

### KEY FINDINGS

1. Positive contributions were made by smaller, lighter teams and non-classified teams and this should be further strengthened.
2. The revised INSARAG Guidelines (2015) are a positive evolution of the system and increased familiarity with the new INSARAG Guidelines would improve their effectiveness.
3. There is an expectation that IEC teams show leadership and demonstrate good practice in the field.
4. Flexibility and adaptability are critical for ensuring an appropriate response in highly dynamic situations.

## 1.0 BACKGROUND

At 1156h local time on 25 April 2015, an earthquake with a magnitude of 7.8 and a depth of 15km struck Nepal. The epicenter of the earthquake was in the province of Gorkha, 77km northwest of Kathmandu. Early information indicated collapsed buildings both in Kathmandu and surrounding areas, and the likelihood of significant humanitarian consequences. Based on the initial information regarding potential impact, many USAR teams anticipated the need for international search and rescue support and began preparations in case of deployment. Simultaneously, an event was opened on the Virtual OSOCC and OCHA mobilized an UNDAC team. The Government of Nepal made an official request for international assistance through the United Nations Resident Coordinator on 25 April.

The first international USAR teams arrived on 25 April and continued to arrive over the week. In total, 76 international USAR teams were registered from 31 countries, encompassing 1872 personnel and 118 dogs. Of the registered USAR teams, 18 were INSARAG IEC teams. An RDC was established at the Kathmandu Airport and an OSOCC was established in Kathmandu with the UCC adjacent to the main BoO near the Kathmandu Airport.

On 27 April, the Government of Nepal requested that all USAR teams not already in transit to stand down due to sufficient search and rescue resources in-country to meet the needs. The end of the international USAR phase was declared on 3 May and the Government of Nepal requested all teams to depart the BoO by 6 May to allow for the continued transition to relief and early recovery activities.

On 12 May a large aftershock with a magnitude 7.3 and depth of 15km struck the Dolakha District of Nepal, east of Kathmandu. Additional damage occurred to areas already impacted by the earlier earthquake, including new building collapses. International USAR support was provided by teams who remained in the country and no additional international teams were requested.

## 2.0 PURPOSE / SCOPE

The technical evaluation of the search and rescue response to the 2015 Nepal Earthquake was initiated by the Field Coordination Support Section (FCSS) of the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), as INSARAG Secretariat, in consultation with the Global INSARAG Chair. The evaluation is focused on four main aspects of the response:

1. Decision-making considerations in the deployment of international USAR teams
2. Virtual and operational support provided by OCHA to field activities
3. Implementation of the 2015 INSARAG Guidelines methodology
4. Activities USAR teams engaged in beyond search and rescue in the lifesaving phase

An INSARAG system-wide evaluation of the Nepal response is out of scope for this evaluation and will be conducted separately. Other concurrent evaluations are being / will be conducted on the UNDAC mission, the Virtual OSOCC and the OSOCC System. Aspects of the INSARAG technical evaluation will have similarities to these other evaluations given the interdependent nature of these systems.

## 3.0 METHODOLOGY

Data for the technical evaluation was gathered through the use of an electronic survey that consisted of a mix of open- and closed-ended questions. The survey involved 33 questions; however built-in question logic determined the actual questions each respondent completed.

The survey was sent via e-mail to 134 USAR teams representing three target groups:

1. USAR teams that deployed in a USAR capacity
2. USAR teams that deployed in a non-USAR capacity
3. USAR teams (INSARAG members) that did not deploy

All four aspects of the evaluation were applicable for target groups one and two. Target group three answered questions limited to the topic of deployment decision-making.

## 4.0 FINDINGS

### 4.1 Team Profile

63 people representing 39 USAR teams, 31 of which deployed to Nepal, contributed to the technical evaluation through the survey. Of the respondents, 48% of the teams were classified under the INSARAG system and 76% of the teams were members of INSARAG. Only one team indicated a specific choice not to join INSARAG. The other teams who were not members mainly indicated navigating the political and financial means as barriers to membership. A few teams commented on accreditation / classification in a manner synonymous with membership, suggesting some confusion exists around being a member vs. being a classified team. Outreach to new internationally deployed teams may encourage an expansion of INSARAG membership and thus, teams using the common methodology.

