NORTHERN AUSTRALIAN BUSHFIRE AND NATURAL HAZARD TRAINING

Annual project report 2015-2016

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EXECUTIVE SUMMARY

This report outlines progress in the North Australian Fire and Natural Hazard Training project. The project is part of a program of action research projects based at Charles Darwin University entitled "Building Community Resilience in Northern Australia". This program includes both physical and social science research into natural and cultural processes that impact upon the vulnerability and resilience of remote north Australian communities.

The Building Community Resilience in Northern Australia program has a strong focus of participatory action research to encourage and enhance existing nodes of capability and excellence. The most prominent of these for fire and emergency management are remote Aboriginal Ranger groups. These groups have grown substantially in the last decade and have built a solid base of capacity by ensuring skills, knowledge and qualifications in relevant fields. In contrast to the more widely reported 'deficit' model of remote communities, communities with Ranger groups are moving to develop the social infrastructure that underpins disaster resilience; employment, social networks and communication.

The North Australian Fire and Natural Hazard Training project aims to provide a 'next-generation' training program that builds on these current assets in the north such as the ranger programs and leads to increasing levels of competence and confidence and in its turn, resilience. The project is a response to north Australian stakeholder concerns that existing training is inadequate for their needs.

The project was late to start, but has now completed 10 new training units and will ready for pilot delivery in 2016-17. In keeping with the participatory mode for the wider project in which the training project sits, ARPNet has been engaged to document critical local fire management knowledge and to facilitate workshops on traditional leadership as it relates to emergency management.

A key focus of the new training units is the development of a didactic approach to building an understanding of the differing world views about fire and emergency management and the ways these affect preparation and response, particularly to bushfires, but also other natural hazards. This is intended to build on existing knowledge of participants and lead to an understanding of the material rather than a more limited 'knowledge' of the subject matter. The incorporation of detailed local traditional knowledge regarding the management objectives and practices for different landscape units is crucial to instilling this deep understanding of fire and natural hazard management in a way that can be used effectively at a local level.

The project has made presentations to the Adelaide AFAC/BNHCRC conference, and the Research Advisory Forum in Hobart.

Four workshops involving Project team, experienced trainers and professionals working in the multitude of BNH related disciplines and Indigenous practitioners have been held in Darwin and other locations in the Top End. These have focused on deepening and fine tuning the content of particular units.

END USER STATEMENT

Suellen Flint, *Department of Fire and Emergency Services, Western Australia*

The "Bushfire and Natural Hazard Training for Northern Australia" is a part of a suite of projects entitled "Building Community Resilience in Northern Australia". This broader project has made considerable progress in engaging with remote north Australian communities to examine their perception of natural hazards and to begin to identify their needs in terms of building community resilience.

As Lead End User representative for the 'Understanding and Measuring Social Resilience' research cluster I have the luxury of seeing the results of the various projects and the strides they are making to better inform governments about remote community needs and better equipping those communities to manage their own disaster needs.

A key component of the "Building Community Resilience in Northern Australia" is the fact that it includes participatory action research. This has resulted in an awakening of awareness about natural hazards and their management in some of the communities involved in the project. For example, communities that previously had little understanding of the word 'resilience' are now actively exploring mechanisms to build it on their own. Invariably they acknowledge that there needs to be a partnership with emergency management and other government agencies and that 'shared responsibility' includes sharing their traditional knowledge of fire and natural hazard management effectively within the context of modern emergency management arrangements.

In this context the Bushfire and Natural Hazard Training for Northern Australia project has been working to incorporate detailed local traditional knowledge into training modules for delivery in those very communities. The project has engaged the Aboriginal Research Practitioners Network ("ARPNet") to facilitate workshops on emergency management leadership. ARPNet has also started a program of documentation of fire management objectives and techniques for various districts which are subject to the pilot study. Traditional 'fire leaders' are being interviewed in their own language about the types of fire regimes that are desirable in the various landscape elements of their clan estate and how that regime was (is) achieved. Like other elements of the wider north Australian program, this participatory research has sparked keen interest in the communities themselves.

In the next 12 months the finalisation of this process and the incorporation of high-quality local traditional knowledge into training materials will be followed by the pilot delivery and evaluation of that training. Already remote communities are expressing their views about what the training delivery should be like – including less focus on classroom activities and more on guided practical activities in different localities across the region.

