

02

ORGANISING AND STARTING A CSSR OPERATION

Lecture :- 03 Periods



LESSON OBJECTIVES

**Upon completion of this lesson,
you will be able to:**

1. Define a collapsed structure search and rescue operation.
2. Describe the structure of a CSSR squad and the positions within it.
3. Describe how a CSSR squad fits into the Incident Response System.
4. List the five phases of a CSSR operation.
5. List the six stages of the Operations Phase.
6. List the five steps of the initial assessment.
7. Name the four levels in the scope of operations as they pertain to CSSR.

Instructor Activity

► *PPT 2-1 to 2-3*

Introduce yourself and co-instructor.

Present the lesson topic, explain lesson relevance in the course, state the duration, and describe scheduled activities and method of evaluation.

Describe importance of the lesson.

Present lesson objectives. Ask a participant to read them aloud from the workbook.

Ensure that the objectives are clear to all participants.

Stress the importance of being organised in a CSSR operation.

Ask participants to close their workbooks for the time being.

1

Definition

Collapsed Structure Search and Rescue



According to the U.S. National Fire Protection Act (NFPA 1670) CSSR is an operation to conduct safe and effective **search** and **rescue** operations at collapsed structure incidents involving the **collapse** or **failure** of reinforced and unreinforced masonry, concrete, tilt-up and heavy timber construction.

Instructor Activity

► PPT 2-4

Ask a participant to read definition of CSSR from the TR.

Ask for examples of CSSR to verify everyone understands the concept.

2

Incident Command System (IRS in Indian scenario)

A flexible system for managing people and resources.

The **Incident Command System (IRS in Indian scenario)** provides a clear management framework for all types of small and large-scale incidents, such as multiple-casualty, multi-jurisdictional and multi-agency disasters, and wide-area search and rescue operations.

ICS was adopted in India in the form of Incident Response System (IRS) in 2010 and the guidelines on the Incident Response System (IRS) was issued by the National Disaster Management Authority (NDMA) under Section 6 of the DM Act, 2005 for effective, efficient and comprehensive management of disasters in India.

The organisation of the IRS is built around five major management activities: **Responsible officer, command, operations, planning** and **logistics**.

These five elements are the foundation upon which the IRS organisation develops. They apply whether handling a routine emergency, organising a major event, or managing a major response to a disaster. The IRS organization functions through Incident Response Teams (IRTs) in the field. Responsible Officers (ROs) have been designated at the State and District level as overall in charge of the incident response management. The RO may however delegate responsibilities to the Incident Commander (IC), who in turn manages the incident through IRTs.

Instructor Activity

Give a brief explanation of ICS and refer to local structures within the national system, among them the Emergency Operations Centre (EOC)

► **PPT 2-5**

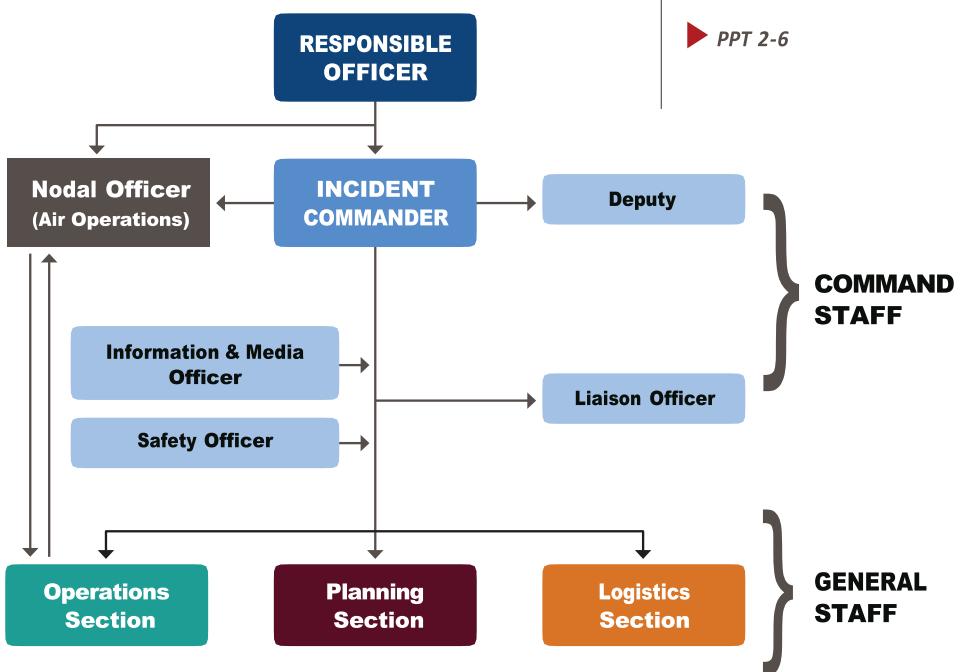
Briefly explain the organisational model but do not go into details with regard to IRS, as it is beyond the scope of this course. Its purpose is to provide background knowledge for operations.