Over the last 12 months, USAR teams undertook a number of preparedness activities to maintain their readiness level for deployment. The most common activities were training and exercises, as illustrated in the figure below:

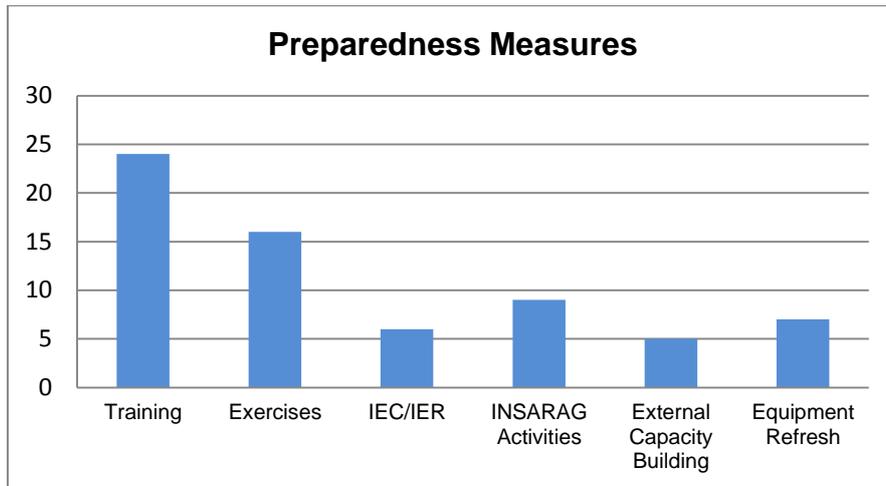


Figure 1: Preparedness activities over the previous 12 months.

#### 4.2 Alert and Deployment

Teams were alerted to the occurrence of the earthquake primarily through GDACS (63%) or another earthquake alerting organization such as the United States Geological Survey. The most common source of notification for the request for assistance was through the Virtual OSOCC (46%), followed by diplomatic channels (37%). This reinforces the importance of ensuring the Virtual OSOCC is active early on in the disaster.

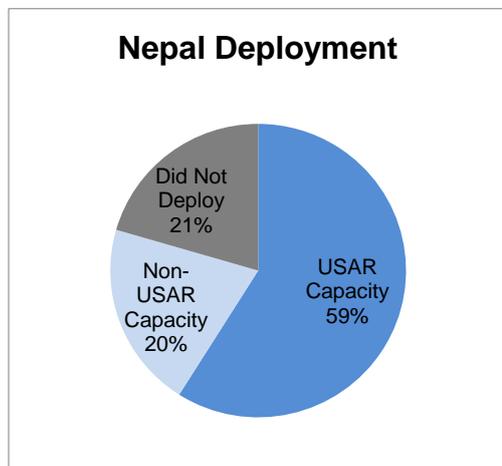


Figure 2: Deployment status

Eight of the respondents were from USAR teams that deployed to Nepal in a non-USAR capacity, such as facility management, reconnaissance, medical, rubble clearance, assessment and logistics. These teams cited delays in deployment, distance to travel, stage of the response, actions of other teams, impact (damage and injuries) and specific requests from the Government of Nepal as factors that led to their

Eight USAR teams who did not deploy to Nepal responded to the survey, providing insight into the factors that contributed to their decision. Teams cited challenges with deployment mechanisms / support (e.g., an inability to land at the Kathmandu airport, lack of funding to deploy, lack of government support) nearly as many times as factors related to the appropriateness of deploying (e.g., an inability to travel to Nepal within a timeframe suitable for viable rescue, request from the Government of Nepal to stand down).