When completed, including a detailed evaluation of the pilot course delivery, this project will provide a sound underpinning to the development of remote community resilience, in keeping with the objectives of the BNHCRC – but increasingly, in keeping with the aspirations of remote communities themselves.

INTRODUCTION

This report outlines progress in the North Australian Fire and Natural Hazard Training project. The project is part of a program of action research projects based at Charles Darwin University entitled "Building Community Resilience in Northern Australia". This program includes both physical and social science research into natural and cultural processes that impact upon the vulnerability and resilience of remote north Australian communities.

The key driver for the "Building Community Resilience in Northern Australia" project is the ongoing development of resilience through the life of the research project through its participatory action research approach. To do this the project has prioritised not just the inclusion of Indigenous people in the project at a range of levels, but also to focus on the social context of the delivery of disaster management services, exploring how power imbalances constrain development of resilience and trust between agencies and communities. The Bushfire and Natural Hazard Training for Northern Australia, to contextualise the materials and the process in an Indigenous world view as opposed to a western one.

The ongoing development of resilience through the life of the research project is to be achieved through two key mechanisms. First, the inclusion of remote communities themselves in the research, so that new skills and understandings can be absorbed into the capability set of the community through the execution of research. This model has been adopted in the past by the Darwin Centre for Bushfire Research, utilising the input of indigenous ranger groups and providing feedback and training to reinforce the quality of data capture and to provide a legacy of understanding of modern scientific techniques that can be utilised in fire and land management.

The second key mechanism for growing capacity through research is the use of indigenous researchers, particularly ARPNet, the Aboriginal Research Practitioners Network. This comprises teams of trained researchers from communities across the north who use a specially designed set of qualitative and quantitative research methods in a contracted research service. The use of ARPNet by the BNHCRC "Building Community Resilience in Northern Australia" program, including the Training progam, further enhances community resilience.

Perhaps the largest single opportunity for enhancing community resilience lies in the promotion and enhancement of existing nodes of capability and excellence. The most prominent of these for fire and emergency management are ranger groups. These groups have grown substantially in the last decade and have built a solid base of capacity by ensuring skills, knowledge and qualifications in fields as basic as driving a car to operating GIS.

North Australian Fire and Natural Hazard Training project purposes to provide a 'next-generation' training program that builds on the current assets in the north such as the ranger programs and leads to increasing levels of competence and confidence and in its turn, resilience. A crucial element of this is involvement in preparation and delivery of training programs that are tailored to the needs of the specific targetted community. The design of materials is therefore quite different from other training available currently.

PROJECT BACKGROUND

This project is an attempt to establish new and relevant training units in fire and emergency management in Northern Australia. By way of background, it is important to recognise that fire and emergency management in Northern Australia is quantitatively and qualitatively different to that in the south of the continent. The geographical scale of natural disasters such as cyclones, floods and bushfires are legendary. For fire alone, an average of 430,000 km2 is subject to fire annually, much of it in severe late Dry season fires that contribute to destruction of assets, environmental degradation and the majority of the region's greenhouse gas emissions.

The enormity of the scale of these disaster events is juxtaposed with a low population and confounded by the remoteness and poverty of resident communities.

Nearly 360,000 of the people living in northern Australia are in communities with varying degrees of remoteness from 'outer regional' to 'very remote'. These communities are predominately inhabited by indigenous Australians with the percentage rising in direct proportion to remoteness. Annual widespread flooding disrupts their lives and livelihoods, with many communities more than 150km from the nearest hospital becoming inaccessible by road for more than 90 days per year. Many communities are within 50km of the coast and are vulnerable to storm surge, erosion and sea level rise (18 cm in the last 20 years around Darwin). In the last decade cyclones and flooding have caused the destruction and evacuation of whole communities including some that have no incidence of cyclonic events in living memory.

While the disastrous numbers are impressive compared to southern Australia, it is perhaps the qualitative differences that underpin the need for a new suite of training materials. After all, fire is fire, flood is flood and it seems intuitive that the nature of preparation, response and recovery to each should be scalable and therefore applicable in any context. But stakeholders have made it clear that they believe that their needs and their world view have not been addressed in training to date.

