MASON TRAINING MODULE FOR THE SEPTIC TANK CONSTRUCTION

SNV Netherlands Development Organisation

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We are delighted to produce and publish the mason training module for septic tank construction. Expressing my gratitude to the Khulna University of Engineering and Technology (KUET) for their all hearted support in formulating of the training module following the procedure within the time frame.

Special gratitude to Prof. Dr. Muhammad Alamgir, former Vice-Chancellor for giving his valuable time and consent. Also sincere thanks to Khandaker Mahabub Hossain for assisting and guiding in development of this module.

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Special thanks to Sk Shaker Ahmed, Technical Officer - Engineering, Urban Sanitation Program for overall coordination. Also sincere gratitude to all other teammates for their heartiest support, participation and aptitude to made this process easy.

Hopefully, through this module, trained masons will be capacitated to construct more advanced and accurate designed septic tanks.

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CONTENTS

Purpose of the training module for septic tank construction-Session 1: Concept on septic tank system-

Session 2: Policy frame on septic tank-

1 2-8 9-11

Session 3: Septic tank construction-12-18Session 4: Occupational health and safety measures-19-21

MASON TRAINING MODULE FOR THE SEPTIC TANK CONSTRUCTION



PURPOSE OF TRAINING MODULE FOR SEPTIC TANK CONSTRUCTION:

- **a.** Acquiring an overall idea of the standard septic tank system (size, shape, baffle wall, soak well, plumbing, manhole, inspection pit, etc.);
- b. Have to be aware of the legal issues related to septic tanks (right location, approval requirements, licensed plumber, emission standards, desludging (evacuating) frequency, etc.);
- **c.** Gaining knowledge and skills related to various brick- construction work, concreting work and plumbing work for septic tank construction.
- **d.** Raising awareness about the use of security materials in the construction and repair work of septic tanks as well as desludging (evacuating) work.

MASON TRAINING MODULE FOR THE SEPTIC TANK CONSTRUCTION

SESSION 1: THE CONCEPT OF SEPTIC TANK SYSTEM

SPECIFIC AIM:

At the end of the session the trainees will be able to:

- Provide overview of septic tank system
- Say the name of the components of septic tank system
- Say the functions of different components of septic tank system

Methods : Q&A, open discussion, puzzle game, small group discussion, feedback.

SI. No.	Sub-content	Process	Method	Time (minutes)
1	The concept of septic tank system	Participants share ideas through Q&A	Open discussion	5
		Lecture and showing pictures	Multimedia presentation	10
2	2 Components of septic tank system	Puzzle game (septic tank system) and serve	Learning through the puzzle	10
	Lecture with standard illustrations	Multimedia presentation	10	
3	3 Function of different components of	Group work (as different material)	Group discussion	15
	septic tank system	Presentation by group	Flyers, cards, etc.	15
		Feedback by helpers	Multimedia presentation	10

Evaluation (3 questions):

- a. What is septic tank system?
- **b.** What are the components of a septic tank system?
- **c.** Tell at least one purpose / function for each component of the septic tank system (pipeline, inspection pit, septic tank chambers, baffle wall, manhole and soak pit).



1. Overview of septic tank system

A septic tank is a waterproof chamber located under the ground that assists in the collection, purification and drainage of sewage from the toilet. Waste materials are refined in the tank for a short period of time as well as stockpiled at the bottom as sediment and the liquid part overflows into the soak pit and enters into the soil. Therefore, a soil layer capable of transporting water is essential for the soak pit to function properly. Septic tanks should be evacuated periodically (for example, every three years) and solid waste materials should be disposed in a healthy way. Vacuum tankers are usually used for this purpose.



