Educational needs for disaster management

Les Moseley presents an holistic approach to emergency management professional development and training needs

Abstract

This paper examines the need for an holistic approach to the professional development and training needs of personnel working in, and studying, disaster management. It is essential that any programme of study and/or professional development should include equipping practitioners with the skills and abilities to solve social, technical and economic problems in disaster situations around the world. It should also ensure that an holistic approach is adopted so that rehabilitation, long-term recovery, mitigation and pre-planning topics are properly covered. The paper deals globally with issues relating to disasters caused by human error and intervention, as well as the effects of natural phenomena. It concludes with a summary of the approach used by Coventry University and partner institutions in the development of its undergraduate disaster management programmes of study.

Introduction

The high profile of disaster management in recent years through the series of emergencies and disasters triggered by human error, terrorism, conflict, technological failure and natural phenomenon is of no surprise

As this paper is being produced we are once again faced with an enormous tragedy in Madrid, requiring an unprecedented response from the emergency and public services.

Much attention has centred on the direct causes and when necessary who was at fault in these disasters (Wells C 1999). What is being scrutinised even more closely is the intervention strategies and management of the response phase and the ensuing rehabilitation period following a disaster. The conflicting demands and complexity of the range of issues that are placed on relief operations make it apparent that it is no longer satisfactory to recruit disaster managers with single discipline backgrounds. Indeed, considering emergency management as relating only to relief activities generates a blinkered view of disasters/emergencies that is counter-productive to staff development and to recognising the importance of risk reduction and preparedness planning.

To reach the status of profession, disaster management requires professionals who are properly equipped to consider in depth the range of technical, human and logistical problems before, during and after disaster strikes. Disasters do not occur in a vacuum but are part of an ongoing process. Indeed the very word disaster is something of a misnomer as it describes only the aftermath of an event that, by definition, cannot be properly controlled and is beyond the scope of the community to cope. To avoid confusion emergency management within this paper encompasses all the periods before and after an event.

It is crucial to the success of preparedness planning and relief operations that preparedness planners and emergency managers are recognised as key players and therefore properly positioned within organisations and institutions and not marginalised. This can be achieved through recognition of emergency management as a profession and not just as an add-on management function. One way to achieve this is through well-structured training and academic study of the subject.

Specialists will always be needed to provide specific advice in the preparedness phase and professional interventions in the relief and rehabilitation phases. Indeed many will argue that an efficient and effective team is best made up from a multi-disciplinary group. This underscores the argument that emergency managers and disaster management teams must take an holistic approach to the subject.

The scope of knowledge needed

Not only do emergency managers need to be cognisant of the phases of disaster – mitigation, preparedness, response, rehabilitation and rebuilding (UNDMTP 1992) – but also the range and complexity of the type, nature and scope of emergency situations that they may face within their area of responsibility.

So what are the risks and challenges that today's emergency managers face? The range and complexity of technological and natural hazards continues to grow at an alarming rate (Noji E 1997). Also, the effects of conflict and the worldwide problem of poverty (Blaikie

et al 1994) create conditions that both complicate and exacerbate planning and the response requirements needed to cope.

Sociologists argue that the two major trends of industrialisation and urbanisation (Quarantelli 1999) have had a major impact on the increase in disasters in both qualitative and quantitative terms. Today emergency managers are faced with issues relating to industrial pollution, both on and offshore, highlighted by incidents such as the Seveso, Exxon Valdiz and the pollution of the Rhine. Toxic, explosive and pollutant materials are moved around the planet in all forms of transportation. These often threaten societies remote from the source manufacturer, whose tenuous responsibility and lower safety standards create hazardous situations that are difficult to predict. This type of incident is typified by the release of radiation in one nation threatening or physically damaging another, such as at Chernobyl (Shleien 1984). The immediate and long-term consequences of such incidents need to be taken into account. Considerable knowledge is required of the types of potential hazards and the effects of uncontained releases into the atmosphere, watercourses, the sea, and onto land.

