Natural Disaster International Rescue Response Mechanism and Development Trends

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Abstract

The international rescue response to natural disasters, which has frequently drawn the attention of the international community, is a very important part of the international humanitarian assistance system. This paper focuses on the international rescue response mechanism, which is under the UN framework, and trends in its development. Referencing the international rescue response mechanism under the UN framework, and its main components, basic procedures, quality guarantee and support from the international rescue response mechanism. On the side of international rescue development, the paper reviews the development history and the strategic plan from 2021to 2026, and offers some suggestions from the point of view of the authors. We hope to provide a foundation for broader and deeper discussions in this field.

Keywords: natural disaster ; humanitarianism; international rescue; response mechanism

Introduction

How to minimize the losses caused by natural disasters has always been a major challenge for all countries. After the occurrence of a catastrophic natural disaster, in addition to the response of the affected country, international humanitarian assistance, including personnel, assets, funds, technology, etc., also plays a very important role in disaster response. Among these, international relief response, mainly composed of rescue teams, is drawing more and more attention.

At present, international rescue response is mainly triggered under two types of framework. One is the multilateral framework, including the UN, EU, ASEAN and SCO. (A Glossary of Acronyms is provided at the end of this paper.) For example, for the 8.1 Ms earthquake in 2015 in Nepal, there were 76 international rescue teams that participated that mission, which was coordinated by OCHA. The second framework is the bilateral framework, as used when four international rescue teams were deployed to China by diplomatic channel in 2008, in response to the Wenchuan earthquake. In addition, a rare third framework, the unilateral framework, is used when the government of the affected country becomes non-functional.

In the past decades, international rescue response under the UN framework has proved that it is the most effective approach for mobilizing and coordinating international rescue teams. In this paper, the structure and features of the international rescue response mechanism are studied and analysed, and we discuss its development trends.

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1 The International rescue response mechanism under the UN system

1.1 The UN humanitarian assistance response system

The UN humanitarian response system is built for helping affected populations globally, who are suffering from or exposed to risks from natural disasters, tech/environment incidents or complex emergencies. Most of the time, the response system is launched by official request from local authorities. In addition to responding to emergencies, a comprehensive humanitarian response capacity building service can also be provided [1]. Based on statistical data published by UN-OCHA, from 1993 to 2019, the total number of missions led by UN with the deployment of UNDAC teams is 300. About 89% of the missions, 266, were deployed for natural disasters.

The ERC is in charge of the UN humanitarian response system, and he or she will occupy the position of UN-USG at the same time. The main part of system is composed of nine agencies from the IASC, Inter-Agency Committee, including the UNDP, UNICEF, UNHCR, WFP, FAO, WHO, UN HABITAT, IOM and OCHA. OCHA is managed by the ERC directly and it is responsible for international coordination, coordinated assessment, information management and other relevant support during the early phase of disasters. The other agencies provide assistance by leading a global 'cluster' of participating groups. At the same time, there are another 8 international agencies that get involved as standing invitees, including ICRC, ICVA, IFRC, InterAction, OHCHR, SR on HR of IDPs, SCHR and World Bank. These agencies also play important roles in the system.

At the national level, a Humanitarian Coordinator (HC) will be designated by the ERC after a major incident has occurred, if necessary. Usually, the RC in the affected country will take this position and organize an HCT/Humanitarian Country Team, which is composed of the representatives of UN agencies, international NGOs and the Red Cross/Red Crescent Movement (this last organization as observers). The HCT works under HC/RC's leadership, and together they assess the impact of the disaster and potential humanitarian needs, while maintaining communication with the authorities and the ERC providing information to support decision making.

At the onsite level, OCHA will send a UNDAC team, which is also led by the HC, to manage international coordination at the early stage after the request from the authorities. UNDAC will set up an OSOCC as a physical coordination space, and use a online virtual OSOCC for information management and sharing. Depending on the situation, the UNDAC teams will demobilize and handover their work to the local authority after weeks or months. HCT with cluster members will continue work in the affected country as long as there are still needs for international humanitarian assistance.

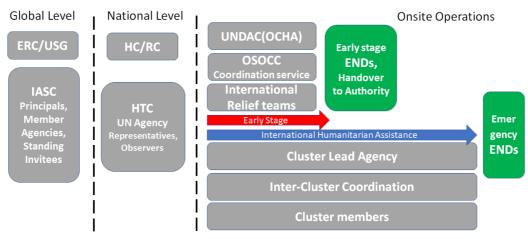


Figure 1 : UN Humanitarian assistance system

1.2 The UN international rescue response mechanism

Compared to the other categories of international humanitarian assistance, the international rescue response has its own special features and unique combination of professionals. When and only if the affected country requests international rescue teams, this part of the response mechanism will be triggered. OCHA also manages this area with technical support from an agency called INSARAG, International Search and Rescue Advisory Group, with its secretariat in ERS, RSB, OCHA.

