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MAPPING TRAINING DELIVERY FRAMEWORK AND PATHWAYS FOR THE NORTH AUSTRALIAN FIRE AND EMERGENCY MANAGEMENT TRAINING

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Version	Release history	Date
1.0	Initial release of document	03/11/2017



Australian Government
**Department of Industry,
 Innovation and Science**

Business
 Cooperative Research
 Centres Programme

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Publisher:

Bushfire and Natural Hazards CRC

November 2017

Citation: Sutton S (2017) Mapping training delivery framework and pathways for the North Australian Fire and Emergency Management Training. Melbourne: Bushfire and Natural Hazards CRC

Cover: Grace Daniels makes a point at the Limurlee Workshop.



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1.0 Introduction

The North Australian Fire and Emergency Management Training project was initiated following representations made by land, fire and emergency managers in northern Australia about the inadequacy of existing training for remote fire and emergency management. People involved in fire and land management in remote Aboriginal communities in particular were concerned that the existing training did not really provide satisfactory levels of skills or knowledge with which an individual or group could effectively manage bushfire and natural hazards (BNH) at the landscape scale required in the north.

It is important to note that they did not express disdain for the current training; the inadequacy they referred to was more directed at the fact that the training did not go far enough. It only covered the basics. They recognised that the basics were good and important for maintenance of the safety of individuals working in BNH, but more was required.

Additionally, these informants clearly expressed a desire for their own existing knowledge and ways to be incorporated into training. They indicated that incorporating this traditional knowledge made sense in practical terms: they had always lived here, they knew the landscape, they knew about fire and other hazards and how to manage them. It also made sense in more symbolic ways; recognition of their knowledge and skills would mean a great deal to training participants and would be likely to foster better uptake of the training. This holistic training was less likely to be forgotten. The fact that the training might do more than just refer to existing traditional knowledge as a marginal note would allow the training to build on participant's existing scaffolds of understanding.

Taking this into account the project in its original conception set out to establish an adaptable program of training modules that would readily fit within a VET qualification or for a component of an HE unit. As the project progressed however, a range of issues were identified that cautioned against unilateral implementation of this approach.



Several elements of the wider program of training required the detailed input of local people from the communities within which the training was to be delivered. This input included local knowledge of the multidimensional role that fire has within the landscape and its cultural relationships. Other information was sought regarding the traditional approaches of the community to leadership and management decision-making. For each of these and a number of other tasks, elements of the project were outsourced to ARPNet¹. In each case the quality of the information provided exceeded the brief and has considerably enhanced the quality of the final product (the training). However, the feedback from the ARPNet research also included a lot of metadata about training in remote Aboriginal communities in general. This information included considerable disquiet about VET training in general and the quality of accredited courses delivered in communities specifically.

Consequently this document discusses these issues and concerns and tries to set out a mechanism for ensuring remote communities have access to the training in a suitable framework that enhances their ability to find employment or progress to further education.

2.0 The Existing Training Framework

The existing training regime for BNH management within the VET system has proven highly effective in developing competencies among communities with shared cultural values. Until recently, most training was developed and delivered within the relevant statutory authority in each Australian State or Territory. Each jurisdiction still maintains a training regime for fire and emergency management staff and volunteers. Most of the agencies have a training section that functions as a Registered Training Organisation (RTO) and these ensure that all training materials and delivery are accredited within the national Framework.

This training regime caters to the unique Australian BNH management system which relies heavily on volunteers. In each State and Territory fire and emergency organisations comprise a relatively small number of staff working with a large number of volunteers. The volunteers are organised into brigades. The brigades themselves are formally constituted bodies, usually established under a relevant statute with mandated democratic procedures. In addition to tightly controlled administrative structures, brigades also have tightly controlled operational structures. They rely on well documented doctrine and Standard Operating Procedures. These procedures usually spell out what level of training, and what specific courses are required prior to a staff member or volunteer participating in an emergency management activity. Given that many of the activities are very hazardous, this is eminently sensible.

The 'good sense' incorporated into this training is well recognised by remote community members. They recognise the importance of safety, and that while traditional knowledge is central to their practice, things have changed in the last one hundred years, including the fact that not all tracts of the landscape are under traditional management. This leads to wildfires and other natural hazards that were unknown in the pre-colonial period. While preferring to use mitigation to manage BNH, inevitably rangers and other operational groups find themselves responding to events. In these

¹ ARPNet is the Aboriginal Research Practitioners Network, a coordinated group of Aboriginal people from a variety of communities and languages who have been trained in Participatory Action Research. Network members are contracted to conduct research, evaluation and planning activities using qualitative and quantitative methods from the ARPNet "Dilly Bag" (Sithole 2013). Research is conducted in the first language of the participants with due attention to cultural sensitivities.



circumstances, close attention to safety and the lessons of the nation's extensive training regime are fundamental.

Community members were at pains therefore to make it clear that they did not want the existing training to stop. In fact they want more people trained to ensure safety. But they also expressed a view that the training was inadequate. The perceived shortcomings centred around three key areas. First the training was developed in 'the south'. This term carries a weight of meaning, much of it pejorative! Dissecting the comment in this context however it incorporates a concern that the training has been developed in the more populated non-Aboriginal communities of southern Australia. It reflects southern Australia's climate and geography and, most importantly, it incorporates a world view that portrays fire as a problem. Aboriginal people in remote north Australia do not see fire as a problem. Fire is a multidimensional phenomenon. It is a key component of their cultural practice as well as a land management tool. A 'fire regime' is something they decide, not something pre-ordained that they must respond to.

The second feature of concern in existing training for remote community members is that it does not include traditional Aboriginal knowledge and practice, except perhaps as a marginal note. While this may be understandable in the more densely populated areas of southern Australia where traditional Aboriginal land and fire management practices ceased well over 100 years ago, in northern Australia it is perceived as a glaring oversight at least, and an insult at worst.

