

Review of fire recovery planning in two regions of New Zealand

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Client Report No. 16680

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Date: February 2009 Client: Foundation for Research, Science and Technology Contract No: C04X0403

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EXECUTIVE SUMMARY

Objective

A study to determine the current existence of recovery processes for New Zealand rural fires was undertaken. The review will form the basis for further research into the development of recommendations for improved rural fire community recovery methods. In addition, it will allow for the assessment of present intentions that can be updated over time to determine whether community resilience and recovery research recommendations are adopted.

Key Results

The major findings of the study were that Rural Fire Authority (RFA) fire plans, although conforming to the legislative requirement of headings under the 4 Rs of Reduction, Readiness, Response and Recovery, vary in detail between the sections. Recovery is noticeably the shortest section of all the plans. Different RFAs also vary in the detail they accord to their recovery sections, therefore provisions for rehabilitation and recovery are very much affected by the location in which the fire takes place.

Community recovery was not included within any of the RFA fire plans that were studied. In addition most are not easy for the public to access. To varying degrees, the plans include assistance for firefighters and fire equipment. There is also a range of requirements for the repair of fire suppression damage, which can have major consequences for landowners and communities that have suffered rural fires. Rural fires are usually quite small scale in New Zealand, without loss of life. Although the RFA plans do not all undertake to routinely repair the effects of fire suppression damage, such as repairing fences, many do allow for extra recovery assistance on a case by case basis, which would cover more significant and damaging fires.

Further Work

Examples of best practice do exist within the fire plans that were studied, and have been highlighted throughout the report. These will inform further work by the Scion Rural Fire Research Group. The most appropriate way to include assistance for community recovery needs to be considered. The research also highlights the need for further in-depth work on the best way for New Zealand to improve its fire recovery plans to ensure that all areas have cohesive recovery processes in place.

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1. INTRODUCTION

New Zealand is considered particularly vulnerable to natural disaster. New Zealand's position within the geologically active Pacific Ring of Fire makes it prone to volcanic activity and earthquakes. The country is also susceptible to severe weather related events such as floods, slips and cyclones. In addition, New Zealand has experienced infrequent rural fire events throughout its history. Strong winds, often associated with high temperatures, low humidity and seasonal drought combine to produce dangerous fire situations (Pearce et al., 2003). As a consequence New Zealand has a reasonably comprehensive Civil Defence Strategy that uses the 4 R's model of Reduction, Readiness, Response and Recovery (Britton, 1994).

Although New Zealand does not suffer rural fires on the scale of those that are experienced in other regions of the world such as the United States or Australia, rural fires do occur and have the potential to have devastating impacts upon local communities and individuals. New Zealand experienced an average of 3,033 rural fires and 5,865 ha burned annually from 1991 to 2007 (Doherty et al., 2008). The annual number of rural fires has increased from about 1,000 in the early 1990s to over 4,000 fires in 2006/07. While the majority of rural fires in New Zealand are vegetation fires in non-populated areas, some fires have impacted on rural communities causing loss of houses or farm buildings, and have necessitated evacuation of residents from threatened properties. Such affected communities have included: Springvale, Alexandra in February 1999 (McNeil and Bennett, 1999); Wither Hills, Blenheim in December 2000 (Graham and Langer, 2008); West Melton, near Christchurch, in December 2003 (Kelly et al., 2008); Mt. Somers, mid-Canterbury, January 2004 (Jakes and Langer, 2008); Closeburn, Queenstown, November 2005; and Mahia Beach, Wairoa, February 2008. The cost of damage caused by rural fires is not currently measured. The most apparent costs are direct costs associated with property damage, fire suppression, recovery and loss of income, although these may be offset in some cases through insurance or salvage (Pearce et al., 2008). However, fires can also result in significant indirect costs, e.g. road, rail or powerline damage or closures, erosion, water supply contamination, loss of biodiversity, nutrient loss, smoke pollution and effects on human health (mental and emotional effects, post-traumatic stress). Financial, environmental and social implications all need to be considered in assessing a fire's overall impact (Pearce et al., 2008).

