Abstract
Emergency management as a professional discipline is receiving increased public attention and exposure. Preparedness for the consequences of hazard impact and emergency events is central to the comprehensive approach to emergency management. A crucial aspect of this preparedness requires community involvement in the development of strategies and tactics to manage events in the planning, response and recovery stages of an emergency.

Designing educational programs requiring students to practically apply emergency management theory throughout their study period has a two-fold benefit. Firstly students gain invaluable practical experience applying emergency management concepts, principles and practices and secondly, the emergency management preparedness of communities is directly enhanced through the involvement of emergency managers undertaking tertiary studies.

This paper highlights current practices within a number of Australian tertiary emergency management programs requiring students to engage with communities during their studies. As a result of these practices and associated activities, hundreds of small communities across Australia and other parts of the world have been able to enhance their emergency preparedness. Activities undertaken have included risk assessments, the development of emergency management response and recovery plans, operating procedures and the writing and conduct of exercises to test those plans and procedures. Had it not been for these educational programs, such preparedness activities may not have been undertaken within those communities for many years, if at all.

Introduction
Over the past 30 years, the global emergency/disaster management environment has undergone a series of dramatic changes that have seen emergency/disaster management transform from a post-war civil-defence based response focus to today’s all hazards, all agencies, comprehensive emergency risk management focus.
Unlike their counterparts from the past, today’s emergency managers are required to coordinate and manage an extremely wide and comprehensive range of emergency risk management activities. These not only involve response to emergency/disaster events, as was the focus of the past, but also “emergency prevention and mitigation programs, risk assessment and analysis, essential service/lifeline management planning, emergency management planning, emergency operations management and emergency recovery management” (Manock 2001). Unfortunately events over the past five years have also seen the inclusion of non-traditional emergency management allied activities. These include counter-terrorism, security, critical infrastructure and humanitarian relief focused activities.

Today’s emergency management practitioners are required to have skills in many if not all of the above mentioned areas. Skills such as risk management, problem solving and decision making, emergency and business continuity planning, human resource management, resource and logistics management, spatial/geographical information systems management, computer systems operation, training and education and information and media management are part of today’s emergency management “toolbox”.

To enable emergency management personnel to acquire these skills, agencies and organisations either developed their own in-house vocational training programs, relevant to the specific skills required for their own roles and responsibilities, or utilised programs from other organisations. These programs often originated from military applications stemming from post-war civil defence and counter disaster needs. Examples of this type of program are disaster medicine, chemical, biological and radiological (previously NBC – nuclear, biological and chemical) and disaster rescue. A very good example of the range and scope of these types of training programs is provided by the Australian Emergency Manual series of instructional, guidance and practice manuals developed by Emergency Management Australia (EMA) in Australia from the mid 1980s onwards.

These manuals are available to emergency service, emergency management and support organisations and provide a standardised approach for acquiring a variety of skills relevant to emergency and disaster management. These manuals provide guidance ranging from specific basic rescue skill type activities for individuals, such as chainsaw operation, map reading and disaster rescue, to the more community oriented practices of risk assessment and analysis, evacuation management, personal support services and disaster recovery. More information on the various manuals is available by following the “publications” link on the EMA website at http://www.ema.gov.au.

Over the years the general public has become less accepting of the consequences of disasters and emergencies when they have occurred, often questioning their Governments’ preparedness for the impact of such emergencies. As a result, governments at local, regional and national levels have become more answerable for the negative outcomes associated with poor management of emergency events. Legislation now makes those responsible for managing such situations legally culpable for the results of
poor or mismanaged situations. Emergency management personnel are therefore required to become professionals within their industry and develop skills in managing a variety of situations relevant to pre, during and post-emergency management. To compliment the large number of vocational type training programs that exist, more formalised tertiary education courses aimed at providing basic to advanced managerial skills in emergency/ disaster management have emerged over the past 15 years. We are now seeing emergency management practitioners obtaining undergraduate and post-graduate degrees in emergency management and related fields. Emergency management agencies are now starting to base employment, progression, promotion and advancement within their agencies on the acquisition of tertiary qualifications in the discipline area in addition to service and experience. This in turn is providing emergency managers with an accepted level of credibility, knowledge, skill and practice to undertake their responsibilities more effectively.