There are three jurisdictions in the north. Both Queensland and Western Australia are politically and demographically centred south of the Tropic of Capricorn and their agencies have developed comprehensive training capabilities that are applied uniformly across each state. Inevitably these courses primarily treat with the emergency and fire management needs of the more populated areas, and these are predominantly in sub-tropical areas. The Northern Territory agencies generally adopts/adapts materials developed in more southerly jurisdictions.

It should be said that the training that is available is essentially sound and the support of northern Australian communities by agencies has typically been generous and accommodating. But the key qualitative differences matter to remote north Australians and importantly, addressing these issues may aid dealing with the quantitative issues raised above. In workshops and discussions the key qualitative difference seems to be world view or mind set.

While there is a strong narrative in southern Australia that 'we live in a bushfire-prone environment and we have to learn to live with it', this deterministic view is

not shared in the north. Here Indigenous Australians as well as pastoral land managers and agency personnel perceive the fire regime (in particular) as something that is malleable and responsive to human agency. Fire is a tool that can (and should) be used to achieve agreed landscape and local objectives including community safety, biodiversity, aesthetic, cultural, greenhouse and amenity outcomes.

Technologies and practices to achieve this are being shared and developed informally across the north, incorporating the best of modern scientific information and technology with ancient understandings of fire/land interactions. The West Arnhem Land Fire Abatement project (WALFA) has been an important catalyst in this sense. A regular program of planning and seasonal debrief meetings have been the source of a program of adaptive management to which fire and land managers from across the north have been keen participants. The capabilities that are being developed in participating communities and shared with others from Broome to Cairns have contributed to community resilience in both the growth of skills and knowledge, but also in increases in wealth and workplace participation.

The workplace participation is particularly relevant insofar as the work of fire and land management for the broad range of objectives mentioned above is fundamentally aligned with the aspirations and cultural preoccupations of many remote communities. Work is conducted on-country, with family, utilising traditional knowledge and achknowledging traditional owner's rights and responsibilities. This deep cultural affinity with land management as a lifestyle and responsibility, in addition to the notion of fire as a tool to be husbanded sets up an inevitable disconnect with much existing training derived from the southern Australian paradigm.

For this reason stakeholders in an early workshop sought to have the establishment of an overarching objective for training. The statement that training should "support north Australian needs and world view" has been adopted as an approximation of the complex of interwoven concepts discussed above. There is no similar stated overarching objective for the existing suite of fire and emergency management training. If there were such an objective it might be something like "to keep people safe". This is a laudable aim and one that is strongly supported by all north Australian practitioners, but as indicated, they seek more.

WHAT THE PROJECT HAS BEEN UP TO

REVIEWING EXISTING TRAINING AND EDUCATION

Twenty one courses ranging from Work Safely and Assist with Prescribed Burning (VET) through to Interdisciplinary Aspects of Emergency and Disaster Management (HE) appear to offer a broad suite of education packages for aspiring fire and natural hazard managers. They cover all hazards and a number are delivered in courses that place fire in the context of ecology (in both VET and HE streams) (see table 1). These offerings provide prospective students with high-quality training and profer qualifications that will enable graduates to access the workplace with skills and knowledge that are transportable across jurisdictions. There is no suggestion here that the offerings are in any way inadequate or in need of revision. They are what they are and provide a valuable contribution to fire, land and disaster management in northern Australia.

There remain however three areas where there is a perceptible gap which is addressed by the current project:

1. Fire management training is designed in southern Australia. It is valid in all its materials. It is not proposed here that they be replaced, but rather that they are added to.

2. Incorporation of indigenous knowledge and indigenous world view. These practices infused all aspects of the culture and thinking. Every person from birth had a role to play and learnt about fire and land management as intermeshed with their identity. Crucially traditional leadership and knowledge transferral systems are highly valued not least because they are essential to improving socio-cultural health in Indigenous communities, and they underpin efforts designed to strengthen traditional Indigenous cultural systems for future generations.

   It is now acknowledged that Aboriginal people managed the landscape using fire at the national scale and the knowledge and practices that underpinned that remain operational to varying degrees in the north. The incorporation of Indigenous knowledge and practices, as well as sensibilities is an essential component of any management regime established in remote north Australia.

