

Standards-setting and its implementation through the classification system for international urban search and rescue teams

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ABSTRACT

The network of international urban search and rescue (USAR) teams, International Search and Rescue Advisory Group (INSARAG), has started its unique classification system called INSARAG External Classification (IEC) since 2005. In IEC, teams are classified into Heavy or Medium category, and as of the end of 2018, more than 50 teams have been classified. It seems that, through IEC, INSARAG successfully implements the standards such as the INSARAG Guidelines although the document is non-binding. This article analyzes why IEC has got strong support from international USAR teams and what are the keys to successful implementation of standards in international emergency management. It concludes that it has been successful because, for example, INSARAG carefully gains a consensus from the member states when creating the standards, reiterates the minimum standards instead of the best practices, and sets the clear goal. The endorsement at the UN General Assembly Resolution also contributed to gaining support. Although there are some issues which need to be considered to maintain the system in the future, the lessons of the IEC model can be used for other fields of international disaster and emergency management.

Key words: INSARAG, IEC, USAR, standards

INTRODUCTION

International Search and Rescue Advisory Group (INSARAG), the network of the international urban search and rescue (USAR) teams, was established in 1991. The secretariat of INSARAG is in the United Nations Office for the Coordination of Humanitarian

Affairs (UNOCHA). INSARAG aims to make emergency preparedness and response more effective by developing common standards such as the INSARAG Guidelines, and thereby save more lives.¹ To ensure the implementation of the standards, INSARAG has started its unique classification system since 2005, which is called INSARAG External Classification (IEC). Based on the scale and capability, teams are classified into Heavy or Medium categories. The classified teams are requested to be reclassified every 5 years to maintain its classification level. This is called INSARAG External Reclassification (IER). To be classified in IEC/Rs, teams must satisfy all the standards listed in the IEC/R Checklist, which is part of the INSARAG Guidelines.

Since its introduction in 2005, more than 50 USAR teams have been classified as of today, and more teams are in the queue of future IECs. The World Health Organization (WHO) has also started its classification for emergency medical teams since 2016 following the IEC model.² Considering these situations only, it looks that IEC is a very successful model as an implementation mechanism of the standards in international USAR.

The purpose of this article is to explore the reason why IEC successfully got the strong support from the INSARAG network by reviewing the past discussions among the network and the process of the creation of the system. IEC is the first technical standards-setting and implementation in international USAR. To explore the successful factors of IEC will give useful suggestions for other fields of emergency management as well. At the same time, while it looks like IEC has been successful so far, this article will also look

if there are any issues which need to be resolved to maintain the system in the future.

METHODS

This article will analyze how the INSARAG’s standards were developed and implemented through the IEC/R, mainly by reviewing the chairman’s summaries of the INSARAG Steering Group and the INSARAG Team Leaders meetings where the important decisions have been made. The INSARAG Steering Group has been called INSARAG Steering Committee until the 2009 meeting, but “Steering Group” is used throughout this article to avoid confusion. Interviews with the key persons who contributed to managing the IEC/R system were also conducted.

The needs for standards and a certification system in the field of international emergency management have been discussed among researchers and practitioners.^{3,4} Regarding the standards-setting in emergency management, Alexander⁵ suggested the 12 principles for the formulation of standards as shown in Table 1. As for certification, Walker et al.⁶ proposed to introduce a certification system to aid workers that includes the following recommendations: (1) establishment of a professional association, (2) training program, (3) creating standard routes to certification, (4) identification of core competencies, (5) provision of accredited trainers, and (6) recognition from employers and states. The following sections will analyze the standards-setting and the certification system introduced by INSARAG, by using the models provided by Alexander and Walker et al.

Hilhorst,⁴ after reviewing several existing approaches of quality assurance in humanitarian action including the Sphere Project, concludes that it is a complicated and delicate question how and by whom quality standards can or should be imposed and controlled. The approach taken by INSARAG, such as the peer-review process, should be a good example to consider qualification systems in other humanitarian sectors.