A Brief History of Tertiary Emergency Management Education in Australia

The development of tertiary level emergency management education programs commenced in Australia in the mid 1980s. Early programs focused on the development of certificate and diploma level undergraduate courses offered by three universities and a graduate certificate course offered by one university (Manock, 2001).

It wasn’t until the mid 1990s that a full undergraduate degree course in emergency management was offered in Australia by Charles Sturt University (CSU). This course originated from a Diploma course developed in Tasmania by the State Emergency Service in the mid 1980s and then offered as an Associate Diploma by the University of Tasmania in the early 1990s before being transferred to CSU.

In the mid 1990s, representatives of Australian police, fire, emergency services and emergency management agencies commenced the development of a set of comprehensive fire and public safety competency standards that would form the basis for the ongoing development of a national public safety training package. These competency standards and the associated training package were eventually published in 2000. However, prior to being published, the draft competency standards were being used by some emergency management agencies and tertiary education institutions to develop their emergency management training and education programs (ANTA, 2000).

In the late 1990s a number of other Australian universities commenced to either develop or offer undergraduate and post-graduate degree courses focussing on specific aspects of emergency management practice. Southern Cross University developed a program focussing on community development, offering it at undergraduate and post-graduate levels; the University of New England developed a professional studies program, majoring in either Civil Care and Security or Policing at the undergraduate and post-graduate levels.
and Edith Cowan University developed a Graduate Certificate program in emergency management. In the late 1990s CSU also began the development of a Master’s degree in emergency management, designed to follow on from their undergraduate degree program. This program was first offered in 2000 (Manock, 2001). In 2003, Emergency Management Australia (EMA), as accredited training providers, also commenced offering formalised Advanced Diploma in Public Safety and a Graduate Certificate in Emergency Management courses.

More Than Just Theory

Designing an effective educational program

Designing an effective educational program requires four key questions to be addressed:

- Who is the program being developed for (learners)?
- What are the learners/trainees required to learn or demonstrate (objectives)?
- How is the subject content or skill best learned (instructional strategies)? and
- How is the extent to which the learning is achieved determined (evaluation)?

(Morrison, Ross & Kemp, 2001)

To date, emergency/disaster management training within Australian emergency management agencies has generally followed the format of short skills-based training courses (Ingham & Martinez, 2003) that are now beginning to be augmented by a small number of tertiary level (university and technical and further education institutions) education courses. The majority of these training and education programs have been based around what Foley (2000) refers to as the ‘front-end loading’ model of professional education. Foley explains this model as being where:

“...professionals were taught the knowledge, skills and attitudes they were thought to need before they began to practice. The competent among these new professionals, it was argued, would then apply in practical situations the theory they had been taught.” Foley argues that in fact “real work situations are complex and fluid: they do not sit and wait for theories to be applied to them.”

This is the case with emergency management. It is a complex, ever changing industry, dynamic in its nature. Foley identifies the need for a different model of professional education for practitioners. He refers to this model as being ‘practitioner-centred’ and focuses on the ways that practitioners actually think, act and behave in real work situations.

A number of the tertiary level emergency management education programs developed in Australia have transitioned from a ‘front-end loading’ model to the more realistic ‘practitioner-centred’ model, taking the practitioners realistic

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needs into consideration within the content and presentation of the program. One of these programs is explained as an example below.

**Linking tertiary education programs and communities**

**The Tasmanian/ CSU example**

An example of a tertiary education program that has been developed to provide direct benefits to industry and the community is the undergraduate degree program offered by Charles Sturt University (CSU).

CSU’s program originated in the small Australian State of Tasmania in 1988. At the time, the Tasmanian *Emergency Services Act 1976* required each local government municipality (43 in total) to have a counter-disaster plan (CSU, 2004). In 1988 only three municipalities had counter disaster plans in place. In addition to the requirement to have plans, the legislation also required each municipality to have a counter-disaster local controller and a local disaster planning committee. One of the responsibilities this committee had was to coordinate the development of the local counter-disaster plan. These committees were not skilled in the development of disaster management plans and therefore very few local government areas were able to develop effective disaster management plans.