This study examined the recovery planning of individual Rural Fire Authorities (RFAs) and national agencies for rural fire events. The aim of this research was to determine the current recovery processes for rural fires that have been documented in rural fire plans. Fire plans from two regions of the country were scrutinised for their provisions for recovery following a potential rural fire event. Baseline findings, and examples of good practice, have been documented and will contribute to further research by Scion into the development of improved community recovery methods. This research concentrates solely on the Recovery parts of fire plans, and not on Reduction, Readiness or Response.

2. CONTEXT

2.1 Fire as a natural hazard

Rural fire is covered by its own legislation (NZ Fire Service Act 1975, and Forest and Rural Fire Act 1977 and Regulations) that prescribes fire management responsibilities and fire control requirements. Fire is also identified as a 'natural hazard' in the Resource Management Act 1991 and as an 'emergency' in the Civil Defence and Emergency Management (CDEM) Act 2002. However, fire is not universally accepted as a 'natural hazard' by local government (Regional and/or District Councils), CDEM or natural hazards experts. Therefore there is a distinction between the treatment of fire as a natural hazard covered by CDEM recovery plans (which are usually generic, covering community welfare, lifelines, etc., and make no specific mention of fire) and fire suppression recovery covered by Rural Fire Authority fire plans (i.e. reinstatement of response capability and fireground remedial actions).

2.2 Recovery

Knowledge of community resilience to, and recovery from, rural fires is essential to improve social recovery methods in New Zealand. Recovery includes the physical, mental and emotional effects of disaster as well as effects on livelihoods, income and assets. New Zealand's holistic framework for disaster recovery has grown from a symposium on recovery (Norman, 2004) and information provided to the Civil Defence and Emergency Management (CDEM) sector (Ministry of Civil Defence Emergency Management, 2005). In the more recent direction provided by Norman (2006), while emphasising the importance of a holistic approach to disaster recovery, it is stated that "Recovery extends beyond just restoring physical assets or providing welfare services. Successful recovery recognises that both communities and individuals have a wide and variable range of recovery needs and that recovery is only successful where all are addressed in a coordinated way. Recovery is a process that will certainly last weeks and months but may extend for years and possibly decades."

Recovery is a development and remedial process encompassing the following activities (Norman, 2006):

- minimising the escalation of the consequences of the disaster;
- rehabilitating the emotional, social and physical well-being of individuals with communities;
- taking opportunities to adapt to meet the physical, environmental, economic and psychological future needs; and
- reducing future exposure to hazards and their associated risks.

2.3 Civil Defence Emergency Management

The Ministry of Civil Defence was founded in 1999. In 2002, in recognition of the all hazards approach and broader emergency management role, it became the Ministry of Civil Defence and Emergency Management with the introduction of the CDEM Act 2002. CDEM concentrates on making New Zealand and its communities resilient to hazard and disaster. The Ministry adopts the 4 R's Risk Management approach of Reduction, Readiness, Response and Recovery. It defines recovery as: 'The coordinated efforts and processes to effect the immediate, medium and long term holistic regeneration of a community following a disaster'.

Under the CDEM Act 2002, each Territorial Local Authority (TLA) must have a CDEM plan, a CDEM Controller who is empowered to request a State of Emergency, and a CDEM group which is a group of elected officials constituted under the Act that appoints a Recovery Manager. A Recovery Coordinator is appointed by the Minister of Civil Defence if the scale of the event is too large for the CDEM group to manage. Responsibility for recovery activities (as detailed in the CDEM Act 2002) requires Regional, District and City Councils and CDEM groups to carry out recovery and empowers them to do so. It allows flexibility in how recovery is undertaken so that it can be suited to local needs and changed as best practice develops.

The Ministry of Civil Defence and Emergency Management takes a holistic approach to large disasters, and therefore does not target rural fire specifically. Responsibility for fires lies with RFAs in rural areas, and the New Zealand Fire Service (NZFS) in urban areas. However, a request can be made for a fire to be declared an emergency/disaster under the CDEM Act 2002 for a number of reasons, including lack of resources, requisitioning materials, labour or machinery, or because of a break-down in civil order or other threats to safety.

