of this unit, you will get to know the principles of forecasting in emergencies.

3.0 Main content

3.1 DEFINITION OF FORECASTING IN EMERGENCY

Emergency Response, Donors and humanitarian agencies are thinking carefully about how to use forecasts to provide earlier support to at-risk communities before a disaster occurs. While this interest stems from a desire to reduce the growing humanitarian burden and reconsider how aid is spent on humanitarian crises, forecast-based early action is also of interest to development professionals operating in social protection, disaster risk management and risk financing: preventive action should happen anyway, but in a context of limited resources forecast-based early action can help with decisions about how to best allocate funds in advance of an imminent impact.

While practitioners agree on the importance of early action, there is a wide interpretation of what this means and when it can occur. Forecast-based early action (FbA) initiatives are diverse, with very different approaches to the timing of decisions and actions, and to the types of forecast, monitoring data and delivery mechanisms used. They are similar in design to early warning systems: both are set up to minimize and prevent the impacts of imminent threats by providing information and support to at-risk communities (Wilkinson *et al*., 2018).

UNISDR (2017) defines an early warning system as: „An integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities, systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events".

An early warning system (EWS) is technology and associated policies and procedures designed to predict and mitigate the harm of natural and human-initiated disasters and other undesirable events.

Early warning systems for natural hazards include those designed for floods, earthquakes, avalanches, tsunamis, tornadoes, landslides and drought. Other

systems exist for a variety of events including missile launches, road conditions and disease outbreaks. The United Nations' International Strategy for Disaster Reduction (ISDR) recommends that early warning systems have the following four components:

Risk knowledge: Data should be systematically collected and analyzed and risk assessments performed.

Monitoring and warning service: Systems should be in place to monitor hazards and provide early warning services.

Dissemination and communication: Risk information and early warning messages must be delivered.

Response capability: Systems should be in place to respond to events (Rouse, 2016).

3.2 Management and resources in Forecasting

Early warning systems require considerable resources: people, infrastructure, technology, data and funding. They have to operate continuously. They are complex to manage, needing to integrate multiple actors (scientists, civil authorities, the media and the public) and different levels (international, regional, national, local). They must also be linked to disaster preparedness and DRR programmes. There must be strong links throughout the system and between its stakeholders: the warning system failure can often occur when these links are weak or broken down. Institutional arrangements for coordination and communication have to be worked out carefully and agreed, and responsibilities defined. Setting up a system can take a long time, therefore, according to its scale and degree of complexity. Systems should always be undergoing testing,

practice, review and refinement (warning systems for frequent events tend to be more effective than those for infrequent ones because they are used more regularly). Facilities and equipment have to be maintained and where necessary repaired; staffing and volunteer levels also have to be maintained. However, it is certainly not the case that only rich societies can have effective forecasting and warning systems (HPN, 2019).

3.3 Official response in forecasting

When a hazard threat develops, a designated institution or team has to make decisions about when and how to react, taking into account the nature, extent and timing of the threat, the location and vulnerability of people at risk and the local resources and capacities for emergency response. This places considerable responsibility on the decision-makers concerned. Underestimating the danger or reacting too late causes avoidable damage or casualties, but over-reacting can lead to false warnings and undermine the warning system‟s credibility. Official warnings to the public are usually given in stages, using defined warning or alert levels. The alert levels can be increased as the likelihood of disaster becomes more certain or imminent. This ensures that awareness is raised and emergency preparations can be made in good time, although in some cases (e.g. flash floods or landslides) the warning time may be very short, even just a few minutes (HPN, 2019).

3.4 People-Centered Early Warning Systems

The objective of people-centered early warning systems is to empower individuals and communities threatened by hazards to act in sufficient time and in an appropriate manner to reduce the possibility of personal injury, loss of life

and damage to property and the environment. A complete and effective early warning system comprises four inter-related elements (EWC III, 2006).

(i) Risk Knowledge

Risks arise from the combination of hazards and vulnerabilities at a particular location. Assessments of risk require systematic collection and analysis of data and should consider the dynamic nature of hazards and vulnerabilities that arise from processes such as urbanization, rural land-use change, environmental degradation and climate change. Risk assessments and maps help to motivate people, prioritize early warning system needs and guide preparations for disaster prevention and responses (EWC III, 2006).