3. Existing courses are distributed through the institution in different faculties, streams and settings. It can be speculated that an individual who completed all of the offerings would potentially be able to make a significant contribution to fire and emergency management, but this would not be as a unified qualification.

Qualification	Unit Description	Training Package	Location
Cert I CLM (AHC10110)	AHCOHS101A Work Safely (C)	AHC10	Cas (I, E, MM)
Cert 2 CLM (AHC21010)	AHCOHS201A Participate in OHS processes (C)	AHC10	Cas (I, E, MM) AS (p-time)
Cert 2 CLM (AHC21010)	PUAFIR204B Respond to wildfires	AHC10	Cas (I, MM)
Cert 3 CLM (AHC31410)	AHCOHS301A Contribute to OHS Processes	AHC10	Cas (I,M)
Cert 4 CLM (AHC31410)	AHCOHS401A Maintain OHS processes	AHC10	Cas (I, MM)
Cert 4 CLM (AHC31410)	PUAFIR303B** Suppress wildfire	AHC10	Cas (I, MM)
Cert 4 CLM (AHC31410)	PUAFIR407B Conduct prescribed burning (E)	AHC10	Cas (multimodal)
Dip CLM (AHC51110)	PUAFIR406B Develop prescribed burning plans	AHC10	Cas (MM). RPL-VEH
DEM514	Cultural, Social and Psychological Aspects of Emergency and Disaster Management	HE (Health)	Cas (I,E)
ENV507	Fire Ecology and Management	HE (Environment)	Cas (I,E)
ENV207	Fire Ecology and Management in North Australia	HE (Environment)	Cas (I,E)
DEM511	Emergency and Disaster Management in Context	HE (Health)	Cas (I,E)
DEM512	Interdisciplinary Aspects of Emergency and Disaster Management	HE (Health)	Cas (I,E)
DEM513	Leadership in Emergency and Disaster Management	HE (Health)	Cas (I,E)
DEM514	Cultural, Social and Psychological Aspects of Emergency and Disaster Management	HE (Health)	Cas (I,E)
DEM515	Reflective Case Study	HE (Health)	Cas (I,E)
DEM521	Research Project	HE (Health)	Cas (I,E)
ENV202	Introductory Remote Sensing	HE (Health)	Cas (I,E)
ENV502 (equiv unt SES201)	Remote Sensing	HE (Environment)	Cas (I,E)
HSC260 (equiv unit GPB401	First Humanitarian Mission (Project)	HE (Environment)	Cas (I,E)
PRBM019	Strategic Governance and Management	HE (Business)	Waterfront (I)
AHC10110 Cert 1 CLM	AHCOHS101A Work Safely (core)	AHC10	Bachelor TER, BAT, CAR, DPC
AHC10110 Cert 1 CLM	AHCOHS201A Participate in OHS processes (Elective)	AHC10	Bachelor TER, BAT, CAR, DPC
Cert 2 CLM (AHC21010)	AHCOHS201A Participate in OHS processes (C)	AHC10	Bachelor TER, BAT, CAR, DPC
Cert 2 CLM (AHC21010)	AHCFIR201A Assist with prescribed burning (E)	AHC10	Bachelor TER, BAT, CAR, DPC
Cert 3 CLM (AHC31410)	AHCFIR201A Assist with prescribed burning (E)	AHC10	Bachelor TER, BAT
Cert 2 CLM (AHC21010)	PUAFIR204B Respond to wildfires (E)	AHC10	Bachelor TER, BAT, CAR, DPC
Cert 3 CLM (AHC31410)	PUAFIR204B Respond to wildfires (E)	AHC10	Bachelor TER, BAT
Cert 3 CLM (AHC31410)	AHCOHS301A Contribute to OHS Processes (C)	AHC10	Bachelor TER, BAT
Cert 4 CLM (AHC31410)	AHCOHS401A Maintain OHS processes (C)	AHC10	Bachelor TER, BAT, DPC