Eight of the respondents were from USAR teams

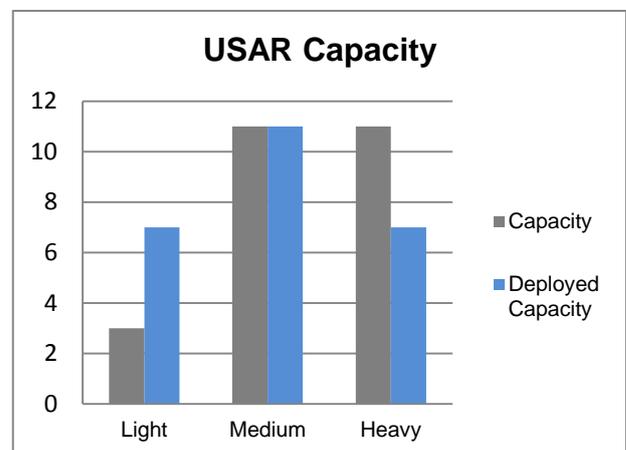


Figure 3: Deployed USAR capacity

decision. While challenges with deployment mechanisms were still noted, there is a greater focus on the appropriateness of the assistance as compared to the teams that did not deploy.

The remaining respondents represented twenty-three USAR teams that deployed to Nepal in a search and rescue capacity. Of these teams, four of the Heavy USAR teams deployed in a Medium capacity and four of the Medium USAR teams deployed in a Light capacity. Factors that contributed to the decision to deploy included the formal request from the Government of Nepal, diplomatic requests, team readiness, available transport, the humanitarian imperative and the impact and severity of the earthquake. There was also a minimal amount of assessment of the vulnerability of the region and the local context. These teams in particular mentioned gathering information from the VOSOCC, GDACS, the media and their networks as part of their decision-making process. Based on this, the VOSOCC may be an opportunity to provide stronger information about the local context early in the disaster to enable teams to include this in their decision-making process.

USAR teams who responded to the survey began arriving in Nepal on 26 April (although it is known that the first teams from neighbouring countries arrived on 25 April). The peak of arrivals was reached on the same day the Government of Nepal request all teams not already in transit to stand down.

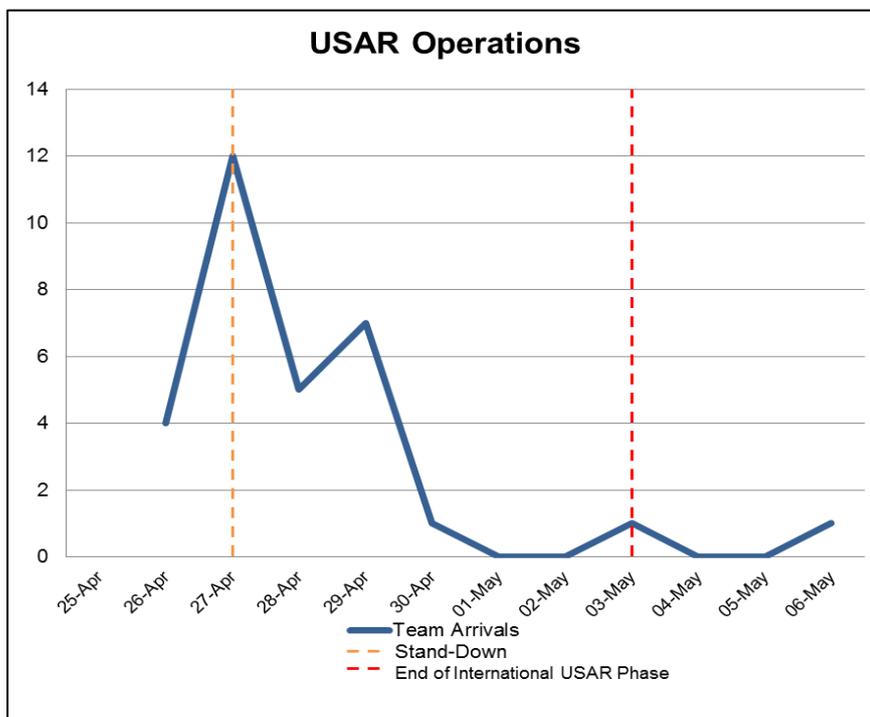


Figure 4: USAR teams arriving in Nepal

USAR teams worked on the ground in Nepal anywhere from six days to over three weeks. The peak of teams operating occurred between 29 April and 1 May, just before the Government of Nepal indicated the end of the international USAR phase.