Figure: Overview of septic tank system







Figure: Septic tank and soak pit



Figure: Septic tank construction





1.1 The size of the septic tank, the chambers and the baffle wall

It is best to build a septic tank with two chambers. The first chamber will be twice the size of the second chamber. There will be a baffle wall creating connection between the two parts. Both

parts of the outlet level should be added by a pipe. The septic tank will have a minimum fluid capacity of 2000 liters, with an additional 300 mm space above the water level. The minimum width of the septic tank should be1m, minimum fluid depth of 1m and the minimum length of the septic tank should be at least three times its width. The maximum length of a septic tank should not be more than four times the width. The entrance (Inlet) pipes, two chamber connecting pipes and ejection (outlet) pipes are typically PVC pipes with a diameter of 150 mm. The inside of the septic tank is neatly finished with a waterproof cement mortar. The pipes of "T" joints are provided in the inlet and outlet parts as in the following diagram. There will be a roof of RCC slab above the septic tank and each chamber will have an inspection manhole with a lid.







Figure: Septic tank with two chambers



SIZE OF THE SEPTIC TANK AND EXAMPLE OF GROUP WORK





Image: Septic tank with two chambers



1.2 Soak pit

Through the outlet of the septic tank, the liquid part will go into the soak pit and be absorbed inside the soil. The outlet pipe has to be slightly slide (1 in 100). Soak pit is constructed with

open joints of brick or concrete block and inside is filled with bricks or stones of at least 75 mm thickness. The upper attachment of the inlet pipe is sealed with a cement mortar. A concrete cover is provided on top of the soak pit. There will be an inspection manhole with a lid for a cover area of more than 0.75 square meters.





PLAN Figure: Soak pit



1.3 Operation of the septic tank

Powerful pesticide or chlorine bleach should never be used in septic tanks. These chemicals destroy the biological processes in septic tanks. Before starting the septic tank, it should be filled with water up to the outlet level. Waste materials entering the septic tank slowly accumulates at the bottom of the tank as sediment and is filled at a time. Septic tanks should be evacuated periodically (for example, every three years) and solid waste materials are disposed in a healthy way. Vacuum tankers are usually used for this purpose.



Figure: Vacuum tankers are used to evacuate septic tanks



SESSION 2: LEGAL ISSUES RELATED TO SEPTIC TANKS

SPECIFIC PURPOSE:

After the session the trainees will have:

- Awareness of minimum safe distance of septic tank from source of drinking water
- Awareness of the approval requirements of septic tanks
- Awareness of the requirements of licensed professionals for septic tank design
- Awareness of the flowing from septic tanks that don't discharge in open water courses.
- Awareness of septic tanks healthy evacuation and expiration

Methods: Q&A, open discussion, puzzle game, small group discussion, feedback.

SI. No.	Sub-content	Process	Method	Time (minutes)
1	Minimum safe distance of septic tank from source of drinking water	Participants share ideas through Q&A	Open discussion Multimedia	10
2	Septic tanks approval requirements	Lecture Presentation by group Feedback	presentation	10
3	Requirements of licensed professionals for septic tank design	from helpers	Flyers, cards, etc. Presentation	10
4	The flow from the septic tank Is it in the open water course? Sewage disposal value			15
5	septic tanks healthy evacuation and expiration			10

Evaluation (3 questions):

- a. How many meters is the minimum safe distance for drinking water sources from the septic tank?
- **b.** Where will the flow of the septic tank be released?
- c. What is the maximum period for evacuating a septic tank?



2. Legal issues related to septic tanks

2.1 Location of septic tanks

The septic tank should be located at a minimum safe distance from any water sources. The minimum distance for various components of septic tank system should be as per the

following table:

Table: Location of the components sewage emissions system

System Componen

Distance(m)

	Building Foundation	Well	Stream	Seepage Pit	Dry Well
Septic tank	1.5	8	-	1.5	-
Disposal field3	3	15	7.5	6	6
Seepage pit	4.5	1.5	15	6	6
Dry well	3	15	-	6	-

2.2 Approval requirements for septic tanks

In areas where there is no public sewer, septic tank drainage and sanitary plan approval are required.

