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SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

Training on Fire Safety, First Aid and Fire Safety Equipment, DFTC - Accra

AUGUST, 2018

THE UNIVERSITY OF RHODE ISLAND
GRADUATE SCHOOL OF OCEANOGRAPHY
CRC COASTAL RESOURCES CENTER

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Cover photo: A personnel from the Ghana National Fire Service demonstrating how to extinguish fire

Photo Credit: Development Action Association

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ACRONYMS

CRC	Coastal Resource Center
DAA	Development Action Association
SFMP	Sustainable Fisheries Management Project
URI	University of Rhode Island
USAID	United States Agency for International Development

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1.0 INTRODUCTION

The Ghana National Fire Service (GNFS) reguires owners of residential and commercial buildings to comply with the Legislative Instrument (LI 2249) and acquire fire certificate for their buildings to enhance fire safety. Acquiring a fire certificate demands the installation of fire precaution notices and firefighting equipment in the building and training of all users of the building on fire safety precautions and basic firefighting skills twice every year.

The management of DAA therefore engaged the GNFS to identify the the fire hazards in the new office complex and the DAA Fisheries Training Center and also train staff on fire safety protocols.

1.1 Objective

The objective of the training was to raise the awareness of the staff on identifying fire hazards, safety procedures and how to act safely during a fire outbreak.

1.2 Description of Training Program

A total of 14 DAA staff participated in the fire safety training on the 20th of August 2018 at the premises of the DAA Fisheries Training Center located at Kokrobite in the Ga South Municipal Assembly in the Greater Accra region of Ghana. The training was facilitated by Officer Quaye from the Amasaman (Ga South) Fire Brigade, Department of Public Safety and Education.

The participants were trained on;

- ✓ Introduction to fire
- ✓ Fire emergency preparedness and evacuation
- ✓ Practical demonstration on the use of a fire extinguisher, fire blankets and jute sacks

1.3 Training Methodology

The tools used were;

1. point presentation,
2. group discussion and
3. brain storming session.
4. Demonstration on fire fighting

A question and answer session was also used to evaluate the participants' understanding of the training.

2.0 TRAINING PROCEEDINGS

2.1 Introduction to Fire Safety

The trainer began the session by introducing the trainees to terminology used in fire safety and prevention such as;

- Fire cause
- Flammable
- Flash point
- Ignition source
- Ignition temperature
- Carbon dioxide (Co_2)
- Combustible
- Combustion

- Conduction
- Convection

2.2 What Constitutes Fire

According to the fire officer, any fire is caused by three (3) basic elements, namely fuel, oxygen and a source of ignition. This is normally referred to as the “fire triangle” as shown in the figure 1 below.

