

TOWARDS INTERNATIONAL EMERGENCY MANAGEMENT STANDARDS

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Abstract

This report concerns development of international standards within the field of emergency management. A main issue has been to examine if international emergency management standards should be developed, and if so, how and by whom. The research for the purpose of this report has resulted in many arguments associated with potential international emergency management standards. The main conclusion of the report is that international emergency management standards can be an effective risk reducing instrument, if developed in the right way.

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Summary

This report considers how international standardized methods, models and techniques can be used as risk reducing instruments. Standards are today common in a wide spectra of areas from minimal products to management systems for quality and environmental impact. Since a couple of decades there are also standards concerning security and emergency management. These existing standards are more often than not created to be applicable nationally. Only a few standards have been designed to be used internationally and their penetration has often been weak. In the wake of last years many disasters and catastrophes voices have been raised that fields connected with common security should be standardized internationally.

This report has its starting point in two questions. Firstly, *what are the major obstacles in implementing successful and useful international emergency management standards?* Secondly, *what are the major hypothetical advantages and disadvantages with international emergency management standards?* The project of designing international emergency management standards is unique and, if it turns out well, will concern a large part of the worlds organizations and people. This unique character of the project makes comparisons to other projects hard. Instead judgements from experts have been used as material in order to draw conclusions.

The first of these questions was to a large extent answered with help from an internet based web survey which was designed and distributed for the purpose of this report. In this survey people working with emergency management and standards were asked about what they believe are the largest obstacles in a successful implementation. The answers were varied and about thirty different arguments implementation obstacles were identified. Despite the number of arguments against emergency management standards the survey was pervaded of a great belief that they could be an effective instrument for reducing risks. An analysis of the second question, regarding advantages and disadvantages with international emergency management standardization, showed that benefits that follow standardization in general could be possible to transfer to the field of emergency management.

From the two main questions, a number of conclusions were drawn regarding if, how and by whom international emergency management standards should be developed. Firstly, it is stated that standards could be a cost-effective tool to reduce the risks associated with emergencies. Secondly, in order to maximize the utility of these standards, a family of standards would be preferable. In order to satisfy separate needs of different organizations in different areas standards must be adjusted differently. In order to unite and cooperate they also have to be compatible with each other. Lastly, it is suggested that ISO leads the standardization work in cooperation with other organizations. Efforts should especially be taken to invite participants from less developed countries.

Developed in the right way, international emergency management standards could reduce the risk for disasters, emergencies and catastrophes for people, organizations and companies all over the world.

Sammanfattning

Detta arbete behandlar hur internationellt standardiserade metoder, modeller och tekniker kan användas i riskreducerande syfte. Idag är standarder vanliga inom många områden, från små produkter till ledningssystem inom kvalitet och miljö. Sedan några årtionden finns det även standarder inom allmän säkerhet och krishantering. Dessa standarder är vanligtvis utformade att fungera på ett nationellt plan. Endast ett fåtal har riktat sig till det internationella samfundet, och dessa har inte fått ordentligt genomslag. De senaste årens många kriser och katastrofer världen över har ökat intresset för att områden relaterade till det allmännas säkerhet ska standardiseras internationellt.

Arbetet utgår från två huvudfrågor. För det första, *vilka är de största hindren för en lyckad internationell standardisering inom olycks- och krishantering*, för det andra, *vilka är de främsta för- och nackdelar med en sådan standardisering?* Att utveckla internationella standarder inom olycks- och krishantering är ett unikt projekt och kommer, om det går bra, omfatta en stor del av världens organisationer och människor. Detta gör jämförelser mellan andra projekt svårt, och arbetet fokuserar istället på experters omdömen för att svara på frågorna.

Den första av frågorna besvarades med hjälp av en internetbaserad undersökning i enkätform. Denna distribuerades till personer som på ett eller annat vis arbetar inom olycks- och krishantering och/eller standardisering. Bland de många svaren identifierades ungefär 30 olika hinder för en lyckad internationell standardisering. Trots ett stort antal argument som talar emot standardisering inom olycks- och krishantering var undersökningen genomsyrad av optimism inför ett sådant projekt. En analys av den andra frågan visade att för- och nackdelar som generellt brukar appliceras på standards även gäller för standardisering inom olycks- och krishantering.

De två frågorna gav upphov till flera slutsatser rörande om, hur, och av vem internationella standarder inom olycks- och krishantering ska utvecklas. Till att börja med bedöms sådana standarder vara ett kostnadseffektivt sätt att reducera risker förknippade med olyckor- och kriser. För det andra skulle en familj av standarder vara att föredra om standarderna ska nyttomaximeras. För att tillfredsställa olika organisationers behov behöver standarderna vara anpassade, men för att kunna samarbeta mellan organisationer måste de också vara kompatibla med varandra. Slutligen föreslås det i arbetet att ISO leder standardiseringsarbetet i samarbete med andra organisationer. Ansträngningar bör också göras för att representanter från mindre utvecklade länder medverkar.

Standarder inom olycks- och krishantering, som framställs på ett genomtänkt vis, kommer att kunna reducera risken för olyckor, katastrofer och kriser för människor, organisationer och företag.

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The first ideas to this report came from David Alexander, professor of disaster management at the University of Florence, Italy. Even if much has changed since the first ideas the final report would not be close to what it is today without the input of Mr Alexander. In an early stage George Kent, professor in the Department of Political Science at the University of Hawaii, also was of great support.

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*We hope you enjoy the reading
Peter & Martin*

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1 Introduction

From voluntary fire-fighters and flood control disaster planning evolved during the cold war to include civil protection. Since then a more comprehensive way of dealing with disasters and emergencies has gradually been introduced through out the world. Today modern societies face multiple threats and an increasing number of disasters. Natural, technological and social hazards can have disastrous effects on society and are thought to require a systematic and cooperative approach.

Although the knowledge and expertise in the area of emergency management is extensive, disasters and catastrophes still continue to harvest lives and destroy livelihood worldwide. In order to spread this knowledge and more important; put it into use, international emergency standards could be a useful tool. Many scholars in fields relating to emergency management have discussed this issue for years, but the difficulties and uncertainties are many.

During the initial research prior this report it became obvious that many organisations and persons were very interested in this work. Yet not much has been published in this area. Also, it turned out that ISO (the International Organization for Standardization) was preparing to develop standards in this area. A lot of information and thoughts in this report are grounded on the Emergency Preparedness Conference in Florence that were held in order to develop an International Workshop Agreement on this subject to the ISO technical committee responsible for the development of ISO standards in this area.

In order to get some input from people and organizations all over the world an online survey was also created and distributed. Answers from this survey have played a great part in the understanding of the difficulties in implementing emergency management standards. People from many different countries and all kinds of organizations participated.

This report is an outcome of a joint thesis work at the program of Risk Management Engineering and the program of Fire Safety Engineering at the Lund University of Technology in Sweden, in cooperation with KTH DIRECT (Royal Institute of Technology, Disaster and Resilience Centre) and IVL Swedish Environmental Research Institute.

1.1 Objectives

The main objective of this report is to discuss if international emergency management standards should be developed, and if so, how and by whom. This will hopefully widen the discussion on this topic, as well as spread knowledge to those who has not heard much of this, but who could very well be interested.

1.2 Questions at issue

As stated in the previous part our main objective is to discuss if international emergency management standards should be developed, and if so, how and by whom. In order to do this, two questions will be addressed. Firstly, what the advantages and disadvantages are with international emergency standards as a way to try to minimize the societal impact of

emergencies world wide. Secondly, what the major obstacles are in implementing useful international emergency management standards.

1. What are the major hypothetical advantages and disadvantages with international emergency management standards?
2. What are the major obstacles in implementing successful and useful international emergency management standards?

There probably are no solitude answers to these questions since they depend on what kind of standards that are developed, and how they are developed. The hypothetical emergency management standards with the most advantages in combination with the least development obstacles might be the one to try to develop internationally. Of course broad questions tend to generate vague answers, but nevertheless they might give indications on how and by whom effective emergency management should be developed.

1.3 Dispositions

This report is mainly structured into three parts. In chapter two and three some basic terms are explained and discussed. In chapters 4, 5 and 6 the questions at issues are analyzed in light of the survey and other references. The last chapter finishes the report with conclusions from the authors' point of view.

The appendix includes a more thorough background reading on emergencies, standards and emergency management.

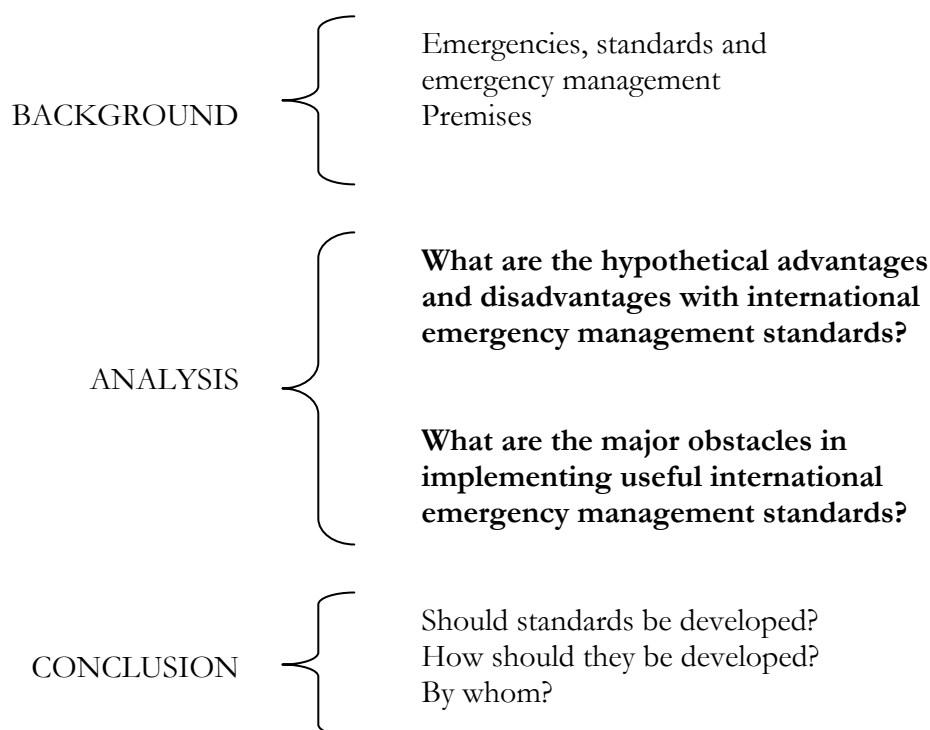


Figure 1 Disposition of the report

1.4 Method

Lack of international emergency management standards in combination with the broadness of this field, made the initial approach to this subject cumbersome. The method in which to answer the questions at issue was somewhat improvised in the beginning. After reading issue-related literature and contacting various organizations and experts a web survey was made. Also, an international conference in emergency preparedness was attended. This conference attracted approximately eighty participants from seventeen countries, of which all had some connection to emergency management¹. The meeting functioned as a platform for this report and the survey was also (but not solely) distributed among the participants.

In order to answer what obstacles there are in implementing useful international emergency management standards, inputs from the survey was used. The survey generated over hundred answers from nineteen different countries (see chapter 4). These answers were categorized into a number of obstacles that concerned different aspects of emergency management standards, identified by the survey participants. These obstacles were then analysed and discussed by the authors, with references to literature and knowledge gathered from seminars and conferences.

The second question at issue (What are the major obstacles in implementing useful international emergency management standards?), was dealt with in a different way. Starting with advantages and disadvantages with standards in general, that can be found in literature, these were analysed in the light of international emergency management.

The method used in developing this report is partly based on (English and Swedish) literature, and partly based on the web survey and the attended conference.

1.5 Target group

This report is firstly aimed at all individuals and organizations interested to take part or know more about the contemporary development of international standards in emergency-, disaster- and crisis management. This would particularly involve those engaged in emergency preparedness, civil protection or societal security in all levels of society. Secondly, people involved in business continuity management or related fields might find interest in this report. The target group is thus very wide, which correlates with the wide scope of this report.

1.6 Limitations

Since the scope of the report is already very broad, no *specific* contents of future emergency management standards will be discussed or described. Efforts have been made to find references from non-English parts of the world, with not as much result as one could hope. Barriers in language have set limits.

¹ ISO, 2006c

2 Emergencies and standards

In this chapter an introduction to emergencies, emergency management, standards and management systems is presented. The interested reader is directed to Appendix A-D where these subjects are being more deeply investigated with appropriate references.

2.1 Emergencies

There are many different terms relating to emergencies. They include crisis, hazards, disasters and catastrophes. All of these terms have been defined in numerous ways, and no consensus really exists. For instance, crisis and emergencies are usually both translated to the same word in Swedish; “kriser”. There are however some important differences that must be dealt with.

Emergencies, crises and hazards are distinctly different from disasters and catastrophes in that sense that they are events or situations that *may* cause disasters or catastrophes. Emergencies, crises and hazards directly or indirectly *threaten* the safety of people, their property or environment.

Hazards are somewhat synonymous to threats and are therefore in a way different from emergencies and crisis, which might better be described as situations caused by a hazard or threat. The difference between crisis and emergencies has not been dealt with in this report.

In order to see how common emergencies are disaster statistics² has been examined. They indicate that disasters world wide have increased in frequency during the 20th century. While the frequency of disasters has increased the number of deaths due to disasters has decreased. Better medical treatment could be one reason. Still, deaths caused directly by disasters might underestimate the indirect deaths that follow from decreased living standards. Also, mortality is only one measuring point of disaster effects. Other factors are harder to define.

More disasters indicate that emergencies are getting more and more common and/or that they are not managed well enough.

2.2 Emergency management

Emergency management can be defined as the management of risk so the societies can live with environmental and technical hazards and deal with the disasters they cause.³ The concept of emergency management has mainly evolved as a response to large disasters and particularly in the recent hundred years. Civil protection and civil defence has often been related to emergency management, especially during times of war. Potentially catastrophic hazards often need to be addressed at national or even international level, which makes this discipline very broad.

Companies and various organizations can have their own emergency management systems so that they are less reliant on municipal or governmental emergency

² EM-DAT, 2005

³ Waugh, L. W., 2000

management. Emergency management is thus not only applicable to traditional public emergency agencies.

In this report the term emergency management is broad and includes, without intending to exclude other perhaps relevant parts; emergency preparedness, emergency response, business continuity management and emergency recovery. Further more, this report do not specifically distinguish emergency management from disaster management or crisis management, even if they sometimes are seen as different disciplines. For the purpose of this report the term emergency management is a very broad concept that might include many societal aspects.

2.3 Standards

A common characteristic for a standard is that it is developed to solve and suggest solutions for upcoming problems. Another important characteristic for is that it is voluntarily implemented. This means that standards are not legislative even though there are many laws and regulations that are built upon them.

Standards are produced in order to simplify, to find better solutions and to coordinate. Sometimes the objective is to make products compatible, while sometimes, it is to reach certain solutions in an easy way.

Even though there are many positive effects by standardization there are some negative effects that may occur. One-way thinking and prevention of innovation or motivation are examples on this. Another reason standards may be negative is that they can be experienced as if they increase bureaucracy.

Since standardization to a large extent is about reaching consensus in specific areas the development has lead to an international market without little competition between standardization organizations. The largest standardization organization is the International Organization of Standardization, ISO, which deals with most standardization areas except telecommunication and information technology.

2.4 Emergency management standards

Different people have different believes in what standards are. This makes it hard to distinct what standards related to emergency management that exists. If a standard is a standardized model of handling specific situations – in this case emergency management –common community emergency plans would be included in the definition of emergency management standards.

In this report the definition of standards is a bit narrower why only a few, more distinct standards are mentioned. Some of the existing emergency management standards that exist are created to be implemented on a very high level in the organization in contrast to others which are written more or less as handbooks with distinct instructions. Some of them are used in real life and some are just drafts to what might become standards. The standards below are described in Appendix D.

- NFPA 1600 – Used in USA, Canada and to some extent international.
- HB223 – Mostly Australia and New Zealand

- UK BS 25999 – First of all in the UK.
- Japanese Business Continuity Guideline – Japan
- SPHERE – International use but does only apply to disaster assistance.

In addition to these standards, ISO and the European subdivision CEN are working with a large project on creating international standards on security management where emergency management is a large part. The scope of these potential standards is not yet decided but since ISO is the largest standardization organization in the world there seem to be some hope that they within the next years have developed an international security- and emergency management standard.

2.5 Summary – Emergencies and standards

Emergencies are a broad term that includes disasters, catastrophes and smaller disruptive events. It can be defined as an imminent or actual event that threatens people, property or the environment and which requires a co-ordinated and rapid response. To manage emergencies work has to be coordinated in order to avoid and reduce emergencies as well as recover from them. Recent disasters have shown that this is not an easy task, even where theoretical knowledge is present. One way to try to ensure effective management is to introduce and implement management standards.

Standards refer to minimum acceptable levels of functionality, efficiency and accountability for a particular product or service. The development of standards has its origin in the early 20th century when the first standardization organisations were founded. Ever since, the process of standardization has largely increased. This increase has been closely linked to trade growth. Before World War II standards were mainly of national concern but in response to an internationalized trade after the war the use of standards started to grow. In 1947 the International Organization for Standardization, ISO, was founded. Today, national standards are usually transformed from international standards, although this is not always the case.

National standards in the field of emergency management can be found in countries such as USA, UK, Australia and Japan, but so far no international standards in this area exist. ISO has developed international standards in different management systems, but they do not address emergencies. Increasing demand in societal security standards has however led to the beginning of standard development in the area of emergency management, conducted by ISO. A summary of important management standards events is given in the time axis in Figure 2.

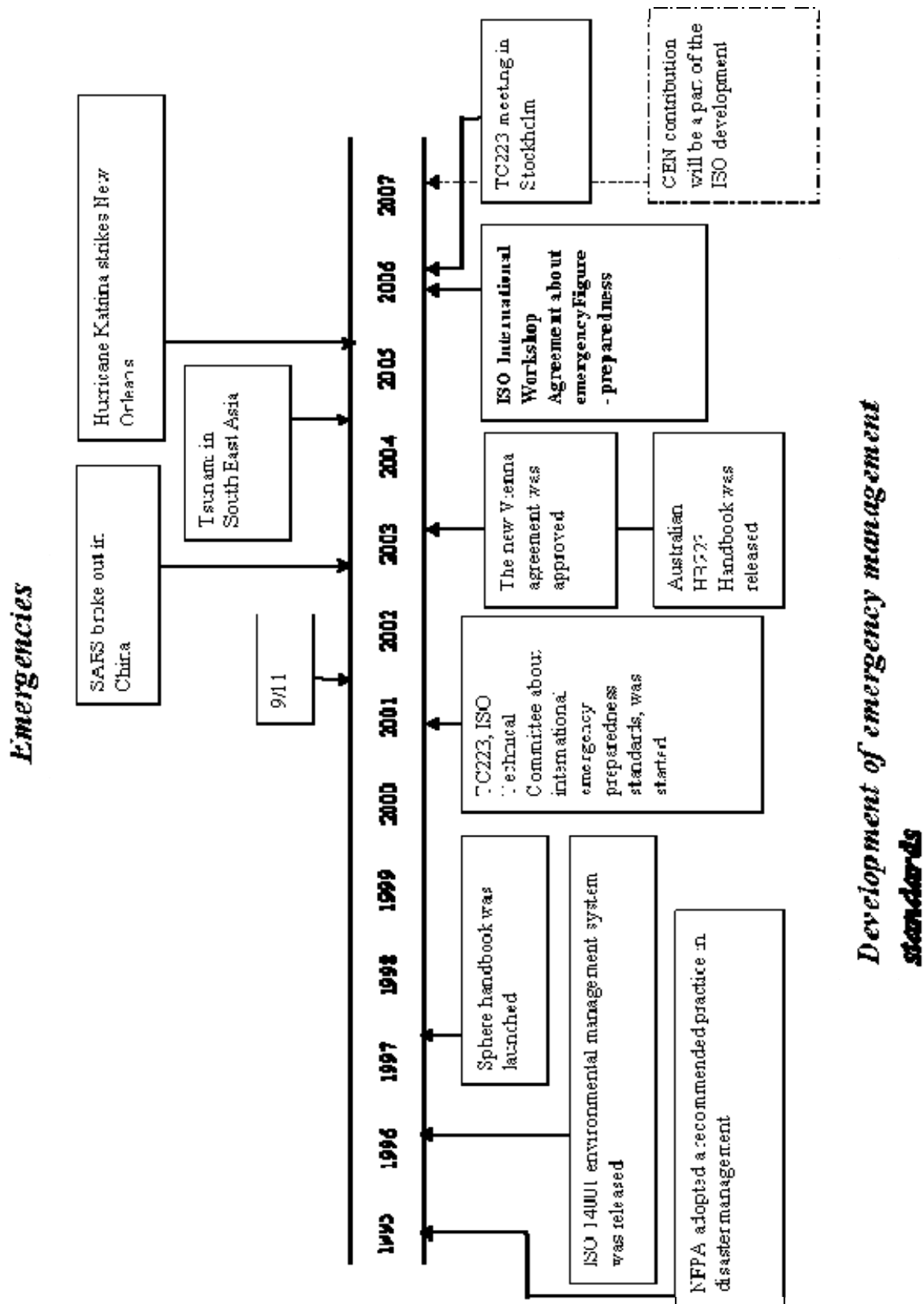


Figure 2 Important events in the development of emergency management standards

3 Premises

This chapter explains some fundamental premises which this report has been based on.

3.1 Utility and purpose

Since it is not yet clear which emergencies, geographical regions, levels and organizations that are to be involved in emergency management standards, it is impossible to determine exactly what the utilities or major obstacles will be. The goals for standards can be different, and they can be designed in numerous ways. For example, the main objective with standards should be that...

- ...the producing organization makes as much profits as possible,
- ...they are used by as many participants as possible,
- ...they are used by the organizations that can get the most out of them,
- ...they are designed to endeavour the best possible combination of users with utility (see Figure 3).

The last item derives from an assumption that the degree of detail of standards versus the number of potential users can be described as a second order equation. If the degree of detail is very small and thereby standards generalized there will be few organizations that can take advantage of them. On the other hand, if standards are specific they will probably be useful to the some organizations, but useless to others.

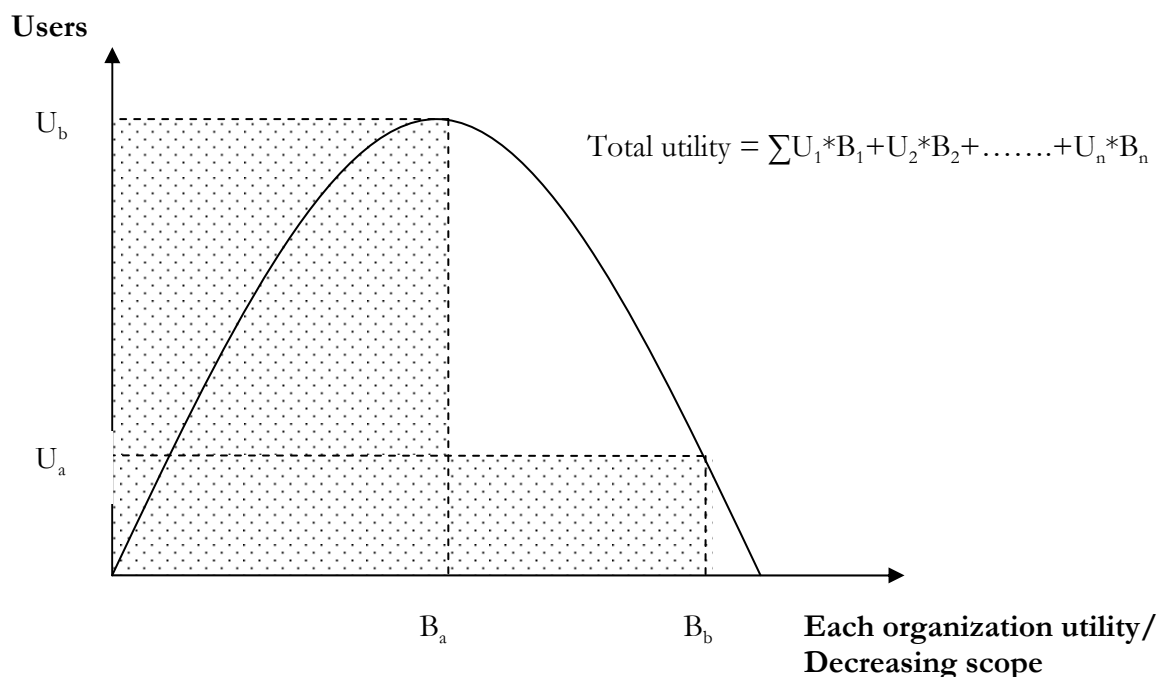


Figure 3 Expected use of the standard

The relationships in Figure 3 figure shows a possible relationship between the utility and the scope of standards for an organization. The total utility can be explained as the sum

of all organizations utility in using a standard. It is in mathematical terms expressed in the Figure 3.

If international emergency management standards are designed with a small scope, for example at level B_b , the number of users responding to this level will be at U_a . The total utility, $U_a * B_b$, is shown in the box (Figure 3). The area of this box can be compared with the one with corners in U_b and B_a which total area (utility) is larger. This figure shows the importance of designing standards with the “right” scope in order to maximize utility.