Explain the IRS in India.

► *Figure 1*
*Simplified IRS
organisational chart.*

Instructor Activity

► *PPT 2-6*



It is beyond the scope of this course to teach the Incident Command System; however, it is important to give you basic information about your potential role in any such incident.

2.1 Incident Commander

The Incident Commander (IC) is the person in charge at the incident who must be fully qualified to manage the incident. As incidents grow in size or become increasingly complex, a more highly qualified IC may be assigned by the responsible jurisdiction or agency.

The sole function of the IC is to manage the incident by assigning tactical resources and overseeing operations, delegating authority to others as required. The IC should not become involved in **hands-on activities**.

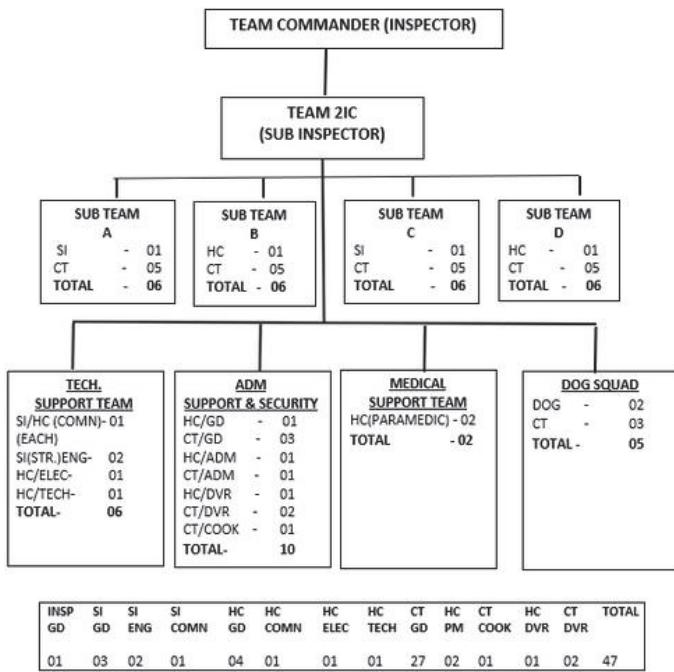
► Describe description and responsibilities.

2

Incident Command System (Cont.)

2.2 Incident Command Post

The Incident Command Post (ICP) is the location from which the IC oversees all incident operations. There is only one ICP for each incident or event. Every incident or event must have some form of an Incident Command Post. The various section chiefs and Incident Commander's support staff will work out of the ICP.



3

The CSSR Squad

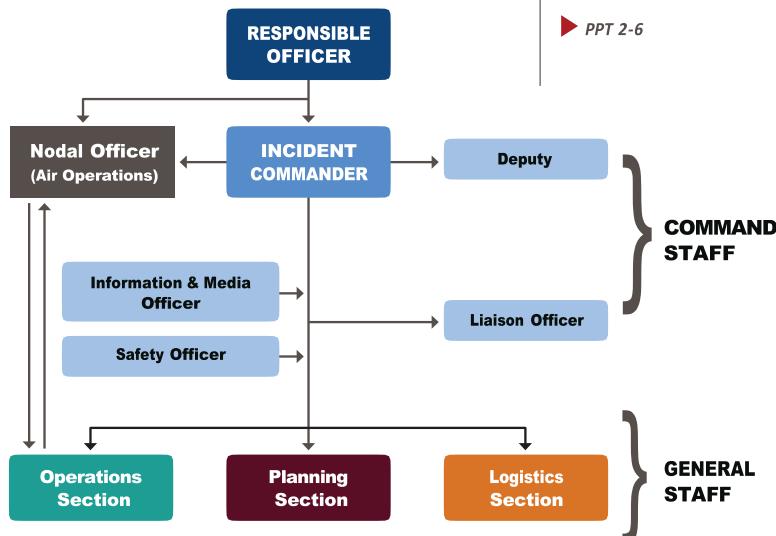
An active component of an emergency response system whose purpose is to search for, locate, gain access to, stabilise and extricate trapped victims from a collapsed structure.

