



**INSARAG**  
Preparedness | Response

**30**  
YEARS

## **INSARAG GUIDELINES | 2020**

### Volume II: Preparedness and Response

Manual B: Operations



**OCHA** United Nations Office  
for the Coordination of  
Humanitarian Affairs

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**Note:** Selected annexes, checklists and forms from the INSARAG Guidelines (2015) have been moved to the Guidance Notes or Technical Reference Library sections of [www.insarag.org](http://www.insarag.org). For more information on the changes from the 2015 Guidelines, refer to the Table of Changes under Annex A. For the Annexes specific location on [www.insarag.org](http://www.insarag.org), refer to page 57.

\*Annex located in the Guidance Notes on [www.insarag.org](http://www.insarag.org).

\*\*Annex located in the Technical Reference Library on [www.insarag.org](http://www.insarag.org).

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## Abbreviations

ASR	Assessment, Search and Rescue
BoO	Base of Operations
GDACS	Global Disaster Alert and Coordination System
IEC	INSARAG External Classification
IER	INSARAG External Reclassification
Hazmat	Hazardous materials
ICMS	INSARAG Coordination and Management System
ID	Identification
INSARAG	The International Search and Rescue Advisory Group
Medevac	Medical evacuation
NDMA	National Disaster Management Authority
NGOs	Non-governmental organisations
LEMA	Local Emergency Management Authority
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OSOCC	On-Site Operations Coordination Centre
RCM	Rapid Clearance Marking
RDC	Reception/Departure Centre
RSB	Response Support Branch
SAR	Search and Rescue
SOPs	Standard Operating Procedures
UC	USAR Coordination
UCC	USAR Coordination Cell
UN	United Nations
UNDAC	United Nations Disaster Assessment and Coordination team
USAR	Urban Search and Rescue
VOSOCC	Virtual On-Site Operations Coordination Centre

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## 1 Introduction

The International Search and Rescue Advisory Group (INSARAG) Guidelines are divided into three volumes:

1. Volume I: Policy.
2. Volume II: Preparedness and Response:
  - a. Manual A: Capacity Building.
  - b. Manual B: Operations.
  - c. Manual C: INSARAG External Classification and Reclassification (IEC/IER).
3. Volume III: Operational Field Guide.

This manual is targeted at the INSARAG Operational Focal Point, the Urban Search and Rescue (USAR) Team Management and Focal Point, and the INSARAG Secretariat with the purpose of providing guidance in the training, preparations and coordination of a USAR Team for national and/or international operations. It is based on the minimal standards and it describes the required capabilities for coordinated operations.

Tactical and technical details are described in Volume II - Manual A: Capacity Building, Volume II - Manual C: IEC/R, Volume III: Operational Field Guide and in the Guidance Notes.

**Note:** The Guidelines can be downloaded from [www.insarag.org](http://www.insarag.org). Hard copies in English (and translated versions, where available) can be requested from the INSARAG Secretariat by email on [insarag@un.org](mailto:insarag@un.org).

This document has been endorsed by the INSARAG Steering Group. It describes the International USAR Response Cycle, the roles and responsibilities of the key stakeholders in a USAR operation, such as the United Nations (UN), the affected and assisting countries, and the international USAR Teams.

This manual describes the five components of USAR capability (Management, Search, Rescue, Medical and Logistics) within the USAR Response Cycle. It also outlines the USAR coordination structures and methods, including the INSARAG Marking and Signalling System and the link to the On-Site Operations and Coordination (OSOCC) Guidelines.

Please refer to the USAR Coordination Manual under the *Manuals* → *UCC* tabs of the Guidance Notes at [www.insarag.org](http://www.insarag.org) for more information on USAR coordination. Please refer to the VOSOCC Guidelines under *Manuals* → *UCC Virtual OSOCC* tabs of the Guidance Notes at [www.insarag.org](http://www.insarag.org) for more information on on-site coordination.

## 2 International USAR Response Cycle

An international USAR response has the following phases:



Figure 1: The International USAR Response Cycle.

### 2.1 Preparedness

The preparedness phase is the period between disaster responses. In this phase USAR Teams undertake preparatory measures to ensure that they are at the highest level of readiness for deployment as possible. Teams will conduct training and exercises, review lessons-learned from previous experiences, update Standard Operating Procedures (SOPs) as required, and plan future responses.

### 2.2 Mobilisation

The mobilisation phase is the period immediately following the occurrence of a disaster. International USAR Teams prepare to respond and travel to assist the affected country.

### 2.3 Operations

The operations phase is the period when international USAR Teams are performing USAR operations in the affected country. It starts with arrival of a USAR Team at the Reception/Departure Centre (RDC) in the affected country, registration with the UCC/OSOCC, reporting to the Local Emergency Management Agency (LEMA) (or National Disaster Management Authority (NDMA)), and performing of USAR operations. The phase ends when the USAR Team is instructed to cease operations.

## **2.4 Demobilisation**

The demobilisation phase is the period when international USAR Teams have ceased operations, commence withdrawal, coordinating their departure through the UCC/OSOCC, depart from the affected country through the RDC, and travel to their home country.

## **2.5 Post-Mission**

The post-mission phase is the period immediately after a USAR Team has returned home. In this phase the USAR Team is required to complete and submit a post-mission report and conduct a lessons-learned review to improve the overall effectiveness and efficiency for response to future disasters. The post-mission phase continuously merges into the preparedness phase.

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## 3 Roles and Responsibilities in International USAR Response

This chapter lists those involved in the international USAR response cycle and what is to be expected of each party, including the parties from the affected country.

### 3.1 The United Nations Office for the Coordination of Humanitarian Affairs

The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) is mandated to coordinate international assistance in disasters and humanitarian crises exceeding the capacity of the affected country.

Many organisations, such as governments, non-governmental organisations (NGOs), UN agencies and individuals, respond to disasters and humanitarian crises. OCHA works with all participants and responds to disasters to assist the government of the affected country in an effort to ensure the most effective use of all international resources.

OCHA serves as the INSARAG secretariat. The INSARAG Secretariat is situated in the Response Support Branch in OCHA-Geneva, Switzerland.

More on OCHA and the mechanisms OCHA offers for emergency response can be found at [www.unocha.org](http://www.unocha.org).

### 3.2 UN Disaster Assessment and Coordination teams

The United Nations Disaster Assessment and Coordination (UNDAC) team is an OCHA tool used for deployment to sudden-onset emergencies. OCHA dispatches an UNDAC team when requested to do so by the affected government or the UN Resident Coordinator in the affected country. UNDAC team personnel are available around the clock and are able to respond at very short notice. The UNDAC team is provided as in-kind help to the affected country.

UNDAC team members consist of trained emergency managers from countries, international organisations and OCHA. The UNDAC team is managed by Response Support Branch (RSB), which sits within OCHA, and works under the umbrella authority of the Resident Coordinator and in support of and in close cooperation with the LEMA. The UNDAC team assists the LEMA with the coordination of international response, including USAR, assessments of priority needs, and information management, by establishing an OSOCC, if one has not already been established, or assumes control of the OSOCC.

### 3.3 INSARAG Secretariat

The INSARAG Secretariat is situated in the Emergency Response Section of the Response Support Branch in OCHA-Geneva, Switzerland. The task of the INSARAG Secretariat is to help organise INSARAG meetings, workshops, INSARAG IEC/Rs and training events in cooperation with host countries.

The INSARAG Secretariat is responsible for the management and maintenance of the INSARAG website ([www.insarag.org](http://www.insarag.org)) and the USAR Directory included in this site.

In addition, the INSARAG Secretariat is responsible for the follow-up and the facilitation of any projects that have been agreed upon and launched by the INSARAG network.

Key functions of the INSARAG Secretariat are as follows:

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## Preparedness

- Advocate and promote international USAR preparedness.
- Facilitate and coordinate the development of internationally accepted USAR methodology and description of the minimal standards for international USAR operations.
- Act as point of contact for INSARAG related issues within the UN.
- Maintain the international USAR directory on the INSARAG website.

## Mobilisation

- Activate the VOSOCC.
- Provide continuous updates regarding casualties and damage, entry points and procedures, and specific requests for assistance.
- Inform all international participants of any special cultural, religious or traditional practices of the affected country, weather, safety and security issues.
- Work closely with the affected country to expedite the timely and specific request for international assistance.
- Communicate with UN representatives in the affected country.
- Deploy an UNDAC team if required and request UNDAC Support Modules, as required.

## Operations

- Moderate the VOSOCC and post regular situation updates.
- If not already done by the affected country/USAR Teams, advocate to establish and maintain an RDC and UCC.
- Provide support to the UNDAC team as required.
- Request additional UNDAC Support Modules as required.

## Demobilisation

- Moderate the VOSOCC and post regular situation updates.
- Provide support to UNDAC as required.

## Post-Mission

- Perform an analysis of USAR Team operations taking into consideration the Post Mission Reports from all USAR Teams present.
- Convene a lessons-learnt meeting with all stakeholders, if necessary.
- Disseminate the report of the lessons learnt meeting to all stakeholders and post it on the INSARAG website.
- Advocate to the ISG for eventually update and or create new decisions, according to lessons learnt and feedbacks (Analysis, Post Mission Reports, etc.) collected from teams, to merge into preparedness phase and hence close the loop.

## 3.4 United Nations Monitoring and Disaster Alert Systems

### 3.4.1 Global Disaster Alert and Coordination System

The Global Disaster Alert and Coordination System (GDACS) at [www.gdacs.org](http://www.gdacs.org), provides the international disaster response community with near real-time alerts about disasters around the world and tools to facilitate the coordination of response.

GDACS is activated in major disasters that overwhelm the affected country's response capacity and require international assistance.

### 3.4.2 The Virtual On-Site Operations Coordination Centre

The VOSOCC is a web-based information management tool at <http://VOSOCC.unocha.org>. It is a virtual version of the OSOCC. The VOSOCC is an information portal for information exchange between international responders and the affected country after disasters. Access to the VOSOCC is restricted (requires a password) to disaster managers from governments and disaster response organisations. The VOSOCC is managed by the Coordination Platforms Unit in RSB, Geneva. The manual for use can be found at [this link](#).

## 3.5 Affected Countries

Affected countries are those that experience the sudden-onset disaster. UN General Assembly Resolution 57/150 recognises the important role of affected countries in streamlining processes to ensure the timely response of responding international teams as well as ensuring safety of the teams.

### 3.5.1 UN Resolution 57/150, 16 December 2002

“Urges all States, consistent with their applicable measures relating to public safety and national security, to simplify or reduce, as appropriate, the customs and administrative procedures related to the entry, transit, stay and exit of international urban search and rescue teams and their equipment and materials, taking into account the Guidelines of the International Search and Rescue Advisory Group, particularly concerning visas for the rescuers and the quarantining of their animals, the utilisation of air space and the import of search and rescue and technical communications equipment, necessary drugs and other relevant materials;

Also urges all States to undertake measures to ensure the safety and security of international urban search and rescue teams operating in their territory.”

Key functions of affected countries are as follows:

#### Preparedness

- Identify when international assistance may be required by analysing national risks and possible gaps in resources.
- Develop the capacity to conduct immediate situation and needs assessment. Identify priorities and report these to the international community.
- Implement and maintain a process for requesting international assistance in a timely manner.
- Implement and maintain procedures for receiving international teams into the country, including:
  - Establishment of an RDC
  - Visa assistance, which enables rapid entry of international USAR Teams into the country, and, if possible, exemption of relief personnel from visa regulations and immigration inspections
  - Entry and exit permissions, with exemptions from custom duties, taxes and other charges for:
    - Specialised communications equipment.
    - Search, rescue and medical equipment.
    - Search dogs.
    - Emergency medical pharmaceuticals.

- Simplified and minimal documentation for export, transit and import, to reduce or waive inspection requirements where possible.
- Prepare to support the logistics requirements of USAR Teams, including interpreters, guides, fuel, transport, shoring timber, water, maps, and possible Bases of Operations (BoO) locations.
- Prepare country briefings and fact sheets, to be used by incoming USAR Teams.
- Address questions of liability.
- Develop a capacity to post regular updates and briefings to the VOSOCC.

### **Mobilisation**

- When required, make the request for international assistance as soon as possible. Requests for international assistance can be directed through various channels, namely through their UN RC's office, the OCHA country or regional offices, directly through the INSARAG Secretariat, other regional networks, or on a bilateral basis.
- Advise when no additional international USAR Teams are required to arrive.
- If possible, establish an RDC, otherwise promote and help the first arriving teams in doing so.
- Provide incoming teams with a BoO location
- Conduct immediate situation and needs assessments. The priority needs of international assistance should be identified and the information passed to the international community as soon as possible through OCHA and the VOSOCC. Highlight restrictions (e.g. no search dogs allow to enter the country) to responding teams.
- Provide regular situation updates on the VOSOCC, including casualties and damage, entry points and procedures, specific requests for assistance and to inform all international participants of any special cultural, religious or traditional habits of the affected country, weather, safety and security issues.
- Provide or conduct briefings to arriving international USAR Teams on the LEMA structure, in-the country situation and safety.

### **Operations**

- Maintain representation at the RDC and the UCC/OSOCC to ensure a coordinated response and that national priorities are met.
- Utilise international coordination mechanisms provided by UNDAC teams, and the RDC and UCC structures.
- Establish mechanisms to integrate international USAR Teams into ongoing national operations.

### **Demobilisation**

- Declare the end of the USAR operations phase. This is a political decision that can be very sensitive because of its consequences. Indicators can be: meteorological circumstances, degree of damage, last life victims rescued.
- Provide logistical support to assist the withdrawal of international teams.
- Facilitate (as required) USAR Team's transition into other humanitarian operations.
- Facilitate donation of USAR Team equipment left for the affected government.