3.1.1 Risk perception

The risk perception of individuals and organizations should be considered when designing emergency management standards. The opinion and perception of for example safety has an intrinsic value to people and organizations. The positive effects from safety actions are not only the actual improvements in safety but also the feeling of higher degree of safety. From this point of view standards might be useful even if actual improvements in safety can not be substantiated.

3.1.2 Sustainable development

One further aspect relating to the utility of emergency management standards concerns its relation to sustainable development. According to the United Nations the temperature rise will be 2-5 degrees Celsius this century if no measures are taken.⁴ According to Swedish meteorologists⁵ this development may have extreme consequences, such as an almost inhabitable climate in Africa, south-east Asia and southern Europe. A temperature rise of this kind would generate many emergencies, which makes sustainable development a matter for emergency management standards.

3.1.3 Utilitarian approach, capitalism and objectives

Risk management and emergency management are often being analyzed from a cost-benefit perspective. Taking risks is a question of calculating and comparing probabilities and consequences. Therefore, costs and benefits have to be comparable.

Utilitarian approaches seem common when making cost benefit analysis from a common wealth perspective⁶. In this case, by utilitarian is meant that the preferable actions are those that maximize the utility in the society. In private companies the driving forces are different. Generally, decisions in companies aim at maximizing profits, which makes the utilitarian approach inapplicable. But on which values should international emergency management standards be based?

Basing international standards on a utilitarian approach will not be an easy task. One reason is that the distribution of resources between countries is more complicated than within them. Reaching agreements on an international level is generally not easy. No international consensus has been reached on how to develop emergency management standards. Instead ISO, which is a company based organization, is on its way to develop such standards. The result may be the same as if they were produced by states with a utilitarian approach. The difference is the driving forces and standards objectives. It is

⁴ Climate change, <http://climatechange.unep.net>, 2006

⁵ Holmgren P, 2006

⁶ Mattsson B, 2004

worth noticing that a capitalistic procedure for decision making might very well be utilitarian if you believe capitalism creates welfare.

One risk with a utilitarian approach is that the consequences can be misjudged. If standards are designed to be applicable to poor organizations, they might be weak since the world today is built on a capitalistic system where monetary units are used as means of control. This argument may also be used the other way around.

If international emergency management standards are produced in order to earn money, utility might be wasted. There is a risk such standards would mainly address rich organizations in more developed regions. Out of a utility approach this might be unfortunate since the marginal cost of (for instance) saving lives probably is lower in poorer regions.

3.2 Standardization process

When examining how to implement successful standards it was early obvious that advantages, disadvantages and obstacles exists in different levels. There was also a need from the authors' point of view to characterize the picture in order to create a more understandable situation. Therefore and for the purpose of this report a model describing the standardization development process has been produced. The model consists consisting of three steps; design, ratification and implementation. This is described in Figure 4.

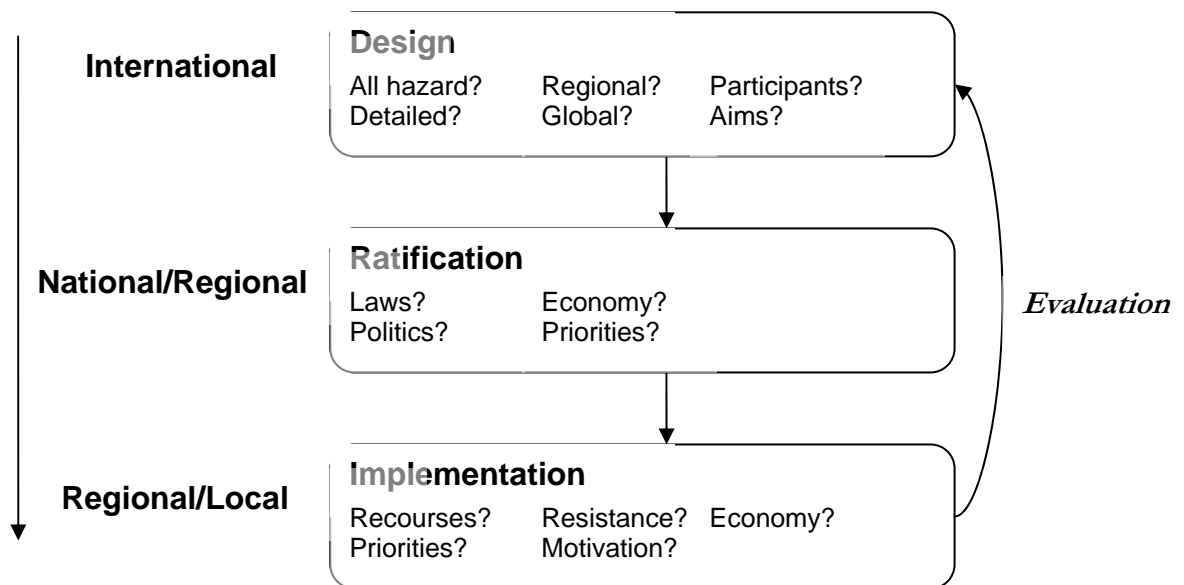


Figure 4 Dominating aspects in developing emergency management standards

Design – The design of international emergency management standards would obviously have to be discussed at an international level. The design is vital for who will use the standard and how well it is implemented and benefited from.

Ratification – After standards have been designed they will be distributed and hopefully used. The ratification step is referring to describe who are trying to incorporate the standards into their emergency management system. Who they are depends on the design of the standards.

Implementation – Even if standards are ratified there is a further step to take and that is to actually implement the standard in the organization. The final implementation depends on variables such as organization culture and their resources as well as the design of the standards.

Of course standards can and should be evaluated and revised. The three steps presented above are not static, but ongoing processes. Existing management systems are built on the PDCA-cycle⁷ concerning improvements and auditing it is reasonable to believe that international emergency management standards would be built on the same principles.

3.3 Summary – Premises

In this chapter some fundamental premises were raised that are important when further analysing international emergency management standards. It was concluded that the design of upcoming standards depends on moral and economical values, i.e. how resources shall be distributed. It was also stated that there is a possibility that emergency management standards may not benefit poorer countries, organizations and individuals to the same extent if economical interests decide how the standards should be designed.

Because of the complexity concerning standardization there is a need to describe the standardization process in some way. A model of the standardization process was produced, which simplified the process into three steps; *design*, *ratification* and *implementation*. This simple standardization process will be used in this report in order to categorize different issues regarding international emergency management standards.

⁷ The main idea of the PDCA-cycle is to always look for better solutions and improvements (see Appendix D)

4 Survey

For the purpose of this report a web survey concerning international emergency management standards was produced. One of the main reasons to this was lack of relevant literature and references regarding emergency management in connection with standards. The idea was to reach experts through the web survey and investigate their beliefs in international emergency management standards.

The survey was distributed through email to a number of persons and organizations that were expected to have an interest in participating. Many were found through the internet and through literature because of their work related to emergency management. Others the authors have had some more contact with through the work with this report. Many participants also attended at the emergency preparedness conference in Florence in April 2006.

Survey receivers were encouraged to forward the survey to their colleagues. The survey was initially sent to approximately a hundred recipients. About half of them participated in the survey. The remaining answers, of the total sum of 107, came from people recommended by other attendants.

To get a broad scope of participants the survey was sent to receivers in many different countries with different background. Most participants were from “western” countries, and the survey can be blamed for being biased in that way. Great help in forwarding the survey came from a Canadian participant⁸ which resulted in about forty percent participants from Canada. An additional twenty percent of the answers came from USA. All in all participants from nineteen different countries answered the survey. Almost all of the people answering the web survey were experts working with emergency management and/or standardization. A list of examples on participating organizations is shown in Table 1. The full list is presented in Appendix H.

<i>Examples on participating organizations</i>		
Emergency prevention institutens	Authorities	Private companies
All Indira disaster migration institute	Federal emergency management association (FEMA)	Aon Corporation
Coventry Centre for Disaster Management	Swedish ministry of defence	KPMG
Disaster Research Center of Delawere	Ministry of Public Safety (UK)	Marsh
Standardization organization	Non Governmental organizations	Others
Korean Standards Association	British Red Cross	European commission
Standards Institution of Israel	UNESCO	International Association of Emergency Managers

Table 1 Examples on organizations participating in the web survey

⁸ Sheena Vivian, Emergency Planner City & Township of Langley British Columbia, Canada

Because of the survey receivers' different background and knowledge about emergency management and standardization an introduction on the subject was distributed along with the survey (see appendix G). Some receivers were expected to know much about this while some were expected to know only a little bit. However, all participants were working in fields relating to emergency management, standardization or both.

4.1 Survey questions and results

The full originally distributed survey can be found in Appendix F. The answers to some of the questions are summarized below. The survey results are presented thoroughly in Appendix H.

Question 1 - Background information

People from 19 different countries participated in the web survey. The geographical distribution is shown in Figure 5.

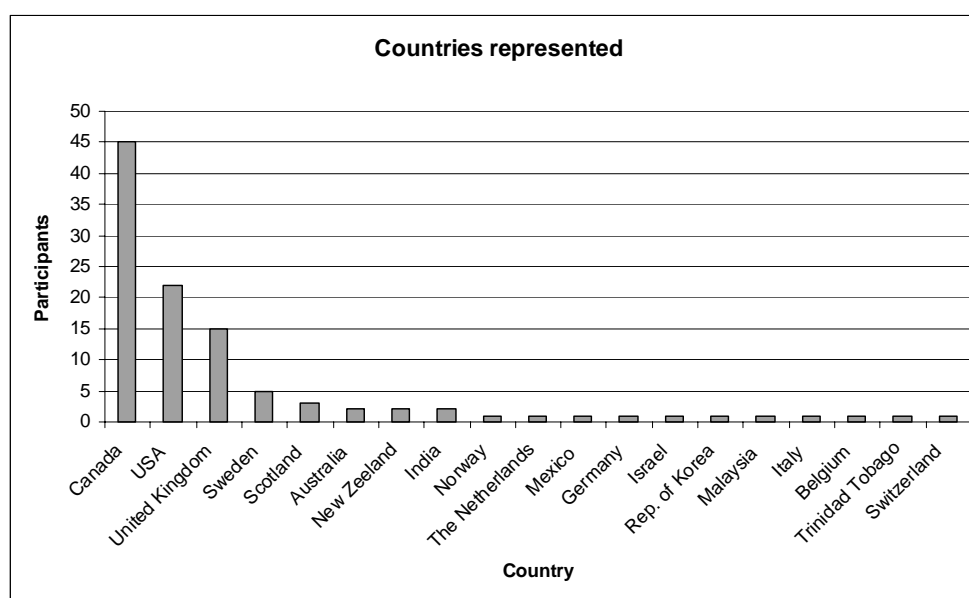


Figure 5 Geographical distribution of the participants

Question 2 *In which fields are you active?*

Question 3 *Are you familiar with any standards in the field of emergency management?*

Question 4 *To what extent do you believe international emergency management standards could be useful?*

The distribution of answers to question 4 is shown Table 2

<i>Degree of usefulness</i>	<i>Share</i>
None	2%
Little	16%
Much	47%
Very much	36%

Table 2 Belief in usefulness of international emergency management standards

The survey participants obviously believe international emergency management could be useful.

Question 5 *Which organization do you consider to be the right one to develop international emergency management standards?*

The distribution of answers to question 5 is shown Table 3

<i>Organization</i>	<i>Share</i>
ISO	51 %
United Nations	19%
NFPA	6 %
Other	24 %

Table 3 Organization that should produce international emergency standards

Question 6 *To what extent do you believe international emergency standards would affect your work?*

4.2 Question 7 - Obstacles

Question 7 in the web survey; *What do you think are the major obstacles in implementing successful international emergency management standards(?),* could be answered in any way the survey participants wanted to. Most participants answered these question and many arguments concerning obstacles were collected. Even though the survey has its imperfections this specific question has resulted in many analyses of what the major obstacles are, all of which are presented in their original form under question 7 in appendix H. In this chapter the answers have been sorted into the different phases described in the standardization process (see section 3.2). The division below is an interpretation of the participants' answers.

4.2.1 Fundamental obstacles

Before presenting the obstacles that were identified in the survey concerning design, ratification and implementation (see section 3.2) there were some fundamental obstacles that did not fit in to the model:

1. **Create a practical use** – Emergency management simply can not be standardized successfully. Every situation needs specific solutions and standards can not replace well established plans.

2. **Funding** – There is not enough interest to rise funding to make such a comprehensive project successful.
3. **Lack of research and evidence** – Until today there is not enough research and evidence showing that standards of this kind would have positive effects and that it would be meaningful to end users.
4. **Lack of Experience** – Compared to other standards there has been little of international agreement. It seems to be a waste to spend resources on developing standards with no positive effects.

4.2.2 Design

Many obstacles connected with the design phase were identified in the survey. Divided under five headings - *Scope, consensus, interest, system and research/ experience* – the obstacles identified by the survey participants in the design phase is listed below.

Scope

1. **Doubts regarding all aspects approach** – This obstacle concerns doubts regarding standards that applies to different aspects such as hazards, organizations, cultures, political systems, religions etc. Even if standards are developed not to apply to all these aspects, problems may arise. International emergency management standards would not be what the name indicates if they applied to no more than one aspect. To be applicable worldwide or internationally many aspects have to be addressed. In shorter terms there is a doubt that a “One-size-fits-all standard” will not be useful.
2. **Create a coherent approach** – Another challenge concerns the usefulness at all levels. There are doubts that standards within this field can be constructed and useful at all levels from micro to macro level in organizations.

Consensus

1. **Competition between countries and organizations** – There seems to be a widespread feeling among the survey participants that within the field of emergency management turf wars are common, which may have negative effects on improvements. There is also an argument that many countries have a negative approach to foreign ideas. A “not invited here” mentality may prevent areas to unite optimally.
2. **Terminology and definitions.** The lack of common terminology is a problem which must be solved before successful international emergency management standards can be implemented.
3. **The striving for perfect standards** – The wide scope of this issue makes it impossible to create standards that are perfect for all potential users. This striving for perfection leads to antagonism between the developers and endless discussions about definitions and questions that actually do not have too much to do with the real issue.
4. **No clear conceptualisation of the problem** – Without a better conceptualisation of the problem it will be impossible to solve it successfully.

Interest

1. **Designers lack of connection to reality** – These kinds of projects tend to be too theoretical and the connection to practitioners is often ignored.

System

1. **Lack of balance** – If these standards are to be international they need to be produced in balance with as many countries and participants as possible. Because of the economical differences present in the world there is a big risk that the standard will be too “western”/US dominated. This may lead to the standards relating principally to the needs of well off and established countries. Moreover there is also a backside to balancing. The rather widespread US resistance has made interested parties from the USA experience this to be negative as some of them have the opinion that their models are the best and most qualified ones, upon which international emergency management standards should be built.
2. **Security** – Even though there are potentially positive effects by standards of this kind there might be countries and organizations that would not like to show and share their system for emergency management. Sometimes emergency management systems will be kept secure and within the country or organization since enemies may have advantages if they know what kind of system is used.
3. **Different risk tolerance** – The range of risk tolerance between users is often too large to be dealt with by using a common standard.
4. **Lack of a natural leadership organization** – Today an organization that in a natural way could lead the development and implementation of international emergency management standards is missing.

4.2.3 Ratification/Implementation

In the previous section obstacles identified in the survey concerning the design phase were listed. Problems can also occur in both the ratification- and the implementation phase. In this section the obstacles in these two phases have been bunched together, because of the similarity in arguments that is connected with the phases. The arguments have been divided into the same areas as in section 4.2.2- *Scope, consensus, interest, system and research/experience*.

Scope

1. **Too large project** – It will be difficult to reach agreement among users no matter how it is designed. Implementing international standards is a huge project within an area where plans and work to a very large extent has already been done on lower levels.

Consensus

1. **Terminology and definitions** - Even if consensus is reached on the design level it will be difficult to implement a common terminology at a micro level. Common changes of terminology will not necessarily happen even if consensus among developers is reached in the design phase. Also, translation problems will always exist why confusion connected to this always will be an obstacle to implementing standards successfully.

Interest

1. **No demand** – The reasons may vary but there are those who claim that there is not enough demand for international emergency management standards. The demand depends on the design but also to some extent irrespective of how it is implemented. One argument is that standards tend to create too much paperwork and bureaucracy and not be cost-effective. A paid-for standard will also exclude many users with a shortage of money. This can be expected to happen to many organizations in less developed countries.
2. **Unequal interests** - If standards are developed by ISO, organizations that are not using their other management systems will not be as willing to them.
3. **Get governments to understand the need for standards** – Safety and security has historically been an internal matter in many countries. Therefore there can be a lack of political will to adopt new methods and reluctance to new approaches. Ratification in many countries may thus be slowed down.
4. **People very fond of their own work** – This argument is very close connected to the previous argument with the difference that it concerns organizations and people instead of countries.
5. **Commercially confidential** - Emergency management is for many companies a means of competition. Therefore the interest for sharing ideas is not large.
6. **Interfering with current standards** – Since there are specific standards in many areas there might not be enough incentive to change standards or to adopt new ones.
7. **Comparison to emergency programs** – Emergency programs are very hard to build into organizations and emergency management standards will probably be even more difficult to implement successfully.
8. **Other better ways to deal with emergencies** – There are those who claim that there are other methods that more effectively cope with emergencies. Why implement standards when people are starving?

System

1. **Lack of legislation** – With no legislation there is not enough incentive to force organizations to adopt international emergency management standards.
2. **Interference with political systems and legislation** – The area of emergency management is in many countries and regions prioritized and the legislation and systems surrounding this field is often comprehensive and complex. With this background, introducing new standards will probably be problematic.
3. **Risk for overregulation** – With new standards there is a potential risk for overregulation in some systems and countries.

Research/Experience

1. **Historically implementation has been very slow** – For example it has been shown in USA that it is very hard to get different states to adopt the same standard. If US states can not unite then why would another standard be more widely adopted?
2. **Putting theory into practice** – These kinds of projects tend to be too theoretical and the connection to practitioners is often ignored.

4.3 Survey technique

Creating a good survey is partly a matter of linguistic. The web survey used in this report was created and distributed before some of the linguistic issues regarding the field of emergency management were identified. This is particularly the case with question 7; *What do you think are the major obstacles in implementing successful international emergency management standards(?)*.

With the word *implementing* some doubts may arise whether the question indicates that the standard should be ratified or actually used. Another concern is the word *successful* itself. To whom shall the standard be successful? This can be interpreted in many ways depending on utility approach (see section 3.1). Even with the same approach it is not sure that *successful* means the same to different survey participants.

More over, the whole term international emergency management standards involves uncertainties. What *international* is probably differing among the participants as well as the definitions of *emergencies* and *disasters* which are terms that are under constant discussion.⁹ The concept of *standard* can be subject of different interpretations, especially since no one really knows how “international emergency management standards” might look like.

4.3.1 Limitation

The survey generated 107 answers. Many people and organizations might have an interest in international emergency management standards. Answers from 107 persons are not enough to make any certain conclusions about the common opinion regarding this matter. The main objectives with the survey was however to identify arguments and thoughts regarding the questions at issue.

Even though the number of participants is not ideal, a survey of this kind is quite difficult to arrange since the potential participants are spread around the world. Considering this, 107 participants is a significant amount.

4.3.2 Selection

The selection of participants is of course important in order to get relevant output from the survey. One reason to this relates to the purpose of identifying arguments. If the participants were not qualified few relevant arguments would have been identified. Another reason is that without qualified participants most answers would to a large extent be guesses.

⁹ What is a disaster? Perry, Quarantelli 2005

When distributing the survey attention was also paid to attract participants from different occupational sectors. The distribution of the background of the participants in the survey is shown in Table 4.

Sector	Share
Federal	32 %
NGO	8 %
Business	32 %
Research/Academic	24 %
Others	4 %

Table 4 Background of the survey participants

Whether the distribution shown in Table 4 is compatible with potential users of the standards in the future is impossible to foretell. ISO among others have however taken an “all organizations” approach in their standardization work relevant to emergency management.

4.3.3 Validity and reliability

There are two central terms associated with surveys; *validity* and *reliability*.

Validity - Whether the survey is measuring what it is really meant to measure.

Reliability – Whether the same results would be reached if the survey was done again with a similar selection of participants.

To analyze the validity the background of the survey has to be further described. First of all, question 7 has been explained to be ambiguous out of a linguistic view. Also, almost every participant was introduced to the survey through E-mail. Attached with the short E-mail, which described the purpose of the survey, was a one page letter (see Appendix B) with a short background to emergency management standards. This introducing letter may to some extent have coloured the participants’ opinion, how much is hard to tell. The linguistic problems together with the letter might have affected the validity of the survey.

The reliability of the survey is dependent on the number of participants. Statistical methods, such as confidence interval calculation, would be needed in order to get a thorough picture of the reliability. The main objectives with the survey was however to identify arguments and thoughts regarding the questions at issue, not to get reliable answers from a statistical point of view. While reliability of course matters, it is not crucial for the purpose of this report. The statistical opinion among potential users is not useless but in this early stage of producing standards, identifying arguments without weighting them can be just as important. This is also one reason why question 7 was formulated the vague way it was – to investigate obstacles from many points of views.

4.4 Summary – Survey

For the purpose of this report a web survey concerning international emergency management standards was produced. The idea was to reach experts through the web survey and investigate their beliefs in international emergency management standards. The survey generated over one hundred answers from participants representing nineteen countries. Most participants were however from “western” countries and the survey can be accused of being biased in that way.

One of the most relevant questions in the survey was question 7; *What do you think are the major obstacles in implementing successful international emergency management standards (?)*, which could be answered in any way the participants wanted to. The answers to this question generated many arguments in connection to obstacles in standards implementation. These were sorted into the different phases described in the standardization process (see section 3.2) in order to be able to analyze them. The full survey results are found in Appendix H.

5 Advantages and disadvantages

In order to discuss advantages and disadvantages with international emergency management standards, general standards advantages and disadvantages will be examined and applied to the former.

5.1 Advantages

In this section general arguments for standards is discussed in an emergency management context.

5.1.1 General advantages

A method for coordination – *Standards render possible compatibility between two or more parts.*

It seems likely to assume that simplifying coordination as well as commonly known solutions makes coordination between users easier. This can be an argument for standards in emergency management. Coordination between different geographical regions on an international or regional level might be more effective with a common standard. This is often not the case in existing emergency management¹⁰.

The problem with coordination is discussed in the US Homeland Security report *Effective regional coordination can enhance emergency preparedness*¹¹. In this report standards development is proposed as one method to enhance the capability of dealing with emergencies. This report is just one of many that identifies a need for better emergency management coordination and where standards is seen as a part of the solution.

The International Federation of Red Cross and Red Crescent Societies have also identified the need for improved standards. In Appeal no. 01.97/2003 regarding disaster management and coordination one goal is:

*...to improve the efficiency and speed of disaster response in sudden onset disasters and intervene and advocate for slow onset and forgotten disasters by improving the quality and availability of standardised Disaster Management tools and standardised logistics tools for the use, by all national societies, in emergencies requiring Disaster Response.*¹²

There are also some evidences that standards, as a method for improved coordination in emergency management, is of value in the business sector¹³. There seems to be many organizations that believe in some sort of international emergency management standard as a method for better coordination.

An effective method for information transferring – *Standardized terminology and common structure can make information transferring between users easier.*

¹⁰ Quarantelli, 2005

¹¹ Homeland Security, 2004

¹² International federation of red crescent and red societies, 2004

¹³ Gregory L. Shaw, 2005

Just as in many other areas, a common terminology and vocabulary is of great importance for the cooperation between participants. In the area of emergency management, confusing terminology seems to be one of the major obstacles to overcome in order to reach consensus in the field.

This opinion seems to be shared by many people working with emergency management and contiguous fields. This was obvious in ISOs' IWA conference regarding emergency preparedness (see chapter 1). Endless discussions about definitions made constructive discussions difficult. Just as the conference meeting showed how important it is with a common terminology, the survey distributed for the purpose of this report gives reason to believe that without consensus in this area, international emergency management standards will be less successful.

Standards might be able to help reach terminology consensus. For example the SI-system, the international system for technological units and prefix produced by NIST, has led to easier information transferring¹⁴. There are also other examples where standards have been produced just to enhance and simplify fields where terminology has been a problem. If a standard is conveniently designed and often used, it might even contribute to a common terminology without this being the main objective. This is what happened when the environmental management standard ISO 14001 was launched.

Better solutions – *Many times standards are shown to be best-practices and well-established plans. These best-practise solutions can be used by many more than just those who produced the standards. The wheel does not have to be reinvented.*

It is possible that the best ways of emergency management are the ones that already exist and have proven to be effective. Whether it is possible to implement these solutions into emergency management standards is hard to know. The SPHERE project (see appendix D) is positive to standardized best-practices, and states in an analysis of its own organization:

*Although the debates about the appropriateness and value of these initiatives are ongoing, the need for learning, standards and codes of best practice is not in doubt.*¹⁵

On a national basis standardizing best practises in emergency management might be beneficial. Standards and procedures have traditionally been developed on a national level with little international cooperation. Countries that so far has not yet developed a “good” emergency management organization might be spared a lot of time using well established international norms and knowledge.