2.3 Requirements of licensed professionals for septic tank design

Septic tanks should be designed by a licensed professional according to the regulations of the BNBC code.

2.4 Flow emitting out of septic tanks

The flow from the septic tank cannot be discharged to the open water course (BNBC, 2011). According to Environmental Protection Rules (ECR, 1997) the sewage disposal standard is given in the table below:

SCHEDULE-9

Standards for Sewage Discharge [Seen Rule-12]

Parameter	Unit	Standard Limit
BOD	Mmiligram/1	40
Nitrate	-	250
Phosphate		35
Suspendend Solids (SS)		100
Temperantre	Degree Centigrade	30
Coliform	number per 100ml	1000

Nots:

1. This limit shall be applicable to discharges into surface and inland waters bodies.

2. Sewage shall be chlorinated before final discharge.

2.5 Evacuating septic tanks in a healthy way and its expiration

The septic tank evacuation period is at least 6 months and the maximum is one year.



WRITE DOWN THE RIGHT ANSWER OF THE BELOW QUESTIONS:



Define the true/false answer of below questions. If the answer is false, write the correct answer.

- 1. TimeLine of septic tank empting is 4 month?
- 2. Distance of building base from septic tank is 0.5 meter?
- 3. According to the BNBC, septic tank will be design by licensed authority?
- 4. Distance of tube well from septic tank is 15 meter?
- 5. Mithen gas discharged from septic tank waste?

Define the true/false answer of below questions. If the answer is false, write the correct answer.

- 1. TimeLine of septic tank empting is highest 1 year?
- 2. Discharged water from septic tank will go to dry well?
- 3. Distance from seepage pit to river is 15 meter?
- 4. It is not mandatory to construct septic tank while building a home?
- 5. Waste from septic tank can be discharged to river?



SESSION 3: SEPTIC TANK CONSTRUCTION

SPECIFIC PURPOSE:

After the session the trainees will be able to:

- Achieve improved knowledge, attitude and skills in brick-sand-cement related work of the construction of septic tanks
- Achieve improved knowledge, attitude and skills in concreting work of the construction of septic tanks
- Achieve improved knowledge, attitude and skills in plumbing work of the construction of septic tanks

Methods: Q&A, open discussion, puzzle game, small group discussion, feedback.

SI. No.	Sub-content	Process	Method	Time (minutes)
1	Brick-sand-cement related work of	Participants share ideas through Q&A Open discussion	Open discussion	10
	the construction of septic tanks	Lecture	Multimedia presentation	30
		Presentation by group	Flyers, cards, etc.	20
		Feedback from helper	Presentation	10
2	2 Concreting work of the construction of septic tanks	Participants share ideas through Q&A Open discussion	Open discussion	10
		Lecture	Multimedia presentation	30
		Presentation by group	Flyers, cards, etc.	20
		Feedback from helper	Presentation	10
3	3 Plumbing work of the construction of septic tanks	Participants share ideas through Q&A Open discussion	Open discussion	5
		Lecture	Multimedia presentation	10
		Presentation by group	Flyers, cards, etc.	10
		Feedback from helper	Presentation	5

Evaluation (5 questions) brick-sand-cement related works:

- a. What is the ideal time to wet the brick before construction?
- **b.** How should the mortar be prepared?
- c. State the brick construction method.
- d. How should brick construction be protected and curated?
- e. What is the strategy for brick soling on flat?



3. Construction of septic tanks

3.1 Brick-sand-cement related work

The bricks used in the works should be first class of quality and the cement should be ordinary

Portland cement. Natural unsalted sand (at least FM 1.5) and it will be free of soil and organic matter.

3.1.1 Soaking bricks before construction

All bricks must be submerged in clear water for at least 24 hours before construction works. It should be removed from the water for 2 hours before use, so that the skin is dry during laying. Dry bricks will be stacked in a clean place where they are not wasted by dirt or any other offensive materials.