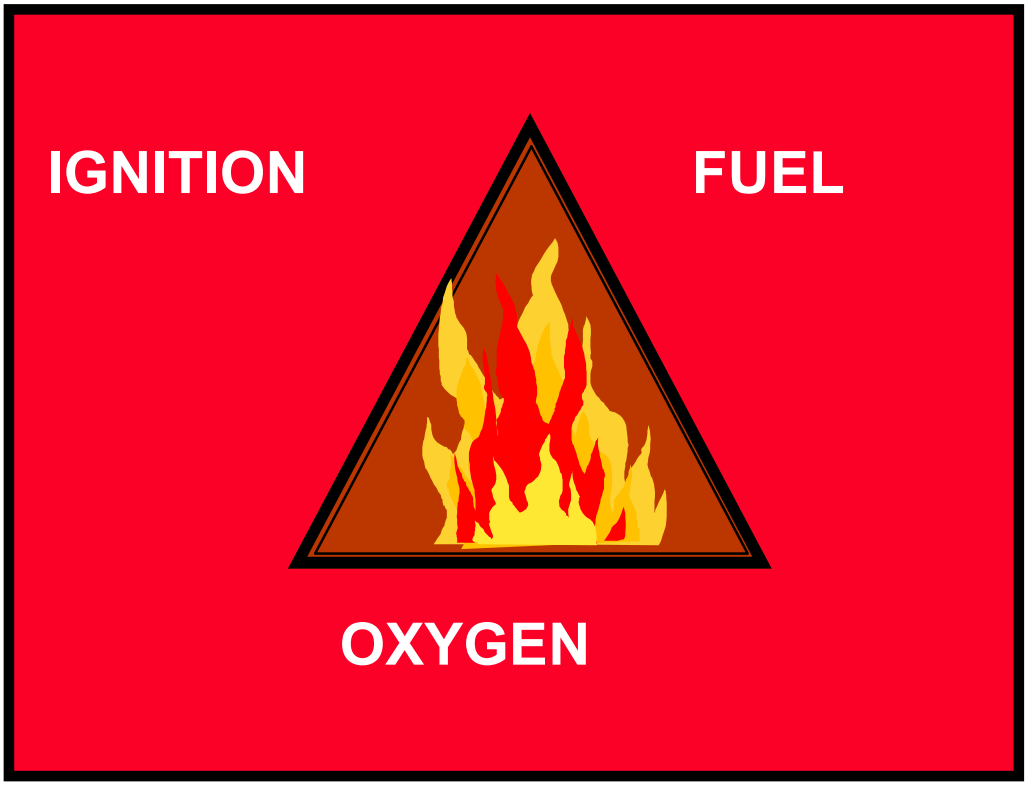

Figure 1. The fire triangle showing the key components of fire

This means that, in the absence of any of these three components, fire will not occur or in the absence of any one of these elements, fire can be easily extinguished. The trainer further explained that, the ignition can be from difference sources. It can be from an electronica, chemical or even thermal sources.

2.2.1 Sources of Fire Ignition

The officer also explained that, fire ignition can be traced to 3 sources, i.e.,

- ✓ Electrical.
- ✓ Chemical.
- ✓ Thermal.

2.2.2 Sources of Fuel

For fire to occur the right proportion of oxygen and fuel must be present and combined such as ;

- ✓ Solid (Papers, chairs, tables, etc)
- ✓ Liquid (petrol, kerosines, oil, etc)
- ✓ Gas (LPG)

2.3 The Classifications of Fire

The trainer again explained that Fire extinguishers are provided for use by employees, and so they should be selected and installed based on the type of fires anticipated in the building. The selection of these firefighting devices also depend on the size and extent of the anticipated hazards.

According to him, fires are classified into four (4) main categories differentiated by the fuel causing the fire as indicated in the figure 2 below.

Class - A Wood, paper, rubber,

Class - B Gasoline, kerosene, paint.

Class - C Electricals.

Class - D magnesium, titanium, sodium

Figure 2. Showing the various fire classifications

Figure 3. Mr Quaye from the Ghana National Fire Service explaining the various classes of fire and how to extinguish them

2.3.1 Class A Fire Type

This class of fire refers to ordinary combustibles.

Figure 4. Symbol for class A fires

The facilitator helped trainees to understand that, to avoid this type of fire the following must be observed at all times;

- ✓ Staff should ensure that there is no refuse in storage and working areas
- ✓ Rages with oil must be in covered containers.
- ✓ smoking in the area be avoided.
- ✓ If possible sources of possible ignition should be minimized.
- ✓ Passageways and fire doors should be clear at all times.
- ✓ Fire extinguishers should be easily located, clearly marked and known by all staff.

2.3.2 Class B Fire Type

Trainees were also made to understand that class B type of fire refers to fire caused by flammable liquids or gases.

Figure 5. Symbol for class B fires

To avoid this type of fire from occurring the following must be observed at all times

- ✓ Nonflammable substitutes for cleaners.
- ✓ Solvent tanks should have fusible links on covers.
- ✓ Refuel of all equipment should be done in well ventilated areas.
- ✓ All flammable liquids should be stored properly in well ventilated areas.

2.3.3 Class C Fire Type

This fire normally occurs with electrical and electronic equipment.

Figure 6. Symbol for class C fires

To avoid the occurrence of this type of fire, participants were trained to observe these safely protocols.

- ✓ Wiring and insulation should be inspected regularly.
- ✓ Ensure motors are kept clean and lubricated.
- ✓ Unusual odors or smells should be detected and the needed attention given.
- ✓ Outlets and connections should not be overloaded.
- ✓ Proper and correct fuse rating should be strictly be followed.
- ✓ Proper machinery maintenance should be followed.