Simplifying – *With standards there is a lower variation which brings positive effects to coordination and information.*

Just as common terminology may have a simplifying effect, lower variation in methods and solutions between organizations may have positive effects on coordinating

¹⁴ National Institute of Standards and Technology, www.nist.gov, 2006

¹⁵ The Sphere Project, 2004

emergency management. The benefits from coordination have to be taken into consideration before using non-standardized specific solutions.

Higher degree of competition – *Standards can sometimes have the effect of creating better competition.*

Since standards often are well-established, larger organizations will not get the same advantages with large-scale production.

5.1.2 Other advantages

Besides general advantages found in literature there are other arguments for common emergency management standards.

Guarantee of quality¹⁶ – *When standards are used some degree of quality can be guaranteed.*

Using standards guarantee a certain level of measurable quality. In order to live up to the standards resources can be better divided between different areas.

Instrument for evaluation¹⁷ – *Standardized instruments for evaluation would enable the effectiveness of a plan to be judged fairly and impartially*

If standards are used evaluation is easier. This could lead to better improvements and harmonized plans for neighbouring jurisdictions.

Belief in standards – *There is a belief an international standard could be useful.*

The chance of producing successful international emergency management standards is greater if there is a wide-spread belief in them. Obviously there are some people that believe an international standard in emergency management could be useful since ISO has started a project in this area.

The web survey distributed for the purpose of this report (see chapter 4) shows that there is a great interest and belief in that international emergency management standards could be useful. Even though the survey has some imperfections the results are very clear in this case. Only two percent of the survey participants believed international emergency management standards could not be useful. More than seventy percent considered them very useful. The statistics for this question is presented in Figure 6.

¹⁶ Alexander, D. E, 2005

¹⁷ Alexander, D. E, 2005

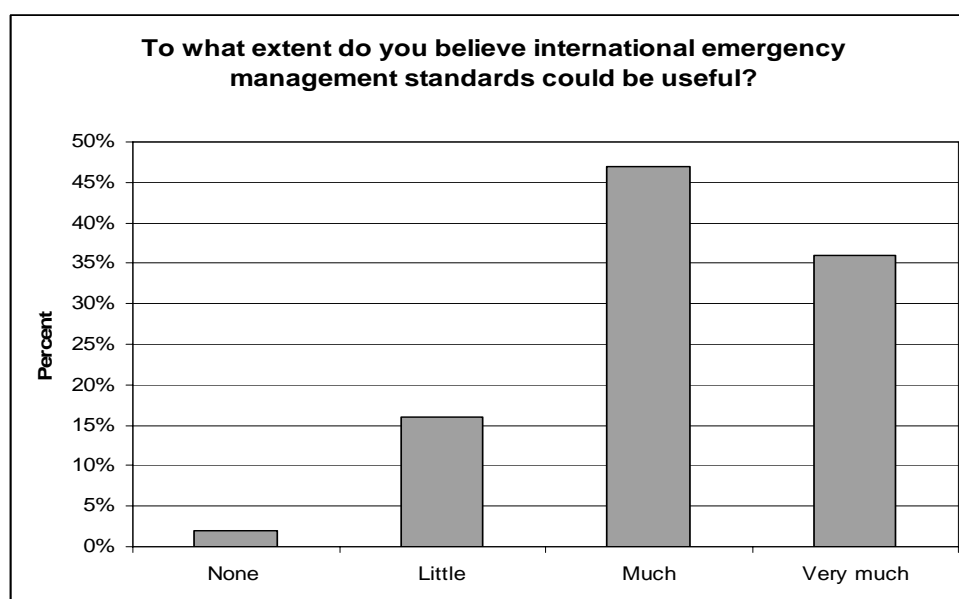


Figure 6 Survey results regarding the usefulness of international emergency management standards

5.2 Disadvantages

There are also potential disadvantages with standards. To what extent they are applicable to international emergency management standard depends much upon their shape.

5.2.1 General disadvantages

Just as for the section above about advantages with standards there are general advantages concerning standardization that can be applicable on emergency management. There are also advantages that are not general but specific for emergency management.

One-way directions and prevention of innovation– *Standardization might lead to less innovation and prevent inventions.*

There are many examples of when local knowledge and skills in managing emergencies are more effective than modern solutions, at least when it comes to mitigating natural disasters. People who have lived in hazardous areas for long adapt useful techniques in order to survive¹⁸. For instance, local mitigating techniques may very well be more effective than modern tsunami warning systems, although the former does not exclude the later. Local well established ways to deal with emergencies may thus be lost if standards are strict and detailed.

On the other hand, if local practises and well established mitigation techniques are cemented in standards new knowledge and innovations might be hard to distribute and integrate into emergency management systems.

Less motivation - *If organizations and people see an extra value in creating their own ways of dealing with problems, standards might lessen their motivation.*

¹⁸ Twigg J., 2004

Given different national and regional conditions, following local existing standards might lead to the exclusion of important hazards or threats. Standards might be followed in a “legal” sense, but lacking its original purpose. This is applicable for standards in general and could be true for international emergency management standards as well.

More bureaucracy – *Standards sometimes seem to have an effect that promotes bureaucracy for many organizations.*

Dealing with detailed, complicated standards may draw budgets and attention from the actual emergency management process. Especially in regions where resources are scarce, these could be better spent on basic healthcare, such as clean water and access to hospitals, than on complicated standard procedures.

Bureaucracy might also lead to slower emergency management development. The process of adopting emergency plans might also be considerably slowed down¹⁹.

Market economy powers – *There are those who claim that regarding company standards the market itself should be the one that decides what standard procedure that should be valid.*

Since standards are voluntary this may not be a problem. Organizations will adopt standards only if they think they benefit from it, economically, socially or politically. The market does in many ways decide what standards ought to be developed, and without a market for it (in that sense that governments or organizations would want to use it) no international emergency management standards would be successful.

Lower degree of competition – *Even though standards may have a positive effect on competition between organizations there might be some negative effects. If some method or product is very dominated in a specific area it is possible that it will influence the standardization process to its own advantage.*

Emergency management standards that are to be applied internationally might be used to the advantage of some people. International emergency management standards could include ways of dealing with delicate politically influenced matters, such as terrorism. Economically and politically strong parties might influence standards so that they benefit from it.

Domination of stronger parties could also influence standards in a more biased way. If some national, local or regional ways of dealing with emergencies become basis of a new standard, other perhaps better alternatives may be overseen. For example it is not necessary so that well developed countries have better ways of dealing with emergencies than less developed ones. Differences could very well be due to lack of resources rather than lack of good management systems.

¹⁹ Alexander, D. E, 2005

5.2.2 Other disadvantages

Except for the general disadvantages discussed above there is at least one identified disadvantage that is specific for international emergency management.

Too broad field - *Emergency management too broad and differing to be standardized.*

Emergency management standards would have to address an enormous variety of possible threats that have to be dealt with in many different ways²⁰. Not only are for instance earthquakes and terrorist attacks different per say, their impact on society may also vary considerably between different regions or countries. Emergency management standards also would have to deal with many different areas of expertise, and involve many different organizations. The mere complexity of emergency management perhaps demands local specialized solutions rather than standardized ones.

5.3 Summary – Advantages and disadvantages

When creating and implementing international emergency management standards there will several advantages and disadvantages during the process. These are summarized below.

Advantages

- Coordination between different geographical regions on an international as well as on local level can improve their effectiveness in emergency management, both for the public and private sector.
- International emergency management standards could lead to terminology consensus, which today is a big problem in dialogues between different nations and research disciplines.
- Public sectors, organizations or companies that so far has not yet developed a “good” emergency management organization might be spared a lot of time using well established international norms and knowledge.
- Simplifying effects due to lower variation.
- Standards within emergency management can be used as a guarantee for quality and instrument for evaluation.
- The actual belief in standardized methods can have positive effects.

Disadvantages

- Local well established ways to deal with emergencies may be lost if standards are strict and detailed.

²⁰ Alexander, D. E, 2005

- If local practises and well established mitigation techniques are cemented in standards new knowledge and innovations might be hard to distribute and integrate into the emergency management system.
- Given different national and regional conditions, following local existing standards might lead to the exclusion of important hazards or threats.
- Dealing with detailed, complicated standards may draw budgets and attention from the actual emergency management process.
- Standardization bureaucracy might lead to slower emergency management development and slower emergency plan adaptation towards new threats.
- Economically and politically strong parties might influence standards so that they benefit from it on the expense of weaker parties.
- If some national, local or regional ways of dealing with emergencies become basis of a new standard, other perhaps better alternatives may be overseen.
- The mere complexity of emergency management perhaps demands local specialized solutions rather than standardized ones.

6 Obstacles

In the previous chapter, advantages and disadvantages with international emergency management standards were analyzed. In this chapter obstacles in implementing successful international emergency management standards will be discussed.

6.1 Quantifying the survey results

Since many obstacles described by the survey participants were similar they were sorted into categories to avoid duplicate arguments (see chapter 4). Still, the number of obstacles identified is significant. In order to find out which of the identified obstacles were mentioned by the most number of participants, the obstacles were relatively quantified. Obstacles were sorted by descending answer frequency, i.e. the obstacle in the top of the list is the most mentioned one in the survey. Because of the difficulties in making qualitative answers quantitative, no exact quantification of the almost 30 received results has been done. The arguments in order of rank are shown in Table 5.

<i>Obstacle</i>
1. Doubts regarding all aspects approach
2. Interference with political systems and legislation
3. No demand
4. Get governments to understand the need for standards
5. Competition between countries and organizations
6. Terminology and definitions
7. Lack of legislation

Table 5 Obstacles described in the survey results

Not surprisingly, *Doubts regarding all aspects approach* was the most mentioned obstacle in implementing successful international emergency management standards. Legislation and demand problems were also identified as common.

6.2 Obstacle analysis

There are numerous reasons for putting standards into use, but there might also be reasons not to. Laws, politics, priorities and economics have to be taken into account on a national level before standards are considered useful. Before standards within this field get to the implementing phase they must be designed and produced. Design and production is dependent on how large the obstacles are. In this analysis each identified obstacle will be analyzed. The priority in this analysis will be to examine the obstacles that many survey participants identified as important as well as those that seem crucial from the authors' point of view.

6.2.1 Analysis of Fundamental obstacles²¹

1. **Create a practical use** – Emergency management simply can not be standardized successfully. Every situation needs specific solutions and standards can not replace well established plans.

Concerning the first obstacle, which questions the practical use of standards, the opinion is not shared by the authors. Firstly, in most cases well established plans should not be replaced by standards. On the contrary, plans can exist side by side with standards. Secondly, concerning the practical use of standards, there are many examples²² that standardized methods can be of practical use (see Appendix D).

2. **Funding** – There is not enough interest to rise funding to make such a comprehensive project successful.

The second fundamental identified obstacle claimed that there is not enough interest to rise funding and make the project successful. This can be interpreted in different ways. It might very well be so that a project like this need better funding for best possible results. However, if standards are developed by recognized organizations, the work would hardly be useless even if funds are scarce in the initial phase. Standards used by some organizations may be better than no standards at all.

3. **Lack of research and evidence** – Until today there is not enough research and evidence showing that standards of this kind would have positive effects and that it would be meaningful to end users.
4. **Lack of Experience** – Compared to other standards there has been little of international agreement. It seems to be a waste to spend resources on developing standards with no positive effects.

Obstacle three and four seem more important. Lack of research, evidence and experience is crucial for the idea of producing international emergency management standards. The question is whether the odds for a successful implementation of international emergency management standards are good enough.

Regardless of the odds, the process of producing international emergency management standards can generate important insights. Also, since standards are voluntary, organizations have the opportunity to choose whether they want to use them or not. If an organization sees a need for emergency management standards they are more likely to be successful. This simple logic is an important advantage concerning all kinds of standards.

If no organizations identifies a need for emergency management standards no harm is done except for the resources spent on developing them. Even if this would be the case it is not sure

²¹ Compare Table 7

²² NFPA 1600, HB221, BS 25999, SPHERE etc

that the standardization work was a waste of time. As stated above; producing standards can generate important insights, without risking too much.

6.2.2 Analysis of design obstacles

Scope

The first, and in the survey largest, concern with international emergency management standards has to do with *doubts regarding all aspects approach*. The concern was absolutely superior in number compared to all other identified obstacles in the survey. In the survey many questions was raised concerning the thought of creating emergency management standards that should address a very wide range of hazards, organizations, cultures, political systems and other aspects. This is important but does not reject the idea of developing international emergency management standards. Even if emergency management standards can not be created perfectly, and the obstacles are many, the efforts in developing them might generate positive side effects.

There are many different aspects of the wide term emergency management. Even a family of standards has to be very large to cover everything connected to this term. The comprehensive view might very well be lost in this process. Some of the advantages identified (see section 5.1) might not be applicable if organizations are using different standards in the same family of standards. It is hence important to find a balance between comprehensiveness and specificity.

The second obstacle regarding scope concerned the difficulty in *creating a coherent approach* that is useful at all levels. This concern is justified but does not mean international emergency management standards are useless. It might however decrease the positive effects of the standards if the design is not good enough.

Consensus

All four identified obstacles regarding design and consensus are such that they might have a negative effect on the final results of international emergency management standards. The obstacles do however not in an essential way restrain the idea of standards. At the present moment, the timing for implementing international emergency management standards is bad because of for instance terminology issues. In the early stages in the process of developing such standards obstacles has to be dealt with.

The competition (instead of cooperation) attitude, and the terminology issues, are obstacles that until today seems to belong to the field of emergency management. Consequently it might even be more important to produce standards that the whole field of emergency management can unite around. If there could be a common use of vocabulary many discussions about definitions could be avoided and more important work could be done.

Interest

Just as regarding consensus, the obstacles concerning the designers' lack of connection to reality is a practical problem that can be solved with resources and knowledge. Still, this obstacle should not be underestimated just since it is a practical problem.

System

Many survey participants identified *lack of balance* concerning economical differences as a major obstacle. This problem is especially large if the aim is to maximize the utility for less developed countries.

In order to manage with economical differences it is important to invite and if necessary help poorer countries with funding so that they can attend, contribute and influence the standardization process. A good example was when the Swedish government and SIDA paid for the attendants from countries that could not afford to come to the first meeting in Stockholm concerning ISOs' work connected to societal security.

During the last decade, a trend in national defence policy has been to cooperate across borders in order to meet new threats. Therefore, sharing of civil defence methods might be less sensitive to today than it was a few decades ago. The *security* aspects, and the type of methods a country is implementing, can be things that some countries would prefer to keep confidential since this knowledge can be used against them. However, only one participant has identified this problem to be the biggest obstacle, but that might be because most participants are from western countries with lower level of conflicts. If the same survey was done in countries with more recent, or ongoing, conflicts it can not be excluded that the answers would be different. Nevertheless, even if all countries will not adopt emergency management standards, other countries with fewer conflicts can still do so.

The third argument concerning systematic design obstacles has to do with *different risk tolerance*. This obstacle is not identified by many participants but can be important since there probably is a wide range of willingness to accept risks among organizations and countries. It is for instance unlikely that organizations in less developed countries will adopt the same security approach as organizations in more developed ones.

The last identified obstacle regarding the design phase is that there might be a *lack of natural leadership organization*. Since a project of this kind would be extensive, it may be hard to point out a leading organization. Since standardization to a very large extent is about reaching consensus, it is crucial that as many organizations as possible are involved in the design phase of the standardization process.

Many people would point out ISO as a natural leadership organization. In Table 3 it is shown that about fifty percent of the survey participants consider ISO to be the right organization to develop emergency management standards. Even if the "right organization" does not mean exactly the same as "natural leadership organization" this at least indicates that there is a big support for ISO among the participants. Also the analysis in Appendix I concerning the support stratified by background of the participants shows that ISO has big support over all sectors.

The fact that ISO has not already been involved in projects connected to emergency management might be both an advantage and a disadvantage. It may be a disadvantage because of their lack of knowledge in this area. On the contrary, this lack of knowledge can be an advantage since it might contribute to create a non-competitive development climate when ISO needs help from other organizations. Besides this, ISO is very used to working under these circumstances and is today almost the only international executive standardization organization. This is also a reason why competition from similar organizations probably will not occur.

6.2.3 Analysis of implementation and ratification obstacles

Scope

The only obstacle sorted under this heading was that implementing international emergency management standards is *a too large project* to be successful. According to the participants that identified this obstacle to be the largest one there already are comprehensive emergency plans in many places and consensus on emergency standards will be very difficult to reach. This however, depends on what standards that are developed. International emergency management standards are not supposed to be a substitute for existing plans but rather a complement.

Consensus

The only obstacle concerning consensus and implementation/ratification is that *terminology and definitions* will be very difficult to reach consensus on. This obstacle is a major one and it will probably take long time to reach a common use of vocabulary. Many organizations have tried to propose a terminology²³ that could be of common use, but different words are still used in different disciplines, sectors and regions.

One more reason to ISOs' suitability to develop international emergency management standards is that the organization is very used to standardization work, which is often associated with definitions and words. A separate ISO committee is currently working with definitions within the risk management field, which in some ways are similar to the once in emergency management.

Even if the linguistic issue is a major obstacle in implementing successful international emergency management standards, the standardization work in it self might contribute to a more homogenous use of definitions.

Interest

Regarding the interest aspect of implementation and ratification there seems to be many potential obstacles. The first obstacle concerns that there is *no demand* for standards of this kind. This opinion is not unusual but there are indicators pointing in the opposite direction. One of them is the actual fact that ISO has started producing standards; this would not be the case if a need for it wasn't identified. Furthermore, over eighty percent of the survey participants think that emergency management standards would be useful. This also indicates that there is a demand for international emergency management standards.

However, if there is no demand then no harm is done except the effort lost in producing the standards. In order to raise as much interest for the standards as possible it may be important that the standards are inexpensive. Otherwise poorer countries and organizations will be excluded, which would be unfortunate.

The next obstacle concerns the *unequal interests* that would occur between organizations that are already using ISOs' other management system and those not using ISOs' other systems. It is possible that organizations already using ISOs' other management systems will be more willing to adopt emergency management standards. This issue can be weighted against another organization producing these standards or that no standards are produced at all. It is crucial that ISO puts a lot

²³ UN/ISDR, EATA etc

of effort in getting organizations that are not using other ISO systems to adopt international emergency management standards; lest the distribution of users might be unequally spread.

Another obstacle to deal with in order to get the most out of the standards is to *get governments to understand the need for standards*. It is probably true that some local governments will not be too enthusiastic about such standards. It is however hard to see why governments would oppose standards, and since standards are built on voluntary basis the government role in this process does not necessarily have to be large.

The fifth obstacle under the interest heading concerns the identified obstacle that emergency management in some organizations is secret and *commercially confidential*. For these organizations, emergency management is a mean of competition. Emergency management can to some extent be regarded in a competitive way but organizations also strive to minimize the cost, which is why they probably may use standards anyway. Moreover, the environmental impact of organizations is a field which in many ways can be compared to emergency management and where many organizations have chosen to adopt standardized management systems (compare Appendix D).

One further obstacle to overcome is the possibility that international emergency management standards may be *interfering with current standards*. First of all, emergency management standards are not extensively spread (see Appendix D) around the world whereby only some regions will be affected by this obstacle. Secondly, there does not have to be a competition about users. NFPA 1600 in the USA is today free to download at the NFPA website and many representatives from existing emergency management standards attended and participated at the IWA conference in Florence, even though new standards could compete with their own. Besides, there is a chance that international emergency management standards are in some ways compatible with existing national ones.

The last obstacle concerns *comparison to emergency programs* and states that since emergency programs are very hard to build into organizations, standards will be even more difficult to implement. This obstacle is not applicable to standards that aim to be complementary or to evolve existing plans and programmes.

System

Concerning emergency management implementation/ratification and systematic obstacles, *lack of legislation* was identified by many survey participants. Their point of view was that legislation is needed to force organizations to adopt international emergency management standards.

Certainly legislation is a mean to force organizations to certain actions but the main point with standards is that they are not legislative. Many countries already have legislation in this field but standards, in this context, could serve to homogenize the methods for emergency management of separate countries.

Another obstacle concerning legislation is the *interference with political systems and legislation*. This is dependent on the level of legislation in the specific country and on how the international emergency management standards are finally designed. Therefore it is difficult to have any clear opinion on this, except that consideration shall be taken to existing legislation when designing the standards, in order to avoid interference.

The last argument under this heading states that there is a potential *risk for overregulation*. If standards in the future reach such a position that they are seen as a rule, they might conflict with existing rules, regulations and laws. Since standards, at least in an early stage, are built on a voluntary basis, overregulation is not likely.

Research/Experience

The first obstacle concerning research/experience is related to that *historically, implementation has been very slow*. Because of the potentially wide scope of international emergency management standards, it is probable that implementation will take a lot of effort and time. To unite around standards and other plans is of course difficult with a large number of organizations and countries. Even if consensus is not reached the project as a whole can be worthwhile. ISOs' other management systems are widely spread, at least in many western countries, even though they are fairly young.

The last identified obstacle points out doubts regarding the ability to *put theory in to practice*. It is a big challenge for organizations to put theoretical standards in to practical use. This is an issue for the developing and designing organization, one which will require plenty of effort and resources.

6.3 Summary – Obstacles

One of the questions in the distributed survey dealt with the major obstacles in implementing international emergency management standards. In order to analyse the opinions from the web survey the answers were sorted into different categories depending on where they would fit into the standardization process. The survey answers differed widely between participants and all answers are presented in Appendix H. A summary of the categorized obstacles can be seen in Table 6 below.

The participants answers were, after they were sorted into different categories, quantified in an attempt to sort out which obstacles were most frequently thought of among the participants. This is presented in Table 6. After discussing the major obstacles according to the results of the web survey some of them were rejected as less important while some seemed very important. The major obstacles in implementing international emergency management standards from the authors' point of view are presented in the right column in Table 6.

<i>Obstacles from survey</i>	<i>Obstacles according to authors (no order of rank)</i>
1. Doubts regarding all aspects approach	Doubts regarding all aspects approach
2. Interference with political systems and legislation	No clear conceptualisation of the problem
3. No demand	Lack of balance
4. Get governments to understand the need for a standard	Different risk tolerance
5. Competition between countries and organizations	Competition between countries and organizations
6. Terminology and definitions	Terminology and definitions
7. Lack of legislation	Lack of research and evidence

Table 6 Major obstacles according to the survey participants compared to the authors' opinion

	<i>Design</i>	<i>Ratification/ Implementation</i>
Scope	<ol style="list-style-type: none"> 1. Doubts regarding all aspects approach 2. Create a coherent approach 	<ol style="list-style-type: none"> 1. Too large project
Consensus	<ol style="list-style-type: none"> 1. Competition between countries and organizations 2. Terminology and definitions 3. The striving of a perfect standard 4. No clear conceptualisation of the problem 	<ol style="list-style-type: none"> 1. Terminology and definitions
Interest	<ol style="list-style-type: none"> 1. Designers lack of connection to reality 	<ol style="list-style-type: none"> 1. No demand 2. Unequal interests 3. Get governments to understand the need for standards 4. People very fond of their own work 5. Commercial confidential 6. Interfering with current standards 7. Comparison to emergency programs 8. Other better ways to deal with emergencies
System	<ol style="list-style-type: none"> 1. Lack of balance 2. Security 3. Different risk tolerance 4. Lack of a natural leadership organization 	<ol style="list-style-type: none"> 1. Lack of legalisation 2. Interference with political systems and legalisation 3. Risk for overregulation
Research/ Experience		<ol style="list-style-type: none"> 1. Historically implementation has been very slow 2. Putting theory into practice

Table 7 Summary of identified obstacles (fundamental obstacles not included)

7 Conclusions

The main objective of this report was to discuss if international emergency management standards should be developed, and if so, how and by whom. In this chapter these questions are discussed based on conclusions from the previous chapters.

7.1 Advantages and disadvantages

In chapter 5 an analysis of the most important advantages and disadvantages concerning international emergency management was made. This is summarized in Table 8.

<i>Advantages</i>	<i>Disadvantages</i>
A method for coordination	One-way directions and prevention of innovation
An effective method for information transferring	Less motivation
Better solutions	More bureaucracy
Simplifying	Market economy powers
Higher degree of competition	Lower degree of competition
Guarantee of quality	Too broad field
Instrument for evaluation	
Belief in standards	

Table 8 Advantages and disadvantages concerning international emergency management standards

There are many possible advantages and disadvantages concerning international emergency management standards, of which it is hard to predict the most important ones. Depending on how and for whom international emergency standards are developed, different advantages and disadvantages are important. Advantages can in some cases lead to disadvantages, or be both an advantage and disadvantage. For example competition can be both good and bad for emergency management, and standards could lead to either higher or lower degree of competition. Simplifying emergency management is an advantage, but might lead to more bureaucracy, which could be a disadvantage.

Identifying and discussing advantages and disadvantages can be important in order to avoid disadvantages, or even turn them into advantages. Balancing between advantages and disadvantages is a difficult but important task in the process of developing international emergency management standards.

7.2 Major obstacles

The major obstacles towards implementing useful international emergency management standards have been discussed in this report. Table 8 presents the outcome of this discussion based on the internet survey and our own work prior to this report. The participants' all had connections to different aspects of emergency management which resulted in a various outcome of answers.