CDEM plans examined as part of the research all use the 4 R's approach but are, understandably, very generalised. The plans are intended to be operationalised by local CDEM organisations to fit their specific needs, and tend to outline the general principles, detail who is responsible for the various activities and little else. Fires (nor indeed any other emergency) are not covered specifically.

2.4 Rural Fire Authorities

The National Rural Fire Authority (NRFA), as the rural division of the New Zealand Fire Service Commission, has responsibility for rural fire coordination outside of urban areas and implements the provisions of the Fire Services Act 1975 and the Forest and Rural Fires Act (FRFA) 1977. The NRFA coordinates the work of the some 90 RFAs that have the legislated responsibility for rural fire control. These RFAs fall into four categories:

- Department of Conservation (DoC) for state areas;
- New Zealand Defence Force for fires within its own lands;
- Rural Fire District (RFD) Committees for specially Gazetted areas; and
- Territorial Authorities for all other rural areas.

Territorial Local Authorities (TLAs) are responsible for managing fires on nearly half of New Zealand's land mass, with DoC responsible for 30% and Rural Fire District Committees 22% (see Table 1).

| Fire authority | Area of responsibility | Percentage of NZ |
|--------------------------------|--------------------------------|-------------------|
| | | land mass covered |
| DoC | State areas | 30% |
| NZ Defence Force | Defence Force land | Small areas |
| Rural Fire District Committees | Specially Gazetted areas | 22% |
| Territorial Local Authorities | All other rural areas | 46% |
| New Zealand Fire Service | Cities, towns, small | 2% |
| | communities under Fire Service | |
| | Act 1975 | |

Table 1: Areas of responsibility of fire authorities.

Each RFA is responsible for developing a fire recovery plan. The New Zealand Fire Service Commission's statement of intent (2006-09) includes ensuring that 98% of RFAs adopt a fire plan and provide a copy to the NRFA¹. The Forest and Rural Fires Regulations (2005) require each RFA to adopt a fire plan that sets out its policies and procedures under the 4 R headings of Reduction, Readiness, Response and Recovery². The Readiness and Response parts of each plan must be reviewed every two years, and the Reduction and Recovery parts must be reviewed within five years of adoption³.

Regulation 46 identifies what authorities need to include in the recovery section of their fire plans⁴. The policies and procedures must include details in relation to the following matters:

- health and safety of personnel;
- fire operational reviews; •
- operational debriefs;
- post-fire investigations; and
- any other recovery activities that occur after a fire has been contained.

Recovery elements required within fire plans are therefore very different from recovery as defined by CDEM.

OBJECTIVE OF RESEARCH 3.

Any natural disaster can have short, medium and long term negative consequences for individuals and communities in terms of the physical, mental and emotional effects of disaster, as well as detrimental effects on livelihoods, income and assets. Research on community resilience to, and recovery from, rural fires is essential to improve social recovery methods in New Zealand.

This research has used a review process to determine the current existence of documented recovery processes for New Zealand rural fires. The review will form the basis for further research into the development of recommendations for improved rural fire community recovery methods. The research also allows for the assessment of present intentions that can be updated over time to determine whether community resilience and recovery research recommendations are adopted (and subsequently implemented).

4. METHODOLOGY

Two regions of New Zealand were selected for review: Canterbury in the South Island, and the Central North Island of the North Island. Both areas are particularly

¹ New Zealand Fire Service Commission, Statement of Intent 2006/2009

http://www3.fire.org.nz/CMS_media/pdf/34592d88b3a9c8273cab049ef19c1d69.pdf, accessed 16.12.08 Regulation 39,

http://www.legislation.govt.nz/regulation/public/2005/0153/latest/DLM333060.html#DLM333060 accessed 04.12.08 Regulation 40,

http://www.legislation.govt.nz/regulation/public/2005/0153/latest/DLM333061.html#DLM333061. accessed 16.2.09

⁴ Regulation 46.

http://www.legislation.govt.nz/regulation/public/2005/0153/latest/DLM333071.html, accessed 04.12.08

vulnerable to rural fire. In general, the eastern and northern parts of both the North and South Islands tend to have the most severe fire climates, as they are prone to foehn wind and drought conditions (Pearce and Clifford, 2008), and there are extensive areas of rural land. Both regions also have a history of significant fire events in plantation forests as well as other vegetation types (Pearce and Alexander, 1994; Pearce et al., 2000).