2.3.4 Class D Fire Type

This is the type of fire associated with combustible metals such as magnesium, titanium, sodium, etc.

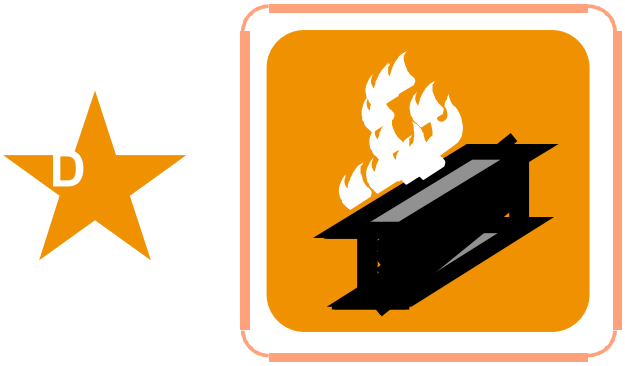

Figure 7. Symbol for class D fires

To avoid or minimize the occurrence of this type of fire, all staff should ensure proper procedures such as those outlined below;

- ✓ Control dust and turnings.
- ✓ Never use wet sand or water to extinguish fires as moisture releases oxygen which can fuel the fire.
- ✓ Metal fires can burn up to 5000 degrees.

2.4 Identifying the Proper Fire Extinguisher

To properly identify which fire extinguisher is appropriate in extinguishing a particular kind of fire, the staff were trained to identify the face plate inscription on the fire extinguisher. These face plates are clearly indicated by words or symbols on what sort of fire the extinguisher can be used on. It was impressed on trainees that, using the wrong kind of extinguisher can be very dangerous and even worsen the fire outbreak.

Therefore, selecting a fire extinguisher for use depends on the following;

- ✓ Nature of the combustibles or flammables.
- ✓ Potential severity of the resulting fire - size, speed of travel, intensity etc.
- ✓ Effectiveness of the extinguisher on the type material.
- ✓ The ease of use of the fire extinguisher.
- ✓ The personnel available to operate the extinguisher.
- ✓ The physical and emotional ability of the user.

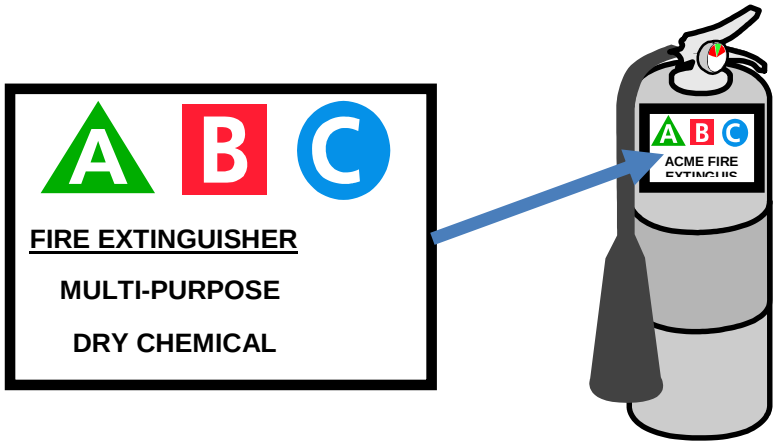

Figure 8. Inscription or symbol on a fire extinguisher indicating the kind of fire(s) it can be used for

For good practices, both the fire extinguisher and its location should be clearly marked and should not be obstructed by any object. The place where the extinguisher is kept must be accessible to all staff at all times.

2.4.1 Proper Use of Fire Extinguisher

Trainees learned of the four (4) steps involved in using fire extinguishers to fight small fires. These steps have been acroynmed “PASS”. But before this process commences, the user of the extinguisher must always check and ensure the extinguisher has expired. This is done by checking the gauge on the extinguisher as shown below.