(ii) Monitoring and Warning Service

There must be a sound scientific basis for predicting and forecasting hazards and a reliable forecasting and warning system that operates 24 hours a day. Continuous monitoring of hazard parameters and precursors is essential to generate accurate warnings in a timely fashion. Warning services for different hazards should be coordinated where possible to gain the benefit of shared institutional, procedural and communication networks (EWC III, 2006).

(iii) Dissemination and Communication

Clear messages containing simple, useful information are critical to enable proper responses that will help safeguard lives and livelihoods. Regional, national and community level communication systems must be pre-identified and appropriate authoritative voices established. The use of multiple communication channels is necessary to ensure as many people as possible are warned, to avoid failure of any one channel, and to reinforce the warning message (EWC III, 2006).

(iv) Response Capability

It is essential that communities understand their risks; respect the warning service and know how to react. Education and preparedness programmes play a key role. It is also essential that disaster management plans are in place, well-practiced and tested. The community should be well informed on options for safe behaviour, available escape routes, and how best to avoid damage and loss to property (EWC III, 2006).

3.5 A Multi-Hazard Approach

Where possible, early warning systems should link all hazard-based systems. Multi-hazard early warning systems will also be activated more often than a single-hazard warning system, and therefore should provide better functionality and reliability for dangerous high intensity events, such as tsunamis, that occur infrequently. Multi-hazard systems also help the public better understand the range of risks they face and reinforce desired preparedness actions and warning response behaviour (EWC III, 2006).

3.6 Characteristics of Hazard Information

Forecast information comes in many forms, from raw data to qualitative statements such as bulletins from national meteorological services. FbA mechanisms typically require quantitative information to define objective triggers for decision-making. FbA mechanisms must consider the hazards that need to be forecast and the forecast data required (or monitoring data in some cases, for slow-onset events), the source of that information, whether the spatial/temporal scales and lead-times and the forecasted variable meet their requirements, whether the reliability of the forecasts (known as „forecasting skill") is well established and whether deterministic or probabilistic forecasts are required. The Red Cross/Red Crescent Forecast-based financing (FbF) manual provides guidance on this process (Wilkinson *et al*., 2018).

4.0 Conclusion

Forecasting and early warning system enable individuals and communities threatened by hazards to act effectively and in sufficient time to reduce the likelihood of death, injury and damage to property and the environment. Early warning is a major element of disaster risk reduction. It prevents loss of life and reduces the economic and material impact of disasters.

5.0 Summary

In this Unit we learnt the term forecasting in Emergencies, Management and resources in Forecasting, official response in forecasting, People-Centered Early Warning Systems, a Multi-Hazard Approach and characteristics of Hazard information.

6.0 Tutor-Marked Assignment

Explain the elements of an effective early warning system

Solution

(i) Risk Knowledge

Risks arise from the combination of hazards and vulnerabilities at a particular location. Assessments of risk require systematic collection and analysis of data and should consider the dynamic nature of hazards and vulnerabilities that arise from processes such as urbanization, rural land-use change, environmental degradation and climate change. Risk assessments and maps help to motivate people, prioritize early warning system needs and guide preparations for disaster prevention and responses (EWC III, 2006).

(ii) Monitoring and Warning Service

There must be a sound scientific basis for predicting and forecasting hazards and a reliable forecasting and warning system that operates 24 hours a day. Continuous monitoring of hazard parameters and precursors is essential to

generate accurate warnings in a timely fashion. Warning services for different hazards should be coordinated where possible to gain the benefit of shared institutional, procedural and communication networks (EWC III, 2006).

(iii) Dissemination and Communication

Clear messages containing simple, useful information are critical to enable proper responses that will help safeguard lives and livelihoods. Regional, national and community level communication systems must be pre-identified and appropriate authoritative voices established. The use of multiple communication channels is necessary to ensure as many people as possible are warned, to avoid failure of any one channel, and to reinforce the warning message (EWC III, 2006).

(iv) Response Capability

It is essential that communities understand their risks; respect the warning service and know how to react. Education and preparedness programmes play a key role. It is also essential that disaster management plans are in place, well-practiced and tested. The community should be well informed on options for safe behaviour, available escape routes, and how best to avoid damage and loss to property (EWC III, 2006).