Cert 4 CLM (AHC31410)	PUAFIR406B Develop prescribed burning plans (E)	AHC10	Bachelor TER, BAT, DPC
Cert 4 CLM (AHC31410)	PUAFIR303B Suppress wildfire (E)	AHC10	Bachelor TER, BAT, DPC
Cert 4 CLM (AHC31410)	PUAFIR407B Conduct prescribed burning (E)	AHC10	Bachelor TER, BAT, DPC
Cert I CLM (AHC10110)	AHCOHS101A Work Safely (C)	AHC10	Cas (I, E, MM)
Cert 2 CLM (AHC21010)	AHCOHS201A Participate in OHS processes (C)	AHC10	Cas (I, E, MM) AS (p-time)

TABLE 1

FIRE AND DISASTER RELATED TRAINING AVAILABLE THROUGH CDU

One thing that is apparent from the review undertaken here, is that the ease with which a prospective student can gain information about courses, pre-requisites and how to enroll is markedly easier through the BIITE website than the main CDU portal. In fact navigating the CDU site is relatively difficult, even for those with an existing tertiary qualification and this may prove a barrier for young people and clients with English as a second or third language who seek to gain a qualification, either through VET of HE at CDU.

PREPARING TRAINING UNIT DESCRIPTIONS

The core of this project is the development of new training materials; 'courses' or 'packages' that provide remote north Australian communities the skills and knowledge to manage landscape scale fire regimes as well as a range of other natural disasters. Notwithstanding that the final outcome of this development may be a suite of materials that are integrated into both VET and HE streams, a decision has been taken at the outset to design courses consistent with the VET framework. This will provide for the relatively straightforward mapping of courses into both VET and HE streams, as appropriate, toward the end of the project.

The unit description outlines the key information needed to deliver the course including a description of the Application of the Unit, Evidence Guide, Range Statement, Elements and Performance Criteria, Required Knowledge and Skills and Pre-requisites/Co-requisites.

WRITING TRAINING MATERIALS

The training materials will provide a complete package that will allow competent and qualified trainers to deliver a training program in collaboration with the audience's community which addresses the fire and natural hazard management processes pertinent to that community. Given that the audience resides in remote north Australia and that the material is targeted at the inculcation of the skills and knowledge to manage fire and natural hazards across the remote north Australian region, this material needs to be comprehensive, provide for the cultural sensitivities and language variations as well as reflect local knowledge and contexts.

To date drafts for pilot delivery have been produced for each course unit. A summary is provided in Table 2: 'Proposed training units and their current status'. These provide the basis for developing a course delivery phase but will need to be contextualised and added to to suit

the specific needs of the client group (see 'Applying Indigenous Fire Management Processes in North Australian Contexts (Local Variant)' below. Guidance for the course delivery team is provided in the Course Handbook, which outlines the philosophy and methodology to be employed to ensure delivery outcomes are achieved. This handbook is now an advanced draft. All materials will be refined following the pilot where evaluation will involve all participants and presenters appraising the strengths and weaknesses of the course units and their delivery.

A range of hands-on activities have also been developed. As with the assessment tasks these require the learner to use the information presented to inform their own situation by working through a process of re-thinking their own practice informed by the world view and information presented.

Training Unit/Course Title	Description	Current Status
TETBNH301 Non-Indigenous and Indigenous BNH Management Principles	New Unit	Draft Unit descriptor and training materials completed
TETBNH302 Applying Indigenous Fire Management Processes in North Australian Contexts (Local Variant)[1.]	New Unit (adapted from existing materials)	Draft Unit descriptor and training materials completed, awaiting incorporation of local fire knowledge from testimony
TETBNH303 Community Engagement and Cultural Protocols (Local Variant)	New Unit	Draft Unit descriptor and training materials completed
TETBNH304 Fire Management and the Law	New Unit	Draft Unit descriptor and training materials completed
TETBNH305 Dgital Maooing Tools Used In BNH Management	New Unit	Draft Unit descriptor and training materials completed
TETBNH306 Apply Standard Operating Procedures (SOPs)	New Unit (adapted from existing materials)	Draft Unit descriptor and training materials completed
TETBNH307 Participate in Debrief (Local Variant)	Existing non-accredited Unit	Draft Unit descriptor and training materials completed
TETBNH308 Advanced Situational Awareness and Dynamic Risk Assessment (Local Variant)	New Unit (adapted from existing materials)	Draft Unit descriptor and training materials completed
TETBNH309 Remote Tactical Leadership	Existing non-accredited Unit	To be adapted for target groups
TETBNH310 Develop Operational Work Plans	New Unit	Draft Unit descriptor and training materials completed
TETBNH311 Work Safely Around Aircraft	Existing Unit (adapted for target groups)	Draft Unit descriptor and training materials completed
TETBNH312 Operate Aerial Incendiary Equipment	Existing non-accredited Unit	Draft Unit descriptor and training materials completed