## **3.6 Local Emergency Management Authority**

The LEMA is the ultimate responsible authority for the overall command, coordination and management of the response operation. All responding USAR Teams (regional and international) are required to report to

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the LEMA upon arrival in the affected country. This shall be coordinated by the RDC. The teams should be briefed and deployed to the disaster site(s) by the UCC.

### **3.7 Assisting Countries: Bilateral Responders**

Assisting countries are those with USAR Teams or other technical capacities who are deploying cross-border(s) into the affected country, to provide USAR capabilities or other capabilities as defined by the teams. This is mainly done on a bilateral and/or (sub-)regional basis.

Key functions of assisting countries providing USAR capabilities are as follows:

#### **Preparedness**

- Develop and maintain international USAR Teams according to the INSARAG Guidelines and classified according to the IEC guidelines.
- Implement and maintain procedures to ensure access to transport for rapid deployment of USAR Teams.
- Bear all costs related to international deployment.
- Establish a capability to resupply USAR Teams while abroad if necessary.
- Maintain Policy, Operational and Team Focal Point(s).

#### **Mobilisation**

- Once the decision is taken to deploy an international USAR Team, make an entry into the VOSOCC by adding the Team Fact Sheet in the 'Add Relief Team' section.
- Identify and maintain an Operational Focal Point at the back-office for the duration of the mission. Add this data to the Team Fact Sheet.
- Provide regular information updates during all phases of the operation via the VOSOCC.
- If necessary, to transit through another country, be responsible for transit arrangements. The transit country should facilitate quick transit for international USAR Teams.

#### **Operations**

- Provide all logistical and administrative support that may be required by the USAR Team while it is on mission and be able to provide a liaison officer as required.
- Continue to assist the affected country as required where possible (engineering and medical assessments).

#### **Demobilisation**

- Continue to update relevant information on the VOSOCC.
- Once USAR Teams are no longer required as advised by the affected country, provide transportation home.

#### **Additional Capabilities**

The deployment methodologies applicable to USAR Teams can also be applied to the provision of other disaster assistance capabilities. Countries with deployable teams are encouraged to modulate their teams to increase their capabilities into other areas of humanitarian assistance. If teams do have additional capabilities, they are encouraged to register this capability on the VOSOCC as early as possible prior to deployment.

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Affected countries are encouraged to review the VOSOCC and invite classified teams to respond with capabilities that meet their immediate needs.

If a deployed USAR Team is requested to leave capabilities in the affected country past the demobilisation time of the main team, this is to be registered on the VOSOCC as a new deployment detailing the capability that is being provided. The deploying team is responsible for entering all new information on the VOSOCC and providing a deployment management team that will liaise with the affected country as needed.

### **3.8 International USAR Teams**

International USAR Teams are response assets that respond to carry out USAR activities in collapsed structures and other disaster/humanitarian support activities.

Key functions of international USAR Teams are as follows:

#### **Preparedness**

- Maintain a constant state of readiness for rapid international deployment.
- Maintain a capability to conduct international USAR operations.
- Ensure that USAR Team personnel have national USAR experience and expertise.
- Ensure self-sufficiency for deployed responders for the duration of the mission.
- Maintain appropriate team member inoculations and immunisations, including search dogs.
- Maintain appropriate travel documents for all USAR Team members.
- Maintain a capacity to staff and support the UN coordination mechanisms of RDC and UCC.
- Maintain a 24-hour Team Focal Point.

#### **Mobilisation**

- Register the USAR Team's availability to respond and provide pertinent updates on the VOSOCC.
- Complete the USAR Team Fact Sheet on ICMS and have hard copies available for RDC and UCC upon arrival.
- Deploy a coordination element with its USAR Team to establish, support or sustain an RDC and UCC.
- Maintain a 24-hour Team Focal Point (can be in home country as part of reach back capacity and/or team headquarters).

#### **Operations**

- Keep team status updated in the Team Fact Sheet in ICMS and on VOSOCC.
- Establish, support or sustain an RDC and UCC as required.
- Ensure proper conduct of USAR Team members in accordance with INSARAG Ethical Considerations for USAR Teams.
- Perform tactical operations in accordance with the INSARAG Guidelines.
- Coordinate with the LEMA, via the UCC for USAR operations assignments and briefings (ICMS)
- Participate in UCC meetings regarding USAR operations.
- Provide regular situation updates on the VOSOCC.
- Provide regular updates on activities to the LEMA via UCC (ICMS).

## Demobilisation

- Update team status on the Team Fact Sheet in ICMS and on VOSOCC.
- When advised that operations are ceasing, report this to all relevant parties in the assisting country.
- Coordinate its withdrawal with the UCC.
- Provide completed documentations to the UCC and/or RDC prior to departure.
- Become available as required and if possible for other humanitarian operations, “beyond the rubble,” such as:
  - Support the larger humanitarian relief operations when the USAR phase is over.
  - Support in structural engineering assessments.
  - Medical support.
- Consider donation of suitable USAR Team equipment to the affected government.

## Post-Mission

- Ensure that USAR Team Post-Mission Report is provided to the INSARAG Secretariat within 45 days.
- Analyse deployment performance and update SOPs as required.

## 3.9 USAR Functions During Deployment

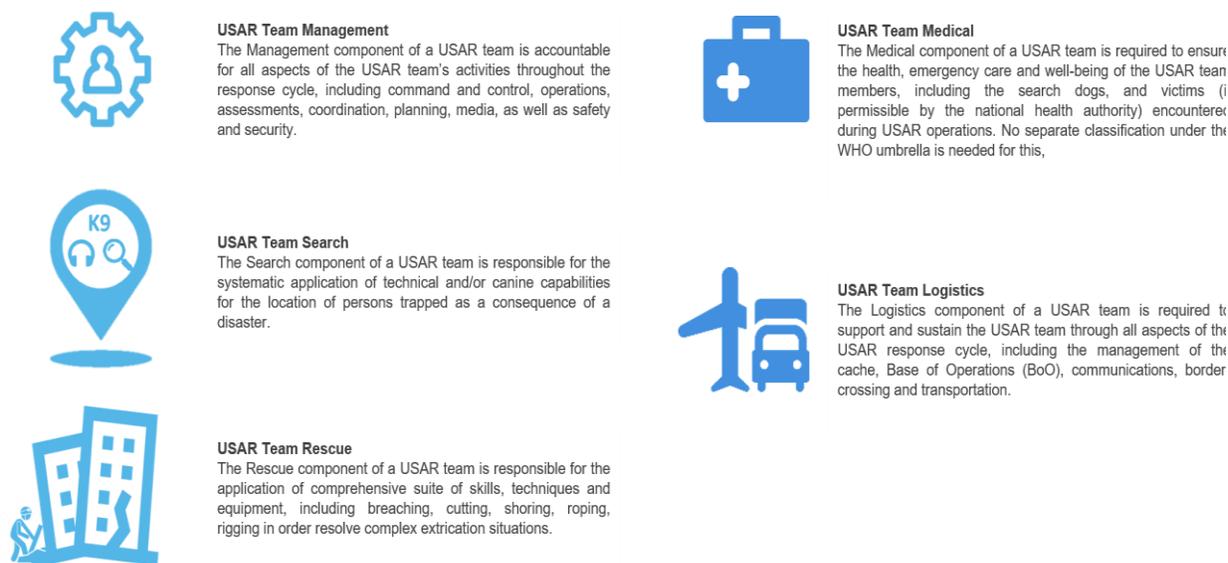


Figure 2: USAR functions during deployment.

## 3.10 Ethical Considerations in International USAR

INSARAG acknowledges and embraces the cultural diversity of countries around the world.

INSARAG operates in accordance with the Humanitarian Principles, which form the core of humanitarian action. The conduct of deployed USAR Team members is a primary concern of INSARAG, the assisting and affected countries, and the local officials of the affected country.

USAR Teams should always aim to be a well-organised, highly-trained group of specialists who have been assembled to help communities in need of specialist assistance. At the end of a mission, USAR Teams should have performed positively, and should be remembered for the outstanding way they conducted themselves in the work environment as well as socially.

Ethical considerations include human rights, legal, gender, moral and cultural issues, and also concern the relationship between USAR Team members and the community of the affected country. They should practice inclusiveness in their approach.

All members of an INSARAG USAR Team are ambassadors of their team and their country and represent the wider INSARAG community. Any violation of principles or behaviour unbecoming by team members is viewed as unprofessional. Any inappropriate behaviour may discredit the good work of the USAR Team and reflects poorly on the entire team's performance and their home country, as well as the wider INSARAG community.

At no time during a mission should USAR Team members take advantage of or exploit any situation or opportunity, and it is the responsibility of all team members to conduct themselves in a professional manner always.

USAR Teams that deploy internationally must be self-sufficient to ensure they are at no time a burden to the already overwhelmed country they are trying to assist. The main ethical considerations for USAR Teams are listed in the Guidance Notes.

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## 4 USAR Detailed Operations Following the Response Cycle

### 4.1 Preparedness

#### USAR Team Management

- Responsible for the staffing, training and deployment of the USAR Team over the entire USAR response cycle.
- Responsible for following and training to INSARAG minimum standards.
- Ensure proper identification of USAR Team functions.
- Ensure all personnel are trained in safety and security.
- Ensure that safety and security function is assigned to (a) team member(s).
- Responsible for maintaining coordination with national (team's governing body) and international stakeholders (i.e. INSARAG) and being active on the VOSOCC.
- Ensure the readiness of the USAR Team all the times, and that a mobilisation organisation maintains an up-to-date immediate call-up system.
- Responsible for the registration of the USAR Team in the INSARAG USAR Directory.

#### USAR Team Search

- Responsible for having in place physical search, canine and/or technical search structures and methods, and their regular training and constant readiness.
- Responsible for canine handlers having the possibility to train with the other members of the USAR Team (e.g. technical search, rescue and medical).
- Responsible for ensuring that all appropriate documentation for border-crossing for canine (e.g. microchip, vaccination) is ready.

#### USAR Team Rescue

- Responsible for rescue structures and methods being in place, regularly trained and in constant readiness.
- Responsible for ensuring that rescue teams have the possibility to train with the other members of the USAR Team (e.g. canine and technical search and medical).
- Responsible for ensuring industry best practices are maintained and implementing new rescue methods, standards and technical equipment accordingly.

#### USAR Team Medical

- Maintain a constant state of mission readiness and comply with all other general requirements as determined by USAR Team policy.
- Develop and maintain an appropriate immunisations/vaccination/inoculation for working in the affected country recommended by the USAR Team's national health authorities.
- Maintain the medical cache stored in clearly labelled containers with attached inventory list for deployment and border-crossing.
- Prepare processes to efficiently medically screen all personnel at the time of international deployment.

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## USAR Team Logistics

- Maintain logistical readiness for training and international deployment and equipment/staff to set up and maintain a BoO (technical equipment and supplies for entire deployment).
- Have appropriate documentation for border-crossing for the USAR Team staff and equipment (i.e. passport, visa, certificate of vaccination, labelling of equipment, cargo manifest, shippers' declaration of dangerous goods).
- Maintain up-to-date transportation arrangements for international deployment.
- Maintain communications equipment always ready for deployment (interoperable).
- Maintain a system to be self-sufficient (food, water, fuel) for the duration of deployment.

## 4.2 Mobilisation

### USAR Team Management

- Ensure departure within ten hours after the request for assistance.
- The USAR Team Leader has the overall responsibility of personnel, equipment, and operations from the team's activation until its return home.
- Collect and analyse information about the disaster and the actual situation in the affected country (i.e. the VOSOCC and/or ICMS).
- Await the request for international assistance by the affected country or offer assistance via diplomatic channels.
- Through the designated channels in the home country, collect the relevant disaster and affected country information to formulate (additional) recommendations for the deployment of the USAR Team.
- Through the designated channels in the home country collect relevant disaster and affected country information from the affected country authorities to be able to plan USAR Team deployment according to the needs and requirements of the affected country.
- Obtain log on information for the ICMS from the VOSOCC.
- Provide and update planning and deployment details and team capacity and exchange information with the international community through VOSOCC and ICMS (coordination with the LEMA and other teams).
- For planning, have Ministry of Foreign Affairs liaise from the beginning on with the affected country if and what support is required.
- Prepare meetings with RDC/UCC and the LEMA (information about the teams' capabilities and the needed support by local authorities).
- Brief the USAR Team on the disaster, the engagement and the affected country's cultural and political sensitivities and reinforce the ethics considerations.
- Prepare to establish and to run an initial RDC and UCC and to support UNDAC, if needed.

### USAR Team Search

- Ensure that the readiness of physical search, technical and/or canines (health, fitness, hygiene, diet, etc.) for travel, including all specialised gear and equipment (including microchips), are ready for USAR operation (respect international standards and procedures).

### USAR Team Rescue

- Ensure readiness of equipment cache and necessary documentations for restricted items.

## USAR Team Medical

- Conduct remote information gathering to include the receiving country specific hygienic, health and medical risks.
- Through the designated channels in the home country, verify that medical personnel with licensure have appropriate permission to practice their discipline within the scope of USAR operations in the affected country.
- Assess the local medical system to determine if it can effectively cope with the impact of the situation or if the system is extended beyond its capabilities.
- Conduct the medical screening process for USAR Team personnel and search dogs as well as a review of the required international documentation.
- Coordinate with safety and hazardous materials (hazmat) functions to clarify overlapping concerns.
- Determine medical plan for in-transit phase and be prepared to adjust en route.

## USAR Team Logistics

- Ensure availability of transportation (air or ground; to/within country).
- Provide team members' lists and equipment manifest and shippers' declaration for dangerous goods and prepare for international border control processes.
- Ensure self-sufficiency for the duration of deployment (pre-packed dedicated equipment cache so as not to deplete domestic capacity).
- Check compatibility of VHF and UHF radio equipment with local systems.
- Identify local support needs required by the team and forward these through the management to the UCC.