INSARAG GUIDELINES AS STANDARDS AND IEC/R AS AN IMPLEMENTATION MECHANISM

Creating the standards

From the inaugural INSARAG meeting in 1991, INSARAG has discussed the criteria for international

Table 1. The 12 principles for the formulation of standards in emergency management by Alexander

Issue	Description
1. Minimum requirement	Specify the minimum requisites, but not to indicate the best practice.
2. Applicability and limitation	Specify its conditions of applicability and its limitations.
3. Users	Define who its users are.
4. Terms	Clearly define the terms it relies on for the explanation.
5. Acceptability	Aim to be acceptable as large a body of users as possible.
6. Consensus	Actively seek consensus about principles and procedures among users and the organizations to which they belong.
7. Homogeneity	Homogenize terminology, methods, and procedures.
8. Clarity	Aim for maximum clarity and avoid complex explanations and bureaucratic language.
9. Not didactic	A standard should not be didactic but should specify objectives and limitations.
10. Capacity building	A standard should not inhibit the development of higher levels of preparedness and professionalism but should offer precepts for developing these.
11. Availability	A standard should be freely available and distributed without cost to all who may benefit from it.
12. Revision	A balance must be struck between the need for performance as achieved by allowing a standard to remain unaltered and the need for revision.

USAR teams that could be included in the directory of INSARAG, at first as just a simple one-page document.¹ In the 1997 INSARAG Team Leaders meeting, the participants worked on the proposals for standards by dividing into five working groups: (1) information exchange and network building, (2) management and organization, (3) mobilization and operational procedures, (4) equipment, and (5) training. After the

intensive 1.5-day work, the working groups submitted their proposals for standards for the international USAR deployments, which provided an initial framework for the future INSARAG Guidelines.⁷

The proposals of the standards were further reviewed at the INSARAG Team Leaders meeting in May 1998 and were compiled as International Search and Rescue Response Guidelines. The Guidelines were presented to the INSARAG Steering Group meeting in October 1998 for official endorsement as the INSARAG Guidelines.^{8,9} Although the Guidelines were endorsed, the participants still recognized that certain issues required further discussion and clarification by technical experts. The INSARAG Team Leaders meeting kept on revising it in the following years.

Guaranteeing the standards

The INSARAG Guidelines, although it was endorsed by the INSARAG network, was a non-binding document. To create a legal framework, INSARAG worked for the adoption of the UN General Assembly Resolution where the Turkish government took the lead in the process.¹⁰ The UN General Assembly, held in December 2002, adopted the Resolution 57/150 “Strengthening the Effectiveness of International Urban Search and Rescue Assistance.” It urges all the states that have the capacity to provide international USAR assistance are deployed and operate in accordance with the INSARAG Guidelines.¹¹ The Guidelines were thus recognized by the UN General Assembly Resolution, but the status remains the same. It was still a non-binding document.

According to Dewey Perks (oral communication, October 19, 2017), the current Chairperson of the INSARAG Training Working Group from the United States, there was a discussion on how to guarantee the contents of the Guidelines since the 2000s. The then Regional Chair of the INSARAG Americas Group, Paul Bell, from the United States, introduced the idea of an international qualification process at the INSARAG Steering Group meeting in 2002. To achieve this, the Americas Group established a working group on the development of standard criteria for light, medium, and heavy USAR teams,¹² which

became the basis of the IEC/R Checklist, and tested it in the region. INSARAG has three regional groups: (1) Asia-Pacific, (2) Africa, Europe, and Middle-East, and (3) Americas. The proposals by the regional groups have to be brought to the global structure such as INSARAG Team Leaders and INSARAG Steering Group meetings for further discussion and official endorsement.