8.0 References/ Further Reading

Humanitarian Practice Network (2019). Forecasting and Warning. Preparing for Disasters and Emergencies.

Rouse, M. (2016). Early Warning System. www.whatls.com

Third International Conference on Early Warning (2006). Developing Early Warning Systems: A Checklist.

Wilkinson, E., Weingartner, L., Choularton, R., Bailey, M., Todd, M., Kniveton, D., Venton, C.C. (2018). Forecasting hazards, averting disasters: Implementing forecast-based early action at scale.

Unit 2: Preparedness in Environmental Health Emergencies

CONTENTS

1.0 Introduction

Emergency or disaster preparedness reduces the effects of disasters on the community and business organizations. In emergency preparedness, some measures are taken to prepare or reduce the impact of emergencies. In this Unit, we will be looking at the measures that will be taken to prepare for emergencies and where it manages to happen, steps that reduce the effects on the populations and on workers.

2.0 Objectives

At the end of this Unit, you will understand what is meant by Disaster/Emergency Preparedness.

3.0 Main content

3.1 The Concept of Emergency Preparedness

Disaster preparedness refers to measures taken to prepare for and reduce the effects of disasters. That is, to predict and, where possible, prevent disasters, mitigate their impact on vulnerable populations, and respond to and effectively cope with their consequences. Disaster preparedness provides a platform to

design effective, realistic and coordinated planning. Disaster preparedness activities embedded with risk reduction measures can prevent disaster situations and also result in saving maximum lives and livelihoods during any disaster situation, enabling the affected population to get back to normalcy within a short time period. Disaster preparedness is a continuous and integrated process resulting from a wide range of risk reduction activities and resources rather than from a distinct sectoral activity by itself (IFRC, 2019).

Preparedness is defined by the US Department of Home Security and the US Federal Emergency Management Agency as a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response. This cycle is one element of a broader National Preparedness System to prevent, respond to, and recover from natural disasters, acts of terrorism, and other disasters.

3.2 The Components of Disaster/Emergency preparedness

(i) Recognizing the Red Cross/Red Crescent role in disaster preparedness as complementary to government and thus will not replace state responsibilities. In addition, the National Society should engage in debate with the government on the focus and nature of the National Response Plan and encourage the assignment of a clear role and responsibilities to the National Society, supported by appropriate legislation.

(ii) Increasing the efficiency, effectiveness and impact of disaster response mechanisms at the community, national and Federation level. This includes:
- the development and regular testing of warning systems (linked to forecasting systems) and plans for evacuation or other measures to be taken during a disaster alert period to minimize potential loss of life, livelihoods and physical

damage.

- the education and training of volunteers, staff and the population at risk.
- the training of first-aid and disaster response teams.
- the establishment of disaster response policies, standards, organizational arrangements and operational plans to be followed after a disaster.

(iii) Strengthening community-based disaster preparedness through National Society programmes for the community or through direct support of the community's own activity. This could include educating, preparing and supporting local populations and communities in their everyday efforts to reduce risks and prepare their own local response mechanisms to address disaster emergency situations.

(iv) Raising awareness of disaster hazards through public education, encouraging vulnerable people to take preventative and mitigating actions where possible before disaster strikes. Ensure that the Knowledge from prediction and early warning systems can be accessed, understood and acted upon by local communities (GDPC, 2017).

3.3 Disaster Preparedness Strategies

A comprehensive disaster preparedness strategies would include the following:

1. Hazard, risk and vlnuerability assessments
2. Response mechanisms and strategies
3. Preparedness plans
4. Coordination
5. Information management
6. Early warning systems
7. Resource mobilization

8. Public education, training, Drills and simulations
9. Community-Based disaster preparedness

Community-based disaster preparedness incorporates the concept of building on and using local knowledge and resources in order to improve a population‟s capacity to withstand the impact of disasters. As first responders to a disaster (i.e., search and rescue teams and the provision of emergency treatment and relief), communities need to be equipped to manage with the consequences of small-, medium- and large-scale natural hazards when they strike (GDPC, 2017).

3.4 Emergency Plan

Besides the major benefit of providing guidance during an emergency, developing the plan has other advantages. It helps to discover unrecognized hazardous conditions that would aggravate an emergency situation and it can be eliminated. The planning process may bring to light deficiencies, such as the lack of resources (equipment, trained personnel, supplies), or items that can be rectified before an emergency occurs. In addition an emergency plan promotes safety awareness and shows the organization's commitment to the safety of workers. The lack of an emergency plan could lead to severe losses such as multiple casualties and possible financial collapse of the organization.