Eleven rural fire plans in the form of internet files, CDs and hard copies were obtained for most RFAs within both regions. Table 2 shows the Councils for whom fire plans were obtained (generally hard copies) and, where applicable, web addresses. The eleven fire plans studied represent all the Canterbury RFA fire plans and about 70% of the fire plans for the Central North Island Regional Rural Fire Committee area (Rotorua and Taupo TLA district fire plans were not accessed).

The study also examined the DoC National Fire Plan (for fires on DoC land). Provision for recovery in this plan is described separately from the data presented on the RFA plans as it different in its approach and is limited to DoC land. Environment Canterbury, although not a RFA, has produced a fire plan as it manages significant amounts of land and forests in the greater Christchurch area and therefore assists with rural fires. However since ECan's fire plan does not follow the 4 R's structure, and has no specific section on recovery, it has not been included in this study.

Each of the eleven RFA fire plans was reviewed to assess the recovery processes, in particular the plans for community recovery. To allow for as much detail as possible, and the ability to update the research, the recovery provisions were entered into a spreadsheet. This allowed comparison of the plans under separate headings. The construction of the spreadsheet also allowed examples of best practice to be identified, and these have been included in this report to aid further research.

| | RFA type | Date of plan | Internet availability |
|-------------------------------|----------|-------------------|--------------------------|
| CANTERBURY | | | |
| Ashburton | TLA | 2007 | No |
| Christchurch City | TLA | 2007 | No |
| Hurunui | TLA | No date provided | No |
| Selwyn | TLA | August 2005 | Yes⁵ |
| South Canterbury | RFD | 2007 | No |
| Waimakariri | TLA | April 2008 review | No |
| CENTRAL NORTH ISLAN | D | | |
| Lake Taupo | RFD | September 2007 | No |
| Opotiki | TLA | September 2007 | No |
| Pumicelands | RFD | 2008 | No |
| Western Bay Moana | RFD | September 2007 | No |
| Whakatane | TLA | September 2005 | Yes ⁶ |
| OTHER DOCUMENTS | | | |
| DoC National Fire Plan | DoC | 2008 | No |
| Environment Canterbury (ECan) | n/a | 2007 | No |

⁵ http://www.selwyn.govt.nz/cdem/Selwyn District Fire Plan 130705.pdf, accessed 16.12.08

⁶ http://www.whakatane.govt.nz/services/emergencymanagement/ruralfire.htm accessed 19.11.08

5. RESULTS

5.1 Availability of plans

Online searches showed that recovery actions to be followed after a large scale emergency are well publicised through such avenues as the CDEM website⁷. However, there is much less public information regarding the recovery process following a rural fire.

Although RFAs are required to keep and maintain up-to-date fire plans organised under the 4 R headings, ease of public access to these plans varies. The Forest and Rural Fires Act 1977⁸ requires that fire plans are accessible to the public, but only at the most basic level: that they are "available for public inspection, free of charge, at the office of the Fire Authority during ordinary office hours." Fire plan accessibility could be improved by making them available online.

Of the eleven RFA fire plans that were examined, only two of the fire plans were available online (see Table 2). In addition, DoC's National Fire Plan was not available on the internet on their otherwise comprehensive public website. Easy public access to fire plans could assist in planning activities and providing recovery information for individuals and communities who may be, or have been, affected by fires.

Best Practice: Fire Plan Availability

• Make fire plans readily available, including online publication.