3.1.2 Making of the cement mortar

If there were nothing indicated by the engineer in-charge for the construction, in order to make a cement mortar, usually it takes one-part cement and four parts of sand. To prepare the mortar, all the ingredients must be thoroughly mixed by adding the required amount of water so that its functionality is suitable for use. The cement and sand are mixed in a dry state and then mixed thoroughly with water until a uniform color is obtained. Only a minimum of water is needed to produce an effective regular mixture. In any case, the water: cement ratio does not exceed 0.50 by weight, or as indicated by the engineer. The prepared mortar should be allowed within 30 minutes from the time of the addition of water during the initial mixing.

3.1.3 Brick Construction Method

All appliances and equipment used for mixing or transporting mortar and brick must be clean. The bricks need to be laid in a way that frog mark stays on top at the time of construction, to ensure that the gaps are filled with mortar. The bricks need to be efficiently placed side by side along level courses, uniform joints, square corners, vertical and surface. The whole or uniform size of the brick should be used as long as the bond can be maintained without breaking. Each brick shall be filled with mortar at both horizontal and vertical joints. Each brick course will be broken in joints with the course below. All the horizontal joints will be parallel and in the alternate courses all the vertical joints will be directly on each other. The thickness of the mortar should not be less than 6 millimeters and not more than 10 millimeters and the height of the four courses should not exceed 25 millimeters above the sum of the four dry bricks height. All brick construction work must be truly plumb controlled and always regular and well controlled throughout the entire structure.

3.1.4 Brick construction protection and curing

Brick construction works should be protected from the harmful effects of the weather by proper covering for at least three days. During hot weather, finished or partial finished works need to be covered or wet so that brickwork does not dry out quickly. The curing should be done with water or covered with water substances for at least 7 days after the completion of brick construction.

3.1.5 Strategy for brick soling on flat

The bricks are to be laid on one level in a regular and uniform manner, keeping the frog mark down. The gap between the two adjacent bricks will not exceed 5 millimeters. The internal gaps of the brick soling will be filled with approved sand in such a manner as to prevent any brick from moving in any way.



3.2 Concrete work

Evaluation (6 questions) concrete work:

a) What is the ideal technique for mixing concrete?

- b) How is concrete handling and molding done?
- c) What protection should be taken for concrete in adverse conditions?
- d) How should the curing of concrete be done?
- e) How is the formwork made for concrete work?
- f) What types of rods should be used and how are they used in construction work?

Portland cement, sand, coarse aggregates and water must be blended in a specific measurement to produce an accurate, consistent and maximum density of concrete. Different brands or types of cement will be kept separately and cannot be used in the same mix. The sand used in the manufacturing of concrete must be clean, moist and fineness modulus (FM) at least 2.5. The water used to make concrete should be naturally clean and free of dirt and organic matter. If the concentration of chloride -ion of water excess 1000 ppm, it cannot be used to produce concrete. The applicable properties of concrete in different parts of concrete and structure is given in the table below. Using variations of different classes of concrete will be indicated by the Engineer-in-Charge.

Concrete Class	28 days Cylinder Strength in kg/cn ² minimum	Coares Aggregate Type	Mix Ratio (by Volume) (only indicative)
A-1	250	Crushed Stone	1:1.5.3
A-2	210	Crushed Stone	1:2:4
A-3	200	Picked Jhama Brick Chips	1:1.5.3
A-4	170	Picked Jhama Brick Chips	1:2:4

Source: Technical Specification For Buildings, LGED, Bangladesh.

3.2.1 Concrete Mixing Strategy

All concrete will be mixed in the mixer-machine. The mixer-machine will be equipped with a suitable charging hopper, water storage and a water measuring device. The mixer-machine should be cleaned at appropriate time intervals. The rotation of the mixer-machine drum should be not less than 15 per minute and not more than 20. A portion of water must be present before the cement and aggregates enter the drum and the flow of water must be continued for at least 5 seconds after entering other materials. After mixing all the materials with water, the mixing process must be continued for at least 90 seconds.