Major obstacles (no order of rank)	
<i>Survey participants</i>	<i>The authors'</i>
Doubts regarding all aspects approach	Doubts regarding all aspects approach
Interference with political systems and legalisation	No clear conceptualisation of the problem
No demand	Lack of balance
Get governments to understand the need for standards	Different risk tolerance
Competition between countries and organizations	Competition between countries and organizations
Terminology and definitions	Terminology and definitions
Lack of legalisation	Lack of research and evidence

Table 9 Major obstacles according to the survey participants and the authors of this report.

The many obstacles identified by the survey participants can in itself be seen as an obstacle towards implementing useful international emergency management standards. With more possible obstacles there is a greater risk of facing time-consuming discussion and scepticism. Scepticism to new solutions has been identified as a problem in previous standardization efforts.

What is missing in Table 9 is that the participants in many ways disagreed with each other, at least according to the survey answers. This is not surprising considering the fact that the participants came from different parts of the world as well as from different disciplines. Part of this disagreement can be explained with different understandings of the question concerning obstacles in the survey. For instance, the term “successful” emergency management can have different meaning for different people. This is in part recognized in the fact that many participants identified issues regarding terminology and definitions as a major obstacle.

Following the disagreement and the wide-spread view on the obstacles, we have formed our own opinion with a starting point in the survey answers. Adding discussions and literature we have a slightly different view of what the major obstacles are compared to the survey participants (see Table 9).

We believe that obstacles will look different depending on the design and development of international emergency standards. The potential obstacles presented in this report can be of great input in the standardization process.

7.3 Should standards be developed

We have already described that we believe disadvantages and obstacles can be avoided in the process of standardizing emergency management internationally. Moreover, since we believe that this can be done, we see no reason why such standards should not be developed. The question is rather *how* such standards should be developed than *if* they should be developed.

Most modern countries already have standardized technological products nationally. Many of these standards could be integrated into international emergency management standards. One obvious example is the design of maps. International aid workers have often had a problem understanding symbols of the maps in foreign countries. The negative effects standardizing the design of maps are hard to see.

Standardizing definitions and terminology would also be beneficial. Many organizations have tried to develop a common use of words connected to emergency management²⁴, without much success. One major reason to this could be the difficulty in translating words between languages, but the problem goes beyond that. Even English speaking people are using terms very differently, which has led to misunderstandings and unnecessary discussions. The benefits from a common terminology would be large. This is however not an easy task, where large organizations earlier have failed, perhaps due to a narrow terminology approach.

The ISO International Workshop Agreement conference in Florence 2006 consisted to a large part of extensive discussions regarding the differences between emergency management, emergency preparedness and business continuity. With a common terminology the discussions probably would have reached longer.

If product- and terminology standards regarding emergency management may seem uncomplicated, complete management system standards are the opposite. However, the success of recent management systems gives hope that emergency management systems can be standardized successfully.

7.4 Development and design

7.4.1 Successful emergency management standards

The design of international emergency management standards defines how and by whom they will be used. No matter how the standards are outlined there will be advantages and disadvantages. Going back to the question of what obstacles there are towards developing successful emergency management standards, what is meant by “successful” is not clear and depends on from which point of view you are looking. Persons have answered this question in the survey with different background and understanding of the terms emergency, management and standard.

People working in federal (or similar) organizations will probably answer out of a federal perspective of what he/her believes is important. This was, as have already been pointed out, the fact at ISOs’ International Workshop Agreement conference in Florence, April 2006. The conference was pervaded of misunderstandings due to different backgrounds among participants with different definitions of emergency management. The point of this reasoning is that your personal experiences will affect your opinion about emergency management standards.

There is also an organizational side of the opinions about emergency management standards. For example, companies might be mostly interested in emergency management standards designed to be useful in a pre-emergency phase. A non-governmental organization working with operative emergency may have a greater interest in an operative one. On a national level, some organs might have an interest in all phases—before, during and after.

In order to get a grip about what aspects that affect the decision on how to develop international emergency management standards, the questions listed below might be helpful. The multiple ways of answering the questions may to some extent show the

²⁴ UN/ISDR, Red cross, IAEM etc

variety that exists when trying to produce standards that is attractive and helpful to end users.

- **In which areas or sectors can the standards be used?**
 - Business
 - Intergovernmental
 - Military
 - NGO/Aid
 - Authorities
 - Etc

- **Which phases of emergency shall be covered?**
 - Before
 - During
 - After

- **Who shall benefit from the standards?**
 - Society
 - Company
 - Employees
 - Etc

- **Which aspects of emergency management shall be covered?**
 - Terminology
 - Management
 - Products
 - Etc

- **Which objects shall be protected?**
 - Health
 - Environment
 - Property

The questions are likely to be answered differently depending on who is asked. This shows that there probably will be contradictory interests in the development of international emergency management standards.

7.4.2 Market or utility driven?

Of the standards that are presented in Section 2.4 some are free and some are not. A paid for standard, unlike a free, have partly been produced in order to make earnings. With these two different objectives standards probably look different. A comparison out of three factors has been done in Table 10. Notable is that both ISOs' environment and quality management system standards are paid-for standards.

<i>Approach/Effects</i>	<i>Objectives</i>	<i>Designers</i>	<i>Design</i>
Market driven	Maximize the benefits (monetary units) for the producing organization	One or many companies with profit interests	To make its customers satisfied. Probably a paid-for standard to make a profit. Areas with high willingness to pay have the highest priority.
Utility driven	Maximize the benefits (utility units) for participants (all people)	One or many organizations which aims are to maximize utility	The areas with the highest priority are the once were resources can be spent in order to increase utility most effectively

Table 10 The effects on the standards depending on approach

The table above presents differences that occur when discussing if something should be produced by the private or the public sector. One thing that has to be decided before developing international emergency management standards is which approach concerning utility and earnings that should be taken.

Our belief is that the types of standards that would be most effective concerning life savings and reduces in common costs are standards that are free or cheap. However, the main objective of these standards is that they are actually implemented and used – free or not.

7.4.3 How to design the standards

Because of the complex and comprehensive nature of this issue, many questions may arise concerning how to approach the design of international emergency management standards. One start could be to decide which driving forces there are (compare Table 10).

After having studying the subject of standards and emergencies, our conclusion concerning a wide approach for all organizations and emergencies, is that a family of standards would be more effective than only one. This is also something that the survey shows. The belief in that one standard could fit all organizations is very small. Instead a family of standards which all are built on the same premises and closely linked to each other without getting too general could be the best solution.

A model concerning how a family of standards could look like is presented in Figure 7. The authors' opinion is that different organizations in different regions need different emergency management standards. This does not mean that they have to be entirely different, but rather that they should be more specifically developed to suit the need for different organizations. In Figure 7 the organizations have been categorized into the private sector, the public sector and other organizations.

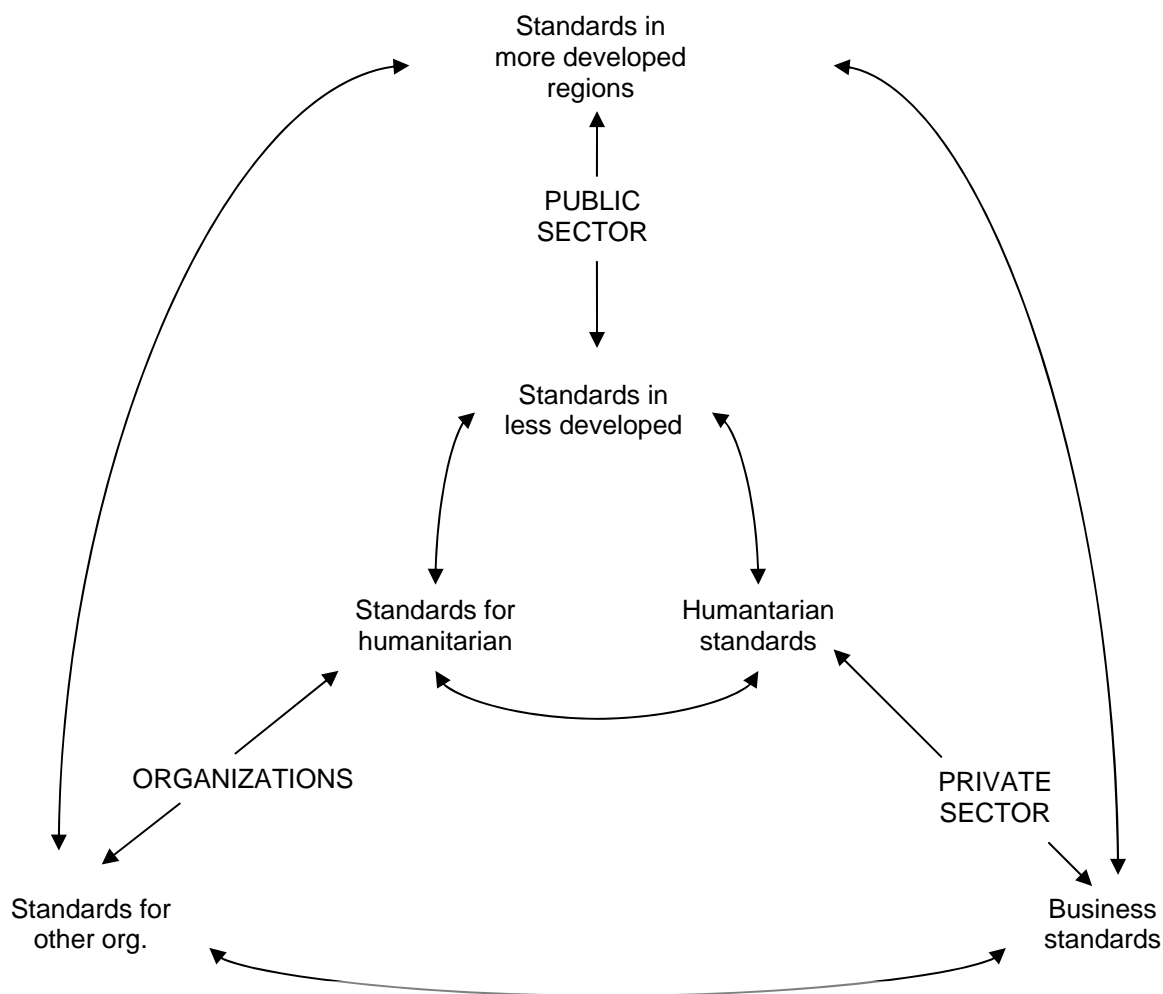


Figure 7 Example on different emergency management standards, and their compatibility.

Emergency management standards for the public sector should aim at all organizations that could be involved in emergency management on both state- and communal level. It is hard to believe that standards could look the same for all countries and regions, why in Figure 7 “more developed regions” and “less developed regions” have been separated. This shows that there is a need for different types of standards in differently developed regions. Where in “more developed regions” sophisticated emergency management might be of most use, in “less developed regions” more basic methods of enhancing peoples’ ability to withstand emergencies may be more important.

In the private sector, emergency management standards probably should look a bit different from the ones in the public sector. Even if they in essence should not be very different there are probably such differences in language and organizational culture that they would need different types of standards. Also, it is the authors’ believe that emergency management standards need to address both the business aspects of companies and a more humanitarian aspect, dealing with public responsibility and ethics.

Other organizations, that do not fit into the “public- or private sector” might need other emergency management standards to fit their needs. Especially, humanitarian organizations, for example those acting in emergency struck regions need special standards in order to cooperate with both communities and companies.

In Figure 7 the double pointed arrows symbolize the importance that emergency management standards for different organizations need to be designed so that they are compatible with each other. Perhaps, special parts of these standards should address how different types of organizations should best cooperate to manage emergencies. In “less developed regions” this could be especially important and challenging.

With a model similar to the one presented above the highest effectiveness might be reached (compare Figure 3). With a family of standards hopefully consensus will be kept to almost the same degree compared to if only one standard was developed. The different standards in the family can be detailed enough and of real use to end users in a better way. Still, the consensus will be reached easier compared to if the standards were created by different producers as is the case today.

This is a huge project probably in need of great resources in order to be successful. This report has not taken economical factors in to account but it is our belief that resources should be spent on producing international emergency management standards since it probably would be cost effective to societies in the long run. When designing these standards certainly one of the most important ways to reach knowledge is to take help from existing standards. There are international standards on environmental impact and quality as well as smaller emergency management standards (see Appendix D).

7.4.4 Who shall design the standards?

ISO in cooperation with organizations such as UN, NFPA and the Red Cross and Red Crescent Societies and others have a great opportunity to cooperate and produce useful international emergency management standards. ISO is today the major standardization organization in the world with good reputation. The knowledge about standards is probably enough but what is lacking is knowledge about emergency management. Fortunately there seem to be many organizations worldwide with great knowledge about emergencies. Therefore we believe that ISO actually is the right organization to develop international emergency management standards. Emergency management is not high on ISOs’ agenda, but that might even be positive. The field of emergency management is today infected with turf wars and disagreements. ISO has however not taken part of earlier disagreements, which make them a good organization to lead the development.

Our opinion is that more effort should be made to invite other organizations in to this project in order to get as many as possible to a part of the project. Financial possibilities from such organizations should be considered if finances are scarce.

7.5 Summary – Conclusions

This report is pervaded by a belief in that standards could be a cost-effective tool to reduce the risks associated with emergencies. It further emphasizes that standards in terminology must be developed before moving on to comprehensive emergency management systems.

In order to maximize the utility of these standards, a family of standards would be preferable. In order to satisfy separate needs of different organizations in different areas standards must be adjusted differently. Organizations in the public- and business sector, in differently areas with different conditions need to be addressed accordingly. In order to

unite and cooperate they also have to be compatible with each other. An example of how a family of standards could look was presented in Figure 7.

It is suggested that ISO leads the standardization work in cooperation with other organizations (for instance the UN). Efforts should especially be taken to invite participants from less developed countries.

Developed in the right way, international emergency management standards could reduce the risk for disasters, emergencies and catastrophes for people, organizations and companies all over the world.

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Appendix A – Emergencies

According to an English Dictionary²⁵ an emergency can be defined as “a situation or occurrence that happens unexpectedly and demands immediate action, or a condition of urgent need for action or assistance: a state of emergency”. Dictionary definitions are seldom academically correct, for instance emergencies are most of the time not unexpected as stated above. But such definitions can still give us an indication about what emergencies are about.

A better definition of the term emergency may instead be “an imminent or actual event that threatens people, property or the environment and which requires a coordinated and rapid response”²⁶. In most well developed societies emergencies are closely related to civil protection. Both car accidents and large scale natural disasters need to be dealt with in order to save lives and livelihood. Police, ambulance and fire-fighters are examples of entities dealing with emergencies.

There are many terms relating to emergencies, of which some will be discussed in this part. Being well aware of the diversity of definitions in this area of expertise, keep in mind that this report might not describe them all. All definitions chosen might not be compatible with all existing literature.

Hazards, vulnerability and disasters

Disasters can be defined as serious disruption of a community or society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or a society to cope using its own resources²⁷.

For a disaster to occur a society must have a hard time coping with an event. Occurring events, or events threatening to occur, are usually called hazards. When a society is vulnerable a hazard might lead to a disaster. The risk for a vulnerable society to be disastrously effected is therefore higher than the risk for a society that is robust and resilient. This is usually expressed as:

$$\text{Vulnerability} \times \text{Hazard} = \text{Risk}$$

Hazards and events threatening to cause emergencies can be numerous. Some hazards are well-known and some has not yet been defined. Table A. 1 is taken from an American standard in emergency/disaster management, NFPA 1600, and can serve as an example.

²⁵ Dictionary of the English Language, 2000

²⁶ Alexander, D. E., 2005

²⁷ International Strategy for Disaster Reduction, 2004

A.5.3.2 The hazard identification should include, but is not limited to, the following types of potential hazards:

- | | |
|---|---|
| <p>(1) Naturally occurring hazards that can occur without the influence of people and have potential direct or indirect impact on the entity (people, property, the environment)</p> <p>(a) Geological hazards (does not include asteroids, comets, meteors)</p> <ol style="list-style-type: none"> i. Earthquake ii. Tsunami iii. Volcano iv. Landslide, mudslide, subsidence v. Glacier, iceberg <p>(b) Meteorological hazards</p> <ol style="list-style-type: none"> i. Flood, flash flood, seiche, tidal surge ii. Drought iii. Fire (forest, range, urban) iv. Snow, ice, hail, sleet, avalanche v. Windstorm, tropical cyclone, hurricane, tornado, water spout, dust/sand storm vi. Extreme temperatures (heat, cold) vii. Lightning strikes viii. Famine <p>(c) Biological hazards</p> <ol style="list-style-type: none"> i. Diseases that impact humans and animals (plague, smallpox, anthrax, West Nile virus, foot and mouth disease) ii. Animal or insect infestation | <p>(2) Human-caused events</p> <p>(a) Accidental</p> <ol style="list-style-type: none"> i. Hazardous material (chemical, radiological, biological) spill or release ii. Explosion/fire iii. Transportation accident iv. Building/structure collapse v. Energy/power/utility failure vi. Fuel/resource shortage vii. Air/water pollution, contamination viii. Water control structure/dam/levee failure ix. Financial issues, economic depression, inflation, financial system collapse x. Communications systems interruptions <p>(b) Intentional</p> <ol style="list-style-type: none"> i. Terrorism (conventional, chemical, radiological, biological, cyber) ii. Sabotage iii. Civil disturbance, public unrest, mass hysteria, riot iv. Enemy attack, war v. Insurrection vi. Strike vii. Misinformation viii. Crime ix. Arson x. Electromagnetic pulse |
|---|---|

Table A. 1 Hazards and events according to NFPA 1600

Table A. 1 implies that disasters include a wide range of events and also the magnitude and type of disaster varies considerably. More severe disasters are sometimes better described as *catastrophes*. Emergencies and disasters, although many times used in the same sentences, are for the purpose of this report different. Although maybe not causing a disaster, events might still cause an emergency. Moreover, an imminently threatening event is not a disaster, but rather an emergency.

Statistics

Emergencies in themselves are hard to measure, but measuring disasters can give an indication on how well emergencies are managed worldwide. Databases define disasters according to levels of casualties and losses. The EM-DAT database managed by the Centre for Research on the Epidemiology of Disasters (CRED), the most authoritative source of data on disasters' impact worldwide, requires at least one of the following criteria to be met for an event to be regarded as a disaster²⁸.

- Ten or more people reported killed
- 100 reported affected
- A call for international assistance
- and/or declaration of a state emergency

According to EM-DAT the number of disasters has increased dramatically the last forty years, along with the cost for the disasters. The total number of deaths has not increased, although more people are now affected by the disasters.

²⁸ Twigg, 2004

Number of disasters

As reported in the EM-DAT database there has been a clear increase in disasters since 1900. It is however hard to say what proportion is a real increase and what is due to a reporting bias. Improved disaster reporting during the 20th century (see Figure A. 1) might have played an important role.

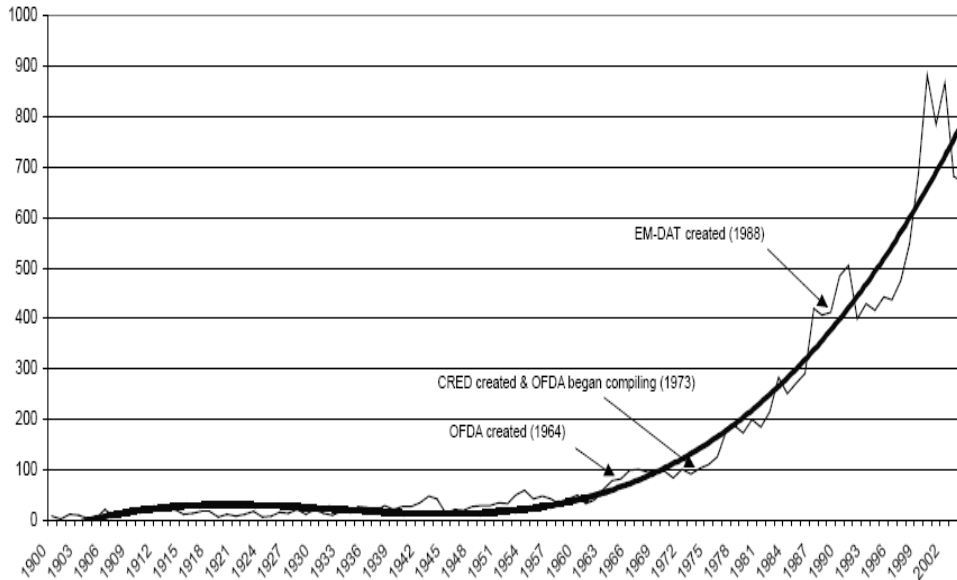


Figure A. 1 Total number of disasters reported in the world 1900-2004²⁹

Still, it is widely accepted that we are facing more and more disasters. But more important, certain disaster types are not only occurring more frequently but also with greater intensity. According to EM-DAT, the duration and intensity of hurricanes has increased rather than their numbers. Floods are believed to occur more often now than two decades ago, and geological events, although not occurring more often, affects more people. Urbanization and increased population is believed to be the two major reasons. Climate change is another reason.

Figure 1-1 shows that the number of disasters, as defined by EM-DAT, each year can be counted in hundreds. Of course it is sometimes hard to know whether or not to define some events as disasters, regardless of how you define one. When are you for instance “affected” by a disaster, and how do you draw the line between disasters and war (which is not included in the database)? Nevertheless one can assume that there were *at least* 800 disasters in 2004, not including war-related disasters.

²⁹ EM-DAT, 2005

Number of deaths

Interestingly enough, the number of deaths due to disasters has not increased with the frequency of them (see Figure A. 2). The main focus on civil protection has been the protection of human lives, which is what can be seen in figure 1.1. Improved medical treatment and more effective emergency response have lead to the opposite development, therefore the survival rate of disaster victims are many times higher today than seventy years ago. But recent large scale disasters such as the tsunami in Southeast Asia 2004 give concerns that this might be a turning trend.

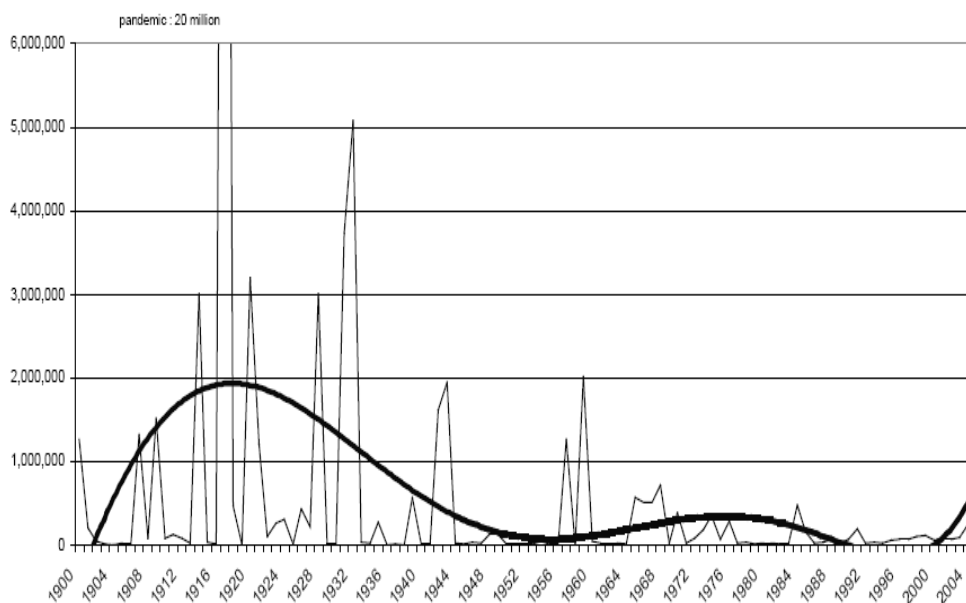


Figure A. 2 Total number of deaths caused by disaster reported in the world 1900-2004³⁰

Even if fewer die directly as a cause of disasters today, people's vulnerability tends to increase following a disaster. New hazards are thus more likely to have a disastrous outcome which might not be seen in the statistics. A household, who loses their livelihood or housing because of a disaster, are more likely to suffer or even die because of starvation or sickness. This is especially true in less developed countries. One example of this is the large earthquake in Pakistan in the fall of 2005, where many survivors lost their homes. Individual deaths from the following winter are probably not included in the statistics, although indirectly caused by the earthquake.

³⁰ EM-DAT, 2005

Economical losses

While the number of direct disaster related deaths has decreased, the economical losses have increased significantly. This is not surprising given the fact that disasters are on the increase, and that infrastructure is getting more and more complex. Figure A. 3 indicates that there are many economical incitements in good emergency management. On the other hand it has been argued that even though each disaster is costly, in some cases, the GNP actually increases after its impact.³¹ The relationship between disasters and economy on a national level is therefore not entirely uncontroversial. On local level, and especially on personal level, it would not be an understatement to say that disasters cost more than they are of benefit.