5.2 Detail of recovery sections

The Forest and Rural Fires Act 1977 requires that the recovery sections of RFAs' fire plans include details relating to:

- health and safety of personnel;
- fire operational reviews⁹;
- operational debriefs¹⁰;
- post-fire investigations¹¹; and
- any other recovery activities that occur after a fire has been contained.

⁸ Forest and Rural Fires Act, 1977 Section 12(4,4A,4B)

⁷ <u>http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-Recovery-</u> Index?OpenDocument accessed 16.12.08

http://www.legislation.govt.nz/act/public/1977/0052/latest/DLM443285.html#DLM443285 accessed 17.12.08

⁹ Fire operational review means an independent assessment of a significant fire in a Fire Authority's district carried out under the procedure developed by the NRFA under section 14A of the Fire Service Act 1975.
¹⁰ Operational debrief means the internel assessment have Fire Authority for the internel assessment have Fire Authority for the internel assessment have Fire Authority for the internel assessment of a significant fire in a Fire Authority's district carried out under the procedure developed by the NRFA under section 14A of the Fire Service Act 1975.

¹⁰ Operational debrief means the internal assessment by a Fire Authority of a fire in its district carried out under the procedure developed by the NRFA under section 14A of the Fire Service Act 1975.

¹¹ *Post-fire investigation* means an investigation by a Fire Authority to determine the point of origin and cause of a fire.

The majority of the recovery sections of fire plans are very brief (generally three pages or fewer), which contrasts with the detail given for the other three Rs. However some extend to 13 or 14 pages, such as those for the Hurunui and Waimakariri districts in Canterbury, which include extensive information about cost recovery and operational reviews. Although the recovery sections themselves make no reference to local situations, probabilities and magnitude of fire effects, this information is often included elsewhere in each fire plan. However no details are given on probable outcomes of fires, time for recovery, community effects or damage to infrastructure. None of the RFA fire plans in the two regions studied contains any mention of community recovery following a fire event. Instead the focus of recovery requirements is confined to the RFA personnel and agencies. Although some communities have received help from charities such as the Salvation Army and Victim Support following a rural fire (e.g. Mt. Somers fire, January 2004), this is neither routine nor evident in the planning.

The DoC National Fire Plan has a more extensive recovery section than the other RFA plans. The DoC plan details who in the Department is responsible for managing the recovery effort, fire suppression cost recovery, post-fire investigations, operational debriefs, and establishes the magnitude of a fire that will prompt an Operational Review. In addition, it outlines the steps for restoration and rehabilitation of land after fires, including the scale of fire and benefit of suppression, and scale of damage and prevention of further damage from post-fire consequences including water erosion, weed invasion, or damage to Natural Heritage values. It also specifically recommends that local communities are included in restoration and rehabilitation of land. This fire plan states clearly that fires that originate outside DoC land are not the Department's direct financial responsibility. However, in common with RFA fire plans, it does not cover any specific assistance for community recovery. As mentioned above, the DoC National Fire Plan has not been included in the following analysis as it is specific to DoC land.

5.3 Provisions for firefighter and fire force recovery following a fire event

Volunteer fire crews are integral to fire suppression in New Zealand. Eighty-seven percent of the total (rural and urban) firefighting labour force are volunteers. The rural fire system is staffed almost entirely by its 3000 volunteers (Department of Internal Affairs, 2004). However, in keeping with a lack of detail in the recovery section of separate fire plans, few make specific mention of firefighting crews.