Third and most importantly for this discussion, the training is delivered in a 'linear' manner – there is a body of information to be absorbed and this is set out in a logical format and worked through from top to bottom with assessment at the end. Presentations are generally delivered by trainers at the front of the class, talking through Powerpoint™ slides. Some practical demonstrations may be included. While this works for the majority of Australians for whom it is an understood cultural construct, it is not the favoured means of learning for remote Aboriginal communities. Tying together the previously stated concerns, the participants in this project indicate that they want an interactive learning system that reflects their cultural settings and includes their traditional knowledge and leaders.

These concerns were expressed about the existing BNH management training currently available through government institutions. They touch on wider issues that have been identified elsewhere regarding VET and its roll-out in remote Aboriginal communities.

VET has become the preferred system for use in Indigenous communities for many reasons (O'Callaghan, 2005). National and state government policies all target the value of Aboriginal people getting 'real jobs' and for these positions they will require 'real qualifications'. Unfortunately, like other forms of education delivery in remote communities, the success of VET has been at best patchy. There are some signal successes in particular contexts; like those involving the emerging ranger and land management projects in the north. More often however, VET appears to have had limited efficacy for long term improvement in lifestyle, employment, economic and social development for Indigenous people who choose to remain on Country. The quality of delivery in the VET sector is very inconsistent and the governing bodies have struggled to improve standards across the sector.

The nature of the VET program delivery means that this inefficiency is coupled with a steady erosion of the key Indigenous cultural constructs. These constructs are the things that connect Indigenous people to their history, religion and country. Traditionally, these connections would be reiterated regularly and often, and learning opportunities would reinforce and build on existing knowledge. This would in turn form the foundations for pathways for future learning and 'employment'. The VET system as portrayed here sits outside this framework and consequently learning experiences will tend to be sub-optimal. There is for example a tension between the need/desire of many remote Aboriginal people to continue traditional ceremonies to progress young people through the various



stages of seniority in their society (Sithole et al., In Press) and the need to complete VET course accreditation in specific timeframes. These timeframes often conflict with ceremonial obligations.

While there is a clear requirement for rigorous assessment of competency prior to individuals engaging in any dangerous activity, the timing and nature of VET accreditation has been called into question in the remote Aboriginal context. Current accreditation frameworks are quite rigid and very 'western centric'. Despite this apparent rigorousness, the accreditation and delivery processes often fall far short of the actual objective of competent confident practitioners in the BNH realm. For example courses may be "dumbed down" in order to facilitate achievement of the qualification. This may be done with integrity such as the modified version of the TA&E for VET trainers who have a qualification as a teacher where Recognition of Prior Learning processes are applied. Often however quality is sacrificed.

While flexibility in course delivery can be useful, the VET sector is bedevilled by training providers who do not deliver good quality courses (Australian Education Union, 2016). Alternatively, training providers may focus on the imperative of filling enrolments in order to meet course delivery quotas rather than client groups undertaking training that will meet their needs. In the NT a policy of increasing VET delivery in remote communities has led to a situation where many people living in communities have qualifications provided through a range of access programs at great public expense. The authors have been shown lever-arch files by VET graduates that are filled with certificates. When further questioned about various qualifications one graduate stated that he had little memory of the course or its content. Moreover, he expressed no interest in the subject matter (a Cert IV in Aged Care) and had only attended because he was told to do so and it involved a free trip to Darwin. This is a common scenario with many in remote communities relating similar stories and expressing similar feelings which are associated with a sense of helplessness about how to get 'education' that will support their aspirations.

Another aspect of the problem is "training fatigue". Where training is effective and skills and knowledge are developed, these competencies may remain unutilised in the communities where people live. For example, following Cyclones Lam and Nathan in 2015 members of the research partnership referred to the use of 'outside' workers who were brought into the communities at considerable expense to undertake the post-cyclone clean-up. This included tasks using a range of qualifications which already existed within the community. People were fully trained and appropriately accredited through government funded training schemes, under-employed and keen to assist in the disaster response in their own community, but were forced to watch as outsiders took control of the task. The moral of this experience for some in the community is that their qualifications are worthless. The nett effect then is that VET training inadvertently contributes to a perception that education is pointless if you are Aboriginal and living in a remote community.

VET, HE and schooling in general all have struggled to make education relevant to people living in these communities. The outcomes and the modes of delivery feel alien and are in opposition to the rhythms of life in these communities. This is coupled with different patterns of engagement that work to disconnect people from the learning process. While the school may be set up in one place its students for cultural and social reasons may move around. They may be absent from the learning process for extended periods and over time these gaps make re-engagement very difficult. If the learning was embedded in the cultural rhythms of the community and if it was linked to the core concerns shared by everyone in that community then this disengagement would significantly reduce. The Wardekken Academy (Narwardekken Academy, 2016) project is an example where a local community has sought to manage this suite of problems on their own terms – with great success.

Aboriginal people are aware of these issues and refer to their traditional practice as a guide to mechanisms for improving education outcomes. In particular they rely on their land and fire management record. Traditional land management has been maintained very successfully over many generations because it is embedded in the cultural constructs of the community. Contrary to



popular belief this is not because Aboriginal culture has been static but because it has flexed around changes in the landscape to ensure that the people's lives have continuity on their country. For example archaeological research indicates that significant changes have occurred in the geography and economy of the Darwin and Adelaide River catchments in the last 1000 years (Bourke et al., 2009; Hiscock & Faulkner, 2006; Hiscock & Hughes, 2001; Patrica Bourke & Guse, 2007) while other research in Kakadu portrays nearly 50,000 years of dynamic responses by Aboriginal people to changing environmental parameters (Jones & Allen, 1985).