Predicting and managing pollution incidents involves the use of mathematical and scientific calculations to estimate and forecast the possible or actual effects of different types of pollutants. Modern computing techniques, intelligent systems incorporating spatial databases and geographical information systems can assist emergency managers with these tasks. Many of these systems need specialists to prepare and present reliable information but the availability and capability of these modern tools is essential. Local response arrangements vary from nation to nation but many of these industrial threats are of international concern and are therefore studied and considered worldwide. Emergency managers need this information and must be aware of information sources and their accessibility.

The after-effects of natural phenomena such as flooding, earthquakes, volcanoes, hurricanes and tsunamis attract world media attention particularly when they occur in societies with sophisticated communications or where massive destruction occurs. An example of this is the aftermath of Hurricane George in the Dominican Republic (McEntire 1998). Emergency managers need to understand not only the likely effects of such events but also why they should create a disaster in one nation but a manageable emergency in another. The issues of urbanisation, poverty, politics and lack of infrastructure need equal attention when determining how effective preplanning can be, what co-ordination can be expected, the degree of international assistance and the integration of humanitarian assistance with development.

In addition to the many areas within the response phase to specific natural hazard events, managers should also be cognisant of underlying issues that commonly affect developing countries. These include inadequate disaster preparation, the scarcity and distortion by the media and other interested parties of disaster related information, the difficulty of assessing the acute rather than the chronic needs of the victims, assessing the exaggeration of the relief requirements, the insufficiency of aid and often unjust (and corrupt) distribution of disaster assistance, the distrust in emergency managers and the challenge of avoiding dependency.

Urbanisation in developing nations has caused widespread concern in the way it exacerbates hazard events that affect major conurbations. This feature of modern living also provides fertile ground for the activities of terrorist groups who, in recent times, have caused death, destruction and widespread disruption in major cities all over the world. Combating terrorism is generally the work of the national and international security services, however preparing for its worst effects requires emergency managers to have a detailed knowledge of the types of devices and their possible uses.

Preparedness and emergency planning for all forms of hazards requires a detailed knowledge of risk assessment and the emergency planning process and is not, as many believe, just the process of allocating human and material resources through the use of various checklists. Planning the emergency response to specific sites, for specific topics, such as media management or producing generic plans to cover a range of contingencies needs to be considered as part of an ongoing process and not as an end in itself.

Postgraduate and masters programmes are available to prepare emergency management workers

Field skills for students involve working in arduous conditions and real-life situations

The aftermath of disaster, and the social and psychological impacts it causes, is not often seen as the domain of the emergency manager. However, the aftermath of disaster is indeed within the purview of the emergency manager as the impact of the mitigation, preparatory and response activities in which they are involved will have a direct effect on this period. Emergency managers must be aware of the needs of various communities within their area of responsibility and be prepared to communicate with them to gain an appreciation of needs before, during and after an emergency has occurred.

Educating emergency managers

I make no distinction between the educational needs of emergency managers in industrialised nations or in developing countries. Nor do I make a distinction between natural and manmade disasters. As many eminent writers have already pointed out, all disasters are primarily the result of human actions (Quarantelli 1999). What I do maintain is that successful emergency managers need to take an holistic view of emergencies and disasters. Specialists in mitigation, preparedness, response, rehabilitation, rebuilding and development cannot work successfully in a vacuum. They must be aware of the work of others and their capabilities. Emergency management professionals must be properly educated and trained for their tasks. They may work in many different commercial, government or non-government organisations (NGOs) in all parts of the world, but their central aim should be to carry out their role in a professional manner.

There are many methods to prepare workers in this area including short courses for subject professionals, postgraduate qualifications and masters programmes. The method employed is determined by the level of operation required and previous knowledge and skills that the individual brings to their work. Until recently this has been mainly familiarisation or skills training in emergency/disaster skill.

The Coventry University experience—the pedagogic approach

In the early 1990s, academic staff from the School of the Built Environment at Coventry University spent time working with the Registered Engineers for Disaster Relief (RedR) in refugee camps in Kurdistan. Staff drawn from a wide range of professional backgrounds conducted the relief operations, but few had a broad and knowledgeable perspective of the many complex technical and human issues that are inherent in the relief situation. In many cases, these workers, although technically competent, were personally ill equipped to survive the difficult situations they found themselves in and were often a drain on the limited resources available.