The Americas Group shared the self-evaluation Checklist with the INSARAG community at the 2003 INSARAG Team Leaders meeting and requested the USAR teams to use it for feedback.¹³ At the same time, the Americas Group explained the classification concept at the other regional meetings. According to Perks, however, some INSARAG member states at first gave negative feedback against the introduction of the system because they felt as if they were tested by INSARAG. The Americas Group promoted an international qualification process, but there was not a proper Spanish to the English word for “qualification.” Thus, the Americas Group at first used the word “accreditation.” However, that word was not universally accepted since it gave the impression that teams were evaluated by others, which was different from the idea that the INSARAG network intended. The network instead adopted the word “classification” for the entire process.¹⁴

To gain a consensus, the Americas Group reiterated that IEC was a peer-review process among the INSARAG community having six to eight classifiers from all the three regions. Classifiers, including their functions such as team leader, search, rescue, medical, and logistics, are appointed by the INSARAG Secretariat. The Americas Group also reconfirmed that the main objective of IEC was capacity building by achieving the minimum standards, and IEC did not intend to exclude any teams from the field of international USAR.

In the 2005 INSARAG Steering Group meeting, the revised INSARAG Guidelines and the IEC Checklist as interim documents were adopted.¹⁵ The endorsed IEC Checklist was first tested in Hungary in the same year. While it was a test, the Hungarian team successfully satisfied the criteria and was registered as the first IEC-classified team. In 2006, the

IEC was officially launched, and the United Kingdom team was classified, followed by the five teams from the United States, Netherlands, and Germany in 2007. At the 2006 INSARAG Steering Group meeting, it was also decided that 36-hour simulation exercise must be conducted so that classifiers can check all the items in the Checklist, and the validity of IEC was for 5 years.¹⁴ Thus, the classified teams have to go through the reclassification process, IER, every 5 years to maintain its classification level.

Maintaining the standards

One of the main discussions at the INSARAG Steering Group and INSARAG Team Leaders meetings after the introduction of IEC was its quality control. Especially, how to maintain the quality and accountability of IEC/R classifiers, who were deployed from the INSARAG member states, was discussed. The INSARAG's policy on classifiers was very clear. It prioritized maintaining the qualified small number of classifiers instead of increasing the number of classifiers.¹⁶

At the same time, the introduction of the mentoring system was also discussed. Mentors, who are selected from other classified teams or experienced individuals, support the teams being classified from the preparatory phase of IEC/R. At the early stage, inviting a mentor was not mandatory, but INSARAG strongly recommended utilizing a mentor. In case the teams felt they were not ready, they can postpone the IEC/R in consultation with their mentor.¹⁶ The INSARAG Steering Group also encouraged the IEC-classified teams to support the teams that need mentoring assistance for their IEC/Rs.¹⁷ After the 2015 revision of the Guidelines, having a mentor became mandatory for all IEC/Rs. Considering the importance of classifiers' team leaders and mentors, the first IEC/R team leaders and mentors training was held in the United Kingdom in 2012, and then in Abu Dhabi in 2013 and 2014.

The continuous efforts to revise the Guidelines and the Checklist went on based on the inputs from the Training Working Group and the Medical Working Group from their technical points of view. On the other hand, the inputs from the Search Dog Working

Group were not included in the revised Guidelines and Checklist. It was determined by the INSARAG Steering Group that the suggested standards could not be applied globally.¹⁸

The revised Guidelines and Checklist were adopted at the INSARAG Steering Group meeting in November 2009,¹⁸ and released as the 2010 version. The revised Checklist introduced a color-coded system of green, yellow, and red. In the previous version, every checklist item was evaluated as Yes (Y) or Not Yet (NY). However, it was not very clear, for example, how many NY means that the team fails. In the new system, if the team satisfies the item without any problem, the green color is given to the item. If the team satisfies minimum standards, but there is a room for improvement, the team gets yellow. If the team does not satisfy the minimum standards, it gets red. If the team gets even one red in any item, their IEC/R is unsuccessful. This color-coded system enabled the teams to understand their weak points.