This adaptive capacity remains today with Indigenous communities using the existing forums to maintain continuity while meeting the needs of the modern world. In this context the delivery of training requires a significant shift in thinking and methods. In discussions with Indigenous leaders (TOs including Djungkayi and Mingkirrinji² for their country) it was clear that they would welcome accredited Leadership training (for example) that would meet land management training priorities shared by the non-Indigenous and Indigenous BNH stakeholders, but delivered through traditional learning forums including ceremony.

In the VET stream a number of organisations across northern Australia have proceeded to develop their own training projects to address these issues. These cater to the specific needs of a community. Examples include a program for learning about the management of fire in the sandstone plateau country in Kakadu National Park (KNP). This project was developed by KNP in association with Bushfires NT. Another training project has been developed by the Carpentaria Land Council to assist its ranger program achieve its goals – which include providing land management services to non-Aboriginal land holders throughout the Gulf of Carpentaria (Carpentaria Land Council, 2016).

In addition much work has been done by institutions such as Notre Dame University (Clements, Kennedy, Marshal, & Kinnane, 2015) to develop courses that recognise and value the cultural contexts of their Indigenous students. However accreditation remains a barrier to a complete shift away from courses that are constructed using western centric models of delivery, and accreditation of these students continues to be controlled by organisations that have little knowledge of their context and therefore how this learning will be used. Courses continue to be constructed according to the premise "What should the student know?" rather than "How will this course facilitate lifestyles of learners?"

3.0 A New Training Framework

The North Australian Fire and Emergency Management Training project has attempted to treat with all the issues outlined above through a two-step program. The first step is to ensure the capture and incorporation of local, traditional Aboriginal knowledge in the training program. The second is to adopt a holistic training approach through the use of a Transformative Education Framework.

3.1 The Key Points of Difference: Transformative education

The teaching materials for these units include a Training Manual which sets out the transformative education basis for the training and background information to support the trainer to deliver the program in a way that will facilitate successful learning. The Rationale states;

² Djungkayi is a widely used term for a (matriarchal) hereditary manager responsible for the management of clan estates. Mingkirrinji is a term referring to the (patriarchal) hereditary owner of a clan estate in parts of western Arnhem Land (synonyms exist in most other languages). Land, fire and emergency management decisions will not be made without the due consideration of both Djungkayi and Mingkirrinji.



To date the design and delivery of courses has limited their efficacy. This project has implemented a development process that allows materials to be created in a new paradigm that not only prioritizes Indigenous knowledge, but promotes new ways of BNH management that synthesize traditional eco-cultural methodologies established through long-term engagement in, and connection with place. It utilizes new methods of management being developed in response to changing environmental characteristics and focuses on facilitating economic development and social and cultural resilience of people living in these areas in the 21st century. (p. 4-5)

This rationale was influenced by recent research about education. Educators focussed on improving Indigenous education outcomes have turned again to alternative pedagogical frameworks that can facilitate learning programs across the cultural divide. Much work has been done in Northern WA and the NT to implement and evaluate training and education approaches that will effectively address some of these issues. There is a growing body of evidence that supports transformative education as a way forward (Carnes, 2015; Clements et al., 2015; Fogarty & Schwab, 2012). In essence:

"transformative education holds that 'learning is understood as a process of using a prior interpretation to construe a new or revised interpretation of the meaning of one's experience in order to guide future action'."(Mezirow, 1996).

Drawing upon the work of O'Sullivan, Morrell and O'Connor (2002), transformative education can further be defined as teaching and learning which involves:

- *A deep structural shift in the basic premises of thought, feelings and actions*
- *A shift of consciousness that alters our way of being in the world*
- *Understanding ourselves, our self-locations, and our relationships with others in the world*
- *Understanding relations of power in interlocking structures of race, class and gender*
- *Envisioning alternative approaches and possibilities for social justice...in other words, transformative education is teaching and learning which effects a change in perspective and frame reference (Mezirow, 1996).*

Further, transformative education and learning as it is practised today places increasing emphasis on shifts taking place ontologically as well as epistemologically, so learners become actively engaged in new avenues for social justice (Teaching4Change, 2016).

Fogarty and Schwab (2012:10) state:

Much of the literature is also unequivocal in stating that Indigenous knowledge and local development aspirations must form a central component of educational and pedagogic design.

(Wallace, C. Curry, & Agar, 2008:9) agree and emphasise the importance of effective partnerships and "*recognition of diverse knowledge systems*" in order to develop learning opportunities that will meet the needs of Indigenous people;



The need for integrated skills development with a view to preparation for potential transition to higher education was suggested by respondents and this is supported in the literature; in particular, in the Indigenous Higher Education Review (IHER) 2012.

It is clear that this transformative education approach has the capacity to effect learning within the Indigenous context and to create shared paradigms for cross-cultural learning to achieve agreed outcomes, and it has already been shown to be effective (see below). This approach is vital for achieving the principle outcomes of the proposed program and significantly contributes to achieving the HEPPP-Whole of Community Engagement project aim: to establish pathways for indigenous communities to become engaged and successful in tertiary education. It will facilitate a focus on key issues of importance to both Indigenous communities and the broader Australian community. It will also strengthen current practice by using ALL the available knowledge about BNH management, building capacity and employability in Indigenous communities using existing cultural constructs that strengthen cultural identity and continuity combined with allied training from western providers.

A gap currently exists in offerings of relevant courses for indigenous and non-indigenous people working on country. In a recent report on the requirements for CNRM on indigenous land, the Nulungu Research Institute identified a range of gaps in the current VET training and HE offerings (Clements et al., 2015).

These are dominated by:

- Cultural and Traditional Ecological Knowledge
- Cultural protocols and;
- 'Looking at country more deeply'.

A key outcome of the transformative approach proposed here is that participants will recognize that their existing personal knowledge has academic value and that the cultural understandings of fire and emergency management also carry weight in the wider community.