TABLE 2
PROPOSED TRAINING UNITS AND THEIR CURRENT STATUS

Throughout the development of these materials key expert advice and involvement has been sought to ensure the unit information and materials maintain relevance and currency. This has involved a number of actions over the last 12 months. Workshops focussing on specific aspects of the materials has helped to deepen and refine the content of materials and the methods of delivery that suit client audiences. For example the units that deal with operational protocols and procedures have been developed in consultation with experienced practitioners and trainers from Bushfires NT and CFS SA as well as Indigenous rangers and Traditioners Owners and Managers and non-indigenous stakeholders reponsible for land management in the Top End.

A great deal of consideration has been (and will be) given to the mode of delivery in order to cater for learning that involves presenters from a range of cultural backgrounds and "the voice" of all stakeholders is presented through a range of different materials such as film clips and recounts. The broader Australian situation is examined so that regional and jurisdictional differences can highlight the range of different ways that this work is undertaken and the factors that influence these differences.

One important element of the attached teaching materials is the fact that it is not set out as a sequence of 'facts to be learned'. This has become a common strategy for much of competency based training; the modern equivalent of 'chalk and talk' where instructors work serially through a logical set of steps and students follow, doggedly trying to remember things because they will be tested on them later. The objective here is to 'pass the test' as opposed to 'understand the material'. Without detracting from the unit descriptions, which must necessarily outline skills, knowledge and range statements etc the project has set out to establish a transformative pedagogical approach. This establishes a didactic context where the deeper scaffolds of the information are understood. The key element underpinning this approach is, again, the differing world view current in remote north Australian populations, which is in turn predicated upon a vast bed of traditional knowledge of the landscape, fire and natural hazards.

EXPLORING TRADITIONAL INDIGENOUS TACTICAL LEADERSHIP

An important focus for the project in the last quarter has been to explore alternative leadership models in order to complete the unit TETBNH309 Remote Tactical Leadership. Existing leadership units currently informing the Fire and Emergency management sector are informed by a structured hierarchical leadership model reflecting origins in the armed forces and based upon western concepts of power, command and control. It is not the intent of this project to in any sense denigrate or undermine these systems. It is fair to note however that they have been less effective in optimising human resources in remote situations largely because they have been less effective in facilitating cross-cultural operations. This is in large part due to the cultural settings in which they are established. In non-aboriginal society leadership can be determined through a range of means including election or appointment. Leaders are clearly designated and given rank (eg: "Level 3 Incident Controller") and this is universally accepted by the participants in the activity or organisation.

In Aboriginal society leadership is inherited and relates specifically to the totemic affiliations of one's ancestors and to the designated tracts of country for which those affiliations apply. Consequently, the 'appointement' of an individual to a position of leadership in a non-aboriginal context can, and does, lead to failure in many instances. This is due to the fact that participants in the organisation or activity will only accept the authority of the leader within the correct totemic and locative affiliations. Outside those parameters decisions of the 'leader' have no weight and are likely to be ignored, even in circumstances where the leader has considerable personal authority and charisma.
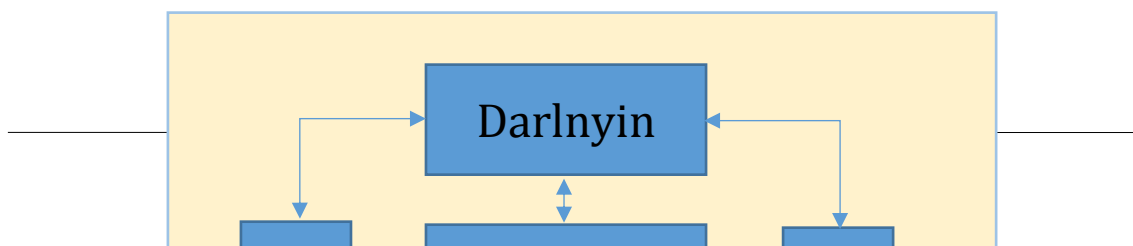
FIGURE 1