1.2.1 The Components

There are two core components of the international rescue response mechanism under the UN system: the first one is INSARAG, and the second one is international rescue teams.

INSARAG was founded in 1991, and now it has more than 90 member countries and organizations. In order to promote the development of international field rescue, enhance the USAR team's capacity, and continuously improve the efficiency of international operations, the INSARAG has kept implementing a series of measures following the direction of its development strategy, such as INSARAG guidelines, IEC/R, ICMS, working groups, international training, meetings, exercises, etc.

The international rescue teams are officially called international USAR teams, Urban Search and Rescue. USAR teams are a group of professionals with rescue equipment, tools and search dogs, that search for and rescue trapped victims under collapsed buildings, caused by earthquakes, explosions or other incidents. There are five components of an INSARAG standard USAR: Management, Search, Rescue, Logistics and Medical.

During operation, the international rescue teams will be coordinated by OSOCC as well, particularly cooperating with two OSOCC functional cells, which are the RDC and UCC. RDC, Reception and Departure Centre, is the first and the last spot that all international relief teams should pass by and get registered just after they arrive or before they depart from the affected county. UCC, the USAR Coordination Cell, is the major coordination platform for international rescue teams onsite in the affected country.

Besides using the virtual OSOCC, the INSARAG information working group has developed a system called ICMS, INSARAG Coordination and Management System, for use by all the international USAR teams RDC, and UCC to collect, analyse, manage and disseminate the information online.

1.2.1 The Basic procedures

Preparedness, mobilization, operation, demobilization and post mission: these are the five phases developed by INSARAG as a cycle of USAR working procedures.

Preparedness is the phase for capacity building during normal times. Once there is an emergency large enough for OCHA to start an event in the virtual OSOCC, all the international rescue teams are able to keep monitoring the situation and step into the phase of mobilization. Depending on the impact of the event, and also whether the affected country wants to have international rescue teams or not, the stakeholders may make the final decision to standdown or send the team there.

If an official request for international rescue assistance is issued by the affected country, OCHA will launch the international rescue response and coordination mechanism into the operation phase, and the INSARAG will start with remote support via virtual OSOCC and ICMS. As for international rescue teams, their arrival at the entry point and registration at RDC marks the start of the operation phase for them.

When the search and rescue tasks for the international rescue teams are completed, the authority will make an announcement through the UCC telling all international teams that it's time to conduct their demobilization plans.

All the INSARAG designated international rescue teams are required to finish their mission reports and send them to the INSARAG secretariat within 45 days after they come back to their headquarters. After they have recovered from the mission and are ready for deployment again, the post mission phase is finished and another cycle begins.

1.2.2 Guarantee and support

The policy, financial support and resources from OCHA are the foundation of the international rescue response mechanism. The leadership and self-improvement of INSARAG provides quality assurance. Then, there is the active involvement of member countries and partners.

These three elements guarantee and support the international rescue response mechanism. They comprehensively cover all areas, include policy, financial investment, guidelines, methodologies, cooperation, memberships, partnerships and other relevant elements. In the view of the authors, the IEC/R system and USAR coordination methodology are the most important technical elements.

1.2.2.1 IEC/R system

The IEC/R, INSARAG External (Re)Classification, is a peer review system based on the methodology, procedures and checklist which are contained in the INSARAG guidelines. The main goal is to certify the INSARAG capacity level of a team, to push the team to maintain its capacity level, and to encourage the team to be actively involved in INSARAG activities and disaster response. Through the promotion and operation of the IEC/R system, the INSARAG concept, methodology, procedures and relevant technical standards are well accepted and absorbed by the member countries and partners.