## 4.3 Operation

### USAR Team Management

- The LEMA of the affected country is the overall responsible authority for the disaster response: USAR Teams must adhere with the policies and procedures of the affected country regarding incident operations.
- Team management is responsible for managing all aspects of team operations and ensuring all functional areas within the team coordinate operations. They are also responsible to assess the progress of operations. Team management must ensure ongoing coordination and communication between other response entities.
- Coordinate with the LEMA, RDC and UCC during the entire operation: all planning must be done in close cooperation and information exchange with UCC and the LEMA.
- Ensure that all ICMS and paper-based documents are processed and shared according to INSARAG USAR coordination.
- Monitor and approve ICMS and paper-based information from field staff to external parties for quality control.
- Ensure that the USAR Team efforts are integrated into local operations.
- If first USAR Team in place, and RDC and UCC are not in place, establish and operate provisional RDC and UCC.
- Ensure that operations can start with priority (assignments) and set up the BoO simultaneously.
- Organise reconnaissance missions to identify worksites, based on INSARAG triage method.
- Establish a work cycle to ensure a sustainable work at worksite(s) and rest periods (maintain a reserve).

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- Establish an information cycle to brief home base, USAR Team members, UCC and the LEMA.
  - Keep a detailed operations log.
  - Assess and respect permanently the safety and security situation and procedures.
  - Establish and enforce rules and regulations for safety and security on worksite(s) and BoO.
  - Managing and coordinating the media together with the LEMA/UCC. A guide to managing relationships with the media can be found in the Guidance Notes.
  - Conduct contingency planning from beginning of the operation (safety/security, medical evacuation (medevac), demobilisation etc.)

### **USAR Team Search**

- Perform physical, technical and/or canine search in collapsed or failed structures of heavy wood/reinforced masonry with structural steel in close coordination with the USAR Team Rescue.
- Continually conduct a risk/hazard analysis of the assigned work area for USAR Team members and canine and take appropriate mitigation action.
- Assess and respect permanently the safety and security situation and procedures.

### **USAR Team Rescue**

- Perform rescue (breaching, extrication and transport) in collapsed or failed structures of concrete, heavy wood/reinforced masonry with structural steel (rigging and lifting) in close operation with USAR Team Search and USAR Team Medical.
- Assess the collapsed structure and local failures to identify void size, location and configuration for potential live victims, and for determining access possibilities.
- Interview the public for information on victims, building lay-out and use.
- Decide access points, escape routes, safe havens and assembly points.
- Set up of a staff accounting system, building monitoring system and safety and security system.
- Perform cutting, breaching, lifting, lowering, moving, shoring, rigging and other rescue operations.
- Continually conduct a risk/hazard analysis of the assigned work area for USAR Team members and take appropriate mitigation action.
- Assess and respect permanently the safety and security situation and procedures.
- Establish worksite perimeter control procedures.

### **USAR Team Medical**

- Coordinate with the LEMA/OSOCC/Health Cluster:
  - Availability of local and international medical resources.
  - Local medical procedures such as; casualty handover, casualty transport, fatality management, and medical waste disposal.
  - Methods of regular communications with local health authorities.
- Provide medical input into USAR Team decision making/planning process.
- Coordinate with Safety, hazmat, and Logistics functions to promote safe health and hygiene practices (BoO and work sites).
- Provide continuous health monitoring and medical care to USAR Team members (to include canines).
- Evaluation, care, and stabilisation of individuals entrapped in rubble (in some instances providing advanced medical care for many hours as other USAR disciplines work to free the patient).
- Initial evaluation, care, transport or referral of individuals with medical conditions encountered while the USAR Team is on reconnaissance missions.

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- Assistance with medical care during transportation of patients from field to a care facility, if required.
  - Assistance with recovery of deceased in the collapsed structure environment with attention to cultural sensitivities and to retrieving remains without further trauma and with managing risk for workers, if necessary.
  - Advice as part of multi-disciplinary input through the UCC into the LEMA decision making on when emergency response to the collapsed structure incident transitions to a recovery effort (i.e. when the potential for survivability for those still entrapped).

### **USAR Team Logistics**

- Establish BoO. The BoO serves as the USAR Teams' site for headquarters, communications hub, sleeping/resting/eating/health areas, equipment stock set-up and refuge from the elements while operational in a disaster-affected country.
- Run and organise the BoO over all of the operation, including perimeter control procedures.
- Support the work on the worksites (e.g. transportation, food, equipment).
- Ensure that all team personnel have reliable means of communications.
- Coordinate transportation requirements.
- Perform contingency planning for relocation of BoO and the demobilisation phase.
- Support the management on the contingency planning (e.g. transportation for medevac).

## **4.4 Demobilisation**

### **USAR Team Management**

- Demobilisation must be planned and coordinated from the beginning of the operation. All players, including the UCC and the LEMA must be involved in the planning from the beginning.
- Ensure proper hand-over is conducted to USAR Teams that take over the tasks of the departing team.
- Teams are required to update their Team Fact Sheet in ICMS and notify the UCC, who - based on the team's request - should provide the team with an estimated stand-down date and time.
- Teams are required to complete and submit the documentation to the UCC.
- Plan and communicate possible donations to the LEMA and/or affected community.
- Prior to leaving the area, the USAR Team Leader is expected to meet with the UCC, the LEMA, and political leaders of the community, as appropriate, to complete the team's participation.
- If appropriate: communicate to the media the finishing of their work and the departure (in coordination with the LEMA and UCC).

### **USAR Team Search**

- Cease work and prepare handover to the organisation taking over the tasks.
- Prepare canines and equipment for return transportation.

### **USAR Team Rescue**

- Cease work and prepare handover to the organisation taking over the tasks.
- Prepare and pack equipment for demobilisation and departure.

### **USAR Team Medical**

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- Coordinate demobilisation with local relevant health authorities (i.e. through UCC/Health Cluster) Healthcare infrastructure assessments (USAR is often in country early in the post-impact phase and/or may have more mobility to assess remote outlying locations. An additional benefit may be found in structural engineering personnel who may accompany the USAR medical personnel on the assessment), if required.
  - Health needs assessments (for same reasons as above), if requires.
  - Provide advice on or facilitate health and medical donations.
  - Provide handover to relevant medical organisations.
  - Identify appropriate medical cache donations through UCC/Health Cluster.
  - Assess potential exposures and need for follow on medical care.
  - Maintain in-transit medical care for team to home base.

### **USAR Team Logistics**

- The BoO site should be restored to its original state in so far as possible.
- Prepare the BoO equipment for return transportation.
- Ensure that the dangerous goods are prepared, packed and labelled according the International Air Transport Association regulations.
- Provide resources for logistics requirements during demobilisation (preparing of manifests, packing and loading, shippers' declaration of dangerous goods etc.)
- Plan and ensure the required transportation.

## **4.5 Post-Mission**

### **USAR Team Management**

- The after-action process includes compiling a Post Mission Report documenting administrative issues and operational concerns which should be forwarded to OCHA within 45 days of returning home.
- Lessons-learnt must be included in planning and training.

### **USAR Team Search**

- The canine group prepares and delivers a report on the mission to their USAR Team.

### **USAR Team Rescue**

- Provide inputs to the team report and identify lessons-learnt.

### **USAR Team Medical**

- Coordinate immediate and long-term medical follow-up with USAR Team Management (including mental health).
- Restore USAR medical cache within timeline prescribed by USAR Team policy.
- Provide input into USAR Team post mission operations report.

### **USAR Team Logistics**

- Safety equipment and supplies must be restored and restocked for next deployment.

## 5 USAR Coordination Structure

### 5.1 Core Coordination Elements

The coordination structure of an international USAR operation can involve many different stakeholders and can differ significantly at each disaster. However, the core structure, key actors and how they should interact should be the same.

Please refer to the USAR Coordination Manual under the *Manuals* → *UCC* tabs of the Guidance Notes on [www.insarag.org](http://www.insarag.org) for more information for more extensive information on the USAR Coordination Structure.

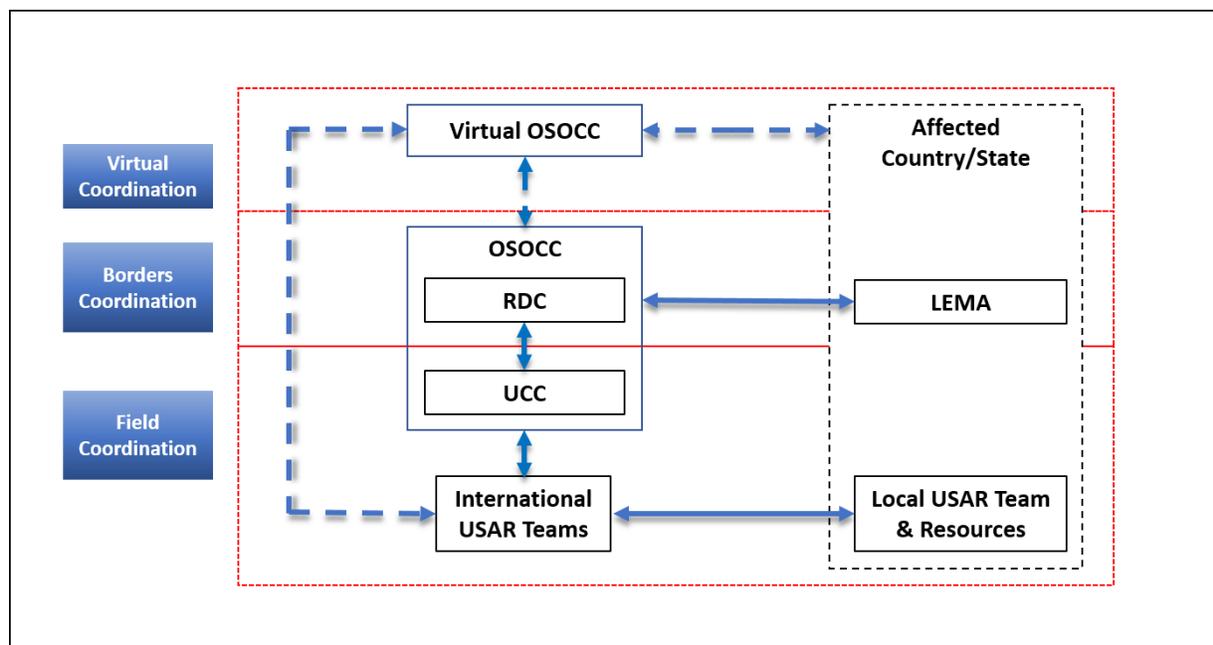


Figure 3: Core Coordination Structure and main information flow.

In the section below, it will be explained how these tools/elements can facilitate the coordination process among international USAR Teams, an OSOCC (UNDAC team), and the LEMA. The broken arrows in the figure represent on line information flows. The normal arrows represent information flows in any form, included on line flows. Besides the coordination in the field and at the borders, or entry points, the coordination takes place on the VOSOCC.

### 5.2 Reception and Departure Centre

A large-scale sudden onset disaster generally results in a rapid influx of assistance from the International Community to the affected country. Response teams and relief supplies will converge into the country at one or more points of entry to seek access to the disaster affected areas. Depending on the geography of the affected country and the infrastructure damage, the point of entry may be an airport, seaport or land border. There may be numerous RDC's for one event, based on the need. The first classified USAR Team into the country is to establish an RDC in consultation with the host nation.

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Further details regarding the process of establishing and managing an RDC are contained within the UC Manual. Please refer to the USAR Coordination Manual under the *Manuals* → *UCC* tabs of the Guidance Notes on [www.insarag.org](http://www.insarag.org) for more information on the USAR Coordination Cell.

The first arriving classified team should also expect to engage in initial USAR coordination to ensure operations are coordinated from the onset. The first arriving team should establish contact with the LEMA to obtain information about the disaster response and with the next arriving teams to ensure coordination. As this is done, the team should also establish the USAR Coordination Cell (UCC). The UCC is a sub-component of the OSOCC and is normally established prior to the arrival of the rest of the OSOCC personnel. The UCC functions are conducted as a stand-alone entity until absorbed into the full OSOCC structure. If possible, the personnel who begin the coordination process should remain in the UCC throughout the disaster to ensure continuity. The UCC may be co-located with the OSOCC or operate at a separate location, depending on USAR Teams ease of access to the UCC.

Proper planning is a vital component of incident management. It facilitates adequate and safe use of resources through proper selection of strategies and tactics. The objective of the planning process is to assign and reassign teams to prioritised worksites based on their capacities, in order to maximise the likelihood of live rescues.

Further details of the establishment and management of a UCC are contained within the UC Manual. Please refer to the USAR Coordination Manual under the *Manuals* → *UCC* tabs of the Guidance Notes on [www.insarag.org](http://www.insarag.org) for more information.

### **5.3 USAR Planning Process**

Proper planning is a vital component of incident management and facilitates adequate and safe use of resources through proper selection of strategies and tactics. Planning principles do not differ during large-scale international incidents; therefore, USAR coordination staff must be aware of these principles and be ready to adopt them within the management process. Please refer to the USAR Coordination Manual under the *Manuals* → *UCC* tabs of the Guidance Notes on [www.insarag.org](http://www.insarag.org) for more information on the USAR Planning Process.

### **5.4 INSARAG Coordination and Management System**

The INSARAG Coordination and Management System (ICMS) is a web-based INSARAG management and coordination system. It is comprised of digital forms (Survey 123 application) and an ESRI-based dashboard that displays the data collected on the forms as numbers, charts and on a map. INSARAG teams will be supplied with accounts to the system that they can use during training and will be provided with account information for a particular disaster at the on-set of the event through the VOSOCC. The teams will fill in their Fact sheet information through Survey123, and update their status (mobilising, deployed, demobilising) on Survey123 as well. All INSARAG paper forms are being moved into ICMS, however paper forms will still be kept within the coordination system, in the event that the web-based system is not operational. The UCC will manage the dashboard as a tool to help with USAR coordination and team assignments. Teams will be notified directly of their assignments, but the teams and the UCC can view the assignments and the progression of the operations via the dashboard. Please refer to the ICMS documents under the *Manuals* → *Information Management* tabs of the Guidance Notes on [www.insarag.org](http://www.insarag.org) for more information on ICMS.