The recovery phase of a fire incident is taken to start as soon as the declaration of an emergency is lifted. Table 3 illustrates the economic and well-being provisions the various fire plans make for firefighter and fire force recovery during a rural fire event. Discussion of these results follows in the subsequent subsections.

| Area | Reconstitute rural fire forces, facilities and services | Payment of volunteers | 'Critical incident stress debrief' or stress or victim support and crisis management |
|-------------------------|---|--------------------------|---|
| CANTERBURY | | | |
| Ashburton | No | No | Yes |
| Christchurch City | No | No | Yes |
| Hurunui | Yes | Yes | No |
| Selwyn | No | No | No |
| South Canterbury | No | No | Yes |
| Waimakariri | No | Yes | Yes |
| CENTRAL NORTH ISLAND | | | |
| Lake Taupo | No | No | Yes |
| Pumicelands | No | No | Yes |
| Opotiki | No | No | Yes |
| Western Bay Moana | No | No | Yes |
| Whakatane | No | No | Yes |

Table 3: Firefighter and fire force recovery

5.3.1 Reinstatement of fire suppression capability

There is a need to service and re-equip firefighters and their equipment to make them ready to respond to another fire. This includes ensuring the welfare of firefighting personnel (food and rest), and reinstatement of equipment (refilling tankers with water, refuelling of vehicles and pumps, servicing of mechanical problems, cleaning of hoses, replacement of used foam and retardant stocks, and making other equipment ready for reuse).

Hurunui fire plan's recovery section includes the provision "to reconstitute volunteer rural fire forces, facilities and equipment that have been used for rural fire suppression to a point where they are ready for subsequent deployment." However, the other RFA plans make no mention of such recovery requirements (unless these activities are included within the response section of fire plans).

5.3.2 Economic reimbursement of personnel and equipment

Volunteers in particular spend many hours fighting fires and responding to fire call outs. During a major disaster such as rural fire, this might extend to several days or more. The research questioned whether the recovery sections of fire plans included provision for economic recovery for volunteer fire fighters.

Only two of the RFA fire plans (Hurunui and Waimakariri) studied included detail about economic reimbursement of personnel. Both ensured that volunteers would be paid an approved rate if their employer deducted wages for the time spent fighting fires. This requirement, presumably, does not include earnings lost by self employed firefighters. Jenkins and Mills (2007), in their review of New Zealand fire services, also came to the conclusion that current New Zealand fire legislation lacks guidelines about payments to volunteers in the rural sector.

5.3.3 Stress/crisis management for firefighters

Firefighters can suffer psychosocial and emotional problems following a rural fire, particularly one that has involved loss of life, injury or extreme damage to property. Most, but not all, RFAs' fire plans included the provision for some form of stress or crisis management for firefighters. This ranged from 'critical incident stress debrief' to victim support. Plans also included reference to the Health and Safety at Work Act 1992 in regards to identifying hazards, management and minimisation methods for firefighters and fire suppression activities.

Best Practice: Firefighter Welfare Post-fire

- Develop clear guidelines to reimburse volunteers following a rural fire.
- Reconstitute volunteer rural fire forces, facilities and equipment that have been used for rural fire suppression to a point where they are ready for subsequent deployment.
- Offer critical incident stress debriefing to all personnel (including immediate families) involved in serious harm or fatality events, or involved in stressful or sustained fires.

5.4 Rehabilitation of suppression damage

Under the FRFA 1977, property owners can become liable for costs associated with the suppression of fires on their property, even when they have had no responsibility for ignition. Such costs may include damage to land and fences caused in gaining access for firefighting, or in the construction of firebreaks or firefighting activities. For rural landowners such costs can amount to many thousands of dollars and therefore any assistance that is documented in fire plans is very helpful in rehabilitation.

Discarded litter, firebreaks and fence damage are all considerable problems for landowners who have suffered from a fire. Such damage is likely to cause significant delays to recovery of land for crops and grazing. Creation of firebreaks can also result in subsequent erosion or weed invasion. Even for those landowners whose insurance covers the damage, they may not immediately have the means to make repairs.

Table 4 details how the fire plans in the two regions treat rehabilitation of suppression damage in relation to litter, fire breaks, fences and other damage.

At the least costly end of the scale is the requirement for the fire authority to take responsibility for clearing up litter following a fire. Such waste may include plastic foam and retardant containers, as well as general rubbish such as food and drink packaging. Within Canterbury three of the six districts require that "every effort should be made" to remove such litter. Four of the five plans surveyed for the Central North Island region make this requirement. Three plans make no reference to rubbish removal, in keeping with their brief recovery sections generally. One district specifically removes itself from any responsibility by requiring that "rubbish removal is the responsibility of land owner/person in charge of land"¹².