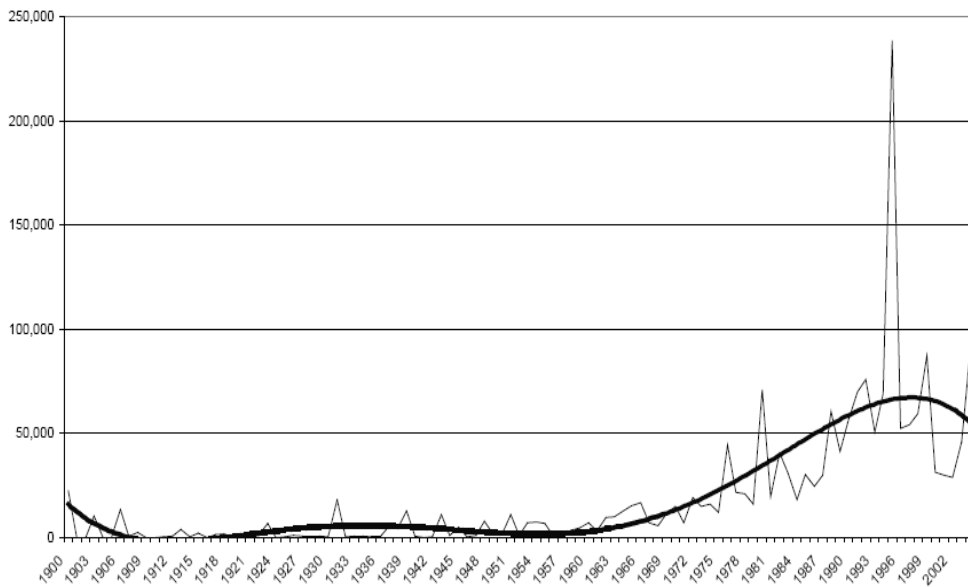


Figure A. 3 Total amount of reported damages (USD million at 2004 prices) following disaster³²

³¹ Seminary, KTH 2006

³² EM-DAT, 2005

Appendix B – Emergency management

In order to cope with emergencies and avoid as well as deal with the increasing frequency of disasters worldwide, the principles of emergency management are of importance. The study of emergency management has expanded with increased public, private and government interest. In the simplest term emergency management can be defined as the management of risk so the societies can live with environmental and technical hazards and deal with the disasters they cause³³. This is also true for social hazards, such as civil unrest.

History example

In order to understand how emergency management has evolved through modern history, USA will serve as an example. The history has probably evolved along different paths through out the world, but that is not something that will be further investigated in this report.

In USA the emergency management system has largely developed following major disasters, which in turn has lead to programs and institutes designed to deal with specific emergencies. Fire and flood was the most common ones. Volunteer fire brigades where the first institutions to deal with fire. In the early 1900s, new technologies such as pumps, improved the profession and special skill was needed. Full time fire fighters became more and more common, and state government started train local fire-fighters.

Early settlers in the U.S. had little knowledge of flooding and were generally vulnerable. When cities and towns grew the floods turned into a big problem. Communities started building dams and levees in order to control water. The first federal emergency management program at federal level dealt with floods and civil defence. These disaster relief acts lead to the creation of the National Flood Program which stated a federal responsibility to assist in flood mitigation programs along major rivers. This work was lead by the U.S. Army Corps. During World War II air raid warnings and emergency shelter systems were established. The *Federal Civil Defence Act of 1950* created a nationwide system of civil defence agencies. Its major objective was to protect civilians from nuclear attack, and civil defence drills became a routine in most organizations. During the cold war communities drafted emergency plans worrying about “nuclear winter”, but public attention soon was drawn to other hazards.

Along with fire and flood, earthquakes and hurricanes were now addressed. Federal support was now granted to assist state and local governments in these issues. The *Disaster Relief Act of 1974* extended these responsibilities to also include families and individuals. Now federal responsibilities included civil defence, disaster assistance to state, local governments, families and individuals, training of fire-fighters, flood mitigation and flood insurance. In order to clarify agency responsibilities in emergencies the Federal Emergency Management Agency (FEMA) was created through a series of actions. FEMA was designated the lead agency for the national emergency management system.

³³ Waugh, L. W., 2000

General outlines

Emergency management is an ongoing process that can be described in many different ways. Most literature in emergency management contains in some way or the other the parts described below. A more extensive list is included in Appendix A.

Mitigation

One obvious countermeasure against emergencies is to try to mitigate the effects of hazards before it has occurred. For known natural hazards such as flooding or earthquake dams and robust houses is one way of emergency mitigation.

Preparedness

To be prepared in the case of emergency is of course vital. Available resources, adequate emergency response team training, emergency plans etc. are examples of emergency training. If society or organizations are not prepared for emergencies they will be managed badly.

Response

When an emergency has occurred quick response will be of importance. The quicker and more effective response the lesser damage will be done, and disasters can be avoided.

Recovery

The effects from emergencies have to be dealt with in order to get back to the capacity before the emergency. This could be an extensive work if a disaster has struck.

Evaluation

In order to learn from mistakes and to improve and update emergency management systems, occurred emergencies have to be evaluated and lessons have to be learnt. This is often lacking in practice.

As for the term *emergency* the term *emergency management* is used in many different ways across the world. This became clear at the emergency preparedness conference that the authors attended in April this year. In this report emergency management includes mitigation, preparedness, response and recovery as well as business continuity management. This does not mean that other terms or phases are excluded.

Figure A. 4 describes another way of describing different emergency management terms in relation to intensity and time, before and after a hazardous event has occurred. The work done prior a hazardous event occurs is thus called *emergency preparedness*. Development of international emergency management standards could be placed in this category. Directly after a hazardous event has taken place, or an emergency has occurred, an *emergency response* (see above) is needed. This is where for instance fire fighters extinguish fires. After the initial emergency response has taken place services that do not work because of the hazard impact has to be temporarily replaced. This is where you would need *business continuity management*. For instance you may need ad-hoc housing after a building has collapsed. During the *emergency recovery* (also described above) things are restored or improved so that things function as they did before the emergency outbreak.

In this report the term emergency management is, as already described, including all these emergency phases, as well as the parts described in the beginning of this chapter. The term crisis management or disaster management could very well be used as well. To exclude any fields would not serve the objectives of this report. This does not mean that this is the only way of describing

the term emergency management. It might not even be the most correct one. But since there is no world wide consensus in this matter the term emergency management will be used in this way.

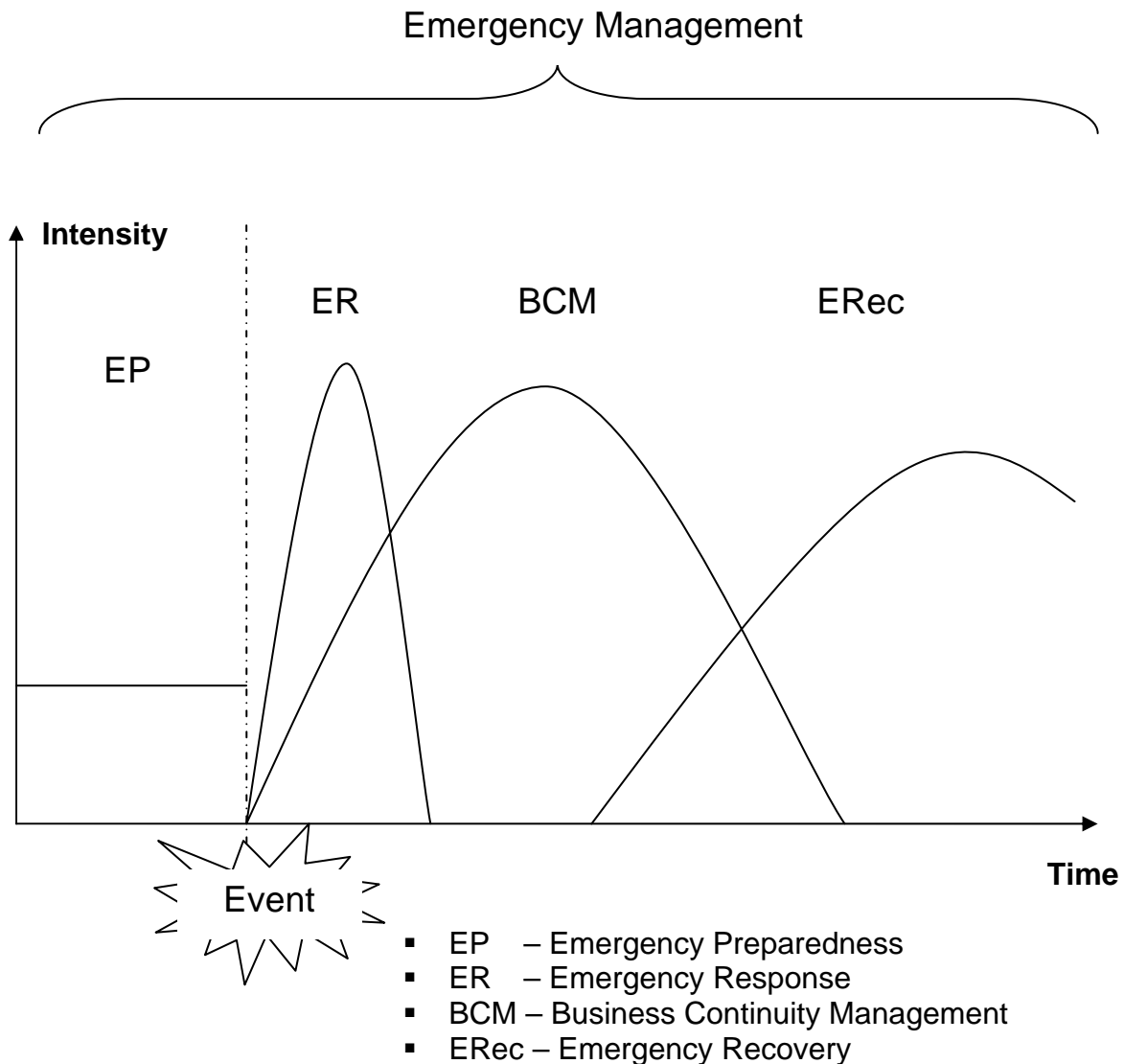


Figure A. 4 Different emergency management terms before and after an event the may lead to negative consequences

Private – public, organizations and business continuity

Emergency management has often been seen as a very public issue, and is usually dealt with in a governmental/community context. In many places the private sector is nevertheless a strong actor in emergency management. Where governmental emergency management is poor this is especially common. This is also often the case in large catastrophes where public infrastructure and organization is severely damaged. In some less developed countries this is more of a static condition.

In the private sector the principles of emergency management are often called business continuity management, which also can be an important part in for instance municipal emergency management. For example fire-brigades can benefit from a business continuity plan if their own

fire-station should be demolished by a natural disaster. The lack of federal business continuity planning was evident in New Orleans, USA, after hurricane Katrina in the summer of 2005. The federal emergency management plan could not be carried out since the emergency organization had been so affected by the hurricane. Business continuity management can traditionally be described as a process focusing inwards on the own organization, while emergency management focuses outwards on the society. As mentioned in section 2.2 business continuity is included in emergency management in this report.

Of course there are also nongovernmental organizations that often play an important role in emergency management.

It is important to emphasize that emergency management includes many aspects of society and can be applied to many organizations within a society. Companies and various organizations can have their own emergency management systems so that they are less reliant on municipal or governmental emergency management. Emergency management is thus not only applicable to traditional public emergency agencies.

Appendix C – Standards

Standardization is today an industry that yearly turns over huge amounts of money. Even though standardization costs are large it is reasonable to expect that benefits from standardization are greater than non-standardization alternatives.

Definition of standards

Most people probably have some idea of what is meant by the word “standard”, though it might be hard to come up with a single definition. One common definition is that standards are something like a normal measurement. The word can also be understood as a rule but mostly without the same degree of constraint. Even more some dictionaries describe it as “a sentence which describes the normal or the usual”.

The Concise Oxford English Dictionary gives several relevant definitions of the word “standard”. First, it is “an object or quality or measure serving as a basis or example or principle to which others conform or should conform or by which the accuracy or quality of others is judged”; second, “the degree of excellence etc. required for a particular purpose”; and thirdly “a thing recognized as a model for imitation etc.” The presence of several “etceteras” implies a degree of leeway or breadth in these definitions. We may synthesize them by stating that, in the present context, standards refers to minimum acceptable levels of functionality, efficiency and accountability for a particular commodity (i.e. a product or service). It is a sort of abbreviated framework that enables the worth of the commodity to be evaluated.

One further definition used by Swedish Standard Institute is that a standard is “a voluntary produced common solution for recurring technical problems”. Hopefully all these rather similar definitions have given the reader a better knowledge about what standards actually are.

Standards compared to rules

It is important to distinct standards from rules, laws, directives and norms. Due to common misunderstandings about what is meant by terms connected with standards, a relationship can be described as in Figure A. 5. A *rule* can be understood as a wide term which includes the other terms. Laws and directives are cogent in the way that sanctions are usually imposed on those who do not obey them. This is not the case with standards. Norms are non-written rules that appear obvious for those who obey them. The difference between standards and norms is that standards have a legible originator and that they are explicit, which is not the case with norms.

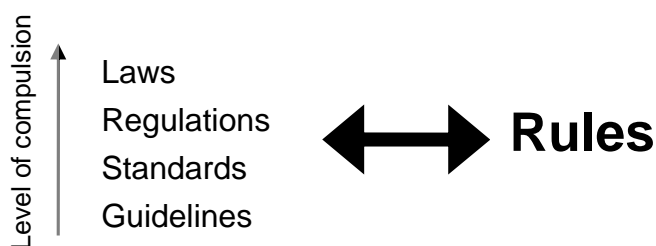


Figure A. 5 The relationship between different types of rules

Shape of standards

Since there are no real limits to how standards can look or in which areas they can be used, standards are often classified on part of their aspects, levels and sectors (see Figure A. 6)

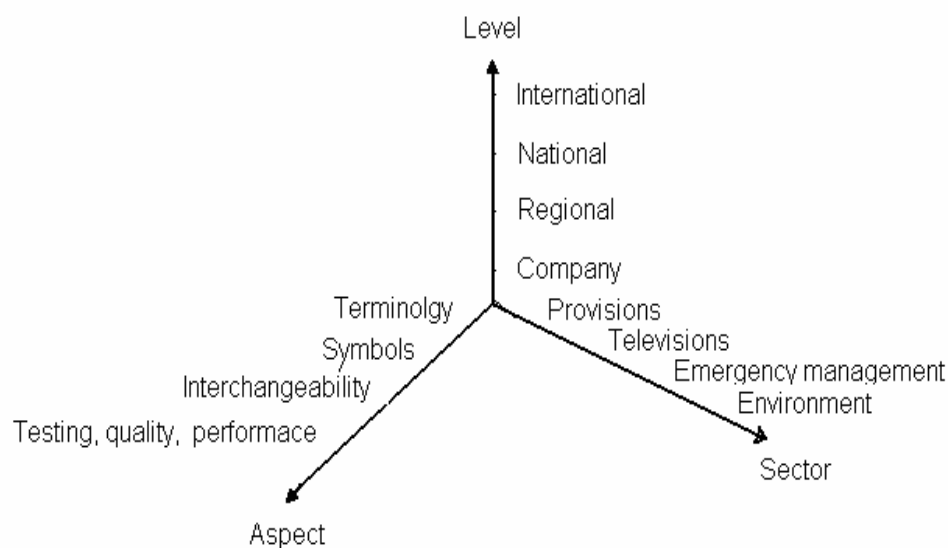


Figure A. 6 Different levels, aspects and sectors that represent the main dimensions of standards³⁴

Aspect

Aspects concern which characteristics a specific standard should present. Some standards concern only one aspect while some concern several. Although the figure is rather old and non-perfect it might give an idea of what is meant by aspects in the area of standards.

Level

The division into separate standards levels might seem fundamental. However, it is not necessary to divide standards into separate levels because standards can apply to all the levels at the same time. For example there are international standards on environment managing system which are used by all range of organizations. It is definitely so that standards *can* apply to specific levels but there is usually nothing that prevents standards to be general and internationally applicable.

Sector

The dimension sector is principally possible to make as large as anyone would like. In theory it is possible to create standards for most commodities and areas. The factor that sets the limit is the demand for standards in the certain area. It is for instance possible to produce a standard for marriage, but would anyone use it?

Development and use of standards

The meaning of the word standard is vague. Questions regarding level of forcibility, what organizations that develop the standards and who they are created for are necessary to answer in order to be able to understand the use of standards.

³⁴ Haaber-Berth, 2004

Development of standards

The development of standards has its origin in the early 20th century when the first standardization organizations were founded. Ever since, and especially following the 2nd world war, the process of standardization has largely increased. This increase has been closely linked to trade growth. Before the war, standards were mainly of national concern but in response to an internationalized trade after the war the use of standards started to grow. In 1947 the International Organization for Standardization (ISO) was founded. Today, national standards are usually transformed from international standards instead of the other way around.

Even though early standards were primarily designed for the industrial sector progress has been made in all kinds of different fields. Today they range from specific industrial nuts to environment management systems.

In the European Union standards have in many cases become forerunners to laws. Since it usually takes a while before bills are statutory, standards can help companies and organizations to be better prepared to adopt new laws. Because of this “new approach” EU often refer to specific standardization organizations in new directives. The EU policy work has to some extent been improved.

Creation of standards

As stated above, standards belong to the part of rules that is associated with a certain degree of voluntariness. This leads to the conclusion that anyone can, if they would like to, create standards. In order to be successful the creator should have some kind of authority in the field which the standard regards to, or there will not be any demand for it. In a world where countries and organizations to a large extent are very dependent of each other, the process of standardization has become very centralized in order to create consensus between users.

There are few international standardization organizations. The reason to this is just what standards are about – to reach consensus. If there were many standardization organizations that did not cooperate consensus would not be reached as easily as if there are just a few. Even though there seems to be a risk for a monopoly situation the forcibility regarding standards makes it less vulnerable than other services and commodities.

In order to get organizations to use standards, standardization organizations often try to gather people from as many connected organizations as possible. By this the probability for unusable standards in the future will be dealt with in an early stage.

Even though standards in the private sector might be the most common known type of standards, public institutions often work with standards too. One major area where standards are used is in the security and safety area. Many standards are produced on a national level but there are also international standards regarding security. One example of where international standards are used is in the European Union. All European nations that are a part of the union are concerned by the standards, but they are not legislative. Politically this is important since it is extremely difficult and takes a lot of time to create international laws. In order to cope with political interests the usual course of action is to gather representatives from as many interested organizations as possible.

The largest standardization organization is ISO. In Europe, some of the most common organizations are the European Committee for Standardization (CEN), the European Telecom Standardization Institute (ETSI) and the British Standardization Institute (BSI). These are examples on private profitable organizations that are being financed by member fees.

However, there are also other organizations that produce standards. Public authorities, groups of major companies and international associations as the United Nations are examples on this.

Standards users

Organizations see advantages in using standards. Standards have their origin in ideas about effectiveness and rationalization, and are often prerunners to laws. Standards are also important from a consumer perspective. If there weren't standards many products would not be compatible with each other.

Standardization effects

As the standards in different areas during the last century were developed several general advantages and disadvantages has been concluded. All of them are not applicable to all types of standards but are still arguments regarding use of standards.

Advantages

The most important advantages with standards are

<i>A method for coordination</i>	Standards render possible comp ability between two or more parts.
<i>An effective method for information transferring</i>	Standardized methods, vocabulary and common structure can simplify information transferring between users.
<i>Simplifying</i>	With standards there is a lower variation which brings many positive effects concerning coordination and information.
<i>Better solutions</i>	Many times standards are well-laid plans which would take a long time to reproduce.
<i>Higher degree of competition</i>	Standards may sometimes have the effect of creating better competition. Larger organizations will not get the same advantages with large-scale production.

Disadvantages

Even though standardization may seem to have some major advantages there are also some negative aspects. The most important are

<i>One-way directions and prevention of innovation</i>	Standardization might lead to less innovation and prevent inventions.
<i>Less motivation</i>	Organizations and people see an extra value of creating their own ways of dealing with problems.
<i>More bureaucracy</i>	Standards sometimes seem to have an effect on many organizations which promote bureaucracy.
<i>Market economy powers</i>	Some claim the market itself, instead of cemented documents, should decide standard procedures.
<i>Lower degree of competition</i>	Competition between organizations might also be negative. If some method or product is dominating in a specific area it is possible that it will influence the standardization process to its advantage, even if it's not the best one.

A map of the standardization world

On which level the work with standards is done depends on the possibility of a general application for the current standard. If the degree of application of a standard is high it will probably be provided on a high level. However it takes much longer time to provide standards on higher levels whereupon this aspect must be taken into account if the standard is probable to have a limited time of application. Because of the rapid development in many areas, some standards have to be general, or they would be out of date when they reached the market.

On an international level, two organizations are dominating. The International Electro-technical Commission (IEC) deals with standards within the field of electronic. ISO is alone responsible for all other fields except for the area of telecommunication which is handled by a combination of ISO and the International Telecommunication Union, ITU. These international organizations have regional and national cooperation partners. From a Swedish horizon the map of standardization can be described as in Figure A. 7.

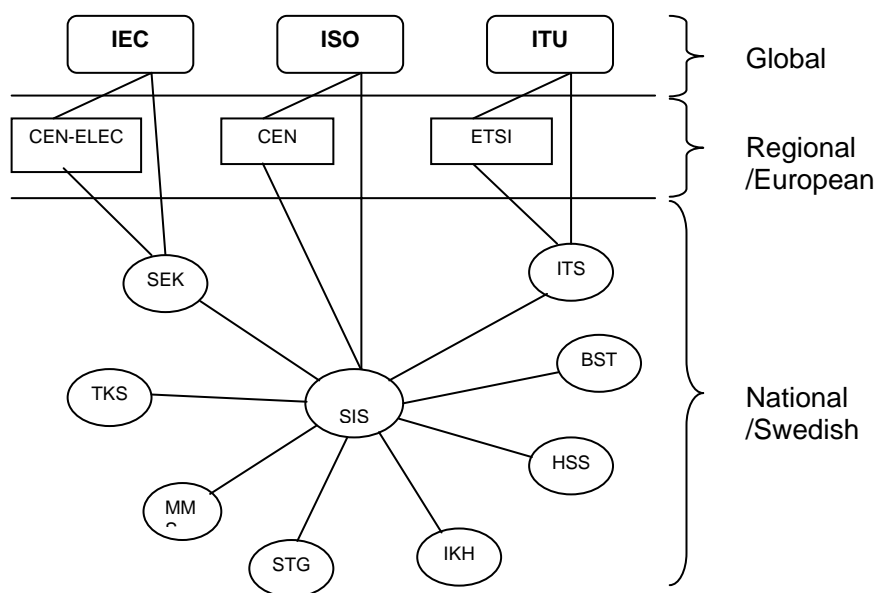


Figure A. 7 The worldwide structure of standardization seen from a Swedish perspective³⁵

International Organization for Standardization, ISO

ISO has since it was formed in 1945 expanded to today consist of 146³⁶ national standard bodies. Each national institute is the superior standardization organ in its country. In Sweden this is the Swedish Standard Institute, SIS which according to Figure A. 7 has close connection to all other national field specific organizations.

ISO standards are produced in a standardized way by Technical Committees. National members can if they want to attend with experts from their country. The results from the technical work are usually an international standard which has to be audited by the Technical Committee.

³⁵ Ringstedt N., 2003

³⁶ ISO, 2005a

Appendix D – Management standards

Recent years a significant increase in emergencies and disasters has occurred³⁷. Since for example the 11th September attacks and the Tsunami in South east Asia many discussions have been held regarding what methods that might be the best one to deal with emergencies and disasters.

Following the increasing numbers of emergencies and disasters, many investigations have been done within the field of preventing and handling emergencies. It is generally agreed that areas that might be at a higher risk of hazards should be required to construct emergency plans. This risk analysis development does not only apply to local authorities. Companies also need to prepare plans in case of emergency situations. In an internationalized world the request of better tools for risk management and emergency preparedness has grown stronger worldwide. The successful development in the mid 90's of standardized managing system in areas such as environment and quality in combination with the increase of emergencies have lead to demands for similar standards within the field of security and emergency preparedness³⁸.

Emergency management standards

The enormous variety of factors that can cause emergencies is one reason why there still are not any comprehensive international standards in emergency management. However, there are some national standards that manage areas adjacent to emergency management.

NFPA 1600: Standard on Disaster/Emergency Management and Business Continuity Programs

In 1995 the National Fire Protection Association (NFPA) in the United States adopted a recommended practice in disaster management. The document related to preparedness, response to, and recovery from disasters resulting from natural, human or technological events. In 2000 the document was revised and developed into standards. In the most recent (2004) edition terminology has been updated and parts expanded³⁹.

The NFPA 1600 standard has been included in the US Intelligence Reform and Terrorism Prevention Act of 2004 and is said to apply to “both public and private programs”, and is aimed at all kinds of organizations, companies or partnerships. Thus, it is believed that the standard can be used at all levels in society. The user of the standard, the “entity”, can have its own definition of a disaster.

NFPA 1600 is fairly recognized as a good emergency management standard, but is not very detailed. It states what has to be done, but does not go into detail about how to do it. It has also been “accused” of being too heavily based on US needs and conditions to be applicable world wide⁴⁰.

³⁷ Alexander, D. E, 2005

³⁸ ISO, 2005a

³⁹ NFPA, 2004

⁴⁰ Alexander, D. E, 1993

HB221 – Australian business continuity management⁴¹

In 1999 the work with the Business continuity management standard HB221 was initiated. The reason for its development was that there was a need for a standard that went beyond the business continuity management for telecommunications and that was consistent with good risk management and governance.