TACTICAL LEADERSHIP MODEL FOR CLAN ESTATES IN WEST ARNHEM LAND1[1]

Figure 1 is a first approximation of the leadership arrangements for making decisions about land (and natural hazards) in several communities in western and southern Arnhem Land. It does not purport to represent all, or even most, Aboriginal communities, but it does seek to portray a model of leadership that is markedly different to that of the 'standard' emergency management model in Australia.

In the diagram a complex series of interactions requires that individuals fulfil specific roles in attending the decision-making process. The Darlnyin is 'the big boss' but refers to the Djungkayi, 'the manager', the 'Mingkirrinji' and the wider family in taking a decision. If the decision has regard to fire then the 'firemen' – senior men with totemic affiliation and deep practical knowledge of fire – are critical players. Indeed the Darlnyin may also be a fireman. The Njirri is a similar to an auditor and ensures that proper protocols are observed throughout the process. Unlike western auditors however, the Njirri, with agreement of the many clans may also effect punishment for breaches of protocol.

In addition to these 'statutory' considerations, decisions need to be made that reflect the universal dichotomy of people and land into Dhuwa and Yirritja. All people and all parts of the landscape are designated Dhuwa or Yirritja and no decision is made without affecting a balance between the two.

The Darlnyin is the 'big boss' for a clearly defined area of land and their authority will not be acknowledged beyond those bounds. As an individual the Darlnyin may become a 'follower', participating in an activity in a subordinate role on another clan's country.

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[1] This is a first-approximation in the sense that it summarises testimony of a number of indigenous land managers from a range of communities. It will require further verification during future workshops.

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The project is attempting to incorporate the concepts associated with this hereditary land-oriented leadership into a training unit to aid partcipants integrate contemporary emergency management decision making protocols and traditional practices in their own clan estates.

FIGURE 2.

PARTICIPANTS IN THE TRADITIONAL TACTICAL LEADERSHIP WORKSHOP 20 MARCH 2016 AT THE RESEARCH INSTITUTE FOR THE ENVIRONMENT AND LIVELIHOODS, CHARLES DARWIN UNIVERSITY. L-R, BACK; CHARLIE BRIAN, MARSHALL CAMPION, EDDIE PHILLIPS, MIKE REDFORD, GEOFF CAMPION MARLIWANGA. FRONT; HEADLY BRIAN, JACK NAWILIL, DEAN YIBARBUK.

The workshop on tactical leadership attracted strong interest in the community with a number of participants making a special effort to attend. The discussion about emergency management, leadership and natural disasters lead to some vibrant conversation. When these senior men were asked about previous interaction between authorities or researchers and themselves through the direct question "has anyone ever talked to you about this before?" They answered immediately and loudly "No!", "Never!", "Nothing!"

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APPLYING INDIGENOUS FIRE MANAGEMENT PROCESSES IN NORTH AUSTRALIAN CONTEXTS (LOCAL VARIANT)

As stated previously, the Northern Australian Bushfire and Natural Hazard Training project seeks to develop training that provides remote north Australia fire and emergency managers with a clear understanding of the philosophical and practical underpinnings of the north Australian regime. This is markedly different to that in southern Australia due to history, geography and demography and is informed in large part by a substantial corpus of traditional land management knowledge stored in Aboriginal communities across the region. A training unit has been prepared to provide this wider context and situate each participant's personal understanding of fire and natural hazards (derived from traditional and contemporary sources).

Having set out the wider context for the fire and natural hazard approaches applied in the north, a training unit is being prepared that brings the wider concept 'down to earth' by examining the mechanisms through which that broader understanding is applied in a practical local setting. Standard elements of fire management (fuel loads etc) are included in this information, but the point-of-difference lies in the acquisition and documentation of traditional local practices applied at a district level.