In order to provide the necessary and needed skills to the local counter-disaster committees, the Tasmanian State Emergency Service (SES), a State Government agency with responsibilities for community emergency/disaster preparedness, developed a small training course which would provide the local counter-disaster committees with the knowledge, skills and capability to conduct local level counter disaster planning activities for their communities.

The training course was developed for face to face delivery by staff of the Tasmanian SES. The course itself was designed to be conducted over a 12 month period, with three face to face residential schools of three days each held at a centralised venue.

During each residential component, students were provided with the knowledge, skills and practice relating to each stage of the emergency management planning process. The first stage provided them with the skills to conduct an analysis of hazards facing their communities. Stage 2 provided them with the knowledge, skills and practice to develop their community counter-disaster/ emergency management plans (based on the results of their hazard analysis). The final stage provided them with the knowledge, skills and practice to develop Standard Operating Procedures (SOP), conduct a training needs analysis, develop training and finally develop and conduct exercises to test their plans and procedures.

Following each residential component, students returned to their respective communities where they were required to practically apply the knowledge, skills and practices provided during the residential course. They were required to actually undertake specific emergency management planning activities with their community. These involved the formation of emergency management
planning committees and in association with those committees conduct hazard analyses, develop the associated emergency management plans, SOP, training programs and exercises to test the plans and procedures.

As a result of these courses, all of Tasmania’s local government agencies had effective emergency management plans in place by 1995 and numerous other local communities, including government agencies, private industries and public authorities had conducted emergency management planning projects that enhanced their emergency management preparedness.

The value and potential of the program was recognised early on and in 1989 the Tasmanian SES in collaboration with the Tasmanian State Institute of Technology (later to be amalgamated with the University of Tasmania) developed the planning course into an Associate Diploma in Emergency Management. The new course incorporated additional subjects relating to operational management of emergencies, disaster recovery, business/management and psychology. The format of the course closely followed the earlier planning course, with emergency management subjects taught via residential components followed by practical application of the various knowledge and skills in a community/industry based project. Other subjects were provided via distance education. During the early 1990s the Tasmanian SES staff, working together with educational design staff from the University of Tasmania, converted the emergency management subjects to distance education format thereby making the course accessible to students outside Tasmania.

The course was considered such an important step in the development of emergency management as a profession that the Director of the Tasmanian SES actively encouraged and provided financial support to his staff to complete the course. By 1997 the Tasmanian SES could boast that 90% of its operational staff were formally qualified with an Associate Diploma in Emergency Management. I doubt that at that time any other emergency management agency in the world could have boasted such an accomplishment.

In 1997, following a re-evaluation of distance education at the University of Tasmania, the course was transferred to Charles Sturt University, at the time and to this day Australia’s largest distance education provider. The course was enhanced with the inclusion of additional emergency management, organisational management, human resource management, psychology, sociology and basic law subjects to enable it to be offered as a full undergraduate degree course: the Bachelor of Social Science (Emergency Management). A major consideration during this review process was to ensure that the course maintained its alignment with the public safety competency standards developed in the mid 1990s. The course was Australia’s first full undergraduate emergency management degree course provided completely via distance education, and one of the very first to be offered anywhere in the world.
Again the main principles and practices that were so successful in the earlier courses were maintained within the degree program. Students were provided with the theoretical knowledge, skills and practices relating to the various emergency management components of the course – emergency management planning, emergency operations management and emergency recovery management. They were then required to practically apply this knowledge, skills and practices within a community of their choice. Their assessment within each subject was directly related to the conduct of these practical community/industry based emergency management projects.

Currently, students are provided with study materials in an electronic format on CD-Rom. Each subject comprises a series of topics and takes the student through a series of key concepts and principles and provides examples of methodology, process and practice. Students are then required to apply, within their selected community, the knowledge, skills and practices learned as they progress through each topic of study. In this way they slowly develop and build their projects in direct association and collaboration with their chosen community. In addition to building their skills and competencies as they progress through each topic, the students utilise the outcomes of each subject studied to form the foundations of their projects in subsequent subjects. In this way one task builds into the next.