The objective of the standard is to outline a broad framework and process that should be included in a comprehensive business continuity management and applies to any organization that might want to use it. The standard is in the form of a handbook and is divided into two parts where part one presents a picture of what business continuity management is. In HB223 the definition of “Business continuity management” is

Business continuity management provides the availability of processes and resources in order to ensure the continued achievement of critical objectives.⁴²

Worth noticing is that this definition does not only look at potential negative effects but also at potential positive effects, that otherwise can be overseen.

Part two is developed to be used as a framework and manual for participants seeking guidance when implementing business continuity management systems. Compared with NFPA, the handbook delivers more straight answers on how to create a good business continuity management program. For instance there are template solutions and check lists with steps telling the user how to use the handbook.⁴³

Since the first draft was published in 2001 HB223 has become one of Australia’s most influential and used standards with references in Australian Governments public sector management groups. Even though HB223 is mostly used in Australia and New Zealand it has been used in other countries and the development was done with international input.

Israel proposition to emergency preparedness standard

This Israeli approach is a contribution to the discussion about international emergency management standards from an Israeli perspective. Since Israel has been exposed to many attacks of terror it is an interesting country in which to analyse how standards regarding emergencies and security can be used.

Israel concludes that security and emergency management is closely related. The terms emergency preparedness, security and business continuity are included and the main thoughts when putting the contribution together seems to have been to deal with old knowledge and to create a standard built on old ones with the PDCA-cycle in a central position. This is however just a proposal about how an international standard could be designed, not a final solution.

Japanese Business continuity guideline

During 2005 Japan released two documents concerning information security and disaster management. The need for those two documents was set by both government authorities and companies in Japan in order to create better resilience in these two areas. From a national economy perspective the interested parts found it necessary to create better business continuity solutions in order to reduce direct and indirect damage caused by a wide range of disasters.

⁴¹ Bezzina M, 2006

⁴² Standards Australia, 2006b

⁴³ Ibid.

The Japanese expert group developing the disaster management standard called *Business Continuity Guidelines* found some characteristics for standards to be essential.

- Not provided to be mandatory
- Expect each organization to gradually build up a resilient structure
- Should involve coordination with communities

These conclusions might seem trivial but in order to reach consensus on an international level the Japanese group took few aspects for granted. The main reason to develop standards related to emergency management from a Japanese perspective seems to be to overcome worldwide cultural diversity.

Emergency management in the United Kingdom

Civil contingency act

Even though the UK *Civil Contingency Act* is a law rather than a standard it is still interesting in this context. The reason is that the UK, just as Sweden, the last few years has begun reforming their system and work with security, emergency preparedness and civil defence. Contrary to many other countries that are reforming their systems the UK started a few years before the 11th September attacks.

One reason the UK wanted to reform its national system and strengthen the societal ability to handle serious crisis was the many crisis that occurred in the country in the end of the 20th century and beginning of the 21st century. The extensive flooding and the mad cow disease led to a higher degree of awareness about the civil defence area.

Since the UK already before the 11th September had some serious plans of reforming their system their preparation work came to have an influence on other countries and organizations work with security and emergency preparedness. One thing in the *Civil Contingency Act* that for this report is interesting is that the British Government has proposed that standards and performance indicator shall be introduced in order to measure separate department preparedness ability. The thought to strengthen the emergency preparedness with standards for a minimal level and better coordination has been met with great interest from other countries, such as Sweden.⁴⁴

UK – Standards for business Continuity Management BS 25999

The *Civil Contingency Act* is in some areas similar to standards. Nevertheless the British Standard Institute, BSI, has developed (but not yet published) a standard that applies to Business Continuity Management. The BS25999 is in many ways similar to other standards listed above and is like the others intended to be relevant to all sectors. This is however not a “*how to do – guide*” as the Australian standard. Instead it consists of methods and solution *principles*.

When developing the standard some difficulties were identified:

- European and worldwide applicability
- Size/sector of organization

⁴⁴ Krisberedskapsmyndigheten (Swedish emergency management agency), 2003

- Separation of risk management and Business Continuity Management

Some parts in the standards, such as understanding your organization, implementing and developing a good culture as well as auditing and training the organization, were identified as characteristics for good business continuity management. The development group has noticed that these parts of the process are very closely linked to the risk management process why it is also suggested that this standard should be constructed so that it is possible to work with risk management standards.

The Sphere Project

The Sphere handbook was launched 1997 by several Non Governmental Organizations (NGO:s) in order to develop a universal minimum standard for disaster assistance. The most important aim of the project was to improve the quality of assistance provided to people affected by disasters, and to enhance the accountability of the humanitarian system in disaster response.⁴⁵ The small scope of the Sphere Project is as such different to the emergency management standards listed above.

Five important areas were chosen in the initial phase of the standard development process. These five areas were water supply and sanitation, nutrition, food aid, shelter and health services. The process of producing universal standards regarding disaster response led to the publishing of the Sphere handbook in 2000.

Most of the standards and the indicators that accompany them are not new. When creating them an important task was to create consensus across the organizations that might use the handbook. To attain a high degree of confidence among NGO's and other potential users, over 400 organizations in 80 countries around the world were invited to contribute to the development of the minimum standards.⁴⁶

The Sphere Project at work

In less then ten years, the Sphere Project has reached a major part of the organizations that work with humanitarian aid in practice. The use of the handbook is widely spread over the technical sectors covered (see Table A.2).

<i>In what technical areas have you worked?</i>	<i>Did you ever apply Sphere in this area?</i>	
	Yes	No
Water and Sanitation	78 %	18 %
Nutrition	75 %	22 %
Food Aid	70 %	24 %
Shelter/Site Planning	75 %	21 %
Health Services	59 %	37 %

Table A. 2 Survey on to what extent Sphere handbook is used in different technical areas⁴⁷

⁴⁵ The Sphere Project, 2006

⁴⁶ The Sphere Project, 2004

⁴⁷ The Sphere Project, 2004

Critics against Sphere

Not everyone agree that the sphere project was good idea. Some complaints concern the possibility of quantifying. Critics have argued against that only such values that are possible to quantify have been taken into account. What is for example the use of providing wells if women get raped on their way to collect water? The main critics here are that factors as mental health, education and protection of civilian are not taken into account in the minimum standards.

Critics are also concerned that too much standardization may lead to inhibition of innovation. The critics even fear that Sphere could be used to legitimize aid from inappropriate bodies. One example of this is when some NGO's criticized the U.S. army for acting wrong. The U.S. army replied that their actions were meeting Sphere standards.

An additional thing that the critics point at is that the Sphere Project is a northern initiative. Even though the handbook has been translated in to over 20 languages, the fact that the ideas come from the part of the world which mostly gives aid instead of the opposite makes, regarding to the critics, the project weak.

One last criticism concerns some of the terminology used in the handbook. The critics mean that words like "stakeholders" and "clients" do not belong to activities as aid and are condescending to the people in need of help.

Other existing emergency management standards

Earlier in this Appendix some existing standards regarding emergency management were shown. But there are many more standards within the field of emergency management. In the United States alone there are emergency management plans for each of the 50 states in the country. Even though a *plan* is not the same as a standard they can many times be very similar. For example most of the emergency management plans that exist in the USA are built on the American standard NFPA 1600. There are also other organizations, including NGOs that use their own standards.

Security management standards

As earlier stated the increase of major catastrophic events has lead to requests of better management of security, emergency and crisis. Most countries seem to agree that a more international integrated approach is necessary⁴⁸. Therefore some minor steps have been taken in the direction of creating international standards in the field of emergency preparedness.

CEN - Protection and Security of the Citizen

The European Committee for Standardization (CEN) in cooperation with ISO have since the beginning of 2004 been working with an inquiry proposal called *Protection and Security of the Citizen* - CEN BTWG 161. Even though the proposal at a first stage is intended for European countries it is also intended to spread outside their borders. The requests of actions regarding security are:⁴⁹

- Better protection against natural and technological disasters (civil protection)
- Prevention and management of crisis and conflicts (ESDP: European Security and Defence Policy)

⁴⁸ Deane M, 2006

⁴⁹ The European Committee for Standardization, 2005

- Support to management of catastrophic disasters
- Fighting organized crime and terrorism
- Increased Network and Information Security (NIS)

The wider term security means that the *Protection and Security of the Citizen* has a more extensive approach than the main focus of this report. Nevertheless, standardization regarding emergencies and disasters are included in the CEN inquiry whereupon it is still important for the purpose of this report.

Important in this context is that the proposal is a European inquiry that aims to evaluate the needs for security standards in Europe. Even though the inquiry is done in cooperation with international organizations it is mainly European. The inquiry's aim has been to⁵⁰:

- Coordinate standardization activities in the field of security and safety of the citizens.
- Prepare for coming activities regarding standardization within the field.
- Guarantee that the European Commission, NATO and other international operators interests is taken into account.

Participants and how the CEN project is driven

The project *Protection and Security of the Citizen* is financed and ruled by its members. In response to the comprehensive approach of the creation of security standards for protection of the citizens there are many organizations involved already in the inquiry. First of all there are twenty-eight national members, international organizations and business companies in CEN of which many are involved in this inquiry. On a national level there are also different authorities involved. In most of the member countries a local reference group has been appointed.

In Sweden the reference group consists of represents from Swedish Emergency Management Agency (KBM), Swedish Rescue Services Agency (SRSA/SRV), The national of health and welfare (In Swedish - Socialstyrelsen), Swedish Armed Forces (In Swedish - Försvarsmakten) and Swedish Defence Materiel (FMV).⁵¹ Although the reference group consists of represents from the authorities it is the Swedish Standard Institute that coordinates the work done by the reference group. When every national reference group has put together its statement it will be compiled by CEN, and a proposal for standardization regarding security in Europe will be launched if deemed necessary.

Based on the consensus obtained at a Conference in 2000, CEN created the BT Working Group 125 in January 2001. This working group was supposed to work with procurement of standards for defence. After September 11th the view of security were slightly changed among many organizations and after some years of network based discussions the *Protection and Security of the Citizen* working group were appointed. This more up to date approach is still an ongoing project aiming to be a part of the ISO standard in the similar area⁵², if member consensus is reached in the future.

⁵⁰ Swedish Standard Institute, www.sis.se, 2006

⁵¹ Ibid.

⁵² Swedish Standard Institute, 2005

The project is produced in close connection with ISO. Each division at CEN has reference groups that give input to the central working groups. In Sweden the reference groups follows and participate to the work as shown in Figure A. 8.

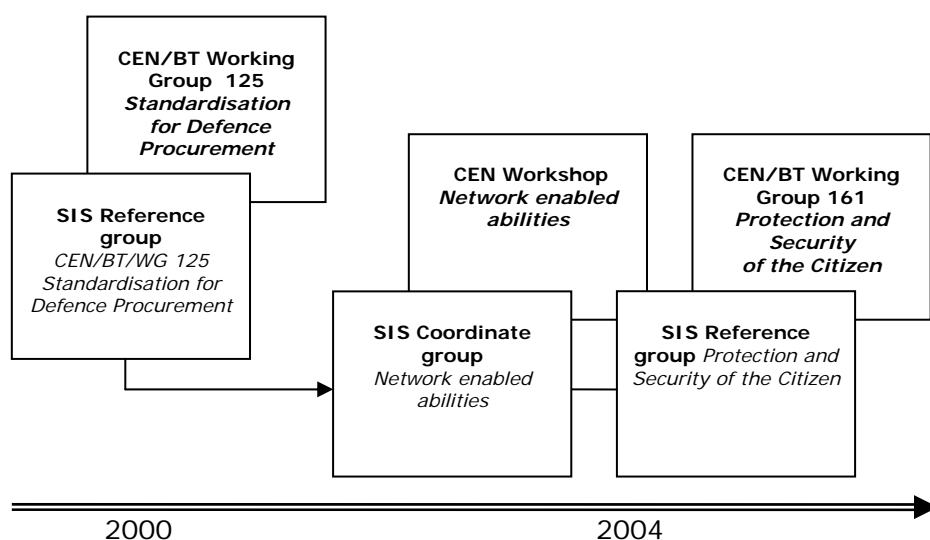


Figure A. 8 The connection between CEN's work and the Swedish Standard Institute, SIS⁵³

ISO - Advisory Group on Security

Following the new security priorities, several studies concluded that standards plays a critical role in ensuring security, and that standards were either lacking or new standards needed⁵⁴.

To meet these demands ISO has followed the trend and appointed a commission. The commission that was formed in January 2004 is called the Advisory Group on Security, and consists of representatives from eight countries. The main objective to the Advisory Group on Security was to evaluate the needs of relevant stakeholders, and to recommend what additional standards work should be undertaken to support international standardization.⁵⁵

Scope

Even though the September 11th attacks were the starting point it was early stated that the Advisory Group on Security would not find any reasons to demarcate the project to respond only to combating terrorism. The Advisory Group on Security considered security standards to apply to “the safety of a state, organization or individual and protection against threats such as criminal activity, terrorism, attack, or natural disaster”.

As the question of international standards in this field to a large extent is a matter of creating consensus among users a definition of the term security is necessary. In the *Final Report of ISO Advisory Group on Security* the definition of **security** is:

“...the provision of protection against threats to people, physical assets, infrastructure, information and information technology assets including electronic networks and facilities, and to the movement of people and goods and related facilities. Security provides safety and

⁵³ Lundström K., 2005

⁵⁴ Swedish Standard Institute, 2006

⁵⁵ ISO, 2005b

*facilitates business commerce and trade through the safe movement of people, goods and services. At the same time, by protecting people, business and government, security enhances freedom and protects individual rights, including the right to privacy*⁵⁶."

The same definition is also found in the CEN report *Protection and Security of the Citizen*. The reason these two approaches are similar is that there has been cooperation between the two organizations.

In order to concretize what applications the Advisory Group on Security found for the use of standards within the field of security, they produced a picture of its scope. The model presents which targets, threats and countermeasures that have to do with security in a community. The identified threats, targets and countermeasures are shown in Table A..

<i>Threats</i>	<i>Targets</i>	<i>Countermeasures</i>
Explosives	Resources (e.g. Water)	Assessment
Chemical	Infrastructure (e.g. Buildings)	Protection
Biological	Networks (e.g. IT)	Detection
Nuclear	Transport (e.g. Supply chain)	Identification
Cyber	Public health (e.g. Hospitals)	Restoration
Conventional weapons	Industrial base (e.g. Refineries)	Management
Physical objects	Government	
Human beings	People	
Natural disasters		

Table A. 3 Security model by ISO Advisory Group on Security where

Participants and how the ISO security project is driven

The normal procedure within ISO is that one member from each country is responsible to make a compilation about the country's opinion regarding the current standard. Today there are about one hundred fifty national standard bodies, which mean that a large quantity of all countries is represented in ISO.

Just as the CEN *Protection and Security of the Citizen* is financed by its members the same concerns this ISO project. As ISO today is the only international multi-sector standardization organization⁵⁷ the number of collaboration partner is enormous. In this specific project the Technical Management Board have had many contacts with American National Standards Institute, ANSI, concerning its activities in support of the US Department of Homeland Security. There have been many major international meetings the last years in Geneva regarding security. The perhaps most important issue that was concluded at these meetings was that security is a very wide term that needs to be handled on an international level for the best results.

The close connection between CEN and ISO has its origin in the Vienna agreement from 1991, audited and approved 2001, which is an agreement on technical cooperation between the two organizations. If the two inquiries manage to reach enough consensuses the plan is that the CEN standard will merge together with the ISO international standard in the year 2007⁵⁸ (See Figure A. 9).

⁵⁶ ISO, 2005b

⁵⁷ Ringstedt N., 2003

⁵⁸ Swedish Standard Institute, 2005

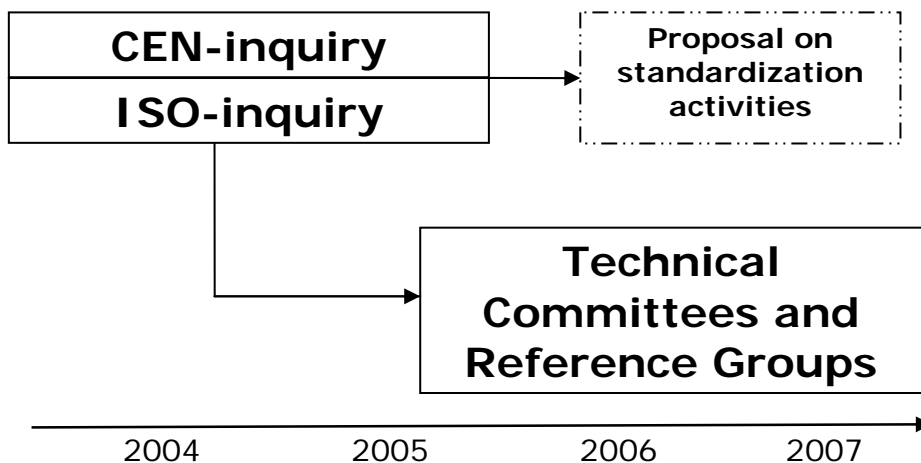


Figure A. 9 The time schedule for producing security standards in Europe and internationally⁵⁹

ISO Societal Security – Until June 2006

Since an interest for these matters was identified ISO created a Technical Committee concerning what is now called *Societal Security*. By creating this a step closer to a finished standard has been taken. The name of the standardization committee is *ISO/TC 223 Societal Security* which means that the older term Civil defence has been replaced.

In order to present a picture of how far this project has reached the committees first meeting was held in Stockholm, Sweden in the middle of May 2006. Sweden was also the host country with the mission to prepare the meeting and to propose a Business Plan. Representing organizations from the Swedish side was Ericsson Microwave, Saab Systems, Volvo Technology, Swedish Emergency Management Agency (KBM), Swedish Defence Materiel (FMV) and the Swedish Standard Institute, (SIS).

Even if the meeting in Stockholm actually was the first one of its kind a lot of efforts and preparations had been done before the meeting. One preparation was a conference in Florence, Italy in April 2006 that aimed to create an International Workshop Agreement, IWA-document that could be used as an input for the upcoming meeting in Stockholm.

With a rather comprehensive work done in advance, thirteen resolutions⁶⁰ were made in connection to the meeting in Stockholm. The most important of these resolutions were:

- A work group concerning terminology will be formed. The working group shall have the objective of producing a Glossary of terms used in the area of societal security.
- A working group about framework standard for societal security management will be formed. It should establish a common basis for related security management standards and provide a reference for standard development and/or to harmonize existing related documents. The framework standard should also include a bibliography of related standards that can be referred to for guidance. This standard will not require any

⁵⁹ Lundstöm K., 2005

⁶⁰ ISO, 2006b

management systems processes, specifications, or certification.

- A working group in Command, Control, Coordination and Cooperation will be formed. The group shall develop standards that among others can include information gathering, information sharing/information processing, information flows/knowledge flow, interoperability, structures and procedures, decision support and warning.

About 30 countries were represented at the meeting in Stockholm, out of which 15 were from less developed countries. The Swedish International Development cooperation Agency, SIDA to a large extent paid for the attendance of participants from less developed countries. SIDA also arranged a two day course in standardization for those who weren't familiar with this subject before the real meeting.⁶¹

As the scope of this project is large, one can expect it to take some time before any final standards can be used. The average time to produce an ISO standard is 5 years which might give some perspective. The next ISO/TC 223 meeting will be held sometime in November 2006 in Bangkok, Thailand. In spring 2007 USA has offered to host the third meeting.

Lesson learned from security standards

Concerning aspects as *scope* and *degree of details* Figure A. 10 explains the relationship and position of these parameters for the existing standards. It is too early to say exactly where the ongoing work done by ISO and CEN will fit in the figure but it will probably have a wide scope, encompassing the entire term security with an all organizations approach⁶².

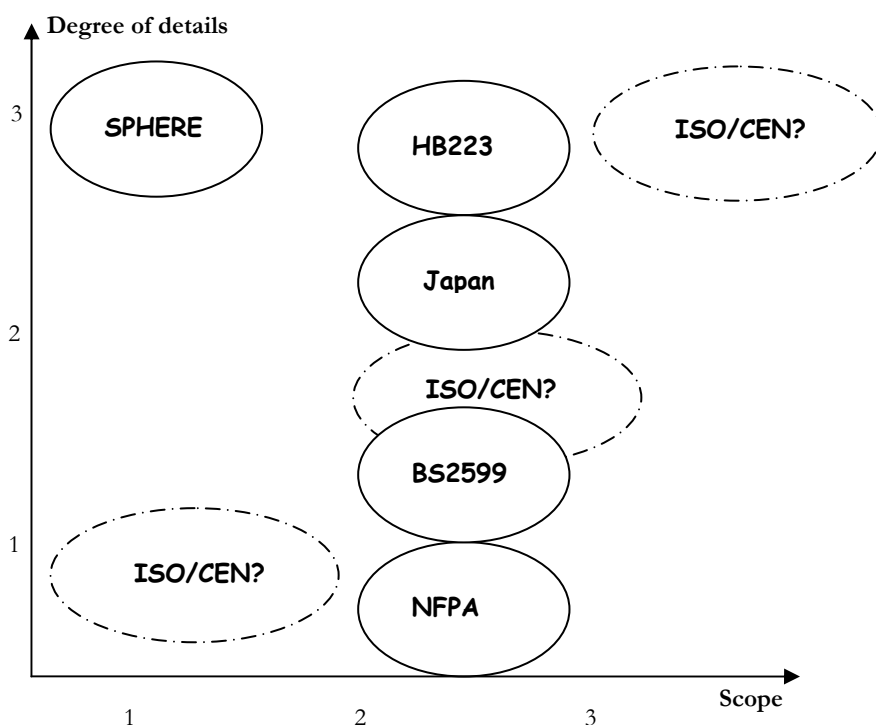


Figure A. 10 Standards with different design and scope

⁶¹ Hagelstedt V., 2006

⁶² ISO, 2006a

Scope – From left to right the characteristics are

1. One phase and not Business part of emergency management
2. All phases
3. All phases, security and business included

Degree of details – From bottom to top the characteristics are

1. Principle based
2. “How to” guide
3. Handbook

It is impossible to say which combination of the two parameters is the best one since their purpose and objectives are different. Out of the described standards related to emergency management, NFPA 1600 is the most wide spread. One reason could be that it is American based and thus easy to find on the internet. USA also has a history of extensive emergency management. This in combination with that it is free to download at the NFPA website makes it popular. Until April 2006 the standard NFPA 1600 had been downloaded 127.000 times⁶³. There are even those who claim that the best way to produce international emergency management standard is to build upon NFPA 1600. This might be the case but it is important to notice that there are standards in smaller markets than the American that also have become popular. For instance the use of Australian HB 223 has in just a few years grown rapidly⁶⁴. When the HB 223 is very rich of details NFPA is the opposite and much more built on principles rather than clear instructions. If this difference in amount of details in the standards has had any significant effect concerning for example willingness to adopt it or effectiveness it is an argument against using the NFPA 1600 as a foundation for new international emergency management standards. Unfortunately no other standard than the NFPA 1600 has presented any official numbers of users.

Environment and quality management standards

The existing standards in the area of emergency management are all in some sense similar to management systems. Today there are few worldwide spread existing standards on management systems. Since the similarity between other management systems and potential emergency management standards a comparison to the process of implementing these systems seems to be valuable.

Environment management systems standards

There is no clear answer to why standardized environment systems have been developed. Just as in many other cases the explanation is a combination of different factors. One major cause was when American companies saw a need for tools to identify regulations and laws regarding environmental issues in the 80's. At the same time in Europe there was a changing climate among some influencing companies regarding environmental impact problems.

Due to the changing climate both national and international actions were taken to a more proactive approach with better tools for environmental auditing and risk management. These programs continued to develop and in the 90's EMAS and ISO 14001 were starting to be implemented. Today ISO 14001 has been used by more than 36,000 organizations and companies in 84 countries.⁶⁵

⁶³ Bokman L., 2006

⁶⁴ Bezzina M., 2006

⁶⁵ LRQA, www.lrqa.se 2006

Existing international management standards⁶⁶

The first implementation of standards in the area of environmental management systems was done by the British Standard Institute, BSI in 1992. BSI was also the organization that developed the quality management system that ISO later would build their similar quality system on.

Today ISOs' environmental (14001) and quality (9001) management systems are probably the most known and wide spread standards on management systems. There are however others, although less common. European Eco Management and Audit Scheme, EMAS, is an environment management system quit similar to ISO 14001.⁶⁷ Similarities aside, there is a big difference regarding how they were created. EMAS was adopted by the European Union as a regulation and is thus a political initiative which purpose is to strengthen environmental work within companies. ISO 14001 is on the other hand often associated with a report published at a UN conference in Rio de Janeiro 1992 called *Changing course*. This report concerned the link between economical development and environmental impact. As a follow up to this and earlier presented reason, ISO created the 14000 family of environmental standards where 140001 address managements systems.

Many management systems exist around the world, but most of them are not international or created to be implemented as standards. They can sometimes better be described as work procedures, often developed by consultants in order to implement simplified management systems.

How does these management systems work

Just as many other management systems and standards, the ISO and EMAS systems are built on the PDCA-cycle⁶⁸ where the main thought is the process of always looking for better solutions and improving the organization. The cycle is shown in Figure A. 11⁶⁹. If an organization needs a management system they will probably end up in the same type of work as described in the PDCA-cycle.