By 2010, nearly 20 teams were classified in IEC. However, in response to the 2009 Padang Earthquake in Indonesia and the 2010 Haiti Earthquake, some IEC-classified teams, and the teams that were requesting their IECs, responded below their classification levels. The 2010 INSARAG Steering Group meeting expressed concern to this fact and requested the IEC-classified teams to notify beforehand in case they respond below the classification level.¹⁹ This issue was, however, later repeated in the 2015 Nepal Earthquake response.²⁰

In 2010, the first INSARAG Global meeting was held in Kobe, Japan, and the INSARAG Hyogo Declaration was adopted.²¹ In the Declaration, it urges all the internationally deployed USAR teams to go through the IEC process and encourages receiving countries to consider prioritizing IEC-classified teams.²²

Revising the standards

The Haiti Earthquake in January 2010 was the turning point to revisit the technical standards of INSARAG. The 52 international USAR teams with the total of 1,820 personnel and 175 dogs responded to this disaster, and rescued 132 live victims,^{23,24} leaving

many issues to be sorted out. INSARAG organized the Haiti Earthquake After-Action Review meeting in Geneva in June 2010 where more than 110 participants from 36 countries attended. The meeting identified the issues that need to be continuously discussed such as information management and USAR in the security-challenged environment. To follow up on them, the meeting proposed the establishment of the Operations Working Group.²⁴

The Operations Working Group had intensive discussions for 2.5 years and developed the new USAR Coordination methodology. The new methodology was handed over to the newly established Guidelines Review Group as it would be part of the revised Guidelines. The Guidelines Review Group was established in 2013 for the major revision of the Guidelines expected in 2015. The members were selected from the representatives of all the three regions and the USAR team leaders to support the technical issues.^{25,26} To avoid bringing a thick book to the field and clarifying the users, it was decided that the revised Guidelines would have three volumes: Volume I for policy and decision-makers, Volume II as an operational guide, and Volume III as a field handbook. Volume II consists of the three Manuals: Manual A for Capacity Building, Manual B for Operations, and Manual C for IEC/R Guide.²⁶

The Guidelines Review Group met three times a year and updated the progress at the INSARAG Steering Group, INSARAG Team Leaders, and regional meetings. In 2014, the Guidelines Review Group members organized intensive workshops at the INSARAG Team Leaders and the three regional meetings to get feedback on the draft version of the revised Guidelines. The total of 425 comments was submitted and was reflected on the final documents. The new INSARAG Guidelines version 2015 were unanimously endorsed at the INSARAG Steering Group meeting in February 2015, and were launched at the second INSARAG Global meeting held in Abu Dhabi in October 2015.^{27,28}

As an example of the revised USAR Coordination methodology in the Manual B for Operations, INSARAG has revised its marking system at the 2015 Guidelines revision. INSARAG has developed its

marking system that is put on a building in question and enables USAR teams to tell information such as the existence of live victims and hazards at the building. The teams that belong to the INSARAG network were well aware of the marking, and it was applied, for example, in the 2011 Christchurch Earthquake.²⁹ However, the 2010 Haiti Earthquake showed that the marking needed to be revised so that it can tell more detailed information, and the Operations Working Group and Guidelines Review Group members have been working on it. The revised marking system was included in the revised Guidelines adopted in February 2015. The revised marking was already used in the Nepal Earthquake response that occurred in April 2015.³⁰

The revised marking was tested from the 2013 INSARAG regional exercise as a trial so that teams can smoothly introduce the new system. The INSARAG regional exercise is conducted once a year in the three regions, respectively. It is becoming a big event, and the 2018 INSARAG Asia-Pacific regional exercise held in the Philippines attracted about 500 national and international participants in total. The exercise provides an opportunity for the participants from all the INSARAG-affiliated teams to learn the INSARAG methodology. From 2016, INSARAG started to organize the USAR Coordination course so that all the IEC-classified teams can have the staff who can run the USAR Coordination operations. In the USAR Coordination course, the number of participants is limited up to 20 or 30, and these core members who will contribute to the USAR Coordination activities in the field will have intensive training.