In the INSARAG guidelines there are three different categories of international USAR teams: light, medium and heavy. They have their own minimum standards of capacity, which are described in the box below (Extract from INSARAG Guidelines 2020):

Types	Overall Capacity description
Light	 Is required to have the capacity to work on a single worksite. Is required to have the capability for search dogs and / or technical search. Must be adequately staffed and resourced to allow maximum 12-hour operations on one site (site may change) for up to five days. Must be able to medically treat its own team members (including dogs if present) as well as victims encountered if allowed to do so by the government of the affected country. Must be capable of conducting USAR operations to ASR3 level and integrating into the standard INSARAG reporting mechanisms.
Medium	 Is required to have the capacity to work only at a single worksite. Is required to have the capability of search dogs and/or technical search, and Must be adequately staffed to allow for 24-hour operations at one site (not necessarily at the same site; the sites may change) for up to seven days. Must be able to medically treat its team members (including search dogs if present) as well as victims encountered if allowed to do so by the government of the affected country.
Heavy	 Is required to have the equipment and manpower to work at a Heavy technical capability at two separate worksites simultaneously. A separate worksite is defined as any area of work that requires a USAR Team to re-assign staff and equipment to a different location all of which will require separate logistical support. Is required to have both a search dog and technical search capability. Is required to have the technical capability to cut structural steel typically used for construction and reinforcement in multi-storey structures. Must be adequately staffed and logistically sufficient to allow for 24-hour operations at two independent sites (not necessarily at the same two sites; the sites may change) for up to ten consecutive days. Must be able to medically treat its team members (including search dogs as well as victims which the USAR Team is working to extricate prior to the medical handover. if allowed to do so by the government of the affected country.

Table 1: Minimum capacity requirements of international USAR teams

According to figures published by INSARAG, by the end of November 2019, there were in total 35 international heavy USAR teams and 21 medium teams globally.

1.2.2.2 USAR coordination methodology

INSARAG has provided a comprehensive package supporting USAR coordination, including concept, manual, training programme, online platform (ICMS), UC staff certification, ASR levels, worksite triage matrix, worksheets, marking system, etc.

Table 2: USAR coordination methodology and tools			
Subject/Methodology	Function/Purpose		
Concept	Coordinate the international USAR teams base on the INSARAG methodology and guidelines, by using the RDC and UCC under the OSOCC system. To ensure the quality, efficiency, safety and security of the operation.		
UC manual	To provide guidance on the methodology of USAR Coordination to train and prepare USAR team members for national and/or international operations.		
UC Training Programme	A training programme to certify UC staff with certain standard procedures, including candidate selection, pre-course tasks, face to face training(4/5 days).		
UC staff certificate	An evidence for UC support capacity.		
ICMS	INSARAG Coordination and Management System, a package of three applications: Survey 123, Explorer and Dashboard, for all the international USAR teams and RDC/UCC to collect, analysis, manage and disseminate the information online.		
ASR levels	Divide assessment, search and rescue into 5 different levels and each level has its tasks and output. UCC coordinates international USAR teams with different types of assignment according to their ASR level.		
Worksite triage matrix	By using capital letters, A to D, for prioritizing the worksites.		
INSARAG Worksheets	A series of worksheets with standard elements, to collect, summarize, manage and disseminate the information.		
Marking system	Special symbols are integrated with simple letters, numbers, lines and arrows to express relevant information of specific worksites.		

Lessons learned since INSARAG was founded in 1991, tell us that effective onsite coordination can optimise the matching of available resources to needs, make the search and rescue operations safer and more efficient, and ensure key information can be collected, managed and disseminated in a more professional and timely manner. The collective result of the benefits from this improved coordination is the saving of many lives.

2 The development trends in International rescue

2.1 Development history

2.1.1 The establishment of INSARAG

In the Mexico City 7.8Ms earthquake of 19th September 1985, local rescue forces were mainly from the government, military and volunteers. At same time, 9 international rescue teams had deployed and engaged in the operation. But because of a lack of effective coordination, technical standards and safety controls, rescue operations became a difficult and disordered situation, and over 130 rescue workers sacrificed their lives. Almost the same scenario happened 3 years later in Armenia, during a 6.9Ms earthquake rescue operation, 7th December 1988. After these two major earthquakes, an initiative was put forth by a group of USAR specialists, which aimed to improve the methodology, guidelines,

technical skills, and safety controls, enhance the coordination and cooperation among the international rescue community, and provide a platform for discussion, training, exercise and experience exchanges. Finally, under the UN umbrella, INSARAG was established in 1991 to be managed by OCHA. This marked the beginning of a new era in international rescue development.