Processing of mixing concrete by hand

Engineers generally will not allow mixing by hand in the preparation of concrete. However, in small work cases or under certain circumstances, concrete may be forced to allow hand mixing when making it. In that case, the procedure will be as follows:

- Water-tight platform should be constructed with cement concrete or brick. The size of the platform should be such that it is possible to accommodate the required amount of mix in a single batch.
- The required amount of sand should be measured in a wooden box of a certain size and it will be leveled with equal thickness and spread on the platform. The required amount of cement also should be measured and spread with equal thickness on the sand stack.
- The sand and cement stacked on the platform should be thoroughly mixed from one end to the other, with the spade up and down. This method will be performed carefully, thoroughly and repeatedly in such a way that the mixture eventually becomes a uniform color and concentration. The mixture should be heaped on a part of the platform.
- The required amount of course- aggregates (stone chips / brick pieces) should be stacked on the empty part of the platform and the top surface should be kept flat and previously mixed sand-cement spread on with equal thickness. These two levels will not exceed 250 millimeters in height. Then it should be mixed thoroughly with the spade from one end to the other. This method will be performed carefully, thoroughly and repeatedly in such a way that the mixture eventually becomes a uniform color and concentration. The mixture should be leveled on the platform.
- Then the top surface of the stack should be made concave and the required amount of water will be poured inside. Then the mixture must be carefully mixed as soon as possible with the spade and the mixing process will continue until the mixture has a uniform color concentration. In order to use the concrete mixture, it must reach the molding place within 45 minutes, be finalized in shape by molding and compaction.

3.2.2 Concrete handling and molding process

The concrete will be molded in clean, oily form work and the temperature will not exceed 35 C. The concrete will be molded horizontally, layer by layer and each layer will not be thicker than 600 millimeters. Each layer will be well compacted. After compaction, the exposed surfaces of the concrete should be smoothed by a steel float. The concrete will be molded in such a way that the exposed surfaces will be flat, smooth, perfect and honeycomb-free solid shape. For any reason defective concrete surfaces cannot be covered with plaster, rather it will be cut off and replaced with new ones or performed as per the instructions of the responsible engineer.

3.2.3 Protection of Concrete Construction

The concrete should be protected from the effects of sunlight, dry air, rain, water flow or mechanical damage for a period of time until it reaches at least three quarters of its 28-day strength, but this period will not be less than 10 days in any situation. During concrete mixing, the outside temperature must be maintained between $10 \int C$ to $32 \int C$.



3.2.4 Curing Concrete Construction

Proper curing should be done to prevent degradation of water from newly molded concrete. The curing should be started only after the water is dried from the surface of the newly molded concrete and should be run fairly for at least 7 days. Using water dam, water spray or any covering that can be kept permanently and thoroughly wet to keep the concrete surfaces regularly wet.

3.2.5 Concrete Construction Formwork

It is an enclosure or panel, which holds liquid concrete and resists the force applied to molding. The formations must be inserted sufficiently to prevent leakage of the liquid part of the mortar. The formwork must be rigid enough to prevent the deformation of the concrete surface formed due to the accessory loads of the construction work. Wood, steel or other approved materials will be used as materials for the formwork. The formwork will be constructed in a way that it can be removed without shock or vibration in the concrete.

3.2.6 Use of Steel / Rod for Concrete Construction

Deformed steel / rods for concrete reinforcement should be at least grade 40. The galvanized iron binding wire will be 1.6 millimeters in diameter and gauge 18-22 (BWG). When the rods are inserted into the formwork, it must be free of dirt, oil, grease, paint, and rust. Prior to any concrete pouring, all rods must be properly positioned, inserted, protected in accordance with the drawing and the authorized spacer block will be used. If it is not specified in the drawing, the steel / rods cleared covered wall and the footing should be 50 millimeters in concrete construction.