Instructor Activity

- ▶ Explain that the Command Post is surrounded by upper- level command positions and various lines of support.

In accordance with NFPA guidelines (for safety reasons in a hazardous environment), the CSSR squad should have a maximum of six members, organised as shown in the following figure:

► *Figure 1*
Simplified IRS
organisational chart.



Instructor Activity

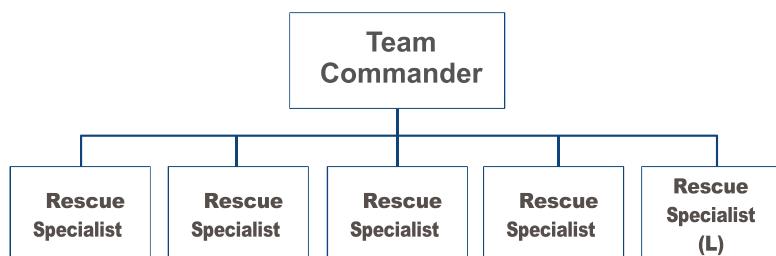
 PPT 2-6

Ask participants to explain the various elements of the purpose of a CSSR squad.

Explain that the minimum number of members of a CSSR squad is six, requiring at least two CSSR squads to work and rest on rotations in order to maximise productivity throughout an operation.

PPT 2-8

Discuss elements of squad components.



(L) – Squad members rotate positions as Logistics Person.

Team Commander Responsible for developing the search plan, drawing diagrams, keeping documentation and making recommendations to the **Team Commander** Performs the duties of the safety officer and is responsible for monitoring safety during the search operation.

Rescuers

1. Carry out work instructions from the Squad Leader.

2. Use the tools, equipment and accessories correctly and safely.

3. Update the Squad Leader on task progress.

4. Request to the Squad Leader the resources necessary to complete the task.

The **logistics position** is a rotating position within the squad. He/she is responsible for the tools, equipment and accessories, and other resources; squad members will take turns assuming this responsibility.

It is standard procedure to work in pairs. The second rescuer stands behind the first, providing physical support and monitoring safety. Working in pairs also provides the opportunity for rotations and rest.

Span of Control

A manageable span of control is defined as the number of individuals one supervisor can manage effectively. **In the Incident Response System (IRS), the span of control for any supervisor falls within a range of three to seven resources, with five being the optimum.** If those numbers increase or decrease, the Incident Commander should re-examine the organisational structure.

Instructor Activity

▶ Explain the function of the Rescue Specialists (Rescuers)

Allow time for questions or comments.

▶ Explain the functions of the logistics position.