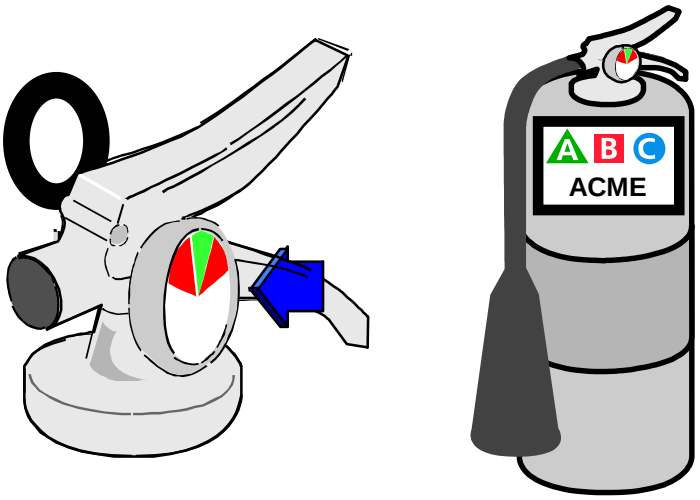

Figure 9. Checking for the proper gauge level on a fire extinguisher

2.4.2 The "PASS" Processes

"P" – Pull

The first step involved in using the extinguisher after checking is to pull the lock pin on the extinguisher as indicated in the figure below.

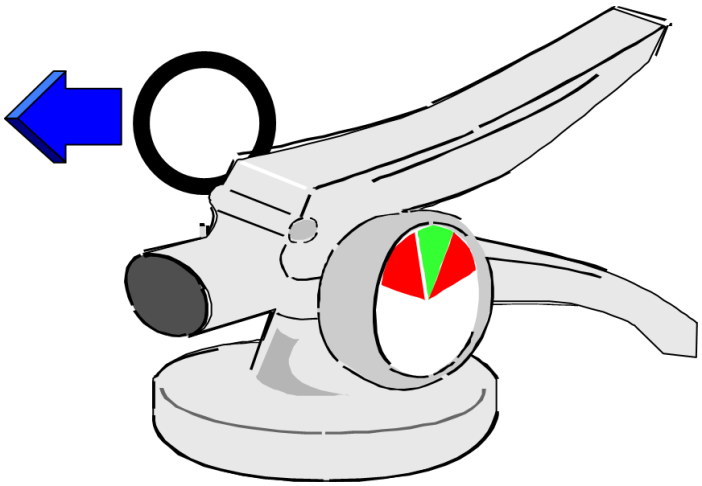

Figure 10. Demonstrating how the pin on a fire extinguisher is removed to allow usage of the extinguisher.

Pulling the pin will allow for a free operation of the squeeze head on the handle of the extinguisher.

"A" - Aim

The next step involved in fighting small fires using fire extinguishers is to aim at the fire by holding the hose attached and aiming at the base of the fire and facing the direction of the wind.

"S" – Squeeze

After aiming at the base of the fire towards the direction of the wind, squeeze the trigger at top of the extinguisher and release the contents while still holding the extinguisher upright. As shown in the figure below.

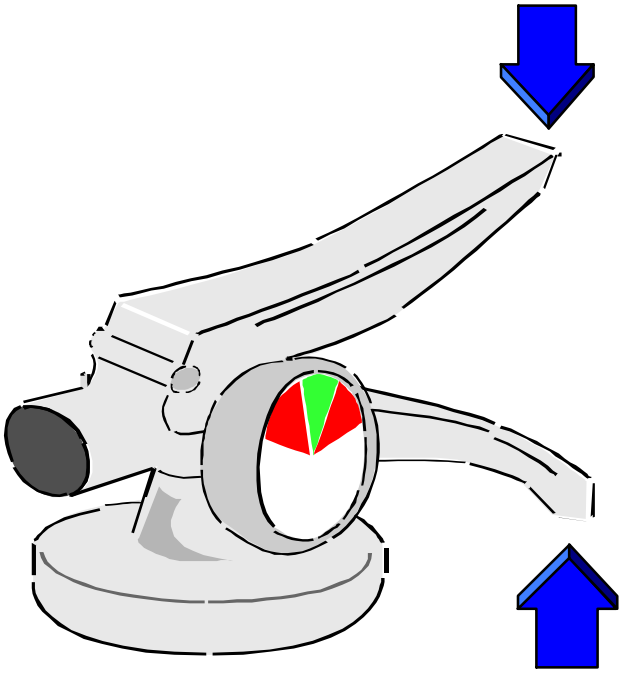

Figure 11. Demonstrating how the trigger on the fire extinguisher should be squeezed to release the contents

Figure 12. Some participants of the training try their hands on the use of fire extinguishers

"S" - Sway

This is the last of the processes involved in fighting small fires using fire extinguishers. The trainer taught it should be Swayed from side to side until every part of the base of the fire is sprayed on.