Out of this was born a number of undergraduate degree programmes specifically designed to address such issues. The clear aim of the Coventry University courses was to enable graduates to develop knowledge and understanding of the broad and multi-faceted issues that relate to the management of disasters and to gain technological and personal skills to equip them to work as field operatives and field managers wherever disaster occurs.

The courses were designed to encompass elements of engineering or technology with international studies, development and health studies, disaster management, and field skills. This broad curriculum brings together experts from a spectrum of disciplines to provide teaching staff for the programmes.

To facilitate this holistic approach the course content was developed around a number of themes, each seen as essential areas of knowledge, understanding and skill development. The inter-relation of these themes ensures a wide-ranging knowledge of the subject area and of relevant technical, personal and managerial skills.

International studies within a developing-world context was viewed as another major theme as many of the graduates seek work internationally. Graduates with long-term career aspirations as managers meant the development of management knowledge, ability and skills is deemed essential. All of these are set in the framework of Disaster Studies.

Employment opportunities for graduates are quite diverse and such employment, by its very nature, may occur in arduous conditions. In these conditions technical competence may not be sufficient to ensure personal survival and it is essential that graduates develop a range of skills to equip them for effective operation in the field. Thus 'field skills' were introduced as a major theme into courses.

Each year, undergraduate students study the practical elements of personal survival in all types of climatic conditions. Following formal study throughout the year,

many of these skills are honed during attendance on a one-week course at a field skills centre in a remote area. Each course is held in the winter months and students gain first-hand experience of working in arduous conditions. They not only develop individual survival and field skills but also learn to work together in teams to tackle a range of demanding tasks, ranging from search and rescue activities to the establishment of a refugee camp and the application of engineering principles in, for example, the construction of a temporary bridge.

A key feature of recent research has been the recognition of the concept of vulnerability reduction (Blaikie et al 1994). As courses have evolved, this area of study has been integrated into the curriculum. Within this context students study the management of disasters from the elementary concepts of the phases and types of disasters to more advanced ideas of the use of spatial information on Geographical Information Systems for vulnerability assessment, and computer-based systems for command and control of incidents. Students also study theory and practices of command and control so those who find themselves deployed to disaster scenarios where they are involved in managing the activities of a wide group of volunteers, official and NGO humanitarian aid organisations are properly equipped. Combining these with field skills means graduates have the ability to respond to and manage difficult and demanding situations.

A critical element of any undergraduate programme of study is how to provide experience for these prospective managers without exposing them to disaster situations prematurely. Courses offer inexperienced students an opportunity to undertake a year of professional training in work that directly relates to the aims of the course. In the Coventry University courses, this year takes place after the second academic year.

There are many examples of educational innovations within the courses. There is explicit focus on the development and formal assessment of skills at all levels throughout the course. This ensures the development of knowledge and understanding to a level appropriate to the learning objectives. Practical skills assessment is a particular feature of the field skills modules and can be found in other modules where the ability to do, rather than just know about, is considered essential to student development.

The pedagogic approach has been to expose students to a broad range of teaching and learning methods; much wider than in other courses. Students have to adapt to the diversity of methods that span the spectrum of the disciplines encountered within the course. Lectures, tutorials, seminars, computer-aided learning and assessment, laboratory classes, practical work, presentations, group and team work, outdoor physical activities and a mixture of well-defined and open-ended exercises are all examples of the diversity and richness of the approach to teaching and learning. In this new and developing discipline area students are encouraged to explore a wide variety of information sources, in particular reference and case study material that is becoming increasingly available on the Internet.

Conclusion

The courses described in this paper have been developed to meet a niche market and combine appropriate areas of engineering, disaster management, development and health with other disciplines, some not previously defined as areas of undergraduate study. This has led to the definition and development of a new and emerging discipline of emergency management established within an undergraduate degree programme.

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