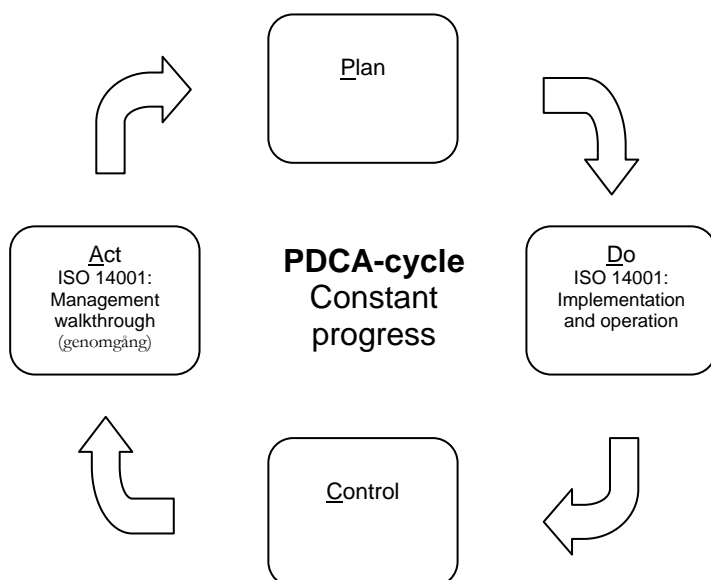


Figure A. 11 The PDCA-cycle compared to the ISO 14001 process of constant progress

⁶⁶ Ammenberg J., 2004

⁶⁷ Brorsson T., 2004

⁶⁸ PDCA-cycle is sometimes called Deming-cycle

⁶⁹ Ammenberg J., 2004

Where and why does environment and quality management standards exist

Since environmental and management systems in many senses are similar to a system for emergency management it is interesting to examine what reasons there are to implement an environmental management system. According to the Swedish researcher Jonas Ammenberg the following reasons are the most common⁷⁰:

- Economical reasons – Hopefully an implementing will lead to reduced costs
- Communications – To facilitate communication with authorities
- Competence – In order to take advantage of the employees knowing.
- Competition arguments – In order to appear as a good organization
- Environmental impact reasons – Simply to reduce negative impact on the environment
- Authorities demands

Lessons from other management systems

As earlier stated one of the main thoughts that ISO 9000, ISO 14001 and EMAS is built on the constant progress thought from the PDCA-cycle. By implementing management systems like these, research⁷¹ has shown that it is common that organizations optimize their activities to fit current legislation and thus often evaluates their activities relative to legislative demands. The first step towards management system implementation seems to be to get the organization management to realize the meaning of constant progress regarding environment impact or product quality. In connection to this experience has pointed at the importance of support from company executives in order to implement management systems successfully.

Another lesson learnt is that if a management system already exists in the organization it is probably easier to implement another one. The importance of enough time, training, education and feedback is significant. Furthermore bureaucracy needs to be avoided to as large extent as possible. Also, environment management systems seem to be easier to implement among employees than quality management systems.

An additional comment concerns the importance of creating a management standard that is compatible with as many other management systems as possible. Otherwise resistance may be large and potential users lost. An emergency management standard can for instance be compared with ISOs' two other management systems concerning quality and environmental impact. This comparison is described in Figure A. 12.

⁷⁰ Ammenberg J., 2004

⁷¹ Brorsson T., 2004

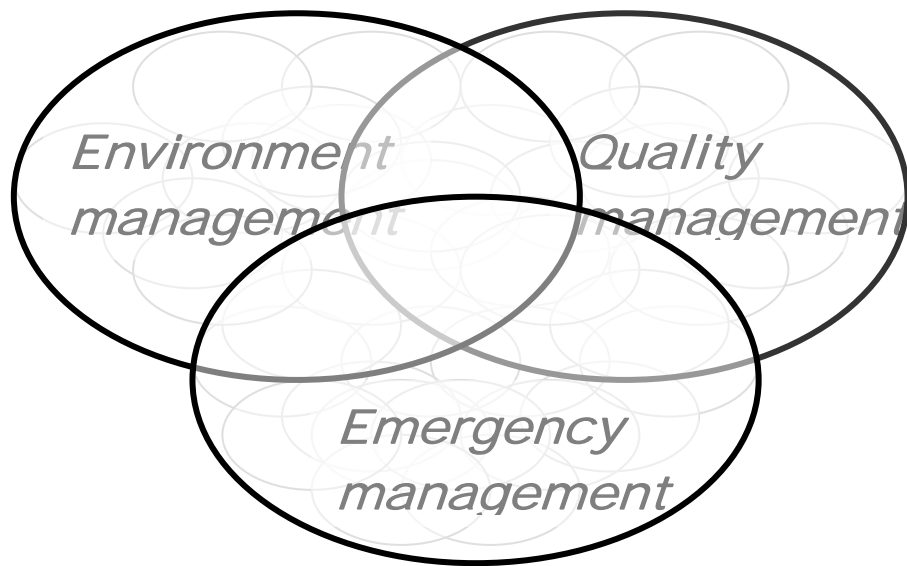


Figure A. 12 Coordination of Environment, Quality and emergency management systems

Besides existing standardized management systems it is crucial to design a standard or a family of standards that does not interfere with other management systems. Another challenge will be to design standards with enough appeal to get an interest from all kinds of organizations and cultures. The process from creating to producing and implementing international emergency management standards is very complex.

Appendix E – Essential Elements of Emergency Management and Business Continuity Management

- Program Management & Administration
 - Establishment of Roles, Responsibilities & Authorities
 - Coordination with Stakeholders
 - Stakeholder Requirements,
 - “All Hazards Approach”
 - Research
- Laws and Authorities
 - Regulatory Considerations
- Hazard Identification, Risk Assessment and Impact Analysis
 - Human Impact
 - Hazard and threats
 - Risk (or Probability)
 - Vulnerability
 - Consequence
 - Intelligence
 - Cost-Benefit Analysis
- Hazard Mitigation & Prevention
 - Protection measures
- Resource Management
 - Resourcing
 - Operations Personnel / Human Resources
 - Capacity Planning
- Mutual Aid / Memorandum of Understanding (MOU)
- Planning
- Direction, Control and Coordination
 - Incident Management System
 - Emergency Operations Centers
 - Cooperation between Responding Agencies
- Communications and Warning
 - Warning and Informing
- Operations and Procedures
 - Mitigation
 - Preparedness
 - Response
 - Recovery
- Logistics and Facilities
- Training
- Exercises, Evaluations and Corrective Actions including
 - Quality Assurance
 - Performance Evaluation
- Crisis Communications and Public Information
- Finance and Administration

Table A. 4 Essential Elements of Emergency Management and Business Continuity Management according to ISO⁷²

⁷² ISO, 2006c

Appendix F – Web survey

Towards standards in emergency management

*No names will be published in any document
without permission from the participant.*

1)

Name	<input type="text"/>
Title	<input type="text"/>
Organization	<input type="text"/>
Country	<input type="text"/>

2)

In which of the following fields are you active?

- Federal
- NGO
- Research/Academic
- Business

Other:

3) Are you familiar with any standards in the field of emergency management?

- None
- NFPA 1600
- SPHERE Project

Other:

4) To what extent do you believe international emergency management standards could be useful?

- None
 - Little
 - Much
 - Very much
-

5) Which organization do you consider to be the right one to develop international emergency management standards?

- ISO
- United Nations
- NATO
- NFPA
- NIST
- Other:

6)

To what extent do you believe international emergency standards would affect your work?

- None
- Little
- Much
- Very much



7) What do you think are the major obstacles in implementing successful international emergency management standards?



Appendix G – Survey paper

Towards international emergency management standards

Management in the field of disasters and emergencies is of great concern globally. Governments and organizations are increasingly aware of the importance in the prevention and reaction of disasters and emergencies as well as post disaster recovery. This short paper offers a brief summary of the contemporary development of international standards in emergency management. From voluntary fire-fighters and flood control disaster planning evolved during the cold war to include civil protection. Since then a more comprehensive way of dealing with disasters and emergencies has gradually been introduced through out the world. Today modern societies face multiple threats and an increasing number of disasters. Natural, technological and social hazards can have disastrous effects on society and are thought to require a systematic and cooperative approach. This is where emergency management comes in to the picture.

Emergency is a broad term that includes disasters, catastrophes and smaller disruptive events. It can be defined as an imminent or actual event that threatens people, property or the environment and which requires a co-ordinated and rapid response. To manage emergencies work has to be coordinated in order to avoid and reduce emergencies as well as recover from them. Recent disasters have shown that this is not an easy task, even where theoretical knowledge is present. One way to try to ensure effective management is to introduce and implement management standards.

Standards refer to minimum acceptable levels of functionality, efficiency and accountability for a particular product or service. The development of standards has its origin in the early 20th century when the first standardization organisations were founded. Ever since, the process of standardization has largely increased. This increase has been closely linked to trade growth. Before World War II standards were mainly of national concern but in response to an internationalized trade after the war the use of standards started to grow. In 1947 the International Organization for Standardization, ISO, was founded. Today, national standards are usually transformed from international standards, although this is not always the case.

National standards in the field of emergency management can be found in countries such as USA, UK, Australia and Japan, but so far no international standards in this area exist. ISO has developed international standards in different management systems, but they do not address emergencies. Increasing demand in societal security standards has however led to the beginning of standard development in the area of emergency management, conducted by ISO.

As a first step towards this an International Workshop Agreement (IWA) were held in Florence the 24-26th of April this year, open for people and organizations in all fields related to emergency management. The contents of this conference are to be delivered to ISO for consideration.

The development of international standards in emergency management by ISO raises several questions. For instance, who are the main benefactors from these standards? Can they be used regardless of existing national structure and economy, or will they be grounded on American and European values and preconditions? Is it even possible to apply the same standards in countries with very different economical and organisational situations?

The opportunity has come to develop an international standard in emergency management, but will it be effective and of global gain? This is what we hope for, but what still remain to be seen...

Martin Johanson, Peter Nilsson

Appendix H – Survey Results

Underneath the results from the international emergency management standards survey is presented.

Question 1 - Country representation

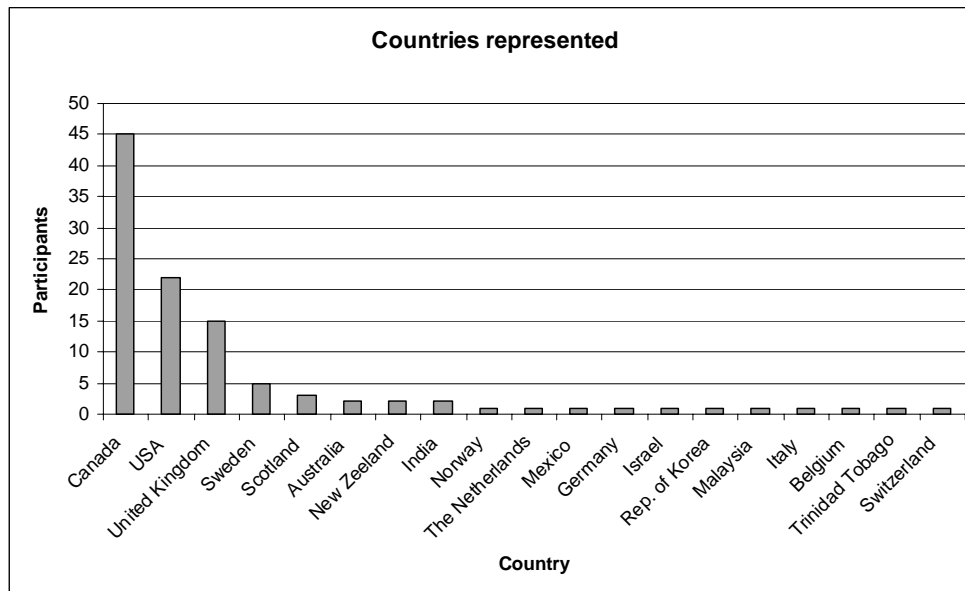


Figure A. 13 Distribution of the participants geographical background

Organizations represented

Underneath are the answers that the participants were asked to fill in concerning which organization they represent. The organizations are presented in alphabetical order.

1. ACT Emergency Services Authority
2. Advanced Consulting Emergency Management Ltd.
3. ALL INDIA DISASTER MITIGATION INSTITUTE
4. Aon Corporation
5. Arizona State University
6. Asesores en Emergencias y Disasters
7. BC Provincial Emergency Program
8. BC SAR Association
9. BC Securities Commission
10. BC Transmission Corp
11. BCIT
12. Bearingpoint
13. Blue Horizons Group
14. British Columbia Hydro and Power Authority
15. British Columbia Provincial Emergency Program
16. British Red Cross
17. C&M Consulting
18. Canadian Tire Corp., Ltd

19. City of coquitlam
20. City of Edmonton
21. City of Port Coquitlam
22. City of Richmond
23. City of Vaughan
24. Columbus State Community College
25. Coventry Centre for Disaster Management
26. Coventry University
27. Deloitte & Touche
28. Department of National Defence
29. Department of Social Anthropology Stockholm University
30. DHS/FEMA
31. Directorate for Civil Protection and Emergency Planning
32. Disaster Management Centre, Swinburne University of Technology
33. Disaster Research Center U of Delaware
34. Douglas County OEM
35. Durham Emergency Management Office
36. EDS
37. EDS (New Zealand) Ltd.
38. Emergency Information Infrastructure Project (EIIP)
39. Emergency Management Agency
40. Emergency Program
41. European commission
42. Fire etc Lakeland College
43. First Canadian Title
44. Fraser Health
45. Fraser River Port Authority
46. Fraser University
47. Swedish ministry of defence
48. Glen Abbot Ltd
49. HBOS plc
50. Homeland Security Program Manager
51. IAEM
52. IBM Canada
53. Jannaway & Associates
54. JRCPL
55. Korean Standards Association
56. KPMG
57. Langley Emergency Program
58. Leiden University
59. Lund University
60. Manulife Financial
61. Marsh Canada
62. Midwest Research Institute
63. Ministry of Community and Social Services
64. Ministry of Public Safety and Solicitor General of British Columbia Provincial Emergency ProgramESS Offioce
65. National Australia Group
66. National Inst. of Stds and Technology
67. NFPA

68. NHS Scotland
69. Oklahoma State University
70. Ontario Power Generation
71. Ontario Power Generation
72. Park University
73. Provincial Emergency Program , British Columbia
74. Scotiabank Group
75. SRC
76. Swedish Rescue Service Agency
77. Standards Institution of Israel (SII)
78. Stanton Associates
79. SunGard Availability Services
80. Surrey Fire Service City of Surrey
81. Swedish Defence Research Agency
82. Terasen Gas Inc
83. Total Continuity Management
84. UC Davis
85. UNESCO
86. Univ of IL School of Public Health CADE
87. University of Florence
88. University of Leicester
89. University of North Carolina
90. University of Southern California
91. UNIVERSITY OF TECHNOLOGY MALAYSIA
92. Vancouver Coastal Health
93. Vancouver International Airport Authority

In the survey there were 107 answers but only 93 organizations is listed above. The reasons are that some of the participants did not fill in that specific question as well as participants from the same organizations has only been listed once above.

Question 2 - Professional background

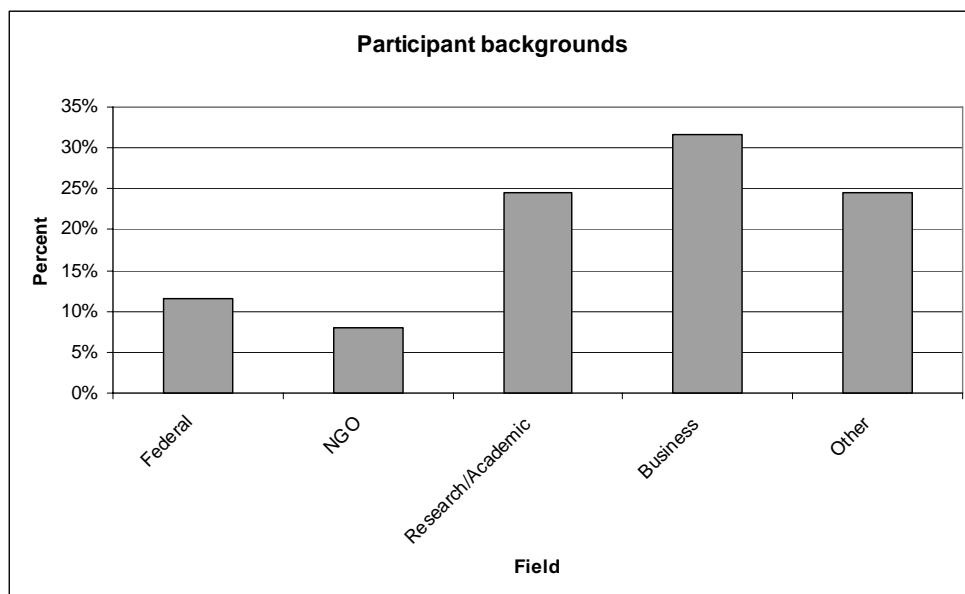


Figure A. 14 Areas where the participants currently are active

7.5.1 Other backgrounds

Underneath is presented those participants background that did fill in “Other” as background.

1. Municipal Emergency Planning Municipal Government
2. Government
3. Local government
4. National Health Service
5. Plus Public Sector
6. Regional Government
7. Provincial
8. Electric power generation
9. Non-profit standards org
10. State Government
11. Emergency Management
12. State (or Provincial)
13. National Government (we do not have Federal in NZ) and Local Government, Utility companies
14. Local Government
15. Local volunteer fire service
16. Local government
17. Provincial
18. Provincial
19. UN
20. Provincial & Local Gov.
21. Municipal government
22. Municipally
23. Provincial
24. European institutions
25. provide emergency management consulting services

26. Provincial
27. City
28. Electrical Utility
29. Health Authority
30. Provincial government
31. Healthcare/Public Health
32. Govt local

Question 3 - Standards knowledge

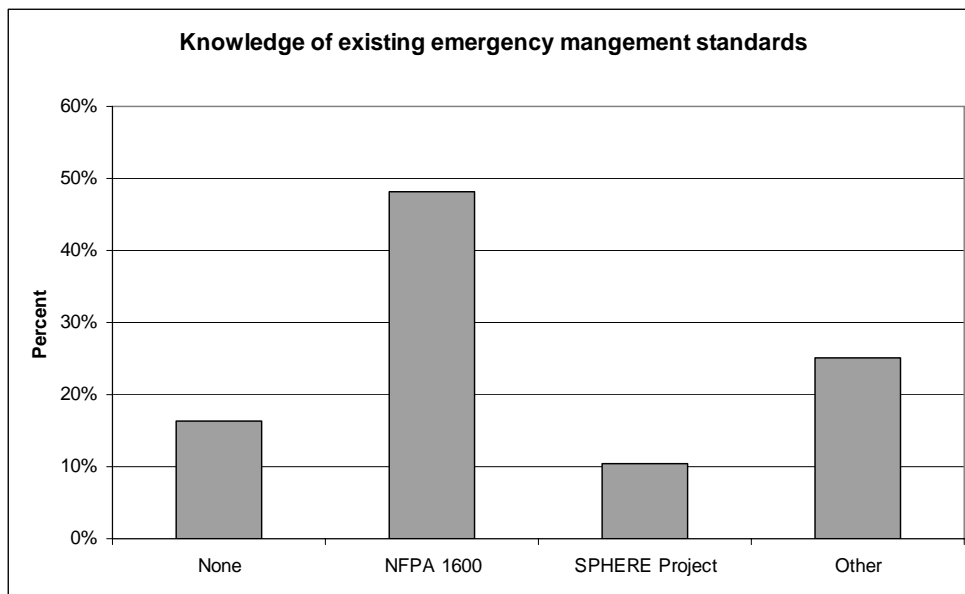


Figure A. 15 The participants knowledge of existing emergency management standards

Other

Underneath is presented what other known existing emergency management standards that were known by the participants.

- AS/NZS 4360
- BCERMS
- British Columbia Emergency Response Management System, Incident Command System
- BS25999 (UK); CCA(UK); EMAP(USA)
- Canadian Standards Association
- CCMD
- CEN
- DRIE, Incident Command System (ICS)
- EMAC
- HEICS - hospital Emergency Incident Command / BCERMS British Columbia Emergency Response System
- ICS
- IEMS "CEM"
- Israeli National Security Management System standard draft
- JCAHO
- Local and regional standards
- NIMS/ICS
- Standard Operating Procedure (SOP) Earthquake Malaysia

- Transport Canada
- UN

Question 4 – Usefulness

Figure A. 16 presents the participants beliefs of usefulness of international emergency management standards.

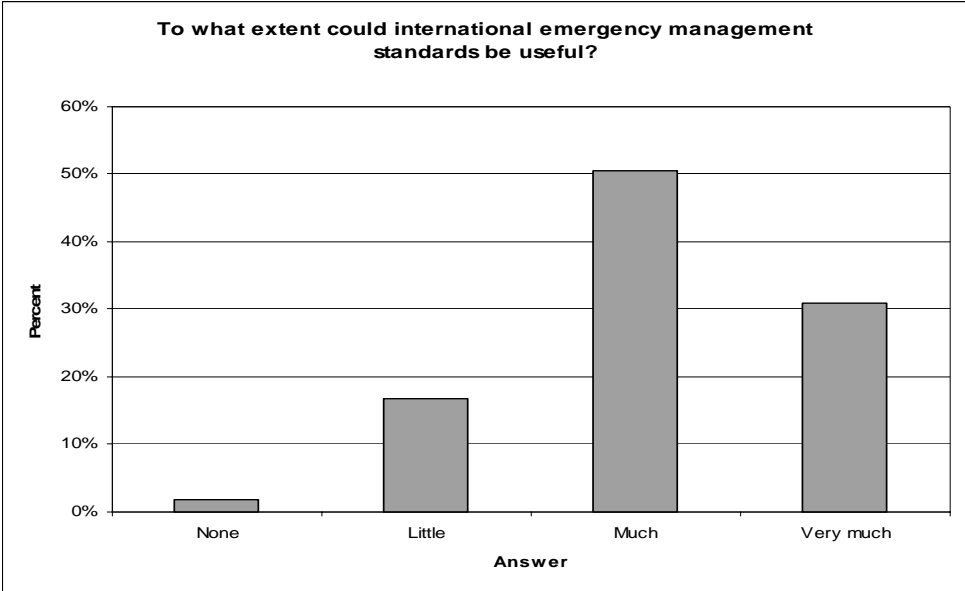


Figure A. 16 How useful the participants believes international emergency management standards could be

Question 5 - Developing body

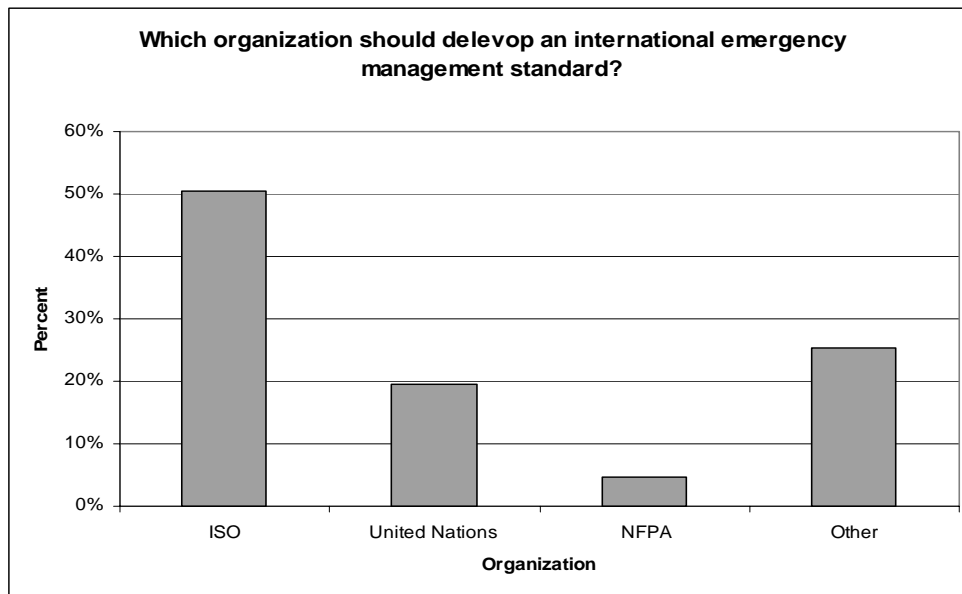


Figure A. 17 Which organization that the participants believes to be the best one to develop international emergency management standards

Other

Underneath is present the opinions concerning developing body from those participants that did not prefer none of the listed organizations.

- I prefer an independent organisation, but I do not like standards that is expensive to achieve just to get the name
- Undecided
- I think an ad hoc organization would work best to determine them
- None
- Not Sure
- EU
- Industry coalitions
- Combination of groups in order to reinforce and promote
- EU, UN, DEC
- Only the UN really considers the international nature of the industry. NATO, NFPA, NIST too North American based.
- Maybe the UN or even WHO--public health related
- BSI (British Standards Institute)
- It can only work through a joint effort of all of the above, plus others. If only one organization takes ownership, the effort will fail.
- International Association of Emergency Managers (as long as they lose the US-centric focus)
- BCI, DRI
- No opinion
- ASTM International
- I do not know enough about these institutions to make a selection here
- CSA
- Either the UN or an appropriately constituted new body
- Emergency management is becoming broader and more inclusive of other disciplines. Not one particular agency should be the "right one" to develop international EM standards, I believe a

consortium of expertise should be brought together, not just military, fire, political, policy or any one discipline or organization.