## 5.5 USAR Coordination Method

### 5.5.1 Why to create sectors

A disaster that warrants international USAR response is inherently a large-scale event. The scale of destruction may just involve one city, or it may affect a large area involving numerous cities and even more than one country. Geographical sectorisation of the affected areas can be needed to ensure effective coordination of SAR efforts by improving the span of control. Sectorisation will improve operational planning, more effective assignment of the USAR Teams and better overall management of the incident. The size and numbers of the sectors will depend on the level of resources and the needs of the affected area, the volume of work, geographical area and features, scale of response amongst other factors. If need be, sectors can be divided into subsectors by their respective sector coordinators.

### 5.5.2 When and how to sectorise

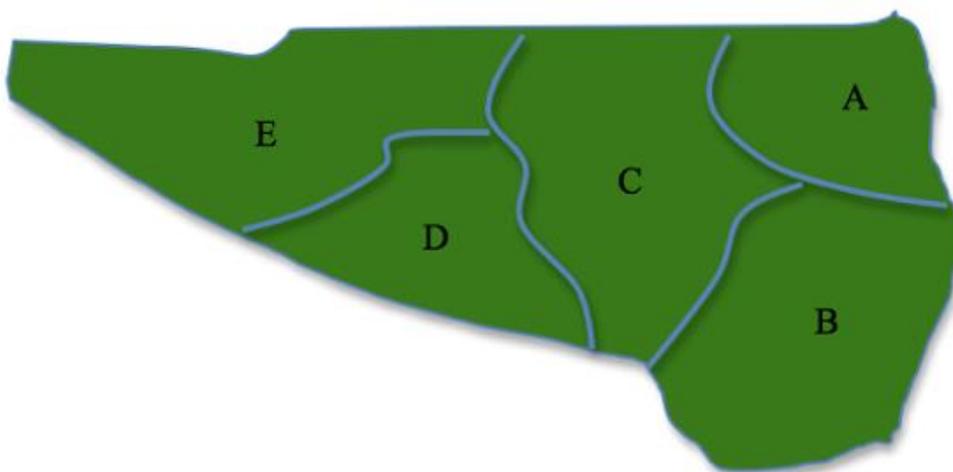
Sectorisation should be undertaken at the earliest possible stage of a disaster response to ensure its effectiveness. It is expected that the LEMA should have a sectorisation plan in place and that international USAR Teams should follow it. The LEMA is likely to refer to local sectors such as neighbourhoods, parishes, etc. as the local government will have information organised in this format.

However, if there is no sector plan, it should be developed at the earliest possible stage of a disaster response and in close liaison with the LEMA. This may be done by the UNDAC team but will often be done by the OSOCC or UCC personnel from the USAR Teams. If the LEMA has no sector plan, then a Wide Area Assessment (ASR1) may be necessary to get the relevant information to design the sector plan.

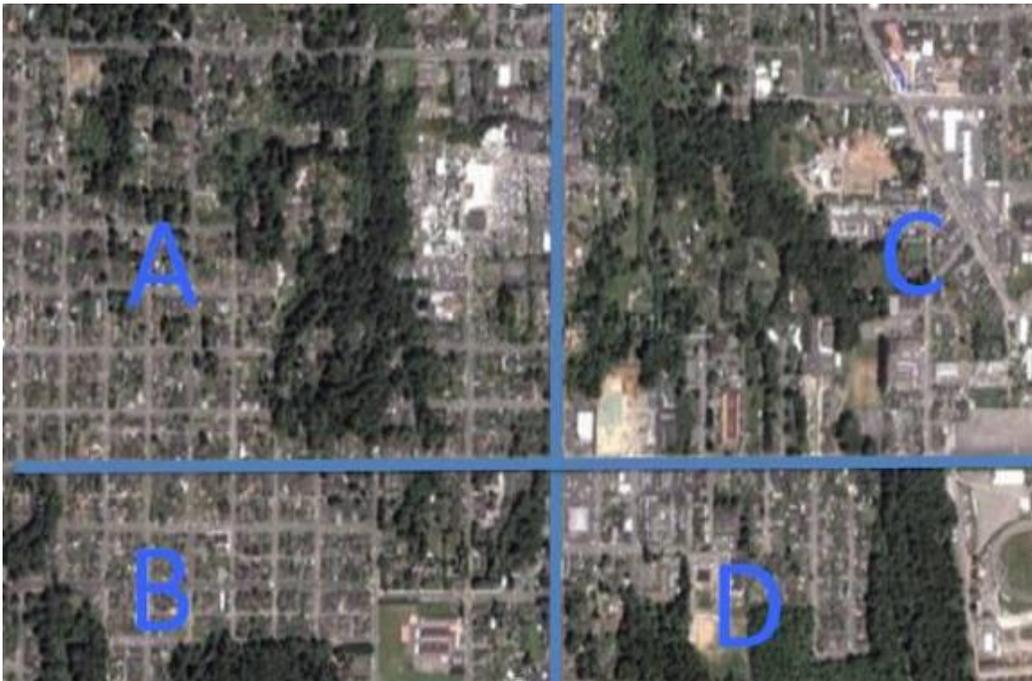
### 5.5.3 Sector Identification

The default INSARAG sector identification system is to use a simple lettering system to code each sector; A, B, C, D and so on. It is given into consideration not to use the letter I and O to avoid any misunderstandings with the numbers 1 and 0. A local name or description can also be added to ensure clarity e.g. Sector A, North Padang. If the LEMA has its own a coded sector identification system in place e.g. Sector 1, 2, 3, or Red, Blue, Green etc., it should be adopted and allow for it in any documentation or markings.

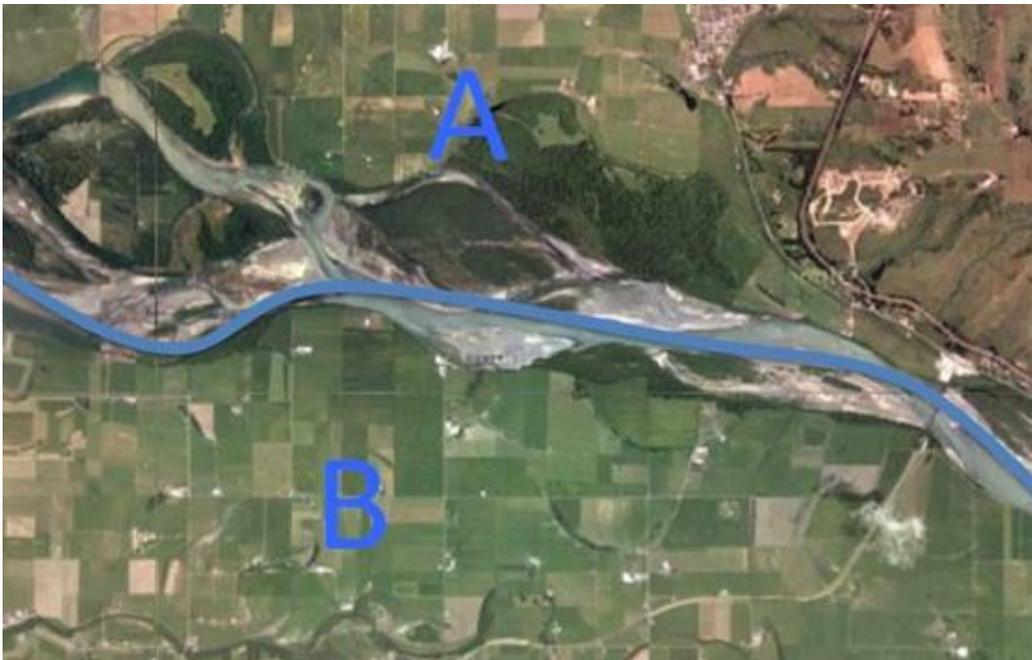
The diagrams below are simple illustrations of how geographical sectorisation can be done.



*Figure 4: Sectorising the affected areas into smaller manageable sectors.*



*Figure 5: Sectorising an affected area using streets and city block layouts.*



*Figure 6: Sectorising an affected area using prominent features e.g. Sector A North of the river, Sector B South of the river.*

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#### 5.5.4 Worksite and its definition

To allow effective coordination it is essential to uniquely identify every site where significant USAR operations take place. Each of these sites will be known as a worksite.

A worksite can mean different things, but the simplest definition is “Any site where significant USAR operations are carried out.” USAR operations normally only take place when there is thought to be the potential for a live rescue. However, to avoid assigning teams to sites that only have victims to be confirmed dead, these sites may be given an identification (ID) for documentation purposes. Worksites will typically be one building where one USAR Team or squad is working because of a potential live rescue. But a worksite could be much larger or much smaller. A large building or complex of buildings, e.g. a hospital, may be identified as a single worksite. Alternatively, the site of a single rescue in an area of only a few square metres would also be identified as a worksite.

#### 5.5.5 Worksite Identification

When it is decided that a site will need USAR operations, usually rescue work, it should be given its own Worksite Identification (Worksite ID), the Worksite ID is in addition to the existing street name and building number. This can be done during ASR2 but sites may also be allocated by the LEMA. In any case, each site should be allocated its own Worksite ID using the following protocol:

- The first part is the Sector letter allocated to the area the site is in e.g. A.
- As a worksite is identified a number is then sequentially allocated 1, 2, 3, etc.

The sector letter and allocated number produces the unique Worksite ID e.g. A-1, A-2, A-3 etc. If more than one team is in the same sector, then the UCC will instruct teams on which numbers to use e.g. Team 1 uses 1 to 20, Team 2 uses 21 to 40 etc.

If the LEMA uses a different sector code, e.g. numbers, then this should be used as the first part of the Worksite ID, e.g. 1-1 rather than A-1. In either case the sector code must be separated from the worksite number by a hyphen to prevent any possible confusion.

**Note:** If sectorisation has not been completed, the use of plain numerals is recommended; these numbers can subsequently be integrated into the complete Worksite ID system once established. Control of number use is required to achieve this, e.g. give search teams batches of numbers 1 to 19, 20 to 39, 40 to 59 etc.

The figures below illustrate the process.



Figure 7: Sectorise the area of operation by assigning a letter to each area.



Figure 8: As potential rescue sites are identified, they are numbered and added to the Sector letter to produce a unique Worksite ID for each site.

### 5.5.6 Worksites within Worksites

It is probable that a relatively large worksite, e.g. a hospital, which is initially identified as a single worksite, e.g. B-2, could end up with more than one rescue site in quite different locations. For coordination purposes it is useful to identify each of these separately. To do this the original single Worksite ID should be kept for each site but with a suffix letter added, e.g. B-2a, B-2b, B-2c etc. to provide a unique “address” for each.



Figure 9: An example of worksites within a large initial single worksite.

The whole site was initially identified as a worksite (B-2) with potential live rescues but when teams did a detailed search, they discovered three separate rescue sites in distinct locations. For coordination purposes, e.g. exact location, logistics support, reporting etc., it is important that each worksite has its own “address.”

**Note:** International USAR Teams are deployed to support the LEMA. Any existing mechanism in use will be adapted by the international teams to better augment national resources already deployed for rescue work.

## 5.6 USAR Team Identification Code

To standardise the identification of all USAR Teams within the coordination system, a Team ID is required. The Team ID is composed of two parts: The three-letter Olympic code of the home country of the team; and a double-digit number to differentiate teams from the same country.

Multi-national teams (e.g. NGO’s) will not use the three-letter Olympic code. They will use the letters “SAR” to be identified.

Team designators 01 to 09 are for IEC/IER classified teams, designators 10 through 99 are to be used for non-classified teams. The INSARAG Operational Focal Point administers the country team designators and through the Secretariat updates the USAR directory on [www.insarag.org](http://www.insarag.org).

More extensive information can be found in the USAR Coordination Manual.

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## 5.7 Assessment, Search and Rescue Levels

### Introduction

A key element of the INSARAG coordination are the definitions of key types of work typically needed during a major USAR incident. This can range from initial assessment of the affected area to deconstructing a building to recover the last deceased victim.

Having a clear definition of all the possible operational levels allows the coordination actors to be specific about the planning, tasking, specific USAR operations needed and the progress made. Information management tools (templates, forms, reports, marking system, VOSOCC etc.) used to facilitate coordination also relate to the level of USAR work being carried out. ICMS (INSARAG Collection and Management System) is used to facilitate coordination, it relates to the level of USAR work needed to be carried out.

### 5.7.1 The Levels

USAR operations are divided into the five levels listed in the table below. These levels are defined as sequential activities, but, in reality, teams may receive assignments in any order. Especially in large scale operations where LEMA identifies worksites before teams arrive. Or when new areas are being opened throughout the response. Hence different levels of work are being carried out in different areas of the incident at the same moment.

**Note:** The five levels are identified as:

- **Level 1:** Wide Area Assessment.
- **Level 2:** Worksite Triage Assessment.
- **Level 3:** Rapid Search and Rescue.
- **Level 4:** Full Search and Rescue.
- **Level 5:** Total Coverage Search and Recovery.

Each level is explained and defined in more detail in the tables on the following pages.