4

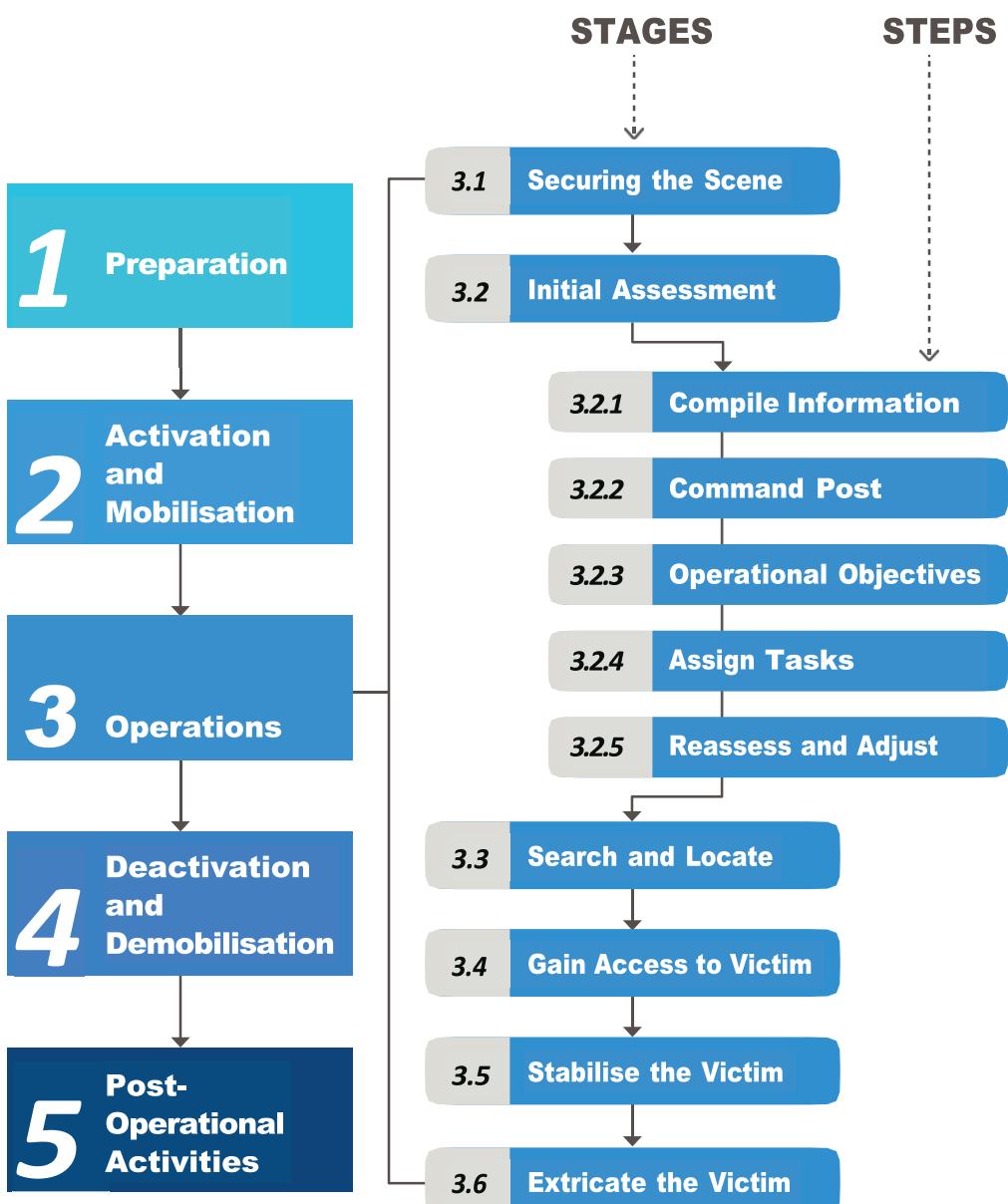
Phases of a CSSR Operation

Instructor Activity

► PPT 2-9

FC 2-1

Describe the phases, stages and steps of a CSSR operation-using diagram.



4

Phases of a CSSR Operation (Cont.)

Phase 1:
Preparation (ongoing, before disaster)

- Selection of team members
- Training of team members
- Personal protective equipment (PPE)
- Tools and equipment. Very important to maintain in proper working condition and ready for mobilisation to work site.
- Make general transportation arrangements.

Phase 2:
Activation and Mobilization (request to respond)

- Request transportation
- Pack and load equipment
- Notify team members
- Obtain information on disaster. This includes information such as type, location and topography, magnitude/area, number of people affected, number of buildings affected, weather, access routes. Type of materials used for buildings and construction (INSARAG guidelines).
- Brief team members on current situation.

Instructor Activity

► Make sure participants fill in blank spaces in their workbooks.

4

Phases of a CSSR Operation (Cont.)

Phase 3:

Operations

The Operations Phase relates directly to search and rescue work, and is divided into six stages. The second stage, or Initial Assessment, consists of five steps.

Stage 1: Securing the Scene

A procedure is carried out to ensure safety and protection to the fullest extent possible for the rescuers, bystanders and victims (hazard mitigation).

Stage 2: Initial Assessment

This stage consists of a systematic and ordered procedure for analysing conditions during a CSSR operation. The purpose is to ensure safety and protection to the fullest extent possible for the rescuers, bystanders and victims (hazard mitigation). It begins with the operations phase and continues until the rescue operation is complete.

The initial assessment consists of the following five steps:

Step 1 : Compile Information

Once at the scene, consult local authorities, gather data and conduct a needs analysis. Confirm and update all information obtained in the activation phase.

Step 2 : Establish Command Post outside the hot zone.

Step 3 : Establish Operational objectives , such as:

- general access to the disaster site
- strategic planning and priorities
- allocating resources and personnel managing operations begun by neighbours or other organisations

Step 4 : Assign tasks to rescue squads.

Instructor Activity

▶ Review definition of Operations Phase.

▶ Discuss stages of Operations Phase.

▶ Discuss remaining stages.