For BNH management, the development of improved understanding of BNH, the role the individual and community play in its management and the mapping of new knowledge on to existing cognitive constructions means that this transformative training will contribute directly to the enhancement of community resilience among participants.

Taking this into account, the learning culture that is created is vital for successful delivery of these units. Ideally, the delivery context will encourage participants to be actively engaged in an interrogation, not just of the knowledge and methods required to undertake BNH management but perhaps more importantly, their own knowledge and assumptions about the natural landscape, fire management and emergency response. While Indigenous knowledge is increasingly recognized as of value in management of 'country', a much more detailed and organized use of this knowledge and how to apply it in the 21st century is required following significant shifts in the ecological and social contexts; challenges that constitute the north Australian environment. The course therefore, guides a process of 'meaning-making' where the participants can enrich learning by contributing new understandings that sponsor development of a paradigm of thinking and acting that is shared, and which allows application of content in new ways.

Transformative education approaches assume ALL those involved will be engaged in learning throughout the delivery phase. This sets a foundation for the type of contextualisation needed and allows a two-way exchange of information to be created during the training that supports a flexible and evolving learning process. It DOES NOT mean that NO planning is needed or that 'anything goes' during the delivery. Rigorous attention to the required outcomes and attention to opportunities that arise to facilitate their achievement mean that a rigorous and professional approach must be



applied. In some ways this approach is closer to school-based delivery approaches that focus on the learning needs of individual students related to the identified curricula, and a teacher's responsibility to modify programs according to the client groups needs even having multiple programs to meet different 'levels' within the group and Individual Education Programs (IEPs) for students with special needs. A foundation of this approach is the requirement for all those involved in the learning process to be prepared to participate as both learners and learning knowledge contributors. It differs in that there may need to be an extended collaborative process between professional educators and client group to establish a version of the program that is deeply contextualised to meet the learning requirements of the specific group. For example, the unit TETBNH302 (below) presents information about the landscape and environment of the local area that the client group will be responsible for managing. This unit information will need to be modified/added to for other communities in different locations.

It is a "hot pot" for learning exchange out of which emerges a new shared understanding, in this instance of fire and emergency management processes in the Top End. This transformative approach is increasingly informing training and education for indigenous learners because it creates a much more effective and familiar learning culture that promotes deeper engagement in part because it values all contributions and allows for time for reframing to occur. It promotes empathy amongst 'the team' all of whom must engage in reframing. It supports and prioritises a cross fertilisation of knowledge and practice so that future EFM approaches can be created to take the best practice from "both ways". Successful projects like WALFA have engaged in this type of process realising significant shifts in practice as a result.

3.2 Summary

For the main, this project focuses on the cultural context of remote Aboriginal communities in north Australia. Education where the 'lens' can be shifted to suit the needs of the participants. This relies on building upon the existing knowledge and scaffolds of individuals and communities. It mandates the use of the knowledge of senior community members in the training. Rather than a single 'trainer' delivering the course materials, the framework for these units relies on the co-opting of knowledgeable locals to deliver aspects of the training. In this context learning is 'non-linear' and it is likely for example, that the 'trainer' will observe new knowledge and will indeed learn themselves.

The current situation in remote communities in northern Australia conspires to separate individuals from certain sorts of knowledge because this knowledge is retained by individuals. Traditionally, these individuals would impart their knowledge to emerging cohorts of individuals passing through various levels of initiation. The disaggregation of communities means that this system is not able to impact on all those who require the knowledge of fire and land management.

As a consequence, the inclusion of multiple knowledgeable individuals ("professors" if you like) not only provides the course 'participants' with learning opportunities, but all involved from the trainers to the "professors" themselves have an opportunity to encounter new and complementary knowledge relevant to their existing expertise.

4.0 Towards Accreditation of North Australian Fire and Emergency Management Training Units

Clearly the preceding discussion sets out a weight of concerns that need to be addressed to ensure that, if accredited, the training developed through this project continues to deliver the quality of understanding we believe possible. There is a strong element of scepticism among training participants about VET and VET accreditation that needs to be addressed. It is our view that some form of mandated application of transformative education as set out in the Training Manual could alleviate these concerns.



Recognising the potential to achieve the original objectives of the project and have the training units accredited, some mapping of the potential qualifications within which the units may be achieved is presented below.

Table 1 sets out the suite of training that has been developed through the project and provides a brief description of each unit and its transformative education objectives.

Table 2 sets out the key learning to be achieved. It lists the performance criteria and knowledge and skills for each unit.

Table 3 provides a list of existing related training packages that could include these units to enable accreditation at national level.

Table 1: Summary of Suite of Units

UNIT CODE	UNIT NAME	DESCRIPTION
TETBNH301	Non-Indigenous and Indigenous BNH Management Principles	Introduction to the two world views and history directly relevant to emergency management in Australia promoting awareness of personal perspective and how it relates to the broader paradigm.
TETBNH302	Applying Indigenous Fire Management Processes in North Australian Contexts (Local Variant)	Explores traditional culture of local indigenous people living on country and identifies knowledge and practices relevant to plan and undertake effective management of fire in your area of responsibility.
TETBNH303	Community Engagement and Cultural Protocols (Local Variant)	Introduction to established protocols used in BNH but focussing on the example of fire management employing effective collaboration with indigenous communities and organisations in rural and remote settings.
TETBNH304	Fire Management and the Law	Explores the key legislation and regulatory processes at both national and state/territory levels, governing fire management operations in non-urban locations in North Australia.
TETBNH305	Digital Mapping Tools Used in BNH Management	Introduces spatial information technology used by BNH managers to collect and use environmental and other data in land and fire management activities to map, monitor, assess and report strategic fire management planning and response operations, to maximise ecological health and crucially, minimise risk.
TETBNH306	Apply Standard Operating Procedures (SOPs)	Introduction to Standard Operating Procedures (SOP's) used in BNH with a focus on those that relate to the Top End of Australia.
TETBNH307	Participate in Debrief (Local Variant)	Summary of debrief procedures involving personnel, including volunteers, following operations in BNH management, particularly in the Top End of Australia.
TETBNH308	Advanced Situational Awareness and Dynamic Risk Assessment (Local Variant)	Overview of current risk assessment approaches, specifically the Take Five process, commonly used in the BNH/ EFM sector.
TETBNH309	Remote Tactical Leadership ¹	Overview of the leadership protocols and procedures used in BNH management by both the relevant authorities and traditional Custodians of Country to promote understanding of how these work in managing natural events.
TETBNH310	Develop Operational Work Plans	Introduction to the nature of, and process involved in, developing a range of operational plans used BNH management, to equip participants to engage effectively in planning activities for operations.