<b>ASR Level 1 Wide Area Assessment</b>	
<b>Definitions and purpose</b>	<ul style="list-style-type: none"> <li>• The preliminary survey of the affected or assigned area.</li> <li>• For the purpose of:               <ul style="list-style-type: none"> <li>○ Determining the scope and magnitude of the incident.</li> <li>○ Identifying scope, location and types of damage.</li> <li>○ Estimating the urgent resource needs.</li> <li>○ Developing a sectorisation plan.</li> <li>○ Establishing priorities.</li> <li>○ Identifying general hazards.</li> <li>○ Identifying infrastructure issues.</li> <li>○ Identifying potential BoO locations.</li> </ul> </li> <li>• Usually accomplished by; vehicle, helicopter, waterborne craft, on foot or from reports from others e.g. the LEMA.</li> <li>• Initial, fast visual check of the damaged or assigned area.</li> </ul> <p>Teams carrying out this level of assessment must remain mobile, not engage in rescue operations and report the results as quickly as possible.</p>
<b>Carried out when and by who</b>	<ol style="list-style-type: none"> <li>1. The LEMA often do this prior to the arrival of teams and provide all or some of this information. <i>If it is not complete it may be beneficial to redo this.</i></li> <li>2. Can be done by members of the OSOCC/UNDAC team on their arrival.</li> <li>3. USAR Teams.</li> </ol>
<b>INSARAG Tools</b>	<ol style="list-style-type: none"> <li>1. Information on the VOSOCC.</li> <li>2. RDC/OSOCC briefing.</li> <li>3. These could be supported by information such as: LEMA briefings, maps, GPS coordinates, photographs, and video.</li> </ol>
<b>Outputs</b>	<ol style="list-style-type: none"> <li>1. OSOCC/RDC/UCC briefing.</li> <li>2. Sectorisation plan.</li> <li>3. BoO location(s).</li> <li>4. Initial priorities and plan</li> <li>5. Resource requests e.g. more teams.</li> <li>6. Posts on the VOSOCC.</li> <li>7. Updates on the ICMS dashboard.</li> </ol>

*Table 1: ASR Level 1 Wide Area Assessment.*

<b>ASR Level 2 Worksite Triage Assessment</b>	
<b>Definitions and purpose</b>	<ul style="list-style-type: none"> <li>• The main purpose is to identify specific and viable live rescue sites within the allocated sector to allow assignment prioritisation and make a plan of action.</li> <li>• It needs to be a fast paced but methodical assessment.</li> <li>• The aim is to assess the whole sector in a timely manner.</li> <li>• The Worksite Triage form should be used to gather the essential information at this stage.</li> <li>• Information from the local population and local responders is often valuable and should be sought during the assessment.</li> <li>• Rescues are not usually performed during this level <b>unless</b> an unexpected opportunity arises.</li> <li>• If live victims are found the decision on whether the Assessment Team stays to start the rescue or carries on the assessment will be dependent on the situation and the brief the team received, some options are: <ul style="list-style-type: none"> <li>○ Additional resources are called in to carry out the rescue.</li> <li>○ The Assessment team stays but must ensure the sector.</li> <li>○ Assessment is completed by others as soon as possible.</li> <li>○ Adopt a strategy to send a combined team able to do both ASR Level 2 sector Assessment and ASR Level 3 Rapid Search and Rescue.</li> </ul> </li> <li>• An ASR Level 2 Assessment can be repeated later if it is thought necessary, e.g. a night time assessment or an assessment with additional dogs, which may produce different results.</li> </ul>
<b>Carried out when and by who</b>	<ol style="list-style-type: none"> <li>1. It is preferably done closely behind the Level 1 Wide Area Assessment and as soon as possible after sectors have been established.</li> <li>2. The LEMA may have sectorised and started this process prior to assistance arriving. If this is not complete it may be beneficial for a USAR Team to redo this.</li> <li>3. If the LEMA has not done this, then it should be the first action of the initial USAR Team(s) in a sector.</li> <li>4. USAR Teams.</li> <li>5. Use of dogs or technical search equipment is optional and will depend on the situation. Using these will improve the detailed results but will slow down the process; a balance is needed.</li> </ol>
<b>INSARAG Tools</b>	<ol style="list-style-type: none"> <li>1. Worksite Triage form.</li> <li>2. Briefing from UCC.</li> <li>3. A map of the sector area being assessed is highly recommended and should be used to clarify the areas assessed and cleared. <i>There could also be information such as: LEMA briefings, information from local teams, GPS coordinates, photographs etc.</i></li> </ol>
<b>Outputs</b>	<ol style="list-style-type: none"> <li>1. Completed Worksite Triage Forms identifying the sites teams are needed at.</li> <li>2. A completed worksite ID.</li> <li>3. A correctly marked worksite for triage.</li> <li>4. A map of the sector showing the area covered by the assessment.</li> <li>5. Development of the sector plan of action and priorities by UCC.</li> <li>6. Assignment of USAR Teams to worksites.</li> <li>7. Further resource requests.</li> <li>8. Approved data in the ICMS dashboard.</li> <li>9. An up to date ICMS dashboard.</li> </ol>

*Table 2: ASR Level 2 Worksite Triage Assessment.*

<b>ASR Level 3 Rapid Search and Rescue</b>	
<b>Definitions and purpose</b>	<ul style="list-style-type: none"> <li>• Usually applies in the early stages of a large-scale event when a relatively small number of teams are available compared to the number of sites that require search and rescue.</li> <li>• Fairly rapid progress needed to ensure the allocated structures are all searched relatively quickly to maximise the lifesaving opportunities.</li> <li>• There is relatively modest commitment to each site with:               <ul style="list-style-type: none"> <li>○ Use of physical, canine or technical search techniques.</li> <li>○ Rescue operations using debris removal and limited shoring, breaking and breaching etc.</li> <li>○ Limited penetration into the structure/rubble.</li> </ul> </li> <li>• The search and/or rescues are normally possible to complete within one operational period, e.g. a few hours.</li> <li>• A team will not normally undertake long term operations (more than one operational period) to penetrate deeply into the structure unless there are strong indications of live victims.</li> <li>• Deeply entombed victims may not be found during this level</li> <li>• At this level teams should identify those structures or worksites where a Level 4 search might be worthwhile.</li> <li>• If a confirmed deeply trapped live victim is identified, team may extend to Level 4 operations if the assignment constraints and restraints allow or they get permission from sector coordination. However, they must ensure Level 3 work is completed for the remaining worksites assigned to them. In case they are not able or do not complete the rescue, they should ask for additional resources.</li> <li>• If additional rescue sites are identified at any time, then a new Worksite ID should be created.</li> <li>• The SCC/UCC must keep track of all ASR3 assignments and reassign to the site for ASR4, except for those sites being reported not to need ASR4.</li> </ul>
<b>Carried out when and by who</b>	<ol style="list-style-type: none"> <li>1. This is usually done when USAR Teams are initially allocated into sectors.</li> <li>2. Should always be done at identified worksites.</li> <li>3. Done by Light, Medium and Heavy USAR Teams.</li> <li>4. This work might also be done by the LEMA's national teams.</li> <li>5. One USAR Team may be able to operate simultaneously at more than one worksite due to the limited commitment.</li> </ol>
<b>INSARAG Tools</b>	<ol style="list-style-type: none"> <li>1. Worksite Triage Form.</li> <li>2. Worksite Report Form.</li> <li>3. Victim Extrication Form.</li> <li>4. Worksite marking system.</li> </ol>
<b>Outputs</b>	<ol style="list-style-type: none"> <li>1. Completed Worksite Reports.</li> <li>2. Marking of worksites.</li> <li>3. Completed Victim Extrication forms.</li> </ol>

*Table 3: ASR Level 3.*

<b>ASR Level 4 Full Search and Rescue</b>	
<b>Definitions and purpose</b>	<ul style="list-style-type: none"> <li>• This is the SAR work that should identify, locate and rescue the small number of heavily trapped or entombed survivors that local rescuers, first responders, LEMA resources or ASR Level 3 operations did not achieve.</li> <li>• Teams will penetrate most or all of the survivable voids.</li> <li>• These are likely to be longer term (more than one operational period) operations requiring a wide range of USAR skills, e.g.:               <ul style="list-style-type: none"> <li>○ All possible search techniques and equipment and often repeated as access is achieved.</li> <li>○ Possibly extensive shoring to make the structure or access routes safe.</li> <li>○ Heavy and repeated breaking and breaching of the full range of structural elements.</li> <li>○ Lifting and/or moving of large elements.</li> <li>○ Some delayering may take place at this level if access is needed to an identified potential live rescue.</li> <li>○ Working in confined spaces, sometimes deep inside structures.</li> </ul> </li> <li>• This may involve several teams on the same worksite.</li> <li>• Complete command and control of the worksite is needed.</li> </ul>
<b>Carried out when and by who</b>	<ol style="list-style-type: none"> <li>1. This level is normally carried out after or in conjunction with Level 3 Rapid Search and Rescue.</li> <li>2. If the LEMA has identified specific sites already, a team may go straight into Level 4 operations as their first tasking.</li> <li>3. Carried out by Medium and Heavy USAR Teams.</li> </ol>
<b>INSARAG Tools</b>	<ol style="list-style-type: none"> <li>1. Worksite Triage Form.</li> <li>2. Worksite Report.</li> <li>3. Worksite Marking system.</li> <li>4. Victim Extrication Form.</li> </ol>
<b>Outputs</b>	<ol style="list-style-type: none"> <li>1. Completed Worksite Reports.</li> <li>2. Marking of worksites.</li> <li>3. Completed Victim Extrication forms.</li> </ol>

*Table 4: ASR Level 4.*

<b>ASR Level 5 Total Coverage Search and Recovery</b>	
<b>Definitions and purpose</b>	<ul style="list-style-type: none"> <li>• This usually means operations carried out at a worksite to recover the deceased victims.</li> <li>• It is conceivably still part of the rescue phase if this is deemed necessary by the coordinating authority.</li> <li>• There may be a “miracle” find of a live victim that is achieved as the structure is de-layered or deconstructed.</li> <li>• If the work relates to collapsed structures or rubble pile worksites this work can include:               <ul style="list-style-type: none"> <li>○ Searching or making access into every possible void.</li> <li>○ All the USAR skills listed in Level 4.</li> <li>○ Delayering of large elements to allow access to all parts of the structure or rubble pile.</li> <li>○ Working with heavy machinery, e.g. cranes and demolition equipment, to achieve this access.</li> <li>○ Complete command and control of the worksite is essential.</li> </ul> </li> </ul>
<b>Carried out when and by who</b>	<ol style="list-style-type: none"> <li>1. This is usually done <b>after</b> the rescue phase.</li> <li>2. This level is not normally carried out by international USAR Teams.</li> <li>3. Usually done by the LEMA resources for their own body recovery purposes.</li> <li>4. International USAR Teams can be asked to undertake this task where area clearance and body recovery is a high priority.</li> <li>5. Some international teams may do this and some may not, each team will make their own decision.</li> </ol>
<b>INSARAG Tools</b>	<ol style="list-style-type: none"> <li>1. Worksite Triage Form.</li> <li>2. Worksite Reports.</li> <li>3. Worksite Marking system.</li> <li>4. Victim Extrication Form.</li> </ol>
<b>Outputs</b>	<ol style="list-style-type: none"> <li>1. Completed Worksite Reports.</li> <li>2. Worksite Marking.</li> <li>3. Completed Victim Extrication forms.</li> </ol>
<b>Area Clearance to ASR Level 5</b>	<ul style="list-style-type: none"> <li>• This level can also apply to areas where building collapse is less or absent, but USAR skills are needed for access or safety to enable complete clearance of all possible victims. In this case the operations will include:               <ul style="list-style-type: none"> <li>○ Systematic search of every room of every structure in the assigned area of operation.</li> <li>○ This operation should quickly clear relatively large areas.</li> <li>○ If necessary forced entry is used to gain access to all areas.</li> <li>○ Heavy machinery may occasionally be needed to clear smaller rubble piles.</li> </ul> </li> <li>• This may specifically be for deceased victim location/recovery.</li> <li>• The rules of assignment (brief) must detail what teams do if they locate a live or deceased victim, e.g. call in other teams or stay and deal with it themselves.</li> <li>• Full control and coordination is needed with detailed recording by the teams of the exact areas they have cleared.</li> </ul>
<b>Carried out when and by who</b>	<ol style="list-style-type: none"> <li>1. LEMA resources usually do this but international USAR Teams may be asked to do this in some circumstances.</li> <li>2. USAR Teams may or may not decide to move to this phase of work based on various factors e.g. other rescue possibilities, capacity of teams at the event, policy of the team, mandate from sponsors etc.</li> </ol>
<b>INSARAG Tools</b>	<ol style="list-style-type: none"> <li>1. Victim Extrication Form if necessary.</li> </ol>
<b>Outputs</b>	<ol style="list-style-type: none"> <li>1. Report on the work carried out as agreed with the UCC/OSOCC/LEMA.</li> <li>2. Maps of areas cleared as part of reporting results.</li> </ol>

*Table 5: ASR Level 5.*

## 5.8 Worksite Triage

The objective of ASR 2 Worksite Assessment is to assess collapsed structures and identify viable sites for live rescues. The UCC will use this information to list sites in order of priority and decide which teams to assign to which sites. One of the considerations for the prioritisation of worksites is the triage category.

The objective of a triage process is to evaluate triage factors to compare collapsed structures and decide the order of priority. The key to triage is consistency in the comparison of triage factors

### 5.8.1 First order of priority: Triage Categories with victim information

The level of prioritisation of worksites is based on victim information: number of confirmed alive victims, number of possibilities of live victims, and if there are only dead victims in the structure. All worksites with confirmed live victims are complete before the structures with possible live victims. The worksites with the greatest number of victims are the highest priority. Buildings with dead only may be assigned to USAR Teams as part of ASR5.