The facilitator also explained that, one has to avoid using the fire extinguisher to fight certain kinds of fires and should immediately call for help by dialing 192/999 if any of the following happens;

- ✓ If you have no escape route.
- ✓ If the fire begins to spread.
- ✓ If the extinguisher proves to be ineffective.
- ✓ If there is a choice between life and property.
- ✓ If you are not sure you can handle the situation.

- ✓ If you are injured and it will impede your escape.
- ✓ If the extinguisher is not designed for the type fire.
- ✓ If any drums, gases, and like materials are engulfed.

2.5 How to Extinguish Specific Classes of Fire

The trainer also gave specific guidelines on fighting specific classes of fire. The facilitator explained that, each of these guidelines should be strictly followed to effectively quench small fires.

2.5.1 Class "A" Fire

- ✓ Point the extinguishing agent at the base of the fire.
- ✓ Do not attempt to put out the flames.
- ✓ Cool the material below its ignition temperature.
- ✓ Soak fibrous material to prevent re-ignition.
- ✓ Establish a fire watch to ensure no re-ignition occurs.
- ✓ Use water, foam or multi-purpose dry chemicals**.**

2.5.2 Class "B" Fire

- ✓ Point the extinguishing agent at the base of the fire.
- ✓ Do not attempt to put out the flames.
- ✓ Attempt to prevent oxygenation of the fire.
- ✓ Close lids on tanks with solvent
- ✓ Know that the fire may flare up suddenly
- ✓ Use foam, carbon dioxide, dry chemicals and halon.

2.5.3 Class "C" Fire

- ✓ Extinguishing agent cannot conduct electricity.
- ✓ Disconnect power to the source quickly.
- ✓ Ensure the extinguisher does not make contact.
- ✓ Do not attempt to use water based extinguishers.
- ✓ Electrical fires can effect circuitry "downstream".
- ✓ Use carbon dioxide, dry chemicals and halon.

2.5.4 Class "D" Fire

- ✓ Multi-purpose extinguishing agent leaves a residue.
- ✓ The agent cools the metal to below its ignition temp.
- ✓ These residues are harmful to electronic equipment.
- ✓ Attempt to prevent oxygenation of the fire.
- ✓ Use agents that deprive oxygen.
- ✓ Know that metal fires burn extremely hot (5000 deg.).
- ✓ Use carbon dioxide and halon.

3.0 DEMONSTRATION

All the training participants were taking through a practical demonstration on how to fight small fires and the various safety protocols that must be observed in fire prevention. Among The demonstration were on how to;

- ✓ Identify the right kind of fire extinguishers.
- ✓ Fight fire using fire extinguishers
- ✓ Fight fire using jute sacks

Figure 13. Fire Officer Quaye demonstrates how to use a fire extinguisher

Figure 14. The training shows the differences in the types of fire extinguishers on the market and use on the premises of the DFTC

Figure 15. Participants of DAA look on as the fire officer explains the proper procedures for fighting domestic fire using extinguishers

Figure 16. Participants try their hands on how to use the fire extinguisher

Figure 17. Participants try their hands on how to use the fire extinguisher

Figure 18. Participants try their hands on how to use the fire extinguisher

Figure 19. Participants try their hands on how to use the fire extinguisher

4.0 CONCLUSION

The entire staff of DAA have now been equipped to identify fire hazards and how to fight them if there is an occurrence at DAA Fisheries Training Center (DFTC)
The training came to a close with verbal evaluation using the following safety protocols;

- ✓ Know the locations of your fire extinguishers.
- ✓ Determine the likely types of fires in the area.
- ✓ Ensure the extinguisher is the right type (A.B.C.D.).
- ✓ Inspect extinguisher for rust, dents or other signs of damage.
- ✓ Inspect the seal of the extinguisher for tampering or previous use.
- ✓ Inspect the gauge and feel the weight.
- ✓ Is the extinguisher full of agent?
- ✓ Ensure the pin, nozzle and name plate are intact.
- ✓ Report missing or damaged extinguishers