PUAFIR2098#	Work Safely Around Aircraft	Apply safe work practices when operating in or around aircraft at an airbase and when engaged in a range of non-specialist, air operations activities.
TETBNH312#	Operate Aerial Incendiary Equipment	Provides opportunities to practice safe and effective use of aerial incendiary equipment in the context of fire and land management operations.


Table 2: Key Outcomes for Each Unit

UNIT NAME	PERFORMANCE CRITERIA	SKILLS & KNOWLEDGE
TETBNH301 NON-INDIGENOUS AND INDIGENOUS BNH MANAGEMENT PRINCIPLES	1.1 The role of <i>the Dreaming and the Law</i> in supporting and maintaining management practices across Australia 1.2 The key philosophy underpinning traditional lifestyles including land management and fire use as a management tool - <i>leave the world as you found it</i> 2.1 Natural hazards in Australia and current responses - <i>building consensus in responding to emergencies</i> in indigenous communities 2.2 The <i>role of fire</i> - a tool or a natural hazard to be minimised? 2.3 The <i>role of Indigenous management in shaping Australian landscapes</i> assumed to be natural by European colonists 2.4 Australia's environment - a natural "parkland" or carefully managed environment whose <i>maintenance requires human action</i> ? 3.1 <i>Soil compaction and erosion</i> and their impact on Australian ecology 3.2 Changes to movement and location of <i>water in the environment</i> 3.3 Changes to <i>distribution of grasses and other plants species</i> 3.4 Changes to <i>soil salinity</i> in Australian environments 3.5 The <i>interconnected nature of the Australian landscape</i> and Aboriginal reliance on all plant species 4.1 <i>Carbon Farming</i> Initiative legislation 4.2 Knowledge of shifts in <i>regulatory processes</i> related to fire management in Australia, especially in North Australian jurisdictions	Required Knowledge: <ul style="list-style-type: none"> • Current emergency responses create tensions between indigenous and non-indigenous people. • These tensions can be minimised by communication that builds a shared world view based on both ways of managing landscapes and responding to natural hazards. • Indigenous people throughout Australia had a profound knowledge of the landscape, climate and ecological features of the territory they inhabited. • This knowledge has evolved through a complex interaction with their local environment. Specific traditional knowledge developed to manage 'country', it varies depending on the location and cultural group who live there. Across Australia these variations have produced similar plant patterns, regardless of local flora types. • Indigenous people moved purposefully through the landscape which was shaped by resource management practices that influence and are influenced by every facet of their culture and way of life. • In Indigenous culture, fire is recognised and valued as a tool used to manage the environment and facilitate resource acquisition. • This is a fundamental difference to the imported (European) view of fire as a natural hazard, a "disaster". This view hinders effective management of fire events and the ecological health of many Australian landscapes. • In 'southern' regions of Australia European cultural influence has altered landscape values and so changed the environment, that traditional fire regimes have been replaced. • 'Northern' Australia has experienced significant change also, but traditional fire management practices have continued to varying degrees and increasingly inform management practices in non-urban rural and remote contexts. • Demographic and geographic differences between 'southern' and 'northern' Australia have influenced differences in fire management practices. In 'southern' regions there is greater geographical diversity and population densities are greater and more varied. • Traditional principles have been formally recognised as integral to current and future fire and emergency management practices through legislation and scientific research. Required skills <ul style="list-style-type: none"> • Articulate this knowledge in activities related to other units • Cross-cultural communication evident in job practices - Using a combination of both Indigenous and non-indigenous emergency management practices
TETBNH302 APPLYING INDIGENOUS FIRE MANAGEMENT PRINCIPLES	1.1 The <i>local cultural context of fire use</i> as a tool for managing 'country' 1.2 <i>Local ecology and fire use</i> in traditional settings	Required knowledge: <ul style="list-style-type: none"> • Local traditional fire management knowledge including key terminology used to discuss and undertake activities associated with land management, especially controlled burns (prevention) and wildfire management (emergency response)