The revised Guidelines Manual C set the 2-year timeline for IEC/Rs. For example, all the teams which undergo the IEC/R must engage mentors from the early preparation phase. The team must submit the document called Abbreviated Portfolio of Evidence 2 years before the expected IEC/R date together with the mentor report; the mentor report must say that this team is ready for classification. One year before the classification, the team must submit another document, Comprehensive Portfolio of Evidence. If the team fails to fulfill these important milestones, the IEC/Rs are automatically postponed. The IEC/R

Table 2. Example of IEC/R Checklist items (search activity)	
Item	Clarification
13.1.1 Physical search	USAR team conducts technical search operations using a combination of dogs, cameras, and listening devices during the victim location phase.
13.1.2 Canine search	
13.1.3 Technical search: Visual	
13.1.4 Technical search: Listening	Note: Teams will not rely on a single search method.
13.1.5 Does the USAR team take the appropriate search equipment to the site of operations, based on the available information?	Note: Heavy team must be competent on all search requirements; Medium team has the option to choose between canine or electronic; doing all is encouraged.

Checklist is part of the Manual C, and at the revision in 2015, the explanation column of each checklist item was added for clarification as shown in Table 2. The requirements for each item (eg, difference in requirements for Medium and Heavy teams) become clearer by having this clarification column.

In addition to the hard copy edition, the new Guidelines became available by PDF version, which was downloadable at the INSARAG Web site. Mobile applications for iOS and Android were also developed. INSARAG Steering Group encouraged the member states to translate the Guidelines,²⁸ and as of today, the Guidelines were translated into Arabic, Chinese, Farsi, Hungarian, Japanese, Korean, Spanish, and Turkish. They are available at the INSARAG Web site.

Maintaining the system

One decade has passed since the introduction of IEC, and it is now experiencing some new challenges that were not foreseen when it commenced. One is the increasing number of IERs. According to Dewey Perks (oral communication, October 19, 2017), when INSARAG started IEC in 2005, it was expected that only around 10 teams would go through the IEC process, and it was not expected that more than 50 teams were classified as of today. All the IEC-classified teams have to go through the IER every 5 years, and some teams are newly certified in IEC every year. The total number of IEC/Rs increases year by year. Winston Chang (oral communication, June 24, 2018), Head of the INSARAG Secretariat, UNOCHA, says that the maximum number of IEC/Rs per year that the Secretariat can deal with should be up to 15 considering the workload of the Secretariat.

Figure 1 is created based on the INSARAG Web site and the latest information from the INSARAG Secretariat. The numbers of IEC/Rs in 2019 and 2020 are based on the plan as of January 2019. From 2016 to 2020, two to four teams on average are newly classified in IEC every year. Although the number of IECs per year is decreasing, the number of IERs is surely increasing every year. After a few years, the total number of IEC/Rs will exceed 15 per year, the maximum number that the Secretariat can manage, if INSARAG does not change the current system. Some member states are also aware of the situation; Singapore proposed a review of the IER process at the 2013 INSARAG Steering Group meeting, taking note of the heavy financial burden caused

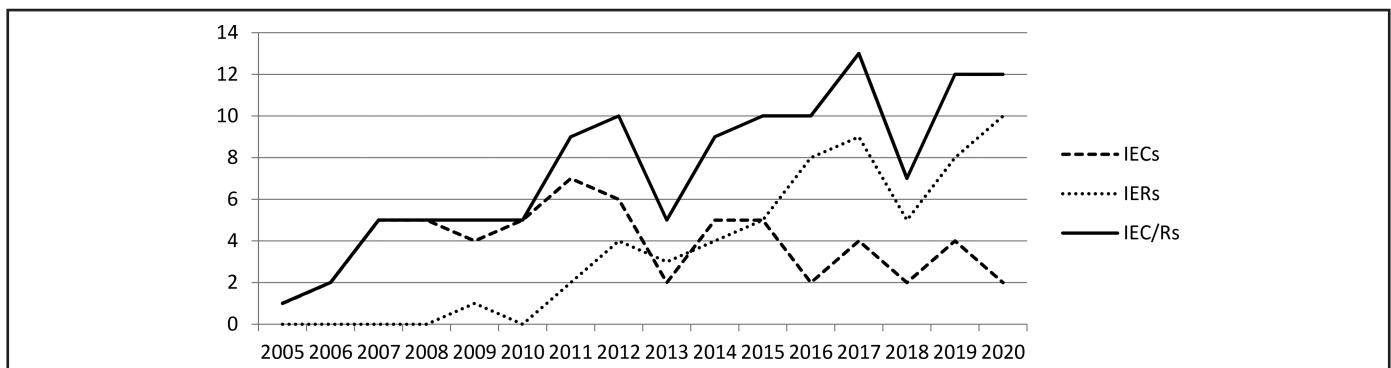


Figure 1. The number of IEC/Rs 2005-2020.