3.3 Plumbing work

Evaluation (3 questions) plumbing work:

a) How are pipelines connected to septic tanks from the house?

b) What kind of inlet and outlet baffle is used in septic tank construction?

c) How is the outlet of the septic tank connected to the soak pit?

The pipe connections to the septic tank must be waterproof and the slope of the pipe line must be kept equal. The simplest way to set up a pipeline between the house and the septic tank is to start the installation from the house and lay the pipe line through a well-defined slope. It is important that the bedding below should be made sufficient compact to keep the pipe fully supported. This bedding can be done by sand. The septic tank must be waterproof to protect the drinking water. Baffle should be placed at inlet and outlet so that the water does not pass through the tank in a short way. In many cases a 4-inch diameter PVC is used as a "T" baffle. Caution must be taken when installing inlet and outlet pipes so that the baffle connection is not obstructed when inserting the pipe through the tank wall. The distance from the end of the pipe to the baffle should be at least 4-inches. Then a minimum 4-inch diameter PVC pipe will be used when installing the pipe from the septic tank to the soak pit system and in this case waterproof connection must be ensured. The pipes slope is used in

the same manner as the installation of septic tank pipelines from the house as before. When inserting the inlet and outlet pipes, if there were a large diameter hole through the tank wall, these holes must be sealed using grout or mortar. Then to test the waterproofing of the septic tank, it must be completely filled with water and measure water loss over time. The tank must hold water, as it should be watery to handle the septic tank.





Figure: Septic tank inlet / outlet baffle





Figure: Septic tank inlet / outlet holes are sealed using grout or mortar

(17) MASON TRAINING MODULE FOR THE SEPTIC TANK CONSTRUCTION

TIC THE RIGHT ANSWER

1. What is the ideal time for brick curing befor construction?

a. 20 hrs b. 24 hrs c. 2 hrs

2. In what procedure the mortar should be prepared?





3. In what procedure the brick work should be done?



4. What is the time frame for curing?

a. 3 days b. 5 days c. 7 days

5. What is the strategy for plain soling?



A.	B.	С.

MASON TRAINING MODULE FOR THE SEPTIC TANK CONSTRUCTION

SESSION 4: OCCUPATIONAL HEALTH AND SAFETY PRACTICES

SPECIFIC PURPOSE:

After the session the trainees will have:

- Awareness of occupational health and safety procedures in the construction / evacuation of septic tanks
- Awareness of legal and policy guidelines on occupational health and safety practices

Methods: Q&A, open discussion, puzzle game, small group discussion, feedback.

SI. No.	Sub-content	Process	Method	Time (minutes)
1	1occupational health and safetyprocedures in the construction of	Participants share ideas through Q&A Open discussion	Open discussion	5
		Lecture	Multimedia presentation	10
septic tanks	Presentation by group	Flyers, cards, etc.	10	
2 occupational health and safety procedures in the evacuation of septic tanks	Participants share ideas through Q&A Open discussion	Open discussion	5	
		Lecture	Multimedia presentation	10
	Presentation by group	Flyers, cards, etc.	10	
3 legal and policy guidelines on occupational health and safety practices		Participants share ideas through Q&A Open discussion	Open discussion	5
	· · /	Lecture	Multimedia presentation	10
	practices	Presentation by group	Flyers, cards, etc.	10

Evaluation (4 questions):

a. Mention at least 3 of the occupational health and safety procedures in the construction of

septic tanks.

- **b.** Mention at least 3 of the occupational health and safety procedures for evacuating a septic tank.
- c. What are the guidelines for occupational health and safety under labor law 2006 of Bangladesh?
- d. What are the obligations under National Occupational Health and Safety Policy 2013?