	<p>1.3 The language of ecological knowledge and technology including fire use</p> <p>2.1 North Australian tropical climatic factors</p> <p>2.2 Northern Australian weather patterns</p> <p>2.3 Interactions between fire use and climate in Northern Australia</p> <p>3.1 Collaborate effectively with indigenous and non-indigenous stakeholders in implementing fire plans in rural and remote contexts</p> <p>3.2 As a member of a team prepare detailed plans using fire as a primary tool to manage the environment to achieve stated objectives</p> <p>3.3 Prepare and deliver relevant notifications to public and stakeholders as per organisational protocols</p> <p>4.1 Use personal protective equipment and identify and prepare food and fluid requirements prior to departure as per organisational standards</p> <p>4.2 Participate in controlled burns using procedures and protocols of the organisation</p> <p>4.3 Monitor and report weather conditions and fire behaviour changes to supervisor/other team members</p> <p>5.1 Nominated fire ignition and extinguishing equipment and media are obtained and used in accordance with organisational and manufacturer's procedures</p>	<ul style="list-style-type: none"> • Local ecology relevant to fire management procedures • Policies and procedures of the organisation including; <ul style="list-style-type: none"> ○ knowledge of local and regional landscape management objectives ○ formal notification process used to manage fuel loads and other risk factors by stakeholders living in the local area ○ methods used to undertake controlled burning in the local area ○ WHS procedures and equipment guidelines for use ○ Protocols for promoting community safety during an operation • Collaborative relationships with stakeholder groups in the local area • Understanding of established practices for engaging in collaborative planning and implementation of fire management plans • Use all relevant information (weather and other ecological data) to plan and undertake fire management activities <p>Required skills:</p> <ul style="list-style-type: none"> • Working with people from another culture as part of a team • Contribute to planning to manage fire informed by both traditional indigenous and non-indigenous knowledge and methodologies • Implement fire management plans • Ability to modify practice to accommodate changes in circumstances (weather, availability of resources/personnel, policy) • Correctly use WHS equipment in BNH operations
<p>TETBNH303</p> <p>COMMUNITY ENGAGEMENT AND CULTURAL PROTOCOLS</p>	<p>1.1 The influence of policies and procedures on the development of protocols</p> <p>1.2 The influence of cultural and other factors on the development of protocols</p> <p>2.1 Management agencies' collaborative procedures used to work with stakeholders</p> <p>2.2 The role of police personnel, medical and school staff located in communities in emergency and fire management activities</p> <p>3.1 The role of Indigenous representative bodies in establishing collaborative land management initiatives</p> <p>3.2 The role of non- Indigenous representative bodies in establishing</p>	<p>Required Knowledge:</p> <p>Demonstrate understanding of the following:</p> <ul style="list-style-type: none"> • The knowledge required to communicate effectively with an indigenous individual/group e.g. the clan group, who they represent usually/in this instance OR that non-indigenous people may need to be made aware of these factors and how they impact on collaborative activities • The effect health issues such as hearing and eyesight problems have on indigenous people's ability to engage in effective communication especially in group situations OR awareness of ways to overcome hearing or sight problems in a collaborative activity • Protocols used by Indigenous people are different from non-indigenous people. In order to work together it is essential that to demonstrate willingness to invest time establishing relationships • As with other work relationships remuneration may be required where knowledge and expertise from partners is sought



	<p>collaborative land management initiatives</p> <p>3.3 The role of researchers in establishing collaborative processes related to land management</p> <p>4.1 The role of the kinship system, Traditional Owners, elders and ceremony in making decisions</p> <p>4.2 The role of "gatekeepers" in collaborative activities involving Indigenous communities</p> <p>5.1 Protocols used in work relationships with pastoralists and other landholders</p>	<ul style="list-style-type: none"> • The history of interaction between Indigenous and non-indigenous people, and how this may have influenced current trust relationships • Protocols guiding interactions in Indigenous communities, including avoidance arrangements and the prescribed cultural roles OR that non-indigenous people may have limited understanding of these • The importance of gender in any communication process amongst Indigenous people OR lack of cultural knowledge may cause non-indigenous people to behave in a way which is appears rude • The nature of "shaming", "humbug" and ways that these can be managed to ensure collaborative activities are effective • The role of, and the protocols required when establishing work relationships with, gatekeepers <p>Required skills</p> <ul style="list-style-type: none"> • Ability to work with Indigenous people in situations where English may not be the primary language of communication • Willingness to listen and take the time needed to ensure full communication happens • Cross-cultural collaborative skills to undertake BNH activities in rural and remote locations • Undertake activities safely
<p>TETBNH304</p> <p>FIRE MANAGEMENT AND THE LAW</p>	<p>1.1 Key features of the current national legislation governing sustainable enterprise opportunities in remote and rural contexts</p> <p>1.2 Reducing carbon emissions and providing primary industry with opportunities to develop carbon abatement enterprises</p> <p>1.3 Opportunities for conservation of natural heritage values in fire management activities</p> <p>1.4 Key features of the national harmonised work, health and safety legislation</p> <p>1.5 Promoting and maintaining health and safety in the community</p> <p>2.1 NT fire management legislation in the Top End</p> <p>2.2 WA fire management legislation in northern Australia</p> <p>2.3 QLD fire management legislation in northern Australia</p> <p>3.1 Key features of the regulations and procedures in the three jurisdictions (NT, WA, Qld),</p> <p>3.2 Key jurisdictional differences and the factors influencing these differences</p> <p>3.3 Current fire management changes occurring in different jurisdictions</p>	<p>Required knowledge:</p> <ul style="list-style-type: none"> • the key elements of the relevant nation and state/territory legislation governing fire management operations in northern Australia • the primary objectives of the legislation to direct fire management • the procedures developed in the three jurisdictions and the similarities and differences that exist between these different jurisdictions • the importance of collaboration between the different jurisdictions in developing and undertaking fire management • the differences between laws and regulations in different jurisdictions • how these impact on management processes and practices in WA, Qld and the NT <p>Required skills:</p> <ul style="list-style-type: none"> • undertake fire management activities within the national and state legislation