An attitude of "it can't happen here" may be present. People may not be willing to take the time and effort to examine the problem. However, emergency planning is an important part of company operation. Since emergencies will occur, preplanning is necessary. An urgent need for rapid decisions, shortage of time, and lack of resources and trained personnel can lead to chaos during an emergency. Time and circumstances in an emergency mean that normal channels of authority and communication cannot be relied upon to function

routinely. The stress of the situation can lead to poor judgment resulting in severe losses (CCOHS, 2014).

3.5 The Objective of an Emergency Plan

According to Canadian Center for Occupational Health and Safety (2014), the objective of an Emergency plan is to:

- Prevent fatalities and injuries.
- Reduce damage to buildings, stock, and equipment.
- Protect the environment and the community.
- Accelerate the resumption of normal operations.

3.6 Elements of an Emergency Plan

The elements of an emergency plan include:

- All possible emergencies, consequences, required actions, written procedures, and the resources available.
- Detailed lists of personnel including their home telephone numbers, their duties and responsibilities.
- Floor plans.
- Large scale maps showing evacuation routes and service conduits (such as gas and water lines).

The purpose of the plan is to reduce human injury and damage to property and environment in an emergency. It also specifies those staff members who may put the plan into action. The objective identifies clearly who these staff members are since the normal chain of command cannot always be available on short notice. At least one of them must be on the site at all times when the premises are occupied. The extent of authority of these personnel must be clearly indicated (CCOHS, 2014).

4.0 Conclusion

Disaster preparedness helps an organization to prevent loss of lives and livelihood and saves the business of an organization. Disaster/Emergency preparedness should be a continuous process. Everyone should be involved in disaster/emergency preparedness at the local level, the state and at the national level.

5.0 Summary

In this Unit, we have learnt the concept of emergency preparedness, the Components of Disaster/Emergency preparedness, Disaster Preparedness Strategies, Emergency Plan, the Objective of an Emergency Plan and Elements of an Emergency Plan.

6.0 Tutor-Marked Assignment

Discuss the components of Emergency Preparedness

Solution

(i) Recognizing the Red Cross/Red Crescent role in disaster preparedness as complementary to government and thus will not replace state responsibilities. In addition, the National Society should engage in debate with the government on the focus and nature of the National Response Plan and encourage the assignment of a clear role and responsibilities to the National Society, supported by appropriate legislation.

(ii) Increasing the efficiency, effectiveness and impact of disaster response mechanisms at the community, national and Federation level. This includes:

- the development and regular testing of warning systems (linked to forecasting systems) and plans for evacuation or other measures to be taken during a disaster alert period to minimize potential loss of life, livelihoods and physical damage.
- the education and training of volunteers, staff and the population at risk.

- the training of first-aid and disaster response teams.
- the establishment of disaster response policies, standards, organizational arrangements and operational plans to be followed after a disaster.

(iii) Strengthening community-based disaster preparedness through National Society programmes for the community or through direct support of the community's own activity. This could include educating, preparing and supporting local populations and communities in their everyday efforts to reduce risks and prepare their own local response mechanisms to address disaster emergency situations.

(iv)Raising awareness of disaster hazards through public education, encouraging vulnerable people to take preventative and mitigating actions where possible before disaster strikes. Ensure that the Knowledge from prediction and early warning systems can be accessed, understood and acted upon by local communities (GDPC, 2017).

7.0 References/Further Reading

Canadian Center for Occupational Hazard and Safety (2014). Emergency Planning.

Global Disaster Preparedness Center (2017). How Do I Prepare.

https://www.preparecenter.org/topics/disaster-preparation.

International Federation of Red Cross and Red Crescent Societies (2019). Disaster Preparedness.

Kent, R. (1994). Disaster Preparedness. United Nations Disaster Management Training Program, p. 11.