4. Occupational Health And Safety Practices

4.1 Occupational health and safety guidelines for the construction of septic tanks

- All construction materials should be maintained in a given project area with rain and wind protection.
- The use of personal protective equipment will be mandatory for every worker.
- Effective strategies should be adopted to reduce the rate of waste generation, such as restricting site clearance activities, collecting and storing construction materials and equipment in a planned way, prohibiting waste burning and quality housekeeping etc.
- Waste collection strategies should be adopted efficiently and waste disposal should be arranged at a specific location. Initiatives must be taken to recycle waste.
- Sanitary toilets and drinking water facilities should be ensured for septic tank construction workers.
- Precautionary and preventative measures should be taken to prevent electrical shock. In addition
 to avoiding contact with overhead electrical lines, fire-fighting and safety measures should be
 provided at the construction site.

4.2 Occupational health and safety guidelines for septic tank evacuation

- Some risk analysis needs to be done before evacuating the septic tank. For example, evacuating a septic tank in a high-ground water-table location may cause it to float.
- Appropriate clothing and personal protective equipment should be used to clear the septic tank.
 Vacutug's must be secured by restricting its wheel.
- Compatibility of septic tank evacuation and waste transporting equipment should be checked before use.
- Check the leak points of the pipe (if any).
- Sufficient light should be ensured at septic tank evacuation work.
- Have a first aid kit and drinking water system.
- Avoid drinking alcohol.
- Should be cautious and alert when opening a tank cover or manhole by hand.
- Entering in the septic tank should be avoided, but in special needs air-blower should be used for enough time to get the tanks toxic gas out and ladder should be used to get down there.
- When the septic tank is evacuated, the system must be properly shut down and safety provided.
- To ensure personal hygiene, one should be properly cleaned and bath with soap.

4.3 Legal and policy guidelines on occupational health and safety practices

Appropriate steps should be taken in accordance with the guidelines of "Bangladesh Labor Law 2006" and "National Occupational Health and Safety Policy 2013" recognized by the government of Bangladesh on health and safety. Directions under Bangladesh Labor Law 2006

No authority shall engage any worker in work without providing him with personal safety

equipment and ensuring uses thereof and a record book shall be maintained in this behalf by the employer in the prescribed manner.

- If any personal safety equipment is supplied but not used, the worker concerned shall be liable.
- Every worker shall be made aware of the hazards of work through training in order to ensure the protection and safety of his professional health in the place of work.



NATIONAL OCCUPATIONAL HEALTH AND SAFETY POLICY 2013

A) Moral and Legal Obligations

- Showing proper respect for various international convention / declaration / recommendation / documents and taking necessary measures to ensure workplace safety and health protection.
- 2. Taking sincere efforts to effectively implement the various national laws and regulations already in place to safeguard occupational health and safe workplace.
- 3. Identifying occupational health and safety risks.
- 4. Pre-notifying potential accident, health and safety risks to the person engaged in all workplaces covered by the institutional and informal sectors.
- 5. Taking steps to provide basic training to the person engaged in the work, including proper technology, infrastructure development to ensure the necessary protection.
- 6. Ensuring maximum safety in the transport, storage and use of hazardous chemicals and other substances / products.
- Taking steps to collect and save all occupational health and safety related information (number of accidents, number of injuries, number of fatalities, number of sick and health casualties, number of deaths, number of medical care, number of compensation received, number of cases filed and settlement, etc.).
- 8. Using the collected information to make occupational health and safety plans.
- 9. Taking steps to create safety experts to ensure safe environment in the workplace.
- 10. Ensuring the creation of specialist physicians capable of diagnosing occupational disorders and ensuring services in factories and establishments.
- 11. Ensuring the receipt of medical care and compensation for workers following the accident.
- 12. Rehabilitate the affected worker in the workplace according to his / her competence.
- 13. Including occupational health and safety issues in the respective policies and activities of all the ministries and agencies concerned.

14. Setting national standards on occupational health and safety issues

15. From time to time, review and update all laws related to occupational health and safety.