by IER.²⁵ Not only the teams being classified, the other IEC-classified teams also have to contribute by sending classifiers to IEC/Rs in other countries. This means that the total workload of IEC/Rs for the whole INSARAG community is increasing.

Considering this situation, the recent INSARAG meetings have discussed how to lighten the workload for IERs for the Secretariat, the teams being re-classified, and the classifiers. For example, the 2018 INSARAG Steering Group meeting discussed the possibility of “pre-greening” on some checklist items so that the classifiers do not have to check all the items during the IER event.³¹ The 2018 INSARAG Team Leaders meeting suggested the INSARAG’s regional group should take the lead in organizing IERs so that the workload of the Secretariat can be shared.³² However, both meetings agreed to keep on having the 36-hour simulation exercise in IEC/R events, and

thus, these arrangements will not drastically lessen the workload of IERs for the INSARAG community.

Another issue is the IEC-classified teams that are deployed below their classification levels as seen in the Haiti and the Nepal responses. This means that, although they are IEC-classified, in the actual deployments, they do not show its full capability as their classification levels. Because the Guidelines are not a binding document, there is no penalty even if they do not satisfy the responsibility as IEC-classified teams in the field. To maintain the system, INSARAG will need to keep on addressing these newly emerging issues.

DISCUSSION: KEYS TO SUCCESSFUL STANDARDS DEVELOPMENT AND IMPLEMENTATION

Tables 3 and 4 summarize the above discussions and the main actions taken by INSARAG against the models of Alexander⁵ and Walker et al.⁶

Table 3. Actions taken by INSARAG against the Alexander model regarding formulation of standards

Issue	Main actions taken by INSARAG
1. Minimum requirement	IEC/R Checklist provides only the minimum requirement, but not the best practices.
2. Applicability and limitation	INSARAG Guidelines and IEC are basically applicable to internationally deployed USAR teams while the Vol. II-A covers capacity building for national teams.
3. Users	The 2015 revision clarified the users for each volume (Vol. I: Policy and decision-makers, Vol. II: Operational and technical, Vol. III: Operational field guide).
4. Terms	Important terms are defined, and the list of acronyms is attached to the Guidelines.
5. Acceptability	INSARAG Guidelines and IEC/R Checklist were developed by the representatives from all the three regions.
6. Consensus	The draft Guidelines were discussed at INSARAG Team Leaders and regional meetings, and widely collected feedback. The draft IEC/R Checklist was tested by the teams for their feedback before the endorsement.
7. Homogeneity	The Guidelines include the standard team structure, capability, etc.
8. Clarity	In the 2015 revision, the explanation column for Checklist item was added for further clarification.
9. Not didactic	IEC/R Checklist shows the clear and tangible technical requirements.
10. Capacity building	INSARAG clarifies that IEC is a capacity building process by satisfying the requirements in the Checklist.
11. Availability	Guidelines and IEC/R Checklist are available online. INSARAG also welcome that the Guidelines be translated in any languages. As of January 2019, the Guidelines version 2015 is available in Arabic, Chinese, Farsi, Hungarian, Japanese, Korean, Spanish, and Turkish.
12. Revision	The lessons of the 2010 Haiti Earthquake were reflected in the revised Guidelines version 2015. The new Guidelines Review Group was established in 2018 for the next planned revision in 2020.