4**Phases of a CSSR Operation (Cont.)****Stage 3: Search and locate**

Conduct a search using a specific set of techniques to obtain a response or indications of the presence of live victims in a void space inside a collapsed structure.

Instructor Activity

► FC 2-2

Stage 4: Gain access to the victim

Remove rubble, break and breach materials and create a passageway to access the void space where a live victim is believed to be located.

Stage 5: Stabilise the patient

Perform basic life support on-site **before** extricating the patient in order to improve later chances of survival. You will hand off the patient to more advanced medical care after extrication.

Stage 6: Extricate the patient

Remove rubble surrounding the patient, ensuring no further injury. Shore loads as needed. Ensure no additional pressure is applied to any trapped portions of the body.

4

Phases of a CSSR Operation (Cont.)

Phase 4: Deactivation and Demobilisation

- Confirm no other operations are needed.
- Account for all tools and equipment. Prepare tools and equipment and pack them for transportation.
- Confirm that personnel have all their personal items.
- Arrange for transportation.

Instructor Activity

► Review all items.

Make sure participants fill in blank spaces in their workbooks.

Phase 5: Post-Operational Activities

- Critical Incident Stress Management (CISM)
- Medical physical examinations for rescue personnel.
- Equipment rehabilitation.
- Operational debriefing with rescue team.
- After-Action Report for institutional management.

5

Scope of Operation

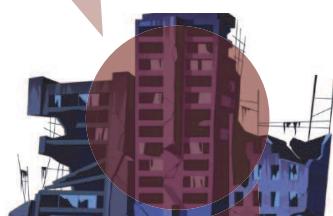
In a large-scale emergency such as an earthquake, the area of impact will usually be over a wide area, possibly covering many cities. As a result, the incident will be managed by different groups at various levels, depending on their type of responsibility.

Affected Region**Affected Region:**

refers to the overall area of impact, such as the country or cities affected.

City or Area**City or Area:**

refers to a smaller section of the affected region, such as a city or area with many collapsed buildings.

Scene**Scene:**

refers to one particular building or collapsed structure.

Work Site**Specific Work Site:**

a specific area within the building or collapsed structure where a rescue squad is assigned to work

The work site is the scope of operation for a CSSR squad. As a member of a CSSR squad, you will be concerned only with performing rescue work on a specific site. Coordination on a larger scale will be taken care of by personnel at a different level of administration.

Instructor Activity

► PPT 2-10

Stress the importance of identifying the various regions affected to different degrees by a destructive event.

Incident Command will establish them and this will determine scope of work for the CSSR squad.

Review definitions for affected region, city/area, scene and work site.

To clarify the differences, explain that there can be two or more scenes in an affected region, two or more work sites at a scene, etc.

Instructor Activity

► **REVIEW**

Lesson objectives and other main points. Ensure that lesson objectives have been met.

► EVALUATION

Remind participants to study for Post-Test.

► CLOSING

Thank class for their participation and announce the coming lesson.

— INSTRUCTOR'S COPY

POST-TEST | LESSON 2

Organising and Starting a CSSR Operation

1. Define a collapsed structure search and rescue operation.

Conducting safe and effective search and rescue operations at collapsed structure incidents involving the collapse or failure of reinforced and un-reinforced masonry, concrete, tilt-up and heavy timber.

2. Complete the structure of a CSSR squad and positions within it.



3. List the five phases of a CSSR operation.

- 1. Preparation**
- 2. Activation and mobilisation**
- 3. Operations**
- 4. Deactivation and demobilisation**
- 5. Post-operational activities**

4. List three stages of the Operations Phase.

- 1. Securing the scene**
- 2. Initial assessment**
- 3. Search and locate**

5. List three steps of the initial assessment.

- 1. Compile information**
- 2. Command post**
- 3. Operational objectives**

LESSON 2

— PPT's

2-1



2-2

OBJECTIVES

Upon completing this lesson, you will be able to:

- 1 Define a collapsed structure search and rescue operation.
- 2 Describe the structure of a CSSR squad and the positions within it.
- 3 List five phases of a CSSR operation.

PPT 2-2

2-3

OBJECTIVES

Upon completing this lesson, you will be able to:

- 4 List the six stages of the Operations Phase.
- 5 List the five steps of the initial assessment.
- 6 Describe how a CSSR squad fits into the Incident Response System.
- 7 Name the four levels in the scope of operations as they pertain to CSSR.