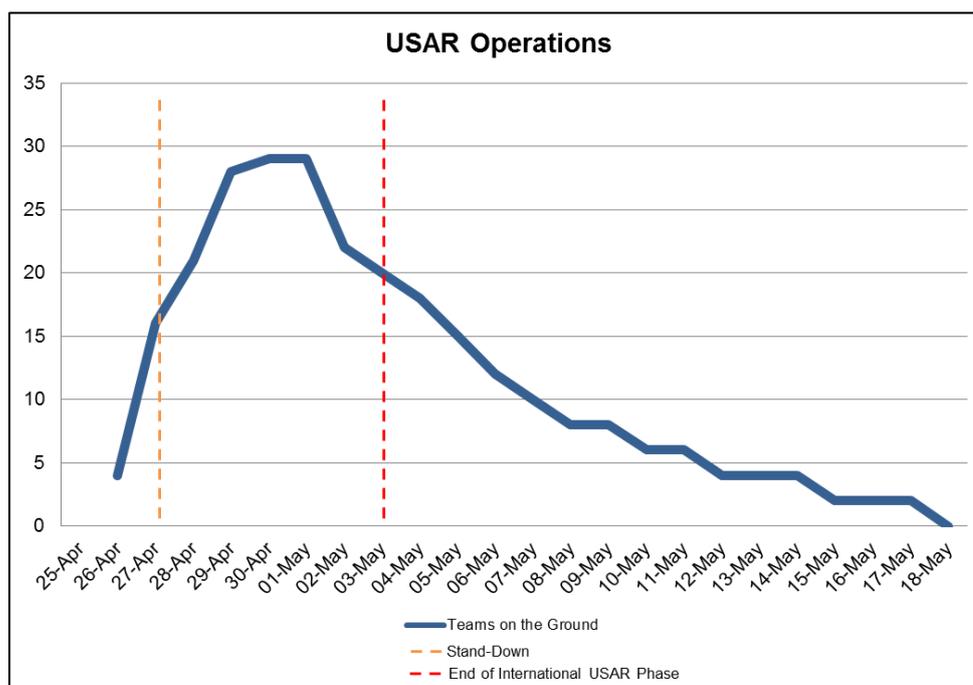


Figure 5: USAR teams on the ground in Nepal

Of the teams that contribute to this technical evaluation, the average mission duration was 10 days of in-country activities, exclusive of travel time. While many of the teams departed around the end of the international USAR phase, it is also recognized that many teams undertook activities beyond those primarily associated with search and rescue (see section 4.5).

### 4.3 Virtual and Operational Support

OCHA supports the activities of the USAR teams and the broader humanitarian response through a number of virtual and operational support mechanisms, namely the OSOCC system (including the VOSOCC, RDC and primary OSOCC inclusive of the USAR Coordination Cell). The INSARAG Guidelines also outlines a Base of Operations (BoO) specifically for USAR teams. These support mechanisms are primarily intended to foster coordination among the responding teams.