Table 4. Actions taken by INSARAG against the Walker et al. model regarding certification system	
Issue	Main actions taken by INSARAG
1. Professional association	INSARAG consists of professional international USAR teams and members.
2. Training program	INSARAG provides training opportunities such as the INSARAG regional exercise and the USAR Coordination course.
3. Standard routes	INSARAG Guidelines Vol. II-C IEC/R Guide shows the 2-year timeline for IEC and the steps toward the classification.
4. Core competencies	IEC/R Checklist clarifies the necessary competencies to be classified.
5. Accredited trainers	It is mandatory to engage a mentor from other IEC-classified teams or experienced individuals.
6. Recognition	The INSARAG Secretariat is located within the UN. INSARAG Guidelines were endorsed at the UN General Assembly Resolution. The INSARAG Hyogo Declaration officially requested the member states to prioritize IEC-classified teams.

As shown in Tables 3 and 4, INSARAG carefully gains a consensus from the member states when creating and revising the standards. This has been done by, for example, selecting the working group members from all the regions, having enough time for discussion and transition, and reiterating the minimum standards instead of the best practices. Another feature of the INSARAG activities, through the Guidelines and the Checklist, was to set a clear goal or technical requirements and to suggest the steps toward successful classification. INSARAG provides the mechanism to support the teams that wish to strengthen their capacities, such as the mentoring system and the INSARAG regional exercises. INSARAG welcomes its Guidelines to be translated and used for domestic capacity building purposes. The Guidelines were already translated into some languages, and they are available online.

Furthermore, the secretariat of INSARAG is located within the UNOCHA in Geneva, and the INSARAG Guidelines were endorsed at the UN General Assembly Resolution. The INSARAG Hyogo Declaration²² in 2010 officially requested all the internationally deployed teams to go through the IEC process and receiving countries to prioritize IEC-classified teams. Although non-binding, these official arrangements supported by the UN also facilitated gaining support from the member states' governments and the sponsor organizations.

CONCLUSION

This article has reviewed how INSARAG has developed and implemented the standards through IEC/R and analyzed why the IEC system successfully got the strong support from the INSARAG network. The lessons of the IEC model can be used for other fields of international emergency and disaster management as it has been already done by WHO for the emergency medical team classification. This article also pointed out that some issues needed to be addressed to maintain the system. The authors will keep on monitoring how INSARAG deals with these newly emerging issues.

Further study on the effects of the introduction of IEC in capacity building of USAR teams and USAR operations in the field is needed in the future to evaluate if the INSARAG Guidelines and IEC/R are the successful models of standards-setting and its implementation.

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REFERENCES

1. Department of Humanitarian Assistance (DHA): *INSARAG Report of the Inaugural Meeting Held at Beuggen, Germany 11-13 December 1991*. Geneva, Switzerland: DHA, 1991.
2. WHO: *World Health Organization EMT Initiative, January 2017*. Geneva, Switzerland: WHO, 2017.
3. Crews DT: The case for emergency management as a profession. *Aust J Emerg Manag.* 2001; 16(2): 1-2.