Unit 3: The Roles of Environmental Health Officers (EHO) in Emergencies

CONTENTS

1.0 Introduction

Emergencies and disasters can occur anywhere in the world, affecting human health, people‟s lives and the infrastructure built to support them. Environmental health problems arising from emergencies and disasters are connected to their effects on the physical, biological and social environment that pose a threat to human health, well-being and survival: shelter, water, sanitation, disease vectors, pollution, etc. (WHO, 2002). In cases of natural disaster or other emergencies, such as a terrorist attack, fire outbreak in public places and industries the role of Environmental Health system is to provide services essential for protecting and ensuring the well- being of the people in affected areas, with emphasis on prevention and control of disease and injury.

2.0 Objectives

At the end of this Unit, you will understand the roles of Environmental Health Officers in Emergencies/Disasters

3.0 Main content

3.1: The Roles of Environmental Health Officers in Emergencies

Environmental health is the link between environmental factors and health impacts. It is concerned with how both the natural and built environment can impact on public health. EHOs are responsible for promoting, maintaining and protecting this aspect of public health. This responsibility becomes even more critical in the event of an emergency. Emergencies can get to the threshold where the basic infrastructure that is taken for granted such as the infrastructure that delivers power, clean water, safe food and manages waste are at risk of collapse or collapses. Not only are these services often under threat, but when people become tired and stressed – whether they are emergency workers or affected communities, their health also becomes more vulnerable. EHOs work alongside other emergency workers and people caught up in emergencies to protect public health (enHealth, 2010).

In this Unit, we will be looking at the roles of Environmental Health Officers before, during and after emergencies and disasters. According to enHealth (2010), the following are the roles of EHOs in emergencies.

(i) **Prevention and Mitigation**

Prevention and mitigation activities refer to influencing codes, policies and practices so that the conditions that give rise to or influence the severity of public health incidents are reduced or eliminated altogether. For example, EHOs working to bring the spread of dengue-carrying mosquitoes under control identified opportunities to influence building codes to minimize design features that allow water to collect and provide ideal breeding grounds for mosquitoes. These can be achieved through:

Planning to

- Establish or review arrangements to prevent or mitigate risks
- Participate in drafting and implementing legislation, codes and guidelines
- Participate in establishing and implementing communication and warning systems.

(ii)**Preparedness**

Preparedness activities focus on planning and building community resilience. The community links that EHOs build to support their day to day work also position them to take an active role in supporting communities to engage in planning processes and improve their own level of preparedness and resilience to withstand emergency events. There are specific structures and mechanisms that support emergency planning but the general principles are familiar to any EHO who has been involved in planning for a major mass event. The preparedness activities include:

- Participate in emergency risk management planning process and committees
- Collect local information on local risks, capacity, needs and resources
- Contribute to developing environmental health and emergency management operational plans and allocate responsibilities
- Participate in arrangements to provide for that necessary staff, skills and resources
- Establish and communicate roles and responsibilities
- Participate in developing/reviewing policies and procedures
- Participate in establishing protocols/MOUs with partner agencies

(iii) **Response**

The response phase puts plans into action. The focus of EHO work is on providing specialist advice on emergency management facilities and

activities as they affect health outcomes. This is through proper management

- Act within the scope of authorization and under chain of command
- Assess operational involvement and resource requirements
- Follow protocols to access and allocate resources
- Monitor, manage and report on implementation of emergency management plans and resource expenditure
- Participate in officer debriefing/counselling and support

Communication and Public Education

As part of the response, communication and public education is achieved in

- Provide advice, support and direction on public health risks to health and partner agencies
- Maintain regular communication with agencies and stakeholders
- Assist with media content and response
- Respond to information requests from emergency coordinators and other partner agencies

(iv)**RECOVERY**

The recovery phase involves dealing with the aftermath of emergency events – cleaning up and ensuring that essential services and infrastructure are available. Once the immediate crisis passes, the work transitions to a business as usual state where EHOs continue to provide advice and support to communities and businesses about what they need to do to promote and protect public health.

The recovery phase is through

- Assess public and environmental health impact
- Undertake or direct remedial/clean-up activities

- Provide advice on programs and support to facilitate community recovery

4.0 Conclusion

Environmental Health Officers are very vital in the management of emergencies and disasters. Environmental health sits at the intersection between environmental factors and health impacts. The environmental factors and workplace hazards on one hand and the health of the population and workers on the other hand. So involving the EHOs in policies formulations as regards environmental health will drastically reduce the loss of lives/livelihood and property.