PEER | CSSR | INDIA

2-4

COLLAPSED STRUCTURE SEARCH AND RESCUE

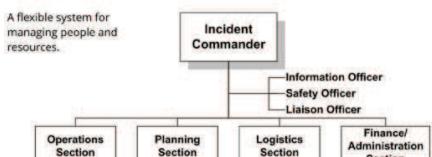
According to the National Fire Protection Act (NFPA 1670) CSSR is an operation to conduct safe and effective *search and rescue* operations at collapsed structure incidents involving the *collapse or failure* of reinforced and unreinforced masonry, concrete, tilt-up and heavy timber construction.

PPT 2-4

2-5

INCIDENT COMMAND SYSTEM

A flexible system for managing people and resources.



PPT 2-5

2-6

INCIDENT RESPONSE SYSTEM



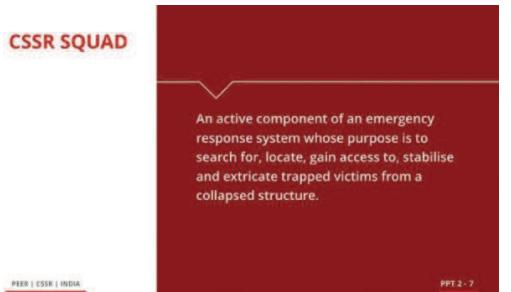
PEER | CSSR | INDIA

PPT 2-6

LESSON 2

— PPT's

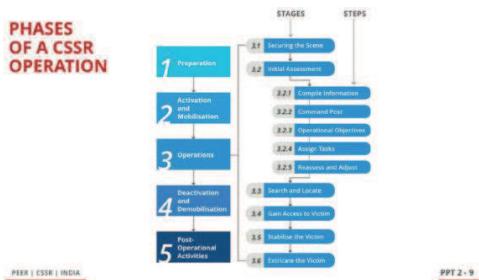
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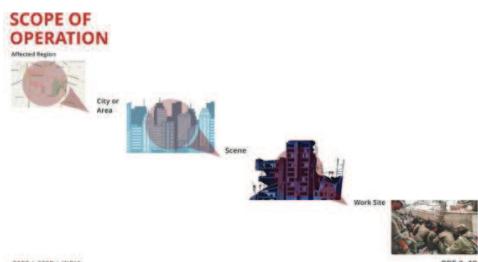
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2-10



LESSON 2

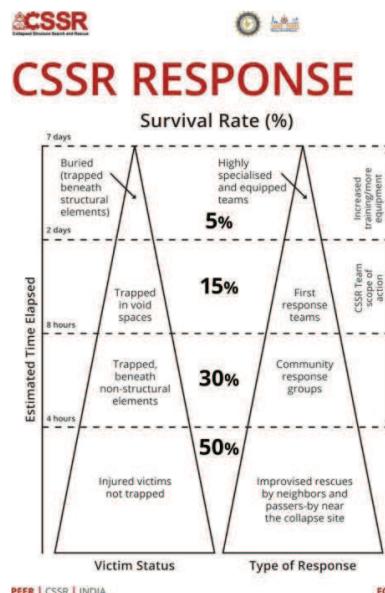
— FLIP CHARTS

FC2-1



PEER | CSSR | INDIA

FC2-2



PEER | CSSR | INDIA

COLLAPSED STRUCTURE SEARCH AND RESCUE (CSSR)

LESSON 3 — OVERVIEW

Construction Materials, Structures and Damage Types

| | |
|---------------------------------------|---|
| Duration | Lecture: 03 Periods |
| Main Points | <ul style="list-style-type: none"> • Definition of construction materials • Classification of constructions materials • Basic characteristics of concrete, steel, wood • Construction methods • Structural types • Characteristics of a structure • Structural damage types • Types of collapse |
| Suggested Preparation | <ul style="list-style-type: none"> • Thoroughly study reference material (RM-03) • Based on the Lesson Objectives, highlight the reference material on related subjects. • Fill in the blanks in a participant's manual to guide you in helping participants with needed information. • Read and complete the written test so that you will be able to review and discuss it with the participants the following day. |
| Evaluation System | Written test the following day |
| Materials and Resources Needed | <ul style="list-style-type: none"> • PowerPoint presentation (27) • Flip chart (1) • Projector • Projection screen • Flipchart paper and board • Plastic/Rubber bands • Brick • Piece of thin wood (toothpick) • Magic markers (various colours) • Post-Test |
| Importance of This Lesson | <ul style="list-style-type: none"> • To inform the participant about the many different building materials and how those materials are affected by outside forces |