In order to assist deciding which team goes to which site, the triage teams are requested to estimate how long the operations will take. The duration can only be estimated if the assessors have an idea of where the victim is located. Duration will depend on the structure, e.g., building material and size, and on equipment and expertise. The estimate should be based on general capability of a team and will always be a rough estimate. Duration estimates will allow the UCC to assign the larger teams to the move difficult or larger sites that take longer to complete. The UCC collects information on all confirmed and possible live victims. It does not collect victims on all deceased, only information that is deemed relevant.

The above triage strategy leads to following four triage categories:

TRIAGE CATEGORIES	EXPECTED DURATION OF OPERATION	EXPECTED DURATION OF OPERATION
<b>A</b>	Confirmed live victims	Less than 12 hours
<b>B</b>	Confirmed live victims	Longer than 12 hours
<b>C</b>	Possible live victims	Not assessed
<b>D</b>	Deceased only	Not assessed

Table 6: Triage categories.

- **Confirmed live victims:** Means that the USAR assessment team knows that there are people alive in the collapsed structure.
- **Possible live victims:** Means that there is a possibility that people are alive in the structure, but the assessment team cannot confirm whether people are alive or even in the structure. Examples of possible live victims is when by-standers report missing people, or a collapse of a school that was in session.
- **Deceased only:** Means that there are not live victims, but the LEMA may want to send teams to the site to recover the bodies.

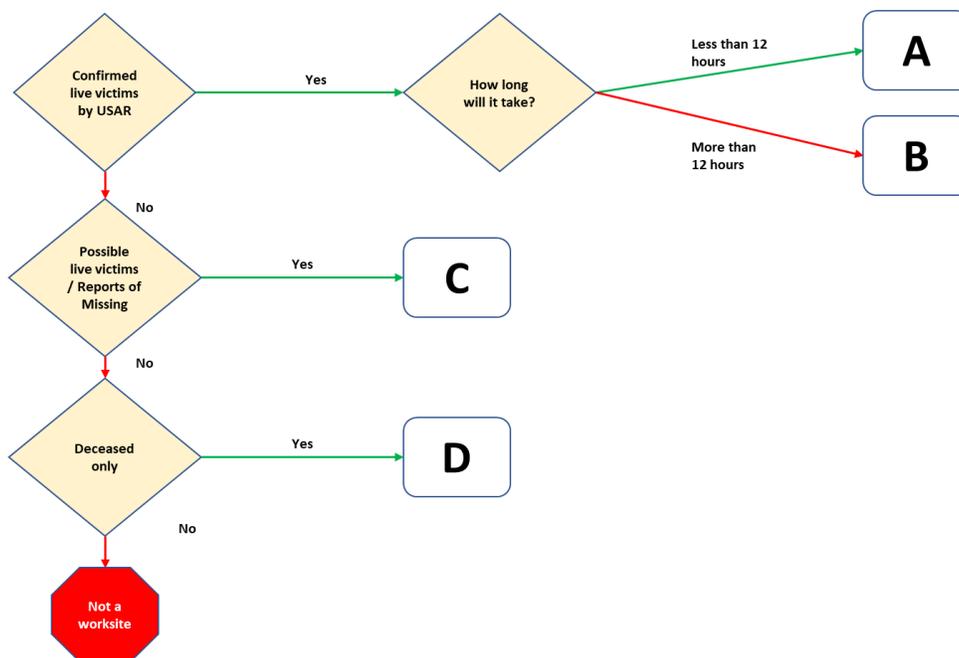


Figure 10: Triaging.

### 5.8.2 Second order of priority: Building information and operational constraints

In cases where the UCC needs to use additional information to list the worksites in order of priority, building related and operations related information can be used. Examples of useful information is listed below. This are not placed in the triage categories to avoid the triage categories becoming complicated.

Building related information includes:

- **Use:** for example, a home, office, school, hospital, etc. will provide an indication of possible trapped victims.
- **Size of site (footprint and number of floors):** the larger the building, the longer the operation will take.
- **Type of construction:** the heavier the construction material, the longer the operation will take.
- Building Collapse Category:
  - **Inclined:** one, some, or all of the columns and walls have collapsed in a way that floors collapse on an incline.
  - **Overturn:** part or all of the building has fallen to the side.
  - **Pancake:** one, some, or all floors have collapsed completely.
  - **Debris heap:** one, some or all of the floors, columns and walls have collapsed resulting in a heap of debris.
  - **Overhang:** lower parts of the building have collapsed, leaving the higher part of the building to hang over the lower part.
- Void space information may also be an issue, based on information from building collapse categories:
  - **Big void:** is big enough for a person to crawl. The chances of survival for a victim are greater in big voids than small voids. "Big" is a relative term, i.e. a big void for a child will be considerably smaller than a big void for an adult.

- **Small void:** is where a person can hardly move and has to lie more or less still while waiting for help. In small voids, the chances of injury are higher as people trapped inside have less space to avoid falling objects and collapsing structural elements.

Factors relating to the operations include:

- **Resource availability:** the more limited resources, the longer the operation will take.
- **Location of site and teams:** the further from the site the team is, the longer the operation will take.

## 5.9 Information Management

Large, complex USAR operations result in heavy workloads for national and international teams. The potential for loss of situational awareness is high if the information gathered is not managed properly. To assure a coordinated response of multiple international USAR Teams, information management therefore becomes a critical issue across the whole USAR coordination mechanism and at all stages of the response cycle. A USAR information management system is needed to ensure successful field coordination in USAR operations. Such a system underpins efficient and effective collection, processing, dissemination of information and tasking of large-scale coordination efforts.

Responding teams want to limit the time and effort spent on information management. The requirements set on the teams in managing information have to be restricted to the absolute essential information for USAR coordination. Broader information is often needed for various other purposes, but this manual only covers the essential USAR coordination requirements. All stakeholders of the INSARAG community need to part of a USAR information management system, hence the need for a standardised and systematic approach to collect and report information at all levels.

The INSARAG community has developed a management system through the years, and continues to seek to improve it. Initially, INSARAG and the UN adopted the idea of coordination cell, the OSOCC, which has now developed into an OSOCC with a well-defined UCC as part of the OSOCC. Later, the development of paper forms for collecting and disseminating information and assignments was introduced. The most recent development of the INSARAG management system is a digital data collection and information display tools, which will be operational on 1 January 2020.

The INSARAG information management system is based on the following basic principles:

- **Field oriented:** Ease of use in the field, accounting for the difficulties encountered in such environment.
- **Reliable:** Information collected and stored in the system must be reliable and readily available for the coordination structure, even under adverse conditions and limited resources.
- **Scalable:** The system must adapt to different response scales.
- **Adaptable:** The disaster response needs to adapt to different types of disasters and environments.
- **Traceable:** The accountability of the information managed must be available to allow scrutiny and decision-making process.
- **Integral:** The system must cover as many of the different aspects of the USAR response as possible in pursuit of standardisation.

Management is the allocation of resources towards a goal and objectives. As the UCC does not have command and control over the teams, the UCC coordinates with the teams, under the direction of LEMA. The INSARAG Coordination and Management System (ICMS) therefore refers to a coordinated activity of allocating resources towards saving as many lives as possible from collapsed structures.

The ICMS is both a web-based tool and a paper-based tool to be used in case the web-based version does not function. Both versions are based on a set of forms (either web-based or paper-based) to guide information collection from the field to the UCC, for maintaining an overview of the situation and for tasking teams. The ICMS is maintained by the Information Management Working Group, which will provide user-guides and training material for the web-based version, and electronic versions of the paper forms on [www.insarag.org](http://www.insarag.org). The forms include instructions on how to fill in each field. The web-based forms are created through Survey123, which are displayed on web-based dashboard. All teams will have access to both Survey123 and the dashboard, both for training purposes and during missions. Each mission will have a unique log-on username and code, which will be provided to the teams via the VOSOCC at the beginning of the mission, and will be requested to download forms that are pertinent to that mission. All information put into the Survey123 forms is automatically and immediately shown on the dashboard, seen by the UCC, team management, OSOCC, and back office. Teams will be tasked by the UCC directly (email, phone, face-to-face), and will upload the assignment information on the dashboard. For more information, please refer to the ICMS documents and the UC Manual under the Guidance Notes.

The main components of the ICMS is outlined below and the UC Manual provides more details about management processes.

**Fact Sheet:** The Fact Sheet provides information about the capacity of the team, contact information, support needs, and status. Note that the Mobilising Form will no longer exist as a separate form, but will become part of the Fact Sheet.

Entity	Survey 123 form	Paper form
<b>Back Office</b>	Team information filled in the Fact Sheet on Survey 123. Marks the team's status as "deployed".  Team information to be uploaded in the VOSOCC before departure, as per data fields on the VOSOCC (it will not be the entire Fact Sheet).	Fill in a paper form for the team to take with them, and an electronic version.
<b>Team arrival</b>	Team update its status to "in country."	
<b>RDC</b>	Verifies with arriving teams that the information is correct and reminds them to update their status	Receives a paper (or electronic) version upon team arrival.
<b>UCC</b>	Will see the team information on the ICMS dashboard.	May receive the Fact Sheet from the VOSOCC, from the RDC or from the team when it arrives at the UCC, depending on internet connectivity.
<b>Team departure</b>	When the team is demobilising, it will update its status to "demobilising."	Fills in the final section of the Fact sheet and gives to UCC or RDC, depending on situation.

Table 7: Survey 123 and paper forms.

**Forms for ASR Levels 1-5:** The teams fill in the following forms during their assignments, depending on the ASR levels

Form	ASR Level	Comment
<b>Wide-Area Assessment Form</b>	1	Used to collect general impact information and used for sectorisation.
<b>Worksite Triage Form</b>	2	Used to collect information from identified worksites with rescue opportunities.
<b>Worksite Report Form</b>	3, 4, 5	Report of activity at a worksite for a specific work period or to handover the worksite.
<b>Victim Extrication Form</b>	3, 4	Form used to collect basic information of victims extricated.
<b>Victim Treatment Form</b>	3, 4	Form used to collect medical information about victims extricated. This form is handed over with the patient. All gathered information in relation to victims should be treated as confidential.
<b>Humanitarian Notification Form</b>	Any level	If a USAR Team sees unattended humanitarian needs that needs to be reported, they can do so through the Humanitarian Notification form.

Table 8: ASR levels and related forms.

**Assignment Briefing Package:** When assigning the teams, the UCC will fill in an assignment package, which consists of a form and annexes (where relevant).

Entity	Survey123 form	Comment
<b>Main form</b>	Assignment Briefing Form	Provides information on which team is being assigned, when and to where, along with assignment information and a list of the annexes.
<b>Annex A</b>	Wide-Area Assessment Form	If relevant.
<b>Annex B</b>	Worksite Triage Form	If relevant.
<b>Annex C</b>	Previous Worksite Report Form	If relevant.
<b>Annex D</b>	Pictures	If relevant.

Table 9: Assignment Briefing Package.

Other forms are also available on [www.insarag.org](http://www.insarag.org), such as:

- Affected Area information.
- RDC briefing handout.
- OSOCC-LEMA briefing.
- Incident/Sector Situation Report.

Form updates are expected to be on a six months basis and will be announced to the INSARAG network. During a mission, teams should download the latest forms. Changes in the forms may be expected

**Note:** It is paramount for all international USAR Teams to maintain consistent links with the UCC to ensure two-way information sharing. Teams are especially advised to monitor the ICMS dashboard, provide information through the forms, and participate in UCC meetings.

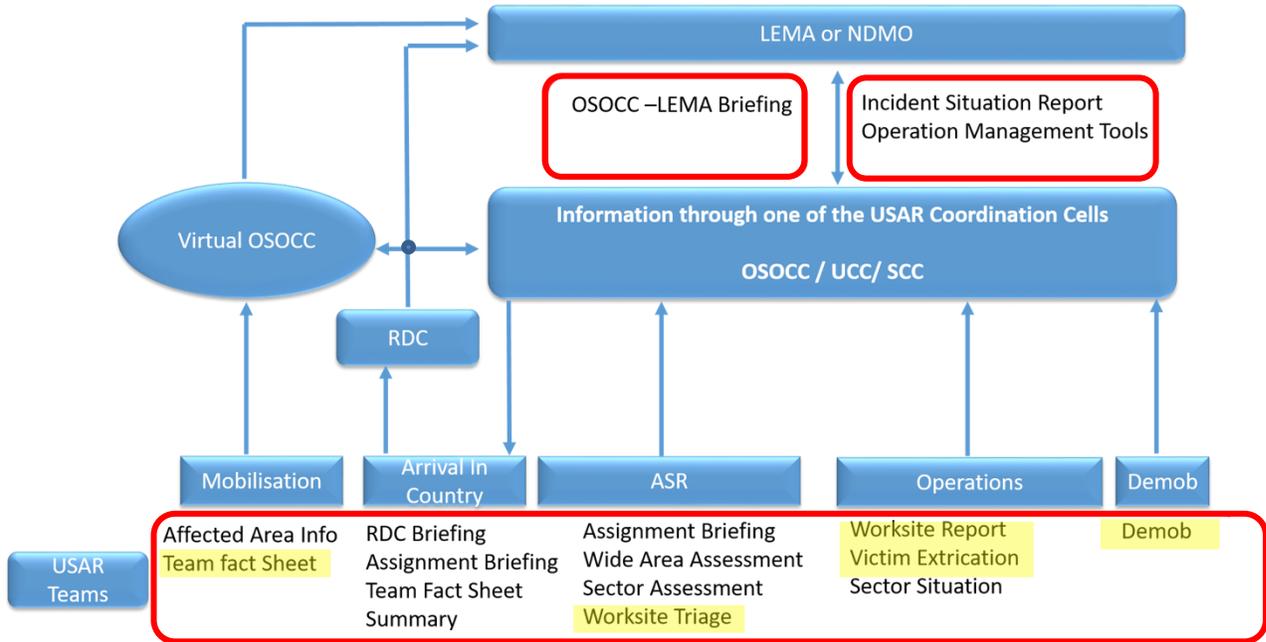


Figure 11: Operational Information Flow and INSARAG Forms.