#### 4.3.1 Virtual Support

Of the survey respondents, 84% of the USAR teams who deployed used the VOSOCC during the mission. Overall teams felt the information posted was sometimes or usually useful as summarized in the table below:

VOSOCC Information	Never	Rarely	Sometimes	Usually	Always
Information was posted in a timely manner	6%	6%	31%	56%	3%
Information was useful for decision-making	8%	11%	25%	50%	6%
Information was useful for situational awareness	8%	6%	28%	42%	17%

89% used the VOSOCC to obtain information and 94% contributed information to it. That there are teams who contributed to it but did not use it as a source of information is a point of concern for ongoing motivation to use the virtual coordination platform. The five most helpful types of information were:

1. Situation reports / information on the overall situation
2. Other teams' activities
3. Coordination mechanisms
4. Request for assistance / stand-down
5. Contact information

Challenges related to using the VOSOCC were mainly related to lack of access (either due to Internet connectivity or not having an account) and difficulty in navigation. In particular it was felt that the current layout is not intuitive for users leading to confusion in where to find / post information. USAR teams suggested a number of areas for improvement:

- An archive of older information
- Better identification of new information within recently updated sections
- Inclusion of the level of disaster (i.e., L1-3)
- Moderation from an operational mindset
- Stronger use by all teams

#### 4.3.2 Operational Support

Of the survey respondents, 86% of the USAR teams indicated that they participated in the operational coordination mechanisms established on the ground in Nepal. As with other aspects of the coordination and methodology, the RDC, UCC, OSOCC and BoO work best when all teams participate. Those teams that did not participate generally indicated that this was due to deliberate choice or pre-occupation with field operations, and that they were working directly with the local authorities. 54% of the teams contributed staff members to the RDC, UCC or OSOCC. Those who did not contribute staff were mainly not asked, indicated sufficient staffing already in place or did not have sufficient training in order to be able to do so. Many of the teams that did contribute staff members cited being members of INSARAG and working according to the INSARAG Guidelines as rationale. Thus it stands to reason that encouraging non-classified teams and non-INSARAG members to operate in accordance with the INSARAG methodology regardless of membership or classification status would widen the pool of available staff to provide operational support.

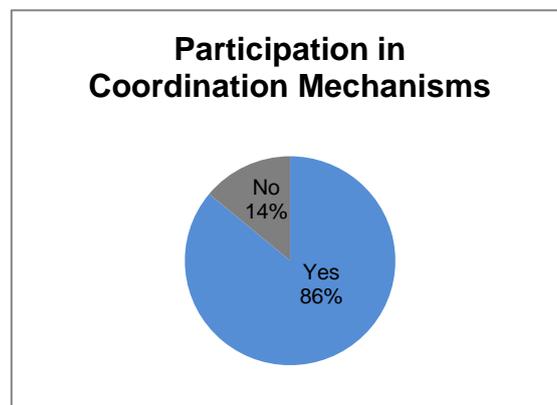


Figure 6: USAR teams participating in on-site coordination mechanisms

Coordination Mechanism	Not at All	Poor	Fair	Very Well	Excellent
RDC	20%	14%	29%	26%	11%
UCC	15%	21%	15%	32%	18%
OSOCC	19%	6%	33%	36%	6%
BoO	26%	0%	19%	45%	10%

USAR teams expressed unmet expectations of support from the coordination mechanisms that were outside the scope of their responsibility as outlined in the INSARAG Guidelines and OSOCC Guidelines (e.g., RDC to address airport congestion, UCC to provide vehicles). This suggests a need for further awareness of the Guidelines and perhaps exploration of alternative ways to address these challenges. Specific areas for improvement for each of the four mechanisms are outlined below:

Coordination Mechanism	Opportunity for Strengthening
RDC	<ul style="list-style-type: none"> <li>Stronger support to teams moving from the RDC to the OSOCC / UCC / BoO</li> <li>Increased signage</li> </ul>
UCC	<ul style="list-style-type: none"> <li>More inclusive of small teams and non-classified teams</li> <li>Stronger communication link to teams in the field</li> </ul>
OSOCC	<ul style="list-style-type: none"> <li>Stronger communication between OSOCC components</li> <li>Improved coordination with all levels of government</li> </ul>
BoO	<ul style="list-style-type: none"> <li>Assign a team to manage the BoO</li> <li>Post an information board</li> </ul>

#### 4.4 INSARAG Methodology

The 2015 INSARAG Guidelines introduced / strengthened four aspects of methodology that were implemented in Nepal: Sectorization, Marking System, ASR Levels and Forms. Overall these methodologies were rated as 3.62 / 5 on ease of use and 3.42 / 5 on contributing to operational coordination. Specific ratings of each methodology are summarized below:

Methodology	Ease of Use	Contribution to Coordination
Sectorization	3.57	3.57
Marking System	3.60	3.14
ASR Levels	3.69	3.46
Forms	3.62	3.54

These were generally considered to be valuable improvements to the INSARAG methodology, however all teams need to use them in order for them to be effective. Unfamiliarity with the technical specifics of each methodology likely contributed to the inconsistent application by teams in the field. Continued reinforcement in missions, exercises and trainings will improve awareness and comfort with these aspects of the INSARAG Guidelines.

The following sub-sections summarize specific comments on each of the four elements.

#### 4.4.1 Sectorization

The use of sectors to denote separate geographic areas was seen to be a valuable tool and contributed to a stronger organization of USAR efforts. The main challenges with implementation of the sectors were a perception of a delayed determination of sectors combined with late mapping and poor communication. These early stumbles hindered the effectiveness in the first days. Assessment of needs within sectors and appropriate assignment of teams, including small teams and non-classified teams, was an area that was noted for strengthening in future operations. Specifically, sector assignments should be reviewed as ASR levels change to ensure that teams are in a position to complete their assigned task. Some teams felt that the sectors were restrictive in their use and others felt that there were instances of working outside of assigned sectors. It will be important in future operations to communicate sectorization rationale clearly to USAR teams and to ensure open communication channels with teams in the field to enable adjustments to assignments as necessary.

#### 4.4.2 Marking System

The marking system presented particular challenges as it was widely noted that USAR teams used a number of different marking systems. The inconsistent use of the INSARAG standard caused confusion amongst teams and created a level of distrust with the markings. In some cases, it was noted that the markings were inaccurate, which led to buildings being checked multiple teams. The marking system itself was considered easy to use and a good improvement, however it perhaps most of all relies on all teams using the same system. Given the importance of this, teams who are less familiar with the INSARAG Guidelines will need to be supported in use of the marking system in the field through a dedicated briefing, provision of tools (e.g., pocket card) and / or pairing with teams experienced in it.

#### 4.4.3 ASR Levels

The use of the ASR levels in the USAR response was seen as valuable management tool and enabled clearer communication of task assignments. The levels provided clarity to the teams in terms of expectations and work assignment. There was some difficulty distinguishing between the levels operationally and the translation of the description to tasks on the ground. The ASR levels would benefit from more field-testing to validate the descriptions and support translation to on-the-ground actions.

#### 4.4.4 Forms

Generally the USAR teams recognize that forms are necessary and that consistent forms are important for operations. Some teams commented on the forms being overly detailed and containing repetitive information. In addition, it was noted that the link between the forms and their input into operational planning / analysis was unclear. To increase the ease of use of the forms, it was strongly suggested to explore the creation of electronic forms and to ensure they are available electronically (e.g., on the VOSOCC).

### 4.5 Primary and Secondary USAR Activities

Each USAR team began their mission with a Terms of Reference (ToR) that outlined the anticipated activities they would undertake in Nepal. For the purposes of this analysis, these were categorized as primary and secondary activities. Primary activities included those related to search, rescue, coordination, assessment, internal medical and internal logistics. Secondary activities were considered those outside the primary ones such as health, WASH, rubble clearance, body recovery and humanitarian aid. As illustrated in the table below, many teams began their Nepal mission with the intention of conducting both primary and secondary activities, and even more actually did so. Given this

expanded scope of operations within USAR teams, it would be beneficial to capture this capacity before teams deploy in order to effectively utilize it within the broader humanitarian response. 42% of teams undertook activities that were beyond their initial ToR. This demonstrates that some teams have adopted a flexible approach to operations, using their skills and knowledge in ways driven by the needs on the ground.