5.0 Summary

In this Unit we learnt, the roles of Environmental Health Officers in Emergencies. The roles are majorly in four phases, Prevention and Mitigation, Preparedness, Response and Recovery.

6.0 Tutor-Marked Assignment

Systematically outline the response role that is played by EHOs in emergencies.

Solution

Response

The response phase puts plans into action. The focus of EHO work is on providing specialist advice on emergency management facilities and activities as they affect health outcomes. This is through proper management

- Act within the scope of authorization and under chain of command
- Assess operational involvement and resource requirements
- Follow protocols to access and allocate resources

- Monitor, manage and report on implementation of emergency management plans and resource expenditure
- Participate in officer debriefing/counselling and support

Communication and Public Education

As part of the response, communication and public education is achieved in

- Provide advice, support and direction on public health risks to health and partner agencies
- Maintain regular communication with agencies and stakeholders
- Assist with media content and response
- Respond to information requests from emergency coordinators and other partner agencies

7.0 References/Further Reading

Berg, R. (2004). Terrorism response and the environmental health role: The million-dollar (and some) question. Journal of Environmental Health, 67(2), 29-39.

Center for Threat Preparedness/BPH/DHHR (2016). The Health Officer‟s Role in Public Health Emergencies. Charleston Marriott.

Eldridge, D., and Tenkate, T.D. (2006). The role of environmental health in disaster management: an overview and review of barriers and facilitators for action. Review on Environmental Health, 21(4): 281-294.

Environmental Health Committee (enHealth) (2010). The role of environmental health officers in emergencies: stories from the front line. Department of Health and Ageing, Canberra.

Minnesota Department of Health (2016). The Role of the Environmental Health System.

World Health Organization (2002). Environmental health in emergencies and disasters: a practical guide. Edited by B. Wisner, J. Adams.

APPENDIX: Some photographs of Disasters (Center for Threat Preparedness, 2016).

September 2004 Flood (Center for Threat Preparedness, 2016).

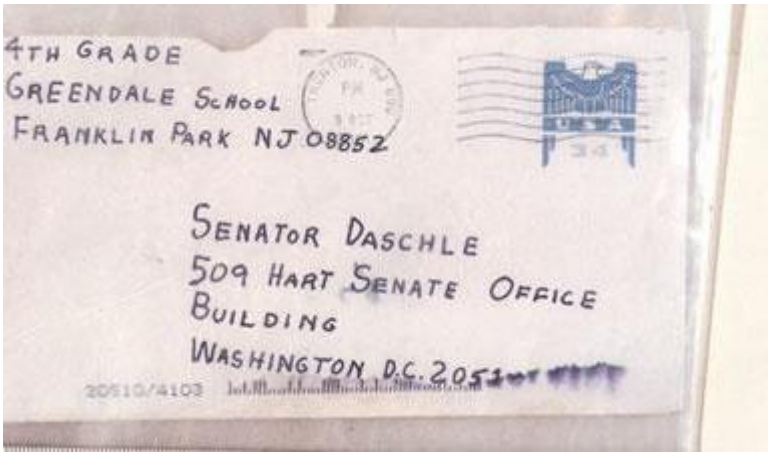
Hurricane Ivan (Center for Threat Preparedness, 2016).

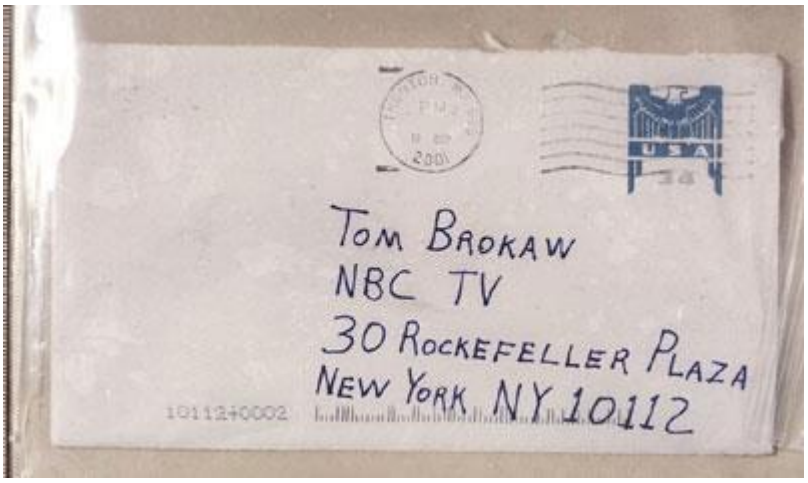
Wind Storm (Center for Threat Preparedness, 2016).