## 6 INSARAG Marking and Signalling System

### 6.1 INSARAG Marking System

Marking systems are an essential tool used in USAR operations to display and share key information between rescue teams and other field personnel. They should also be a mechanism to strengthen coordination and minimise duplication. To maximise the value of using a marking system in an event it is necessary to identify and universally use a single, common method. For this method to be effective, it must be used by all responders, remain simple to apply, simple to understand, be efficient in the use of resources and time, communicate the information effectively and be consistently applied.

The INSARAG Marking System strives to achieve these things and consists of three principle Marking elements, these being: Triage Marking, Victim Marking and Rapid Clearance Marking (RCM). These components deliver a comprehensive suite of visual displays that capture critical information to both inform situational awareness and support planning and coordination.

The INSARAG Marking System is used by teams as the default marking system in the absence of any national system in countries where operations are occurring. Marking system use will be determined by the LEMA in liaison with the UCC.

Countries are encouraged to use the INSARAG Marking system as their national standard which will assist in times of crisis when international teams are required to be used. The INSARAG Marking System is designed to complement not compete with national systems.

**Note:** The following is defined:

- General Area Marking (optional).
- Structure Orientation (optional).
- Cordon Markings (optional).
- Worksite Triage Marking (required).
- Victim Marking (required).
- RCM (optional).

#### 6.1.1 General Area Marking

At times some general marking will be required to be applied to assist in navigation and coordination. This should be limited to essential information only and be as concise as possible.

- General area marking can be applied using spray paint, builders' crayon, stickers, waterproof card etc. as determined by the team. The colour should be highly visible and contrasting to the background.
- It may include:
  - Address or physical location.
  - Landmark or code name (e.g. sugar factory building 1).
- Assigned area or worksites are to be identified individually (see Worksite Marking).
- If no maps are available, sketch maps are to be produced and submitted to the UCC/LEMA.
- When producing maps, primary geographical identification should be the existing street name and building number, when possible. If this is not possible, landmarks should be used as reference and should be used universally by all actors.

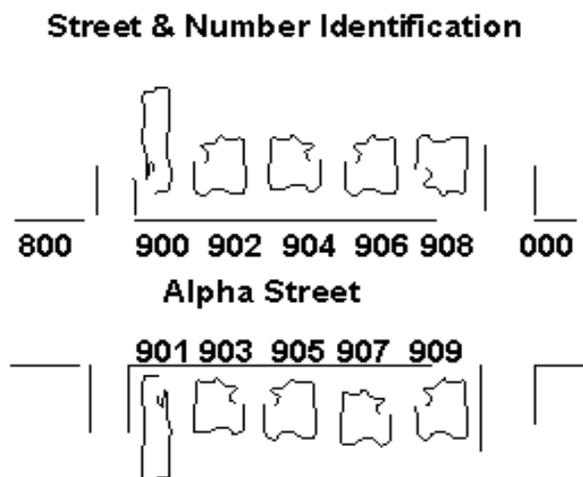


Figure 12: Street and number identification.

### 6.1.2 Structure Orientation

Structure orientation is an optional way of marking. It includes both an exterior and interior identification:

- **Exterior Identification:** The street address side (front) of the structure shall be defined as “1”. Other sides of the structure shall be assigned numerically in a clockwise manner from “1” (see Figure 12).
- **Interior Identification:** The interior of the structure will be divided into quadrants. The quadrants shall be identified alphabetically in a clockwise manner starting at the corner where Side 1 (front) and 2 meet. Quadrant E (central lobby, elevators, staircases, etc) applies to buildings with multiple storeys. (See Figure 13).

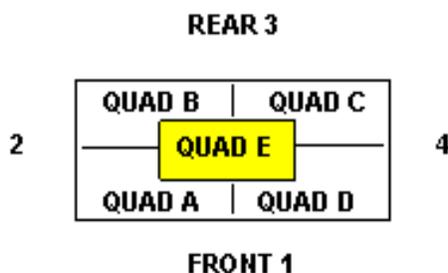


Figure 13: Interior identification.

Multi-storey structures must have each floor clearly identified. If not obvious, the floors should be numbered as viewed from the exterior. The ground level floor would be designated the “ground floor” and, moving upward the next floor would be “Floor 1”, etc. Conversely, the first floor below ground level would be “Basement 1”, the second “Basement 2”, and so on. (See Figure 14).

---

Floor 3
Floor 2
Floor 1
Ground Floor
Basement 1
Basement 2

Figure 14: Identifying stories of a multi-storey structure.

### 6.1.3 Cordon Markings

Cordon markings can be used as an option to identify operational work zones as well as hazardous areas to restrict access and warn of dangers.



Figure 15: Operational Work Zone.



Figure 16: Exclusion Zone.

## 6.2 Worksite Triage Marking

Worksite triage marking was originally developed to enable teams to communicate to other teams that they have already worked in a building and thus avoid duplication of effort. The marking system has since developed as a two-step communication. First of all, a communication for triage teams to mark structures that they have identified as viable worksites, and secondly, the original intent of communicating which teams have completed their work in the building.

The much improved ICMS system has reduced the need for a building marking system due to better coordination and communication among teams, but is still deemed an essential part of the coordination system as it displays critical information, is simple to understand and apply, and allows Worksites to be easily recognised.

The marking should be placed near the point of entry on the exterior of the collapsed structure that offers the best visibility, in the front, (or as close as possible) or main entry to the worksite. Whilst key information is required, teams can exercise discretion and adapt to environmental impacts within these boundaries whilst still maintaining a common, effective and consistent marking system. The system should complement the LEMA/national systems and can be adapted to work alongside these as required.

Markings can be made in any colour clearly contrasting to the structures surface, making it highly visible at any

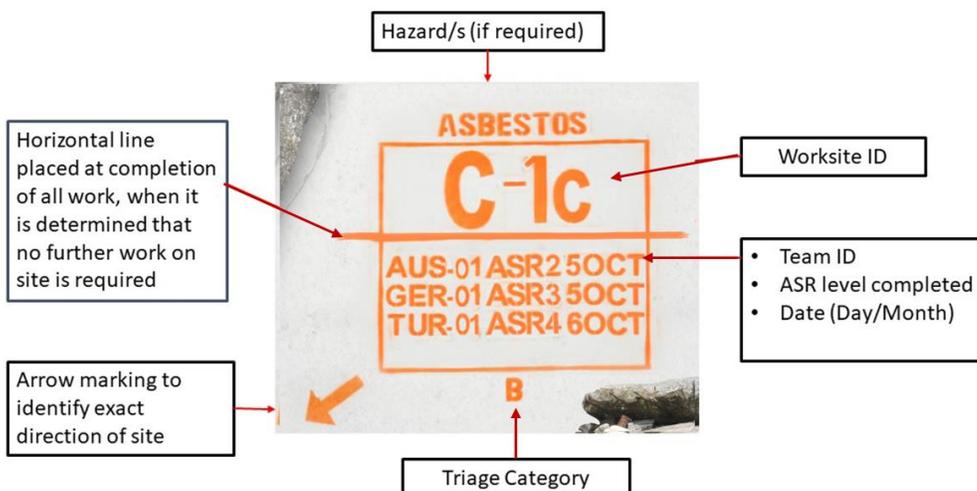


Figure 17: Example of completed worksite marking system, with all required work completed.

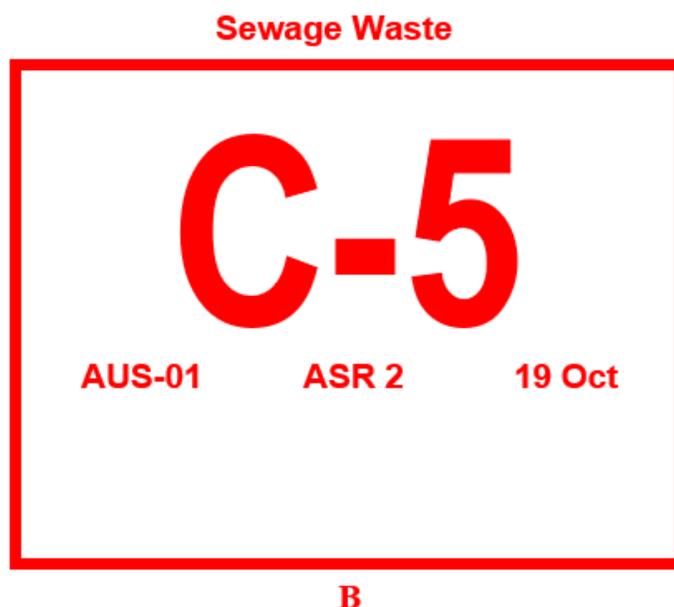
### Marking Method

Worksite marking should be applied during initial ASR Level 2 Sector Assessment after a site has been triaged to be a worksite. The marking should be applied to the front, (or as close as possible) or main entry to the worksite. The following method should be used when applying worksite marking:

- May draw a directional arrow to confirm exact location of worksite/worksite entry.
- Inside box – displays:
  - Worksite ID (app. 40cm. font).
  - Team ID (app. 10 cm. font).
  - ASR Level completed (app. 10 cm. font).
  - Date.
- Outside of box – displays:
  - Any hazard requiring identification e.g. Asbestos (top).
  - Triage category (bottom).
  - Arrow pointed to the exact location of (the entry of) the worksite
- Updated with Team ID, ASR Level completed and date as further levels of work (ASR) are completed.
- Material used can be spray paint, builders' crayon, stickers, waterproof card etc. as determined by the team.
- The Worksite ID should be approximately 40cm high.
- Draw a box around the painted text (approximately 1.2 to 1.0 metres).
- After all work on the worksite has been completed and it is determined no further work is required a horizontal line is to be drawn through the centre of the entire worksite marking.

If a team considers there is a need to leave critical additional information at the worksite this can be added to the worksite marking using plain language in full view when required. This and all other relevant details should be recorded on the Worksite Triage or Worksite Report forms and submitted through the ICMS.

### 6.2.1 Progressive Examples



*Figure 18: Charlie Sector, Worksite 5, Australia 1 completed ASR 2 Sector Assessment on the 19<sup>th</sup> of October. Asbestos was identified as a hazard. Triage category determined as “B”.*

**ASBESTOS**

<b>C-5</b>		
<b>AUS-01</b>	<b>ASR 2</b>	<b>19 Oct</b>
<b>TUR-02</b>	<b>ASR 3</b>	<b>19 Oct</b>

**B**

Figure 19: Here the Turkey 02 team were assigned to rescue operations on the C-5 Worksite following the Sector Assessment completed by Australia 01. Turkey 02 completed ASR 3 Rapid SAR operations on the 19<sup>th</sup> of October.

**Danger – leaking gas in the basement** 

<b>C-12b</b>		
<b>SGP-01</b>	<b>ASR 2</b>	<b>19 Oct</b>
<b>SGP-01</b>	<b>ASR 3</b>	<b>19 Oct</b>
<b>SGP-01</b>	<b>ASR 4</b>	<b>20 Oct</b>

**B**

Figure 20: Singapore 01 team have completed work at the specific Worksite C-12b within Worksite C-12.

In Figure 20, the Singapore 01 team have completed work at the specific Worksite C-12b within Worksite C-12. An arrow has been added to the marking to make it clear that C-12b is to the right of the marking. A hazard warning about gas leaking into the basement has been added in plain language. Triage category

determined as “B”. Operations to ASR 2 and ASR 3 were completed on the 19<sup>th</sup> of October. Operations to ASR 4 Full SAR were completed on the 20<sup>th</sup> of October. No further operations are required on this worksite.

Practical examples could look like the photographs below:



Figure 21: Australia 01 have completed an ASR 2 Sector Assessment at the specific Worksite C-1c.

In Figure 21, Australia 01 have completed an ASR 2 Sector Assessment at the specific Worksite C-1c within Worksite C-1 on the 5<sup>th</sup> of October. An arrow has been added to the marking to make it clear that C-1c is to the left and below the marking. A hazard warning identifying asbestos has been added in plain language. Triage category determined as “E”.



Figure 22: Turkey 01 were assigned to complete an ASR 4 on the C-1c worksite.

In Figure 22, Turkey 01 were assigned to complete an ASR 4 on the C-1c worksite following the ASR 3 Rapid SAR completed by Germany 01. Turkey 01 completed ASR 4 Full SAR operations on the 6<sup>th</sup> of October



Figure 23: Turkey 01 having completed ASR 4 Full SAR on the worksite, have determined no further work is required on this worksite.

In Figure 23, Turkey 01 having completed ASR 4 Full SAR on the worksite, have determined no further work is required on this worksite. Marking has been updated with horizontal line through the centre.

### 6.3 Victim Marking

Victim marking is required to identify potential or known casualty (live or dead) locations that are not obvious to rescuers e.g. below debris/entombed.

#### 6.3.1 Method

The following method should be used when applying victim marking:

- When teams (e.g. Search teams) are not remaining on site to immediately commence operations.
- At incidents involving multiple casualties or where any confusion on exact location from search operations is possible.
- Markings are done as close as physically possible to the actual surface point identified as the location of the casualty.
- Material used can be spray paint, builders' crayon, stickers, waterproof card etc. as determined by the team.
- The size should be approximately 50 cm.
- The colour should be highly visible and contrasting to the background.
- Not intended for use when rescue operations are completed.
- Not to be applied to the front of a structure with the Worksite ID unless that is where the casualties are located.