<p>TETBNH305</p> <p>DIGITAL MAPPING TOOLS AND SPATIAL INFORMATION USED IN BNH MANAGEMENT</p>	<p>1.1 An overview of application of SIT tools to undertake annual fire planning, implementation and assessment</p> <p>2.1 Spatial data types and how their form and application varies.</p> <p>2.2 Satellite imagery; fundamental concepts around resolution and the limitations and advantages of various satellite platforms for fire management.</p> <p>2.3 Spatial information tools; desktop GIS, Web GIS, GPS.</p> <p>3.1 Using software preferred by your organisation to collect and manage spatial field information</p> <p>3.2 Moving data from a GPS to a computer and vice versa</p> <p>3.1 Using software preferred by your organisation to collect and manage spatial field information</p> <p>3.2 Moving data from a GPS to a computer and vice versa</p> <p>4.1 NAFI applications for planning, monitoring and reporting</p> <p>4.2 Using NAFI information through Google Earth</p> <p>5.1 Data analysis applications</p> <p>5.2 Different uses of this information in the range of operations required to fulfil agency responsibilities effectively</p> <p>6.1 On-line support and training available to up-skill users of these tools, including Google Earth and NAFI</p> <p>6.2 Organisational support provided including NLC-CFC/DCBR/NAILSMA,</p> <p>6.3 Partnerships between NAFI and other organisations involved in spatial information generation and land management</p>	<p>Required Knowledge:</p> <ul style="list-style-type: none"> • Protocols and procedures used in your organisation to access and use software and related tools in your role in BNH management including: • Protocols and procedures used to access and use web-based tools relevant to your role in BNH management including NAFI • How to use these tools effectively to: <ul style="list-style-type: none"> ○ collect and upload field and other data and download it for a range of uses ○ analyse data as required to undertake duties ○ access information to undertake operational responsibilities as part of a team • Protocols and procedures for collecting and maintaining records <p>Required skills</p> <ul style="list-style-type: none"> • Ability to work as a member of a BNH team • Ability to collect data, as part of on-going responsibilities including field observations of relevant data (e.g. ground truthing, vegetation profiles, weed infestations, fire scars, burnt and unburnt ground, fuel loads • Able to understand information such as satellite imagery and manipulate this digital data to access the different types of information available
<p>TETBNH306</p> <p>APPLY STANDARD OPERATING PROCEDURES</p>	<p>1.1 SOP's in an emergency operation including staff and volunteers from rural and remote communities</p> <p>1.2 The SOP's used in non-emergency operations</p> <p>1.3 The role of stakeholders and landowners in maintaining property in accordance with the requirements of relevant legislation</p>	<p>Required knowledge:</p> <ul style="list-style-type: none"> • Understanding of the Standard Operating Procedures (SOPs) of the relevant BNH agency • Understanding of the established protocols and practices developed in the organisation • Detailed understanding of specific requirements of your own role and responsibilities as outlined in the SOP's and identified in the organisation



	<p>1.4 The <i>influence of traditional Indigenous protocols</i> on SOP's</p> <p>2.1 <i>Safety of fire fighters and emergency service personnel</i> involved in EFM operations</p> <p>2.2 <i>Protection of life, property and the environment</i> from the hazards associated with operations</p> <p>2.3 <i>Maintaining accurate records</i> of information about operations including information used to make adjustments to practice</p> <p>3.1 <i>SOP's used in post fire/emergency clean-up operations</i></p> <p>4.1 <i>PPE and protocols used</i> by staff and volunteers in planned and emergency operations</p> <p>4.2 Procedures used to ensure <i>safe and effective use of hand held equipment and materials</i> used</p> <p>4.3 Procedures used to ensure <i>safe and effective use of larger equipment</i> such as fire units</p>	<ul style="list-style-type: none"> • Detailed knowledge of PPE maintenance and use in the range of required operations • Detailed knowledge of the equipment and materials used in the range of required operations, including the manufacturer's Instructions For Use • Detailed knowledge of WHS guidelines for the full range of relevant activities • Understand communication protocols and procedures appropriate for different emergency situations including cross-agency operations <p>Required skills:</p> <ul style="list-style-type: none"> • Able to use communication equipment according to the protocols appropriate for the range of emergency and non-emergency operations you will be involved in • Able to use alternative communication protocols and methods in the event of a breakdown of usual communication methods • Able to understand and interpret relevant information such as weather conditions and read topographic maps • Able to respond appropriately to changes in this information to fulfil responsibilities such as fighting fire on the frontline, contributing to evacuation operations in the event of cyclone threat • Maintain and use PPE according to manufacturer's instructions and organisation standards and procedures • Use equipment and materials safely and effectively to complete relevant tasks in area(s) of responsibility • Ability to identify, access and correctly complete required records • Able to provide feedback and contribute to records of all aspects of operations according to organisation procedures
<p>TETBNH307 PARTICIPATE IN A DEBRIEF</p>	<p>1.1 <i>Different types of debriefs</i></p> <p>1.2 <i>Procedures used to conduct a debrief</i></p> <p>1.3 <i>Types of information created</i> through a debrief</p> <p>2.1 <i>Role of all participants</i> in a debrief</p> <p>2.2 <i>Providing relevant feedback</i> at a debrief</p> <p>3.1 <i>Maintaining records</i> of feedback collected in a debrief</p> <p>3.2 <i>Using information from a debrief</i> to evaluate and modify operational procedures</p>	<p>Required knowledge:</p> <ul style="list-style-type: none"> • Understand the purpose of the two main types of debriefs: 'hot debriefs' and 'formal operational debriefs' • Understand the established protocols and practices developed in the organisation to conduct a debrief • Understand key agenda items relevant to a Formal Operational Debrief including, incident history, review of operations, escalation, planning, logistics, operations, health and safety, community safety • Knowledge of relevant feedback to be discussed in a debrief including; call out, initial response, operational response, achievement of the incident objective, communication, logistical support, liaison with other services, saves and losses, success and challenges, OHS including PPE, and welfare considerations, requirements for other debriefs • Knowledge of methods of creating and maintaining debrief records • Understand how the information generated through a debrief is used to modify future operations <p>Required skills:</p> <ul style="list-style-type: none"> • Ability to observe and evaluate procedures during an operation to identify issues requiring notification through a debrief • Able to contribute information effectively to a debrief discussion • Ability to record information relevant to a debrief • Where necessary, ability to implement changes to protocols in an operational setting that occur to improve safety and efficiency of operations