	Primary USAR Activities	Secondary USAR Activities
In ToR	100%	67%
Carried Out	96%	83%

#### 4.6 Demobilization

Demobilization is an important part of any mission and does not always get the same attention as the other parts. Only half of the USAR teams posted their demobilization form on the VOSOCC prior to departure. In some cases lack of access to the VOSOCC and telecommunications challenges was a limiting factor, although some teams noted hard copies were left. Others cited lack of coordination structure remaining or a shift in focus from USAR operations to another activity. It is positive to note that 81% of the USAR teams visited the RDC, OSOCC and / or UCC before they left Nepal at the end of their mission. The teams who did not visit one of the coordination centres noted that the RDC or UCC was closed before their departure date. Given that the primary OSOCC was still operational, the transition of functions within the OSOCC system and the communication of those transitions is an area that should be strengthened in future operations. Consideration should also be given to developing a “check out” mechanism through the VOSOCC or other platform to improve the oversight of teams operating within an affected country.

## 5.0 RECOMMENDATIONS

The four key findings and associated recommendations are outlined in the table below:

Key Finding	Recommendations
Positive contributions were made by smaller, lighter teams and non-classified teams and this should be further strengthened.	<ul style="list-style-type: none"> <li>Reinforce the inclusion of smaller teams and non-classified teams in planning and operations through preparedness activities such as meetings, trainings and exercises.</li> <li>Foster an inclusive USAR coordination environment during operations through mutual efforts of all teams, classified and non-classified.</li> <li>Encourage identification of and collaboration with smaller teams and non-classified teams with the intention to deploy internationally through the troikas, IEC teams and INSARAG members in each country.</li> </ul>

<p>The revised INSARAG Guidelines (2015) are a positive evolution of the system and increased familiarity with the new INSARAG Guidelines would improve their effectiveness.</p>	<ul style="list-style-type: none"> <li>• Continue to advocate for adoption and translation of the INSARAG system.</li> <li>• Continue to support the 5-year revision cycle of the INSARAG methodology through a consultative process.</li> <li>• Encourage continued use of the INSARAG and OSOCC methodology in training and exercises to increase familiarization.</li> <li>• Actively reach out to non-INSARAG members who responded to Nepal.</li> <li>• Introduce INSARAG methodology to non-INSARAG members and encourage adoption.</li> <li>• Consider development of tools / briefings to facilitate rapid adoption of key mechanisms (e.g., marking system) in the field.</li> </ul>
<p>There is an expectation that IEC teams show leadership and demonstrate good practice in the field.</p>	<ul style="list-style-type: none"> <li>• Reinforce and encourage leadership from IEC teams in on-the-ground implementation of the INSARAG Guidelines as a responsibility of classification.</li> <li>• Explore opportunities / interest in peer feedback models.</li> </ul>
<p>Flexibility and adaptability are critical for ensuring an appropriate and effective response in highly dynamic environments.</p>	<ul style="list-style-type: none"> <li>• Encourage adaption of team deployment to local conditions.</li> <li>• Explore further the conduct of secondary activities by USAR teams to gain an understanding of these contributions and seek opportunities to strengthen.</li> </ul>

In addition to those outlined above, a number of additional recommendations have been included in section 4.0 Findings. These are summarized below:

- Continue to ensure the VOSOCC is active early in a disaster and contains information about the local context. Encourage use by all teams.
- Consider modifications to the VOSOCC related to intuitive navigation, information archiving and identification of new information within updated sections.
- Continue to encourage teams to participate in operational coordination mechanisms.
- As part of ongoing planning activities in a response operation, review sector assignments in conjunction with changes in the ASR level to ensure teams have the capability to fulfill the changing tasks.
- Provide on-the-ground support to teams unfamiliar with the INSARAG marking system (e.g., on-site briefing, provision of tools such as copies of the marking system).
- Validate, and revise as needed, descriptions of the ASR levels in upcoming exercises and future responses.
- Develop a set of electronic, fillable forms and ensure they are hosted on a web-based platform for easy access.
- Explore options for a “check out” mechanism through the VOSOCC or other platform.