¹² p. 52 Selwyn District Council Fire Plan, August 2005.

| Area | Litter responsibility (Fire Authority, landowner, or no mention) | Firebreaks (Environmental damage to be repaired) | Fences (Responsibility for repair of suppression damage) | Rehabilitation of (other) suppression damage |
|-------------------------|--|---|--|---|
| CANTERBURY | | | | |
| Ashburton | No mention | Yes | Yes | No mention |
| Christchurch City | Yes | Yes | Yes | N/A |
| Hurunui | Yes | Yes | No | Case by case basis |
| Selwyn | Landowner | No mention | No | Case by case basis |
| South Canterbury | No mention | No mention | No | No mention |
| Waimakariri | Yes | Yes | No | Case by case basis |
| | | | | |
| CENTRAL NORTH ISLAND | | | | |
| Lake Taupo | No mention | Yes | No | Case by case |
| Opotiki | Yes | No mention | No | No mention |
| Pumicelands | Yes | Yes | No | Case by case |
| Western Bay Moana | Yes | No mention | No | No mention |
| Whakatane | Yes | No mention | No | No mention |

Table 4: Rehabilitation of suppression damage in fire plans.

Several of the plans include the requirement for firefighters to minimise damage to property and disturbance to the environment during the fire suppression stage. For example, Western Bay Moana requires that "Rural Fire Officers are to ensure that post-fire recovery is considered as part of the incident management plan, by minimising environmental and cultural damage through the adoption of appropriate suppression strategies."¹³ Similarly about half of the plans allow for the possibility of a rehabilitation or recovery plan to be introduced following assessment.

Six of the eleven RFA fire plans require the fire authority to tidy or repair environmental damage (caused in creating firebreaks). Christchurch City and Ashburton RFAs take responsibility for the repair of fences that may have been damaged or cut during fire suppression.

Obviously fires vary in their scale and the damage from suppression. Several of the plans account for this, and undertake to consider repair and restoration of suppression damage on a case by case (rather than routine) basis for significant fires. Therefore, although in the first instance responsibility for suppression damage will lie with the landowner, following a large fire the Principal Rural Fire Officer (PRFO) will assess the damage to decide upon the course of action to be taken. For the Christchurch City RFA, which undertakes to clear litter, repair fire breaks and fencing as routine, this is not applicable.

¹³ p. 41 Western Bay Moana

Best Practice: Restoration of Suppression Damage

- Undertake to remove litter as routine.
- Undertake to reinstate firebreaks as routine.
- Undertake to repair fence damage as routine.

5.5 Debriefs and formal remedial action plans

Following a large fire, debriefs allow staff and volunteers to assess their response, and future practice to be informed by previous experience. As mentioned above, the FRFA 1977 requires that fire authorities' recovery sections include details pertaining to fire operational reviews ("an internal assessment by a Fire Authority of a fire in its district") and operational debriefs ("an independent assessment of a significant fire in a Fire Authority's district").

Table 5 lists the inclusion of debriefs/fire operational review details within the plans that were studied, as well as allowances for remedial activities or plans within the documents.

| Area | Debriefs / Fire Operational Review mentioned | Allowance for remedial activities or plan |
|-------------------------|---|---|
| CANTERBURY | | |
| Ashburton | Yes | Yes |
| Christchurch City | No | Yes |
| Hurunui | Yes | Yes |
| Selwyn | Yes | No mention |
| South Canterbury | No | No mention |
| Waimakariri | Yes | Yes |
| CENTRAL NORTH ISLAND | | |
| Lake Taupo | Yes | Yes |
| Opotiki | Yes | No mention |
| Pumicelands | Yes | No mention |
| Western Bay Moana | Yes ¹⁴ | No mention |
| Whakatane | Yes | Yes |

 Table 5: Debrief and remedial action plan details.