A program of documentation of this local knowledge has been undertaken by engaging with ARPNet for each of three communities which will be the base for the training pilots. A senior ARPNet practitioner Mr Otto Bulmaniya Campion, himself a fire manager, has been conducting interviews with senior firemen and Djungkayi for the communities of Gunbalanya, Maningrida and Ramingining. The program of interviews seeks to generate materials specific to the local district that reflect the rationale for the preferred fire regime in different habitats through each district, together with the timing of fire management operations required to achieve that fire regime.

Informants have been asked to talk about the past fire regime and how it differs from that in place at present and to consider what the future of fire management in the district should look like. This last element incorporates speculation of course, but includes thinking about the interactions of climate change and future economic opportunities through greenhouse emissions abatement and sequestration and other payment for environmental service industries. While these will necessarily be built on traditional indigenous fire knowledge (indeed the carbon farming initiative includes the first statutory reference to traditional Aboriginal fire management practice) they will incorporate variations required to guarantee emissions reductions in the future.

The information generated for the project for this 'local variant' course from interviews will belong to the community – negotiations have started to find an effective means to 'house' this information in a way that is easily accessed by trainers and the community delivering courses, but curated in such a way as to ensure any intellectual property rights the custodians may wish to assert now or in the future.

FIGURE 3 (LEFT). JACK NAWILIL, SENIOR FIREMAN AT BOLKJAM.

FIGURE 4 (ABOVE). PATTERN OF MOVEMENT AND FIRE IN THE BOLKJAM DISTRICT.

Again, the research has involved active participation of members of the communities in which the training will be provided in the development of the training materials. This has stimulated a strong interest in the program and frequent requests for more meetings and discussion in order to grow the recognition of the importance of the work.

ESTABLISHING EVALUATION PROGRAMS

Evaluation of the project has been embedded into its development and delivery. Two distinct evaluation components have be established to ensure the quality of the material produced is high, but moreover, to ensure that the objective of providing training that speaks to the needs of the stakeholders is achieved.

Dr Petra Buergelt is working on the evaluation of the development of the training. This involves reviewing material as it develops and most importantly, facilitating and participationg in review workshops with stakeholders. The first of these on 28 March 2015 has been followed up with a questionnaire of participants. Initial feedback from the evaluation process has been positive, albeit with recommendations for changes and improvements to specific elements of the course material.

A second element of the evaluation is being undertaken by ARPNet. Dr Bev Sithole has agreed to support the project by engaging ARPNet to evaluate the delivery of pilot training in communities. This work, which will be undertaken at the time of pilot course delivery, will be a significant enhancement to the project because of the nature of ARPNet research. The evaluation will be undertaken by local people from the relevant remote communities, working within their respective languages and cultural contexts using tools developed for the project specifically. This promises to generate a detail and authenticity in the evaluation that transcends more common 'tick and flick' course evaluation.

ENGAGEMENT WITH STAKEHOLDERS

The project coordinator has engaged with stakeholders and the members of the BNHCRC throughout the year.

15 July 2015. Presentation to BNHCRC Board together with projects comprising the "Building Community Resilience in Northern Australia" suite of research.

1-3 September 2015. Presentation of a poster at the AFAC/BNHCRC conference in Adelaide. An oral presentation was presented at the previous conference and there was considerable interest in the progress of the project during informal discussions in Adelaide.

7 September 2015. A 'protocols for engaging remote communities in BNH' meeting was held in Adelaide following the conference. A number of the discussions from this meeting were videod and will provide material for inclusion in training materials.

17 February 2016. Building Community Resilience in Northern Australlia; Resilience project stakeholder workshop. Representatives from agencies in WA, NT and Queensland.

19 – 20 March 2016. Traditional Tactical Leadership Workshop Research Institute for the Environment and Livelihoods CDU, Darwin.

11-12 May 2016. Research Advisory Forum in Hobart. Presentation on traditional Aboriginal leadership, as seen in northern Australia.

Various.

WHAT NEXT

The key agenda items for the next year include:

- Finalise development of training unit descriptions
- Finalise development of training course materials
    - Incorporate traditional local fire management knowledge into modules for pilot delivery
- Deliver pilot training sessions at three north Australian communities
- Evaluate pilot training
- Feedback evaluation data into revisions of training materials and documentation.
- Document training/education pathways
- Reviewing new materials in the context of key emergency management training needs.

CURRENT TEAM MEMBERS

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