- IIAM
- Do not know?
- None of the above

Question 6 - Work effect

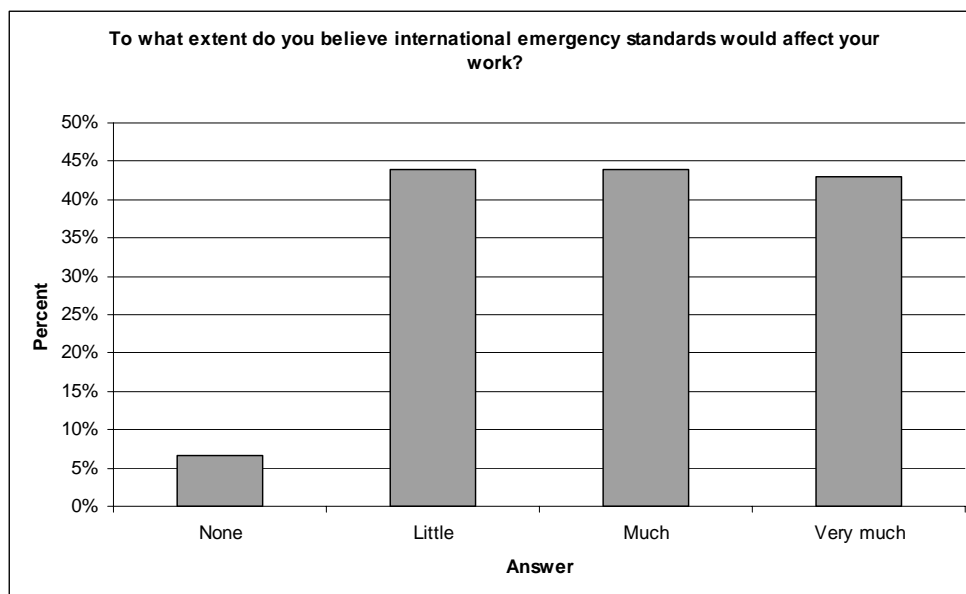


Figure A. 18 To what extent the participants believe a international emergency standard would effect their work.

Question 7 - Major obstacles

In the last question the participants were ask to fill in what they believe are the major obstacles to implement successful emergency management standards. The answers are listed underneath.

- I think that all the different standards and methods that exists today will be a problem because people seams very fond of there own work in developing a method or standards.
- Different levels of risk and cultures in different countries. Different legislation and laws. Different levels and areas of responsibility for emergency response eg Police / army, central / local government.
- It will take many years for ISO to act, they are very slow.
- Making it practical with simple clear concise definitions and preparatory actions.
- Agreement between the nations, financial costs of implementation, capacity of nations to implement
- Stakeholder buy-in from development stage onwards adopting local, provincial & federal legislation to mandate implementation
- Turf battles and the "not invented here" issues, along with political and economic differences among countries

- The large number of Regulators that would not necessarily have similar priorities (differing industries, political influence, etc.)

- I believe there is a role for standardizing interoperability arrangements to facilitate timely information exchange among members of the emergency management community. Much of this is already taking place through the rapid expansion of ICT and among hazard disciplines. For planning, response and recovery purposes, however, the challenge is to verify the relevance of international standards at a local or regional level where any standards must take into account cultural, political, economic, geographical and other variations.

- We do not know what the field of disaster management is yet - some see it as "public administration" so there is no field. Others see it distance and by itself. In addition, creating international standards would certainly be mired by politics of all types. But this aside, I think there may be some core key issues that we can all agree on as a starting point.

- National emergency planning and response arrangements are shaped by the infrastructure, organisational relationships and respective roles and responsibilities of planning and responding organisations. These vary hugely and are complicated further by features such as culture, extent of involvement of individual citizens and communities and public expectations. While standards are important these standards must reflect all of these national variations; a one size fits all approach would not be helpful.

- Choice of words - the discipline has developed words without a common meaning, so that "preparedness" for example has a different meaning in Germany to the UK. Politics - some people will not accept wording if they believe it is from certain countries, even if the words are right. Ego - countries are not always represented by the right people

- Agreement.

- Differences in local situation

- Different local cultures vis-a-vis disasters and emergencies

- Entrenched local regulations and standards, sometimes more than 100 years old

- Inefficiency of international organisations, e.g. European Commission

- Political difficulties around local sovereignty over emergency management

- Potential risk of over-regulation

- Getting a coherent approach with overall consensus

- No two emergencies are the same. Successful emergency management needs to be tailored to the needs of the place and the occasion. We can only apply standards to general areas like planning and administration but dealing with an emergency depends on the application of intelligence and skill rather than adherence to preconceived notions of procedure and protocol.

- Different traditions and understanding of central concepts amongst stakeholders at various levels

- The US / Rest of World divide.
- Simply getting people to agree, especially when ingrained concepts are challenged with a new standard.
- Enforcing mandatory standards and encouraging strongly, voluntary standards
- Agreeing on the standards and implementation
- Different governmental structures and varying systems of command and control. And as always politics would play some part!
- Drivers for this are different in each country and political interference together with the lack of experience/capability in certain states is inevitable in pursuing such a goal.
- Cultural differences
 - 'Not invented here'
 - Self-interest
 - Apparent rarity of need
 - Difficulty in encompassing full scope
 - Lack of leadership
 - Potential for bureaucracy
 - Lack of demand
 - Overheads associated with setup
- Getting agreement across cultures and sectors in the field
- People do not like change and must be convinced that change is good.
- Program change has to be cost effective or subsidized.
- National and provincial experience and expectations.
- ISO has developed several generic management system standards, ISO 9000 & 14000, which are widely recognized. There have been international challenges and crises (y2k, wars, tsunamis, pandemics, business continuity etc) - where a common response strategy and standardization would have been beneficial. Adopting a common approach such as the Incident Command System, would minimize some of the initial chaos, confusion and waste that occur in the event of an international crisis.

One obstacle may be identifying the scope of the standard. What type of crises will it address: natural disasters, man-made disasters, human crises, business crises, IT crises etc. Will business continuity be included? Identifying responsibilities would be difficult - who would step in to take command in a certain type of disaster. Instead, you may prefer to focus on the tools and methodology - and leave some of the details to be decided at the time of disaster. Obtaining international agreement would be difficult. The extent of preparations may vary between companies and countries. Countries already have a lot of existing legislation in place - for things such as fire protection systems, elevator safety, design of products, running equipment, etc. This varies tremendously between countries. Since the risk tolerance varies so much, the challenge will

be to design standards that meet the needs of all/most. To what detail will the scope include all these existing rules and legislation?

Could you design standards that apply both to countries as well as companies? Countries would benefit from adopting standards to ensure they are prepared for national crises. Companies may also be interested in certifying their emergency procedures to ensure they are prepared for corporate emergencies & other disasters.

- The major obstacle will be the formulation of standards that will be deemed useful across a variety of cultures.

- Regional and cultural observances.

- Resource owner "contributions" of technology, people and knowledge.

- Competition between government and industry.

- "Mandated giving".

- International body mismanagement and inefficiency.

- A clear problem with all international standardisation systems in all fields of implementation is that local actors and practices (in this case for emergency management) are not taken into account. Such systems build upon specific assumptions (see for example the options on item 5 above of which at least 3 originate in US standards and practices) that are not valid all over the world. Furthermore it is designed for the flying-in-emergency-managers, but there is a significant risk that regional and local contextual social, cultural, economic & political factors are ignored in the standard implementation and thereby cause a "disaster after the disaster", specifically considering that local actors are not always taken account of in large emergency operations.

- National, State and Local Regulations in this country.

Lack of awareness on the community and government sides.

- Promotion & adoption of these standards - there is not one organization to which all the countries will listen and work with. The third world countries do not have the means by which standards can be implemented or followed.

- National Interest of states - as ever in developing international agreement. Asymmetries of power and capability among states and non-state actors.

- 1. The foremost is "we've always done it this way". A reluctance to try a new approach

2. The US emergency management perspective that we have the correct approach.

3. A reluctance to embrace anything that implies a lack of US sovereignty

- Lack of starting point other than NFPA 1600 which is tainted as being US and therefore not acceptable to a number of other countries

- Different terminology used around the world causes confusion and some vested interests wish their standard to become the international one without getting everyone onside

- Developing one standard that is flexible, all organizational and all hazard and marketing it (incentives)
- The different nature of organisations and cultural backgrounds in emergencies means that emergency management is not seen as universal.
- Desire for national autonomy; resistance to outside interference.
- Agreement on terms and voluntary nature. Also how the standard would affect existing legislation such as the UK Civil Contingencies Act, 2004
- Obstacles in developing standards include agreeing to the meanings of general terminology and a focus on which terminology and/or standards should take precedence, rather than focussing on the common elements applicable to all.

Obstacles to the implementation of standards include not making standards, at least a macro level standard, generic enough so that it can apply to developed and undeveloped countries, big business and small businesses and private, as well as public organizations all at the same time. Other more specific standards (micro level) could then be developed, under this macro level standard, to address specific industries, local versus federal level governments and developed compared to developing countries.

- The vastly different societal and governmental environments from country to country. An international standard on emergency management will be useful for providing background detail to developing an approach to emergency management. However implementation will vary so much from country to country that attempting to standardise internationally could be fraught with difficulties. Do not get me wrong, I support a lot of efforts at standardisation, openness and interoperability. It can not be a paid-for standard either as many EM organisations cannot afford to waste their few resources on compliance issues.

- Lack of legislation to force organizations to adopt international standards.

- I have seen little in the way of successful international agreement on any standard. Why would this be any different?

- Getting the right people to the table and getting past the turf issues and bureaucracy that seems to surround and hinder us.

- The main problem is creating a set of standards that are achievable across a wide range of economic capabilities and cultural norms. I would hope that the standards would be viewed as principles that guide governments and non-governmental organizations (NGOs), with the principles prioritized in some manner. In other words, it is difficult to invest in flood or earthquake mitigation when a significant percentage of the community is starving.

This project will certainly stimulate additional thought on the topic. The unfortunate aspect of any international standard, whether mandatory or voluntary, is that some governments/nations will adopt and attempt to live up to the principles, and others will not!

- Lack of ability to mandate standards

- The same problem with implementing successful emergency management programs -- to get administrators and executives to accept and implement them.
- Making them high level enough to be useful to all areas affected by a crisis, and at the same time specific enough to be useful to any area so affected.
- Consensus may required too watered down or too detailed - think of developing a framework first
- In Canada emergency management is a provincial jurisdiction, buy-in by all stakeholders may take time.

The scope of existing emergency management models is reactive and too narrow. They talk about the need for preparedness, response and recovery capabilities but do not address the need for self-sufficiency, the protection of critical functions and resiliency. There is currently only lip service "you should have one" paid to the diligent and proactive practices of risk management and business continuity planning /management practices.

- Is it possible to apply the same standards in countries with different economical and organisational situations?
- In the United States you can not get states to agree on standards, and they neither want to cooperate with nor comply with international standards.
- Politics, different priorities, inequities in funding and technical infrastructure
- International Politics
- Agreement on structure/systems, e.g. Incident Command System
- Existing guidance
- Agreeing on wording that works across nations and cultures and. People striving for perfection slowing down the process with endless discussions about the meaning of each word. I think it would be better to produce a less than perfect set of standards that you improve on and publish something quickly then to publish the perfect set of standards three years from now.
- Problem that NFPA1600 is only current published true standard. BS25999, HB221, etc. are more handbooks than standards. Anti-US bias creates resistance to NFPA1600 in Europe and Austral-Asia.
- Getting all groups to agree on the same principles.
- Politics and Security. Sometimes these matters are kept secret and each country does not want to share their methods of solving problems (e.g. emergency). It is a secret. For example some emergencies are due to wars (e.g fires, explosions, structural collapse). If the methods of emergencies are 'standards', it means the enemies will know what is the strategy of the other parties. To come out with an international emergency standards, it must be in a very general form, generic and at the framework stage.
- Common definitions, Differing Implementation methods

- No desire on the part of elected officials and a shortage of money in poor countries.
- Cultures, resources, public support of corporations, risk tolerance, communications
- Cultural, technical and political differences between the participating states
- The research evidence is not conclusive about what would make the most difference.
- [Comment in Swedish] Biståndsaktörer är väldigt olika, från NGO:s till nationella myndigheter - Många länder och organisationer vill "visa flaggan" och inte nödvändigtvis inordna sig i olika strukturer för koordinering.
- The feeling of competition between organisations, which tamper coordination in general. Be careful to bunch together emergency management and disaster management. Many believe they are two different things.
- Obtaining a suitable consensus on what standards are, what they should address and what they should contain.
- Rationalization of the existing standards used by various countries such as Incident Command Systems.
- Getting one common standard and agreement between governments. The ISO approach is good as it has had many successful strategies already. However, many companies/businesses do not adopt ISO because they do not have an international focus. Some companies that already use ISO 9001 or IOS 14001 may find it easy to incorporate this into their management systems that they already have in place.
- Designing a common incident management system such as BCERMS / ICS that could be recognized and used in a multi jurisdictional multi national incident. Bringing the right groups of people and or organizations together for the planning component. Funding. Support from all levels of government. Designing a governance model, we struggle at the local level never mind internationally. Training.
- Complexity and regulatory differences too great between jurisdictions and geographic regions
- Emergency management being a domestic competence, national authorities are reluctant to change their behaviour
- Its very difficult to achieve standards when socio-cultural, economic and political contexts are so very different. At the same time, setting up general threshold limits can definitely help in monitoring and evaluation.
- Some countries have their own standards which would be hard to change
- Lack of cooperation between countries/organisations internationally
- 1) Understanding of the need for standards by government bodies.
2) Emergency managers trained in the application of international standards.
3) Identification of the value to private and public organizations of changing from existing practices to practices that meet international standards.

- International standards must be meaningful for the end users, who should be consulted if not directly involved in the development process. A challenge is how to do that effectively? Too often we have policies or standards prepared by people who are not in the position of applications or interpretation. Standards need to be real, relevant and meaningful. International standards will have to lend meaning to all the applicable nations, which all have different needs, regional / national differences - that is another of the challenges.
- Lack of commitment to the incident command system and joint information centers
- The acceptance of the same priorities and processes from a significantly wide range of cultures, religions and governments
- Coming to a consensus of which standards are the best to implement. Also lack of political will.
- Willingness of participants. Politics. Turf wars.
- Costs and paperwork associated with implementation - ISO 14000 can result in lots of paperwork, with the company not much better environmentally (may have just identified their problems but not fixed them). Educating the decision-makers, especially those that set budgets. Hard to justify large expenses for a program with limited use of the program (thankfully only implement program when there is an emergency!)
- Commercial confidentiality. Political climate. Organizations willingness to adopt
- Ensuring that the standards are flexible enough to mold to the realities encountered in separate countries. Ensure that there is real value in the standard, not an exercise in creating documents. The process must support the desired outcome.
- Currently there is a growing movement for one component to in case others. Examples:
BCP – Business Continuity Planning is being touted as the umbrella approach to disaster planning, encompassing not only what was once know as true BCP, but also encompassing Disaster Response and Personal Preparedness
EM – Emergency Management – is in some areas all encompassing: BCP, Disaster Response, Personal Preparedness; Security; Fire and not in other areas pulling out the Security and Fire components. In other agencies you have an umbrella of Security – and in other areas you have an umbrella of OHS – Occupational Health and Safety and then in the USA you are seeing the Homeland Security Umbrella. All components have cross over – currently I see an extensive waist of resources in a mismanagement of the crossover grey areas.
The first step would be to identify an international standard which identifies what falls within the emergency management realm, (BCP, DR, PP, Fire Safety, Security, OHS) where one program stops and other begins or identify the links between them. Currently corporations have all entities actively developing plans which in some case do not link or even know each other exist. If you were to ask for a definition of what emergency management encompasses you would receive a variety of definitions. Not the definition of emergency management – the components of it. I would like very much to see standards term used and a clear identification of what is included. And that is just for starters -
- 1. Existing entrenched standards.
- 2. Overly complex standards that assume that governments, local or national, have the resources to develop sophisticated and expensive to maintain emergency programs.

- Recognition of current standards purveyors as relevant to all businesses/governments/agencies. NFPA, JHACO, SPHERE all have the appearance of special interest groups, ie health, fire, international emergency aid, etc.

- Lack of interest and resistance due to possible financial implications.

- I do not believe that civil emergency management should be based on an international standard. I think that it is more important that countries develop their own standards based on their requirements and the requirements of neighbouring countries with which they may need to work during a wide scale disaster event. This opinion pertains only to civil emergency management. My thoughts regarding the issue as it relates to Business Continuity or Emergency Preparedness for business are quite different and I believe that it is in this area that a market driven international standard (such as ISO) may be of great value.

- Politicians and the legislative bodies.

- Nations fear external control of any type. In the USA, the federal government is engaged in misguided attempt to force local governments to adopt a federally created model for disaster planning and management. Not working well. Need something like NFPA1600 from an international authority

- 1. Great variation in resources of different countries. 2. Great differences in competence and social responsiveness of governments.

- We have few standards and I do not think that SPHERE offer anything other than some operational procedures. Standards tell us what we need to do, not just setting a level. In any case SPHERE refers to a very limited sort of activity.

IFRC, Human Rights, Risk Management standards all offer some indication of ways in which we should be going, but the development of benchmarks, criteria, standards, goals and desired outcomes has a long way to go. In particular we lack:

- Clear conceptualisation of the problem
- Lack of data and evidence
- Lack of authority to develop, implement and monitor standards
- Lack of political will to enforce those standards, such as building codes, which do exist.

- Note that my response to Question 4 is qualified in that a distinction needs to be made in the determination of international standards as GUIDANCE to the development of locally applicable national standards. I do NOT believe that there can be or should be any universality assumed or applied to international standards devised.

Question 6 also requires qualification, in that the utility of the standards to the work of ISDR depends on their scope and relative applicability in practice (in contrast to political or commercial interests involved) once they are conceived. Hence they COULD be either "little" or "Much" - but too early to tell. We are, however, interested in, and contributing to, the process.

- Consensus

- Politics, lack of funding, lack of support ("buy-in") from those controlling such matters.

- Different visions of what standards should be, it will be organizationally based for everyone
- The ability for governments to accept standards that other countries already use even if they are proven to work.
- Different cultures
- I think that all the different standards and methods that exists today will be a problem because people seems very fond of there own work in developing a method or standards.

Appendix I – Survey interpretation

Some of the questions could be interpreted differently, therefore are alternative interpretations presented underneath.

Question 1

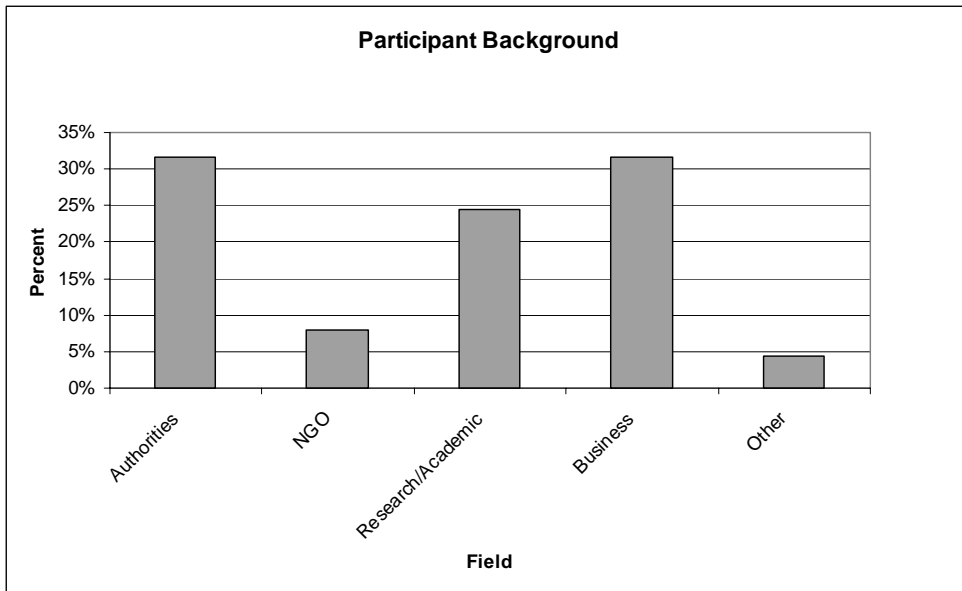


Figure A. 19 Updated version of Figure A. 14 when participants answering "other" has been sorted in to "Authorities" together with "Federal".

Question 4

In Figure A. 16 the participants' beliefs in usefulness of the standards were presented. In Table A. 5 is the same division done but dependent on the participants' background.

	<i>Authorities</i>	<i>NGO</i>	<i>Research</i>	<i>Business</i>	<i>Other</i>	<i>All together</i>
None	0 %	10%	0 %	3%	0 %	2%
Little	21%	0%	16%	16%	17%	16%
Much	45%	30%	48%	47%	67%	47%
Very Much	33%	60%	35%	34%	17%	36%

Table A. 5 Belief in usefulness of international emergency management standards.

Question 5

In Table A.6 an average value to the belief in usefulness for the standards are given. The division is done after the survey participants' background. As the table shows the participants with NGO background are most positive to international emergency management standards. Participants with "other" background are also positive but not to the same extent.

	<i>Point (1-4)</i>	<i>Authorities</i>	<i>NGO</i>	<i>Research</i>	<i>Business</i>	<i>Other</i>	<i>All together</i>
None	1	0,00	0,10	0,00	0,03	0,00	0,02
Little	2	0,42	0,00	0,32	0,32	0,33	0,32
Much	3	1,36	0,90	1,45	1,42	2,00	1,40
Very much	4	1,33	2,40	1,42	1,37	0,67	1,42
Total		3,12	3,40	3,19	3,13	3,00	3,16

Table A. 6 The survey participants overall opinion about the usefulness of emergency management standards.

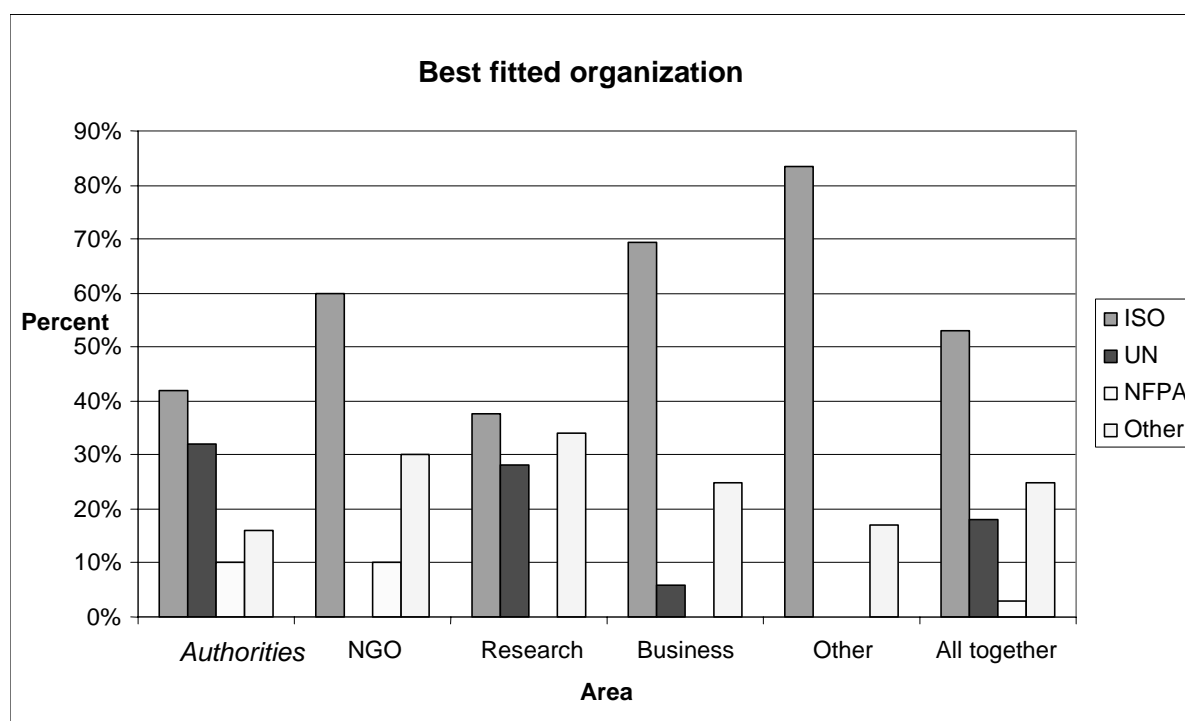


Table A. 7 Best fitted organisation to develop international emergency management standards according to the survey participants.

Table A. presents the survey participants opinion about which organization they believe is the best fitted organization to develop international emergency management standards divided after the participants' background. According to the figure all areas of background believes ISO is the best fitted organization.