4. Hillhorst D: Being good at doing good? Quality and accountability of humanitarian NGOs. *Disasters*. 2002; 26(3): 193-212.
5. Alexander D: Towards the development of standards in emergency management training and education. *Disaster Prev Manag*. 2003; 12(2): 158-175.
6. Walker P, Hein K, Russ C, et al.: A blueprint for professionalizing humanitarian assistance. *Health Aff*. 2010; 29(12): 2223-2230.
7. INSARAG: *Report on Meeting of Leaders of International Search and Rescue (SAR) Teams, 26-28 May 1997, Richmond, Virginia, United States of America*. Geneva, Switzerland: DHA, 1997.
8. INSARAG: *Meeting of the INSARAG Steering Group in Cestochowa, Poland, 5-6 October 1998*. Geneva, Switzerland: UNOCHA, 1998.
9. INSARAG: *Meeting of Leaders of International Search and Rescue Teams, 26-30 May 1998, Portland, United States of America*. Geneva, Switzerland: UNOCHA, 1998.
10. INSARAG: *Report on the Meeting of International Search and Rescue Team Leaders, Sydney, Australia, 3 to 5 December 2001*. Geneva, Switzerland: UNOCHA, 2001.
11. UN: United Nations General Assembly Resolution: 57/150: Strengthening the effectiveness of international urban search and rescue assistance. 2002. Available at http://www.insarag.org/images/stories/GA_Res_57-150_English.pdf. Accessed July 11, 2019.
12. INSARAG: *INSARAG Steering Committee Meeting, Geneva, Switzerland, 27 February 2002*. Geneva, Switzerland: UNOCHA, 2002.
13. INSARAG: *Annual Meeting of INSARAG USAR Team Leaders, South Korea, 17 to 19 November 2003*. Geneva, Switzerland: UNOCHA, 2003.
14. INSARAG: *INSARAG Steering Committee Meeting, Brisbane, Australia, 30 November 2006*. Geneva, Switzerland: UNOCHA, 2006.
15. INSARAG: *INSARAG Steering Committee Meeting, Geneva, 28 April 2005*. Geneva, Switzerland: UNOCHA, 2005.
16. INSARAG: *INSARAG Steering Committee Meeting, Dubai, United Arab Emirates, 27 November 2008*. Geneva, Switzerland: UNOCHA, 2008.
17. INSARAG: *INSARAG Steering Group Meeting, Geneva, Switzerland, 16-17 February 2012*. Geneva, Switzerland: UNOCHA, 2012.
18. INSARAG: *INSARAG Steering Committee Meeting, Beijing, China, 12 November 2009*. Geneva, Switzerland: UNOCHA, 2009.
19. INSARAG: *INSARAG Steering Group Meeting, Geneva, Switzerland, 4 June 2010*. Geneva, Switzerland: UNOCHA, 2010.
20. INSARAG: *INSARAG Team Leaders Meeting 2015, 16-17 October 2015, Abu Dhabi*. Geneva, Switzerland: UNOCHA, 2015.
21. INSARAG: *INSARAG Global Meeting, 15-16 September 2010, Kobe, Japan*. Geneva, Switzerland: UNOCHA, 2010.
22. INSARAG: *INSARAG Hyogo Declaration from the First Global Meeting of the International Search and Rescue Advisory Group (INSARAG), Kobe, Japan, 14-16 September 2010*. Geneva, Switzerland: UNOCHA, 2010.
23. UNOCHA: Haiti Earthquake Situation Report No. 8, 2010. Available at https://reliefweb.int/sites/reliefweb.int/files/resources/0160C1FDCFADA27D492576B1000FE565-Full_Report.pdf. Accessed July 11, 2019.
24. UNOCHA: *2010 Haiti Earthquake Response: An After-Action Review of Response*. Geneva, Switzerland: UNOCHA, 2010.
25. INSARAG: *2013 Annual Meeting of the INSARAG Steering Group, Geneva, 7-8 February 2013*. Geneva, Switzerland: UNOCHA, 2013.
26. INSARAG: *INSARAG USAR Team Leaders Meeting, The Hague, Netherlands, 16-18 September 2013*. Geneva, Switzerland: UNOCHA, 2013.
27. INSARAG: *INSARAG Global Meeting 2015, 18-19 October 2015, Abu Dhabi, UAE*. Geneva, Switzerland: UNOCHA, 2015.
28. INSARAG: *INSARAG Steering Group Meeting, Geneva, 11-12 February 2015*. Geneva, Switzerland: UNOCHA, 2015.
29. Glassey S: Analysis of urban search and rescue markings applied following the 22 February 2011 Christchurch earthquake. *J Search Rescue*. 2013; 1(1): 29-49.
30. Okita Y, Katsube T: Coordination of international urban search and rescue (USAR) teams in the 2015 Nepal Earthquake: Disaster literacy for international USAR. *J Jpn Assoc Earthquake Eng*. 2016; 16(7): 24-36.
31. INSARAG: *INSARAG Steering Group Meeting 2018, Geneva, Switzerland*. Geneva, Switzerland: UNOCHA, 2018.
32. INSARAG: *INSARAG Team Leaders Meeting Summary 2018, 19-21 September, Bucharest, Romania*. Geneva, Switzerland: UNOCHA, 2018.