<p>TETBNH308</p> <p>ADVANCED SITUATIONAL AWARENESS AND DYNAMIC RISK ASSESSMENT</p>	<p>1.1 Defining situational awareness specifically relevant to the BNH/EFM sector</p> <p>1.2 The importance of situational awareness in the BNH/EFM sector</p> <p>2.1 Defining dynamic risk assessment including both physical and cognitive responses to risk</p> <p>3.1 Achieving dynamic risk assessment in an operational context</p> <p>3.2 The different factors that need to be considered in a range of differing scenarios</p>	<p>Required knowledge:</p> <ul style="list-style-type: none"> • Understand why it is important to analyse the factors impacting a situation before you take action in a practical context • Understand how to access relevant information about this situation • Understand the TAKE 5 dynamic risk assessment process <p>Required skills:</p> <ul style="list-style-type: none"> • Ability to analyse a situation in order to plan actions as part of a team • Able to access information using the protocols and procedures of the organisation/sector • Ability to effectively apply the TAKE 5 process in a range of situations relevant to your organisation/sector
<p>TETBNH309</p> <p>REMOTE TACTICAL LEADERSHIP</p>		
<p>TETBNH310</p> <p>DEVELOP OPERATIONAL PLANS</p>	<p>1.1 Indigenous cultural traditions of The Dreaming and kinship systems that identify roles and responsibilities of people involved in BNH/EFM planning</p> <p>1.2 Over view of relevant policies guiding operational plans</p> <p>1.2 Understanding the strategic objectives of operational plans</p> <p>2.1 The purpose of operational plans</p> <p>2.2 The value of operational plans</p> <p>3.1 The key operational activities/tasks involved in BNH planning</p> <p>3.2 Timelines and sequencing tasks/activities involved in different types of operational plans including prevention/management and response</p> <p>3.3 Impact of geographical features on operational plans</p> <p>3.4 Appropriate task allocation to ensure suitable staff selected for different tasks and areas including volunteer, paid staff, and multi-agency events</p> <p>3.5 Planning logistics including equipment and other resources such as fuel, food required for operation(s)</p> <p>3.6 The extent of the operation, including the intensity and extent needed of different activities, for example back burning, the desired outcomes, for example patch burning, fire break size and quality; and the time allocation for specific tasks</p>	<p>Required knowledge:</p> <ul style="list-style-type: none"> • Understand the key elements of adaptive management in order to ensure continuous improvement in procedures and protocols used in operations • Understand the importance of detailed planning combined with the ability to modify actions in response to changing circumstances during an operation • Understand the purpose of operational planning and its crucial role in effective BNH management • Understand the established protocols and practices including traditional land management approaches used to plan a range of different types of operations to prevent and respond to natural hazards and undertake land management • Knowledge of methods of creating and maintaining operations records • Understand how this information is used to modify future operations <p>Required skills:</p> <ul style="list-style-type: none"> • Ability to work as a member of a cross-cultural team in order to plan operations informed by traditional Indigenous knowledge and relevant strategic policy documents • Ability to observe and evaluate procedures during an operation to make adjustments as required to achieve objectives • Able to contribute information effectively to operational planning • Ability to record information about operations to maintain an accurate record of events • Where necessary, ability to implement changes to protocols in an operational setting that occur to improve safety and efficiency of operations • Ability to modify actions during an operation as required by changing circumstances



	<p>4.1 <i>AllIMS and other procedures developed as part of the culture of the organisation</i> (what needs to be done,</p> <p>4.2 <i>Role of all participants</i> in developing an operational plan</p> <p>5.1 <i>Maintaining records of operational plans</i></p>	
PUAFIR2098 WORK SAFELY AROUND AIRCRAFT		
TETBNH312 OPERATE AERIAL INCENDIARY EQUIPMENT	<p>1.1 <i>Aerial incendiary equipment and materials</i> used in BNH and fire and emergency management</p> <p>1.2 <i>Correct and safe use</i> of this equipment in operational environments involved in EFM operations</p> <p>2.1 Practical application of the <i>National AFAC guidelines</i></p> <p>2.2 <i>Organisation protocols and procedures guiding aerial incendiary equipment use in the air</i></p> <p>2.3 <i>Organisation protocols and procedures guiding on-ground activities</i> during operations involving aerial support 2.4 <i>WHS procedures</i> during operations involving aerial support</p> <p>2.5 <i>Record keeping procedures</i> used in aerial operations</p>	<p>Required knowledge:</p> <ul style="list-style-type: none"> • Understand the AFAC Aerial Ignition Operations Guideline (Sept, 2012) • Organisation protocols and procedures for all aspects of aerial operations • How to prepare, use and maintain aerial incendiary equipment safely <p>Required skills:</p> <ul style="list-style-type: none"> • Ability to use aerial incendiary equipment during aerial operations • Ability to prepare, use and maintain aerial incendiary equipment safely

Table 3: Possible Articulation with Existing Courses

The suite of units summarised above covers information relevant to, and could be included as part of, the following existing VET Qualifications:

- PUA20613 Certificate II in Public Safety (Firefighting and Emergency Operations)
- PUA20713 Certificate II in Public Safety (Firefighting Operations)
- PUA30613 Certificate III in Public Safety (Firefighting and Emergency Operations)
- PUA30713 Certificate III in Public Safety (Firefighting Operations)
- PUA40613 Certificate IV in Public Safety (Firefighting Supervision)
- PUA40713 Certificate IV in Public Safety (Firefighting Operations)
- AHC10116 Certificate I in Land Management
- AHC21016 Certificate II in Land Management
- AHC31516 Certificate III in Indigenous Land Management

Courses currently offered at CDU articulate with these units. Examples includes:

- ENV207 Fire Ecology and management
- AHC Certificates and Diplomas offered through Conservation and Land Management



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