### 6.3.2 Progressive Examples

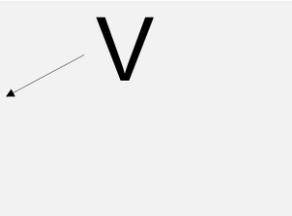
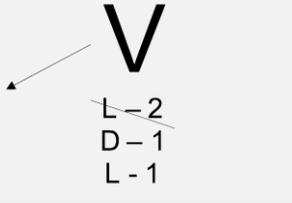
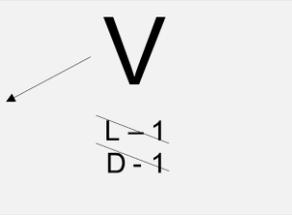
Description	Example	Practical Examples
Large “V” applied to location of all potential victims – live or deceased.	V	
Optional arrow from “V” to clarify location if required.		
Under the “V” either: An “L” indicating confirmed live victim, followed by a number (e.g. “2”) indicating the number of live victims at that location – “L-2,” “L-3” etc. and/or A “D” indicating confirmed deceased victim, followed by a number (e.g. “3”) indicating the number of deceased victims at that location – “D-3,” “D-4” etc.	 	
On removal of any casualty the relevant marking is crossed out and updated (if required) below; e.g. “L-2” may be crossed out and an “L-1” applied indicating only one Live victim remaining.		
When all “L” and/or “D” markings are crossed out, all <i>known</i> victims have been removed.		

Table 10: Progressive examples of victim marking.

### 6.3.3 Rapid Clearance Marking System

The triage category and marking system is mainly used for potential live rescue sites but can also include triage category D to allow triage teams to identify buildings that the teams have reason to believe that there are only deceased remaining in the building and no rescues are possible. This applies to ASR2. However, after having completed ASR5 where teams have established there are no live victims or “Deceased Only” it may be beneficial to mark the site accordingly. Leaving a recognised “Clear” marking will prevent duplication and have other advantages.

This type of marking is called Rapid Clearance Marking (RCM).

#### 6.3.4 Method

The process for applying RCM is as follows:

- A decision must be made by the LEMA to implement this level of marking.
- RCM can only be used when sites can be fully searched quickly or there is strong evidence confirming no live rescues are possible.
- Two RCM marking options are available, they are: “Clear” and “Deceased Only.”

<p><b>Clear:</b> Equivalent to ASR Level 5 search completion – indicating that the area/structure is clear of all live and deceased casualties.</p>		
<p><b>Deceased Only:</b> Indicates same level of comprehensive search has been completed but only <b>deceased casualties</b> remain in-situ. <b>Note:</b> When deceased are removed, apply “Clear” RCM adjacent to original mark.</p>		

Table 11: Two RCM marking options.

- Can be applied to structures that are able to be searched rapidly or where information confirms there are no live victims or only deceased remain.
- Can be applied to non-structural areas – cars/objects/outbuildings/debris piles etc. – that have been searched to standards indicated above.
- Applied in the most visible/logical position on the object/area to provide the greatest visual impact.
- Diamond shape with a large “C” inside for “Clear,” or with a large “D” inside for “Deceased Only.”

Immediately below, the following is applied:

- Team ID: \_\_\_-\_\_\_ e.g. AUS-01.
- Date of Search: \_\_/\_\_\_ e.g. 19/Oct.
- Material to be used can be spray paint, builders’ crayon, stickers, waterproof card etc. at the discretion of the teams.
- Size: Approximately 20 cm x 20 cm.
- Colour: Bright, contrasting colour to background.

### 6.3.5 Progressive Examples

<p>Rapid clearance marking applied to car – indicating Level 5 ASR search complete on car only.</p> <p><b>Completed by Singapore Operation Lionheart Contingent (SGP-01) on 12<sup>th</sup> October</b></p>	
<p>Rapid clearance marking applied to area indicating Level 5 ASR completed of area inside defined marked limits – paint or otherwise define edges.</p> <p><b>Completed by Australia Taskforce 01 on 12<sup>th</sup> October</b></p> <p><b>Note: This pile has been turned over by machinery to confirm ASR Level 5 standard.</b></p>	
<p>Rapid clearance marking indicating comprehensive search completed on object/area. Only deceased casualties remain in-situ</p> <p><b>Completed by Singapore Operation Lionheart Contingent (SGP-01) on 12<sup>th</sup> October</b></p>	

## 6.4 INSARAG Signalling

Effective communications underpin safe field operations, particularly in multi-agency environments. This is even more critical in international environments where language and cultural differences also exist. Effective emergency signalling is essential for safe operation at a disaster site. Having a universally understood emergency signalling system ensures that all personnel operating on a worksite know how and when to react to signals on the site to ensure safe and effective operations for rescuers and victims alike. The following steps must be considered:

- All USAR Team members should be briefed regarding emergency signals.
- Emergency signals should be universal for all USAR Teams.
- When multiple teams are operating on a single worksite, this common understanding should be reinforced to all personnel involved.
- Signals must be clear and concise.
- Team members are required to immediately respond to all emergency signals.
- Air horns or other appropriate hailing devices should be used to sound the appropriate signals as follows and located to allow immediate use:

### Evacuate



*Figure 24: Evacuate: three short signals, one second each – repeatedly until site is cleared.*

### Cease Operations – Quiet



*Figure 25: Cease Operations - Quiet: one long signal, three seconds long.*

### Resume Operations



*Figure 26: Resume Operations: one long signal + one short signal.*

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## 7 Hazardous Materials Operations

### 7.1 Introduction

International USAR Teams locate, extricate, and provide emergency medical treatment to victims entrapped because of structural collapse. Operations involving collapsed buildings normally include some form of hazmat component – examples include, broken heating oil pipes, domestic or industrial refrigerants, broken sewerage pipes, body fluids, etc. USAR Teams should have the capability to deal with these issues as a normal part of SAR operations.

In some instances, structural collapse may involve the significant release of substances that have the potential to injure and/or cause death as well as resulting in significant environmental damage. These substances can include nuclear, biological, or industrial chemical contaminants. Hazmat incidents may also occur in conjunction with an explosive or incendiary device. In these cases, a strong relationship with the LEMA and/or local first responders is considered productive.

Light, Medium and Heavy USAR Teams are required to have a basic capability to detect and isolate hazmat and report the situation to the UCC. Teams locating a hazmat source must cordon off the area and mark accordingly to alert other rescuers of the danger. If there is a suspicion that contamination exists, treat the site as contaminated, until proven otherwise.

### 7.2 Strategic Considerations

Light, Medium and Heavy international USAR Teams need to possess the inherent knowledge to recognise a hazardous environment, thus minimising the risk of harm, injury or death to its members, the affected population and the environment. It is also expected that teams will be able to communicate its findings regarding contamination to others. As indicated, an international USAR Team should:

- Have the ability to recognise situations where contaminant(s) may be suspected.
- Possess the technical expertise to offer sound advice to the LEMA, UCC and other actors.
- Possess the capability to provide basic protection for team members by performing environmental detection and monitoring.
- Implement basic decontamination procedures.
- Be aware of the team's limitations in dealing with complex hazmat operations.

### 7.3 Operational Considerations

If a determination is made that a site is contaminated or if a site is suspected to be contaminated, no USAR operations should be conducted until an appropriate assessment has been undertaken. If it is within the capability of the team, the source of the contamination should be isolated. If it is beyond the capability of the team to isolate the source of contamination, the area should be cordoned off, marked accordingly, with the UCC being notified immediately.

For operational considerations at worksite see Volume III: Operational Field Guide.

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## 8 Beyond the Rubble

### 8.1 Context

Sudden onset disasters of a scale requiring a response from USAR Teams will inevitably result in mid- and long-term impacts to the community. By their nature USAR Teams often have knowledge skills and experience that can be of assistance to the impacted community beyond SAR.

This is referred to as 'Beyond the Rubble' assistance. The term "Beyond the Rubble" refers to USAR Teams using existing capabilities to provide limited further assistance to the community. In this transition phase from USAR to early recovery/relief phase, deployed USAR Teams can support the LEMA using their existing capabilities, expertise and operational awareness of the situation, to smoothen the transition from the response to recovery phase of the operation and to facilitate consistent support to the victims.

### 8.2 Background

"Beyond the Rubble" are activities offered/conducted by USAR Teams deployed after an earthquake or other sudden onset disaster to overcome the transitional phase between the USAR- and the early recovery/relief phase.

These tasks are driven by the needs of the community as identified by the LEMA. USAR Teams should not commence any activities without a request from or approval of the LEMA. All activities are to have clearly defined goals, as determined by the LEMA and an end time commensurate with the demobilisation time of the team. Teams, when offering this assistance should consider to be able to perform them with the same level of professionalism like their main task.

If it is determined, in consultation with LEMA, that team capabilities are required beyond the demobilisation time of the original deployment this should be considered as a humanitarian and not an additional USAR response.

The following capabilities of USAR Teams, could be of benefit:

- Management, coordination and communication support to the LEMA and/or UN coordination mechanism.
- Assessment.
- Logistical support.
- Technical support including structural engineering.
- Health- and medical-support including WASH.

It is noted that "Beyond the Rubble" activities are voluntary and will be determined by the existing capabilities and capacities of the deployed USAR Team. It is not expected that "Beyond the Rubble" activities will be done by all USAR Teams and Teams are not forced to structure their teams to meet the anticipated extended capabilities. "Beyond the Rubble" activities are not assessed as part of the IEC/R process.

It is advantageous if USAR Teams can declare their "Beyond the Rubble" capabilities on the VOSOCC prior to an international deployment.

## Annexes

### Annex A: Table of Changes to INSARAG Guidelines 2015-20

Amended Topic/Subject	
1	Implemented ISG 18 decisions on UCC and Classified Light Teams <ul style="list-style-type: none"> <li>Information added to reflect the decision (e.g. transition from provisional OSOCC to UCC).</li> </ul>
2	Implemented ISG 17 decision on Beyond the Rubble.
3	Implemented relevant parts from Medical Guidance Notes <ul style="list-style-type: none"> <li>Information added where relevant under USAR Detailed Operations in chapter 4.</li> </ul>
4	Key changes in content <ul style="list-style-type: none"> <li>To keep the format consistent and content up to date.</li> <li>Changes in abbreviations.</li> <li>Indicated VOSOCC is managed by ERS.</li> <li>Remove extensive text on the use of VOSOCC.</li> <li>Updated on ICMS.</li> <li>Adopted worksite triage methodology under INSARAG tools.</li> <li>Adjusted the RCM to account for fatalities in non-worksite locations and report to LEMA.</li> <li>Included physical search in USAR Team search.</li> <li>Indicated which marking system is a must and which is optional.</li> </ul>
5	Infographics <ul style="list-style-type: none"> <li>Updated most of the figures and photos in the manual.</li> </ul>
6	Annexes <ul style="list-style-type: none"> <li>Introduction of “Table of Changes to INSARAG Guidelines 2015-20” as Annex A to capture the updates made from the 2015 Guidelines.</li> <li>From the 2015 Guidelines:               <ul style="list-style-type: none"> <li>“Annex A: Ethical Considerations for USAR Teams” has been moved to <i>Guidelines Annex</i> → <i>Volume II, Manual B</i> tabs of the Guidance Notes on <a href="http://www.insarag.org">www.insarag.org</a>.</li> <li>“Annex B: Media Management Guide” has been moved to <i>Guidelines Annex</i> → <i>Volume II, Manual B</i> tabs of the Guidance Notes on <a href="http://www.insarag.org">www.insarag.org</a>.</li> <li>“Annex C: Aircraft Capacity” has been moved to the <i>Mobilisation</i> → <i>Logistics</i> tabs of the Technical Reference Library on <a href="http://www.insarag.org">www.insarag.org</a>.</li> <li>“Annex D: Types of Helicopters Typically Used During Disaster Operations” has been moved to the <i>Operations</i> → <i>Logistics</i> tabs of the Technical Reference Library on <a href="http://www.insarag.org">www.insarag.org</a>.</li> <li>“Annex E: Tools and Guidance Notes” has been moved to <i>Forms</i> → <i>Vol II, Manual B</i> of the Guidance Notes on <a href="http://www.insarag.org">www.insarag.org</a> and separated into the following forms/notes:                   <ul style="list-style-type: none"> <li>USAR Team Fact Sheet and Demobilisation Form</li> <li>Worksite Triage Form</li> <li>Worksite Report Form</li> <li>Victim Extrication Form</li> <li>Incident/Sector Situation Report</li> <li>Humanitarian Needs Identification Form</li> <li>Patient Treatment Form</li> </ul> </li> </ul> </li> </ul>

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## **Annex B: Annexes hosted on [www.insarag.org](http://www.insarag.org)**

### **Annex B1: Ethical Considerations for USAR Teams\***

\*“Ethical Considerations for USAR Teams” is located in *Guidelines Annex → Volume II, Manual B* sub-section of the Guidance Notes on [www.insarag.org](http://www.insarag.org).

### **Annex B2: Media Management Guide\***

\*\*“Media Management Guide” is located in *Guidelines Annex → Volume II, Manual B* sub-section of the Guidance Notes on [www.insarag.org](http://www.insarag.org).

### **Annex B3: Aircraft Capacity\*\***

\*\*\*“Aircraft Capacity” is located in *Mobilisation → Logistics* sub-section of the Technical Reference Library on [www.insarag.org](http://www.insarag.org).

### **Annex B4: Types of Helicopters Typically Used During Disaster Operations\*\***

\*\*\*“Types of Helicopters Typically Used During Disaster Operations” is located in *Operations → Logistics* sub-section of the Technical Reference Library on [www.insarag.org](http://www.insarag.org).

### **Annex B5: Tools and Guidance Notes\***

\*The following forms are located in *Forms → Vol II, Manual B* sub-section of the Guidance Notes tab on [www.insarag.org](http://www.insarag.org)

- USAR Team Fact Sheet and Demobilisation Form
- Worksite Triage Form.
- Worksite Report Form.
- Victim Extrication Form.
- Incident/Sector Situation Report.
- Humanitarian Needs Identification Form.
- Patient Treatment Form.