2.1.2 The development of INSARAG

- 1999. The first version of INSARAG methodology and guideline released.
- 2002.UN General Assembly resolution 57/150, "Strengthening the effectiveness and coordination of international USAR assistance"
- 2005. The first IEC was completed successfully; Hungarian National Organisation for Rescue Services became the first international heavy USAR team classified by INSARAG.
- 2010. INSAGAR globe meeting, Hyogo Declaration was issued, "Emphasised the need for strengthening of national response capacities.", "Building national, local and community capacity is critical for effective response.".
- 2012. Mandate extension, the role of USAR teams has expanded beyond the pure search-andrescue phase. They also support the larger humanitarian relief operations when the USAR phase is over. –The concept of "Beyond the rubble pile".
- 2015. Reformation of INSARAG Guideline.
- 2017. USAR Coordination Manual and UC training programme with staff certification.
- 2020. INSARAG Guideline 2020, COVID-19 USAR Operational Guidance for INSARAG, ICMS officially issued.

2.1.3 INSARAG Strategic Plan 2021-2026

In the past five years, INSARAG has become more focused on promoting the level of expertise and enlarging the applicability of guidelines and criteria. The concept and tools, especially the relevant technical guidance, working manual and information platform, were adapted to the new situations they were facing. For the next 5 year period, INSARAG has identified 4 strategic objectives as follows:

- Strategic objective 1: Quality Standards. Strengthen global standards for a high quality of national and international USAR response.
- Strategic objective 2: Localization. Enhance frontline response coordination by localizing INSARAG methodology and concepts.
- Strategic objective 3: Flexible Response. Advance flexible assistance for more comprehensive and adaptable humanitarian response.
- Strategic objective 4: Partnerships. Boost and develop partnerships for sustainable participation, ownership and governance.

2.2 New requirement under new situations

2.2.1 The challenge of COVID-19

With the global outbreak of COVID-19, the international situation and relationships have become much more complicated. This is a huge challenge to international rescue operations, which we never had before. The UN agencies, international NGOs, regional humanitarian assistance response organizations and national governments are positively adjusting their response tactics. For instance, UN OCHA has already prepared a remote support approach and has been ready to support some requests during COVID-19. INSARAG has released COVID-19 USAR Operational Guidance for INSARAG this March, and this guidance now has versions in 8 different languages, including English, French, Spanish, Arab, Italian, Russian, Japanese and Chinese. Its content covers phases of mobilization, transportation, arrival in the affected country, base of operations management, operations and demobilisation. The guidance and suggestions are focused on how to prevent team members and canines from contracting this disease.

On the 4th of August 2020, the international deployment for the Beirut port explosion, mobilised by bilateral agreements with the EU system, under the auspices of INSARAG, set a great example for the international rescue community. At the request of the Lebanese government, 13 USAR teams from 10

countries were immediately deployed. Even facing the high risk of COVID-19, the international rescue operation was organized and coordinated in a effective and efficient manner.

2.2.2 View points and suggestions

In terms of the authors' vision, based on the strategic objectives for 2021-2026 developed by INSARAG, the international rescue community should pay more attention to the following areas, to respond to the new situation:

• Put emphasis on building USAR capacity at different levels and standards.

A complete USAR response structure should contain different level of rescue forces. Like the USAR response framework described in INSARAG guidelines, international rescue teams with 3 categories (heavy, medium and light) classified by INSARAG are on top of the pyramid structure. At the middle level, it could have national rescue teams, also with heavy, medium and light, these 3 categories classified through national standards. At the bottom, there would be the basic forces, or first responders, composed of different organisations or individuals.

There should be an organic combination of the three parts, established with rational quantities and qualities in a compatible way. The concept of using independent or inconsistent capacity requirements for each level should be avoided. There is no one cure-all for every country; each government needs to find their own best solution. International rescue teams should be built based on the highest capacity requirement; however, each country must establish its own realistic standards. Taking advantage of international standards, we should build stronger national rescue response capacities by using the highly recognized methodology and technical standards in INSARAG guidelines. The international rescue community could lead the way and set examples.

• Be ready to respond to different kinds of disasters/incidents with flexible modules for use in complicate situations.

It is common knowledge that human beings will face more and more natural and unnatural disasters in the future, such as earthquakes, floods, tropical cyclones, technical incidents, explosions, nuclear leaks and other challenges caused by climate change. And pandemics like COVID-19 make conditions even worse. This makes it clear that human society may need more help and support from each other, through all kinds of humanitarian assistance.

As an important component of the international humanitarian assistance system, the INSARAG qualified international rescue teams, with the advantages and professionals they have, such as rescuers, communication specialists, structural engineers, logisticians and medical staffs, in a self-sufficient system, with transportation capacity and so on, can potentially and theoretically handle much more than earthquake disaster operations, and not only do search and rescue in the rubble. They could more broadly benefit international humanitarian assistance. It totally fits the concept both of "beyond the rubble" and flexible response, which are stated and encouraged by INSARAG.