Students are also actively encouraged to develop a professional practice portfolio at the commencement of their studies. The aim of this portfolio is to provide the students with a means of capturing their accomplishments and highlighting the achievements and experience they gain not only during their progress through the course, but also within the emergency management industry once they complete their studies. It is viewed that maintaining such a portfolio would be a very valuable resource for students applying for positions within the emergency management industry.

It was determined that this form of assessment was far more beneficial to the student, the industry/community and the university than requiring students to simply learn theoretical principles and practices and then sit examinations following their studies. To this date none of the emergency management subjects in the program have formal examinations, with all assessment undertaken through work/industry/community based projects.

In 2000 the CSU emergency management program was enhanced further with the inclusion of a higher degree level emergency management program.
to compliment and follow on from their undergraduate program. The Master of Emergency Management program is classified as a course work degree, however the majority of work undertaken in the program relates to a series of emergency risk management projects undertaken by students in consultation with advisors and mentors and based around the students’ areas of emergency management involvement and responsibilities. The aim of these projects is to enhance the knowledge and practice in specific areas of emergency or risk management practice. Once again, the emergency management industry and communities directly benefit from the outcomes of these projects.

Everyone’s a Winner

Benefits

The linking of tertiary level education programs to community and industry emergency management needs and practice has resulted in substantial benefits to not only specific emergency management agencies and organisations, but also for many smaller community groups throughout Australia and in other parts of the world.

As highlighted in the CSU example above, students have been required to apply the knowledge, skills and practices taught within the program as a means of demonstrating their competence in that area of emergency management practice. As a result of this we have seen a variety of community based emergency management activities initiated by students in consultation with the selected communities. These have included:

- the conduct of hazard and risk assessments and community analyses which have resulted in the implementation of preventative, mitigatory, preparatory actions to reduce the likelihood and impact of hazards and associated risks,
- the development of strategic emergency management plans, business continuity plans and community recovery plans,
- the development of Standard Operating Procedures for organisations, agencies, groups and individuals with emergency management roles and responsibilities,
- the development of training and education programs for emergency management organisations, support organisations and communities, based upon plans and procedures developed,
- the development and conduct of emergency management exercises to test the plans and procedures, and
- the analysis of the operational management of emergency/ disaster events, with the aim being to draw lessons from the management of those events that will enhance future management of similar events.

As a result of these activities being undertaken, many communities have subsequently benefited through the enhancement of their emergency management arrangements, capabilities and capacities. Communities have become more aware of hazards and risks that threaten them, and most
importantly, the communities themselves have been directly involved in the development of their own emergency management strategies and capabilities.

Table 1 shows the types of community that have benefited from the industry/community based projects within the CSU emergency management program. These projects have focussed on the conduct of hazard analyses/risk assessments, community recovery assessments, the development of emergency management plans, business continuity plans, disaster recovery plans, the development of SOPs, the analysis of training needs, the development of associated training programs and the development and conduct of exercises.

<table>
<thead>
<tr>
<th>Types of community benefiting from emergency management planning projects</th>
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<tbody>
<tr>
<td>Port authorities and marine boards.</td>
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<tr>
<td>Individual Fire Brigade, Police, Ambulance and Emergency Service and</td>
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<td>Military Units, HQs and Stations.</td>
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<td>Small local airfields/ airstrips managed by local authorities.</td>
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<td>Small residential communities– e.g. villages, townships, housing estates.</td>
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<tr>
<td>Commercial retail businesses, including individual retail operations (shops), shopping precincts and malls.</td>
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<tr>
<td>Sporting complexes such as large sporting arenas, local sport halls</td>
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<tr>
<td>Mine sites and mining operational areas – e.g. mines, processing plants, smelting operations, etc.</td>
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<tr>
<td>Schools – e.g. Early childhood/ pre-school, primary, secondary, tertiary.</td>
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<tr>
<td>Local, State and Federal Government agencies and departments.</td>
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<tr>
<td>Oil industry operations – e.g. oil wells/ rigs/ production platforms (onshore and offshore), oil refining installations and operations etc.</td>
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<tr>
<td>Specialist events – e.g. sporting events, training activities (e.g./ scouting, military), community mass gatherings etc.</td>
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<tr>
<td>Individual households.</td>
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</tbody>
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Table 1

Types of community benefiting from emergency management planning projects

In addition to the conduct of community based emergency management planning projects, students have also undertaken analyses of previous emergency events as part of the Emergency Operations Management component of the course. The aim of these analyses is to identify ways in which the management of future similar events can be enhanced.