Snow Storm (Center for Threat Preparedness, 2016).

Displaced Katrina Victims Arriving at Camp Dawson (Center for Threat Preparedness, 2016).

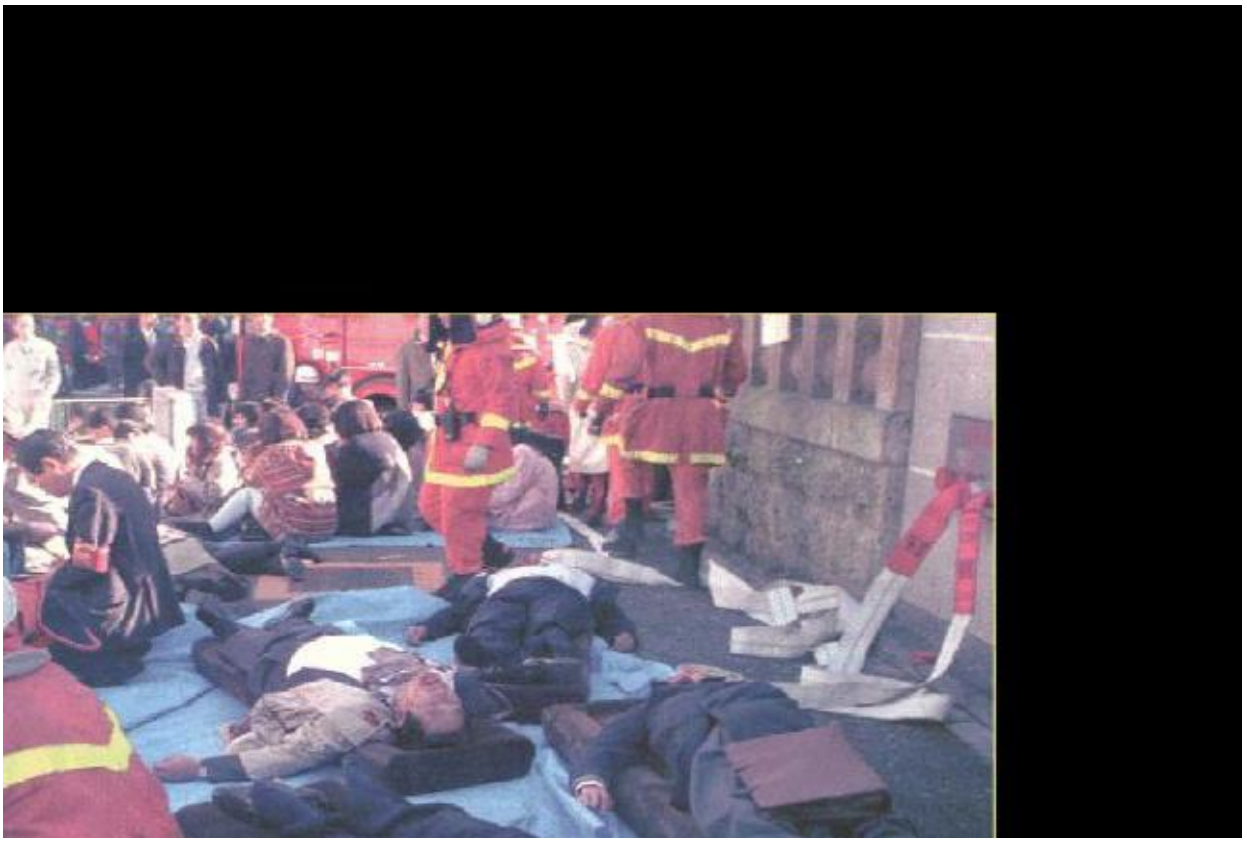
The 1918 Spanish Flu Pandemic (Center for Threat Preparedness, 2016).





Anthrax Sent by Mail

September/October 2001 (Center for Threat Preparedness, 2016).



The Threat of Terrorism (Center for Threat Preparedness, 2016).

2014 Elk River Chemical Spill (Center for Threat Preparedness, 2016).

\