But if teams want to implement the concept above, there is work to be done to realize the potential. There is much to be done during the preparedness phase. First, new types of technical support modules will be needed, such as coordination cells, canine searchers, damage assessors, water rescuers, mountain rescuers, logistics support, medical support and so on. For this, maybe the teams will need to have new recruits and prepare extra equipment modules. Secondly, no matter how many staff each module has, they must make sure there is a system for self-sufficiency that can meet the needs of deployment, including food, water, living supplies and transportation plans. Besides these two issues, the pandemic situation we are facing now seems to be a long-term environmental challenge to all international humanitarian workers. Because of this, we need to be more cautious and to learn how to protect ourselves well. And teams should take more personal protection consumables for their own members.

• Establish deeper and more extensive partnerships during the preparedness phase, especially in building sustainable cooperation and coordination mechanisms.

Cooperation and coordination mechanism building is a permanent topic for the international humanitarian assistance community. The various capacity and technical requirements for an

international rescue team have resulted in solutions for a lot of needs and cooperation scenarios, for capacity building in general or for specific areas of shortages. Some special parts of those the teams may want to get better and stronger. Or, the teams can benefit from mission experience sharing and "best practice" exchanges. Usually, international rescue teams are eager to cooperate with INSARAG qualified teams in training, although a qualified mentor is mandated by INSARAG. And today the problem of how to prevent team members from contracting COVID-19 during operations is a hot topic in experience exchanges. No matter what the subject is, or what needs to be done, cooperation always benefits the participants.

In the past years, UN has set great examples with methodology and platforms, and in managing the coordination mechanisms during operations. Most of the international relief teams have been able to comply with regulations and guidelines and have had good performance under the system. But still, we have gaps to fill. For example, it always takes time to persuade the authorities to accept the UN system after disasters occur, and on the other hand, with respect to OSOCC, RDC, UCC or EMTcc, these onsite coordination platforms need to be adjusted to integrate with existing local mechanisms. UN systems should make positive contributions to coordination, and not be a system that exists in parallel with local measures. They should not be allowed to take charge instead of the local authorities. But sometimes it's not easy to execute the way which it is supposed to be. To improve it, we need the coordination mechanism to go deeper and wider during the preparedness phase, and achieve more understanding among the stakeholders and agreement on standard procedures and methodology.

Conclusion

Promoting an international rescue response mechanism and capacity is important to alleviating the suffering brought to human beings by disasters. And it is also an expression of the spirit of humanitarianism. Under the current world situation, human society is facing more disasters in a more complicated environment. There are still many areas in the international rescue response mechanism and capacity development that need study and further thought, such as multilateral or bilateral rescue response mechanisms and capacity building based on specific needs in different regions or areas. We need to find the most efficient approach for an affected country to accept the international rescue coordination system and to keep a good balance between it and local capabilities.

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Glossary of Acronyms

ASEAN-Association of Southeast Asian Nations **ASR**-Assessment, Search and Rescue **ERC**–United Nations Emergency Relief Coordinator **ERS**–Emergency Response Section **EU**–European Union FAO-Food and Agricultural Organisation (UN) HC-Humanitarian Coordinator HCT-Humanitarian Country Team IASC-Inter-Agency Standing Committee ICMS-INSARAG Coordination and Management System **ICRC**–International Committee of the Red Cross ICVA-International Council of Voluntary Agencies IEC/R-INSARAG External (Re)Classification IFRC-International Federation of Red Cross and Red Crescent Societies **INSARAG** – International Search and Rescue Advisory Group **IOM**–International Organization for Migration NGO-Non-Governmental Organization OCHA-United Nations Office for the Coordination of Humanitarian Affairs **OHCHR**–United Nations High Commissioner for Human Rights **OSOCC-**On-Site Operations Coordination Centre **RSB**–Response Support Branch **RDC**–Reception and Departure Centre SCHR-Steering Committee for Humanitarian Response SCO-Shanghai Cooperation Organization SR on HR of IDPs – Special Rapporteur on the Human Rights of Internally Displaced Persons **UCC-USAR** Coordination Cell **UN**–United Nations UNDAC-United Nations Disaster Assessment Coordination team **UNDP**–United Nations Development Programme **UN HABITAT**–United Nations Human Settlements Programme UNHCR-Office of the United Nations High Commissioner for Refugees UNICEF-United Nations International Children's Emergency Fund UN-USG-United Nations-Under Secretary-General USAR–Urban Search and Rescue team WFP-World Food Programme WHO-World Health Organization