Table 2 provides a list of some of the events that have been analysed as part of the Emergency Operations Management component of the course. In the majority of these cases, students have taken the strengths, weaknesses and lessons learned from their analyses and applied them within their own emergency management community. As a direct result of these analyses, community groups such as emergency management agencies, emergency service units, event management agencies, police, fire and ambulance authorities, local government authorities, local community groups/
organisations and support agencies/groups have directly benefited through the review and enhancement of their own emergency management strategies and procedures.

<table>
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<tr>
<th>Emergency/ Disaster Event Analysed</th>
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<tr>
<td>2003 Canberra Bushfires (Australian Capital Territory, Australia)</td>
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<tr>
<td>1997 Thredbo Landslide (NSW, Australia)</td>
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<tr>
<td>1989 Newcastle Earthquake</td>
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<tr>
<td>1998 Sydney to Hobart Yacht Race (NSW, Victoria and Tasmania, Australia)</td>
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<td>1975 Cyclone Tracy (Northern Territory, Australia)</td>
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<td>1989 Hillsborough Football Stadium Fire (UK)</td>
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<td>1989 Exxon Valdez Oilspill (Alaska, USA)</td>
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<tr>
<td>1967 Tasmanian Bushfires (Tasmania, Australia)</td>
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<tr>
<td>1983 Ash Wednesday Bushfires in Victoria and South Australia</td>
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<tr>
<td>1999 Sydney Hailstorm (NSW, Australia)</td>
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<tr>
<td>1991 Coode Island Chemical/ Fuel Tank Farm Fire (Victoria, Australia)</td>
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<tr>
<td>1990 Nyngan and Charleville Floods (NSW and Queensland, Australia)</td>
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<tr>
<td>1986 Chernobyl Reactor Explosion and Fire</td>
</tr>
<tr>
<td>1988 Lockerbie Air crash</td>
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<tr>
<td>A large number of local area major bushfires (NSW, Victoria, Tasmania, South Australia, ACT, Australia)</td>
</tr>
<tr>
<td>A number of local area major cyclones (Western Australia, Northern Territory, Queensland, Australia)</td>
</tr>
<tr>
<td>A number of local area flooding events (Australia)</td>
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</tbody>
</table>

Table 2
Some emergency/disaster events analysed as part of the Operations Management component of the course.

Weaknesses
Although there are many benefits resulting from linking tertiary level studies to industry and community emergency management needs, there are also a number of weaknesses associated with this type of relationship.

Once again I will use the CSU emergency management program as an example from which to draw observations regarding issues that have arisen.

Community support and involvement
Some students have reported difficulties in initially obtaining community support and involvement for their projects, as the projects are seen as being an academic exercise. Students are required to seek and obtain community authority for their projects and have on a number of occasions, had to undertake community awareness type education prior to their projects being seen as beneficial to the community concerned. Students have also been encouraged by teaching staff to highlight and focus on the community and industry benefits of the projects rather than the academic nature of them.
Differing community agendas
In a number of instances, students have reported that once projects have been commenced, community planning groups/committees formed as part of the planning process have been difficult to keep on the project track, with committee members drifting off track towards their own agendas/“hobby horse” issues.

Timeframes for projects
This has been a regular issue within the program, particularly the planning projects. The requirement to complete certain activities for assessment within the academic program has meant that projects have had to be scoped down to enable a level of satisfactory completion. As many planning projects would take more than the 5 months available in the academic semester, students are required to scope their projects accordingly. Some students do voluntarily undertake, with the support of their communities, to continue their planning projects well beyond the academic time constraints imposed.

Parochial attitudes
Australia, like most other parts of the world unfortunately suffers from parochial attitudes between its constituent States and Territories. As a result of Australia’s Constitution, each State and Territory has legislative responsibility for their own day to day business, including emergency management. Although the emergency management structures within each State and Territory are similar, there are some subtle differences that can cause friction between students located in different State and Territories. Variances in roles and responsibilities and terminology often cause a deal of comment early in the program. Once students become more aware and open to differences of protocol and terminology, these issues reduce.

In addition, students often strike minor levels of reticence when initiating their projects within communities that have been using outmoded methods and techniques in their emergency management practice. Once again, the students often need to educate the community regarding the new approach, highlighting the fact that the project will be supportive rather than condemning before acceptance is obtained and support provided by the community.

Program accreditation
The Australian emergency management community currently lacks an overarching body that has responsibility for maintaining standards and educational accreditation within the emergency management industry. As a result, educational program providers have had to develop their programs independently and are often required to justify and qualify their programs to potential clients. The existence of an accreditation system would enhance the rigour and acceptability of programs to industry members.
Competitive programs and a small client base
Australia’s emergency management industry is not a large industry and therefore there is quite a deal of potential competition for students within the various tertiary level emergency management programs.

Emergency Management Australia (EMA), Australia’s national government emergency management agency has been initiating collaborative agreements with a number of universities providing emergency management programs, however they have also been developing their own tertiary level emergency management programs. At the moment the types of program that have been developed by the various providers are very much supportive of each other, with very few instances of direct competition. However, the potential for an increase competition is there and must be taken into consideration by providers when undertaking reviews and ongoing development of programs.

Slowness in professionalisation of EM industry
Tertiary EM programs have been in place within Australia now for nearly 20 years. However, there is an ongoing slowness within the EM industry to professionalise the industry through the acceptance and support of tertiary emergency management education programs as means of providing professional qualifications to emergency management practitioners.

In recent years other emergency service industries (police, ambulance and fire services) have embraced professionalisation and have supported tertiary level programs in their specific fields of operation. Many base initial recruitment and ongoing advancement within the agency on the attainment of tertiary qualifications to support experience and skills attained.

Currently, emergency management students have to ‘sell’ the attainment of knowledge, skills and abilities obtained during their studies to their respective emergency management agencies. The hope being, that the agencies will recognise the students' increased capabilities and thus enable the students to use the qualification as a means of advancement or further employment.

Conclusions
Formalised tertiary emergency management education programs have been around for nearly 20 years, however emergency management is still seen as a developing educational area. Having their foundations within industry based short skills courses, formalised tertiary level education programs have slowly increased their focus to provide a wide range of high level, specialised knowledge, skills, attitudes and practices to emergency management practitioners.

The development of program components requiring students to interact with communities and the emergency management industry during their studies has resulted in a large number of community based emergency management projects being completed. The results of these projects are the satisfactory completion of the education program by the student and more importantly, the
enhancement of community emergency management strategies for a large number of small communities. Many of these communities may not have been able to undertake these projects and thus enhanced their emergency management without the existence of the tertiary education programs. This involvement with communities during their studies has enabled students to immediately benefit from the practical application of knowledge, skills and practices within real life emergency management situations. The students complete their programs having gained very valuable experience in undertaking real life emergency management activities as a part of their studies.

The linking of tertiary education programs with community and industry needs provides benefits to the student, the industry, the community and the educational institution. There are a number of weaknesses associated with the undertaking of community/industry based projects during educational programs, however these weaknesses are minor compared to the benefits.

The future lies in the continued professionalisation of the emergency management industry and the recognition by industry heads of the value that formalised emergency management education programs play in the development of professional emergency management practitioners. The inclusion of community and industry based activities as key components within EM educational programs will add to the ongoing professionalisation and acceptance of emergency management as a critical part of a community’s infrastructure.
Bibliography

Australian National Training Authority (ANTA), 2000, Public safety training package: Police, State and Territory emergency service and emergency management sectors, ANTA, Melbourne.

Charles Sturt University (CSU), 2004, Faculty of Health Studies – Courses Curricula: Bachelor of Social Science (Emergency Management), Diploma of Social Science (Emergency Management), Master of Emergency Management, Graduate Certificate in Emergency Management, CSU, Wagga Wagga.


Legislation

Emergency Services Act, 1997 (Tas)