All but two of the RFAs' fire plans (South Canterbury and Christchurch City) include mention of debriefs and fire operational reviews. The need for these is determined by the incident controller. Some of the fire plans include a high level of detail about the requirements, such as Lake Taupo which includes the objectives of debriefs and operational reviews. Additional detail is also provided by Western Bay Moana, which attaches to its document a format for conducting an operational critique.

¹⁴ Includes format for conducting operational critique.

Best Practice: Debriefs and Rehabilitation Plans

- Mention made of remedial action plans, if assessed to be necessary, with detail of what they include.
- All information and outcomes from debriefings to be documented recorded and distributed to all parties.
- Format for conducting of debriefs included within printed plan.

6. **DISCUSSION**

A few points should be noted in considering the findings of this study regarding the presence and degree of information contained within the Recovery section of fire plans.

The first relates to differences in the way the various types of RFAs consider rural fires and, therefore, their recovery. Forest company dominated Rural Fire Districts, such as Lake Taupo and Pumicelands, limit their fire role to the protection of forests and forestry operations rather than surrounding rural areas and their communities. They have minimal settlements in their jurisdictions and where present, try to ensure that the responsibility for these falls on the relevant TLAs which are also members of the Rural Fire District. Hence, their key recovery considerations are around forestry business continuity, and not community recovery.

At the other end of the spectrum, many TLA rural fire authorities consider fire as just another natural hazard and consider Civil Defence and rural fire to be linked. In many of these instances (e.g. Lake Taupo, Whakatane and Selwyn), the PRFO is also very senior in Civil Defence operations, and the TLA often combines these responsibilities under the title of "Emergency Manager". Therefore, the officer can switch his/her responsibilities from fire to Civil Defence to affect a more elaborate "recovery". This often results in brief recovery sections within rural fire plans, due to recovery procedures being contained in CDEM documents.

However, many RFAs fall between these two extremes, treating fire (particularly, the majority of smaller, non-significant fire events) as distinct from other natural hazards. In these instances, TLAs with responsibilities for both fire and Civil Defence separate the PRFO and CDEM roles and associated plans, and also tend to have little in the way of the social recovery aspects covered within fire plans. This spectrum of perspectives on links between fire and CDEM points to the need for the recovery component of fire plans to be built up to include more guidance on activities relating to community recovery following rural fires. At the very least, this should include links to the general recovery procedures contained within CDEM plans, but preferably would include full documentation of recovery activities to be undertaken as they apply specifically to rural fire.

A second issue relates to the legal powers of RFAs and their officers to undertake recovery actions. In the opinion of many Civil Defence officers, a PRFO is only legally active in an emergency whilst a fire is running or posing a threat. The FRFA 1977 tends to reinforce this view, with Section 36 (Powers of Principal Rural Fire Officers or Rural Fire Officers at fires) stating that "(1) For the purposes of fire control *upon the outbreak of fire* ... [the officer]... shall perform the following duties and may exercise the following powers..."

The Forest and Rural Fires Regulations 2005 provide little additional guidance, with minimal explicit reference to what a RFA is required to do in the way of recovery being contained in Section 46 (Fire plan to include policies and procedures for activities following fire event), and 46(e) (2) ("any other recovery activities that occur after a fire has been contained") in particular. The aspects contained within this section of the Regulations are further limited by the support they require from the parent Act (Section 12 of the FRFA 1977, "Duties of fire authorities"), which is not present in anything other than a cursory measure (i.e. Section 12(4) "A Fire Authority must keep and maintain a current fire plan for its district", and 12(4) (A) "A fire plan must contain the prescribed information").

Some RFA officers therefore believe that a PRFO and his/her RFA could be financially (and possibly legally) exposed if they went too deeply into recovery for too long and expended too much money beyond good corporate citizenship. Additional aspects of recovery are therefore often not considered necessary for the majority of small, non-significant fires beyond those specified within the Regulations (i.e. reinstatement of operational capability, health and safety of personnel, post-fire investigations, and operational reviews and debriefs). In the case of larger or more significant fires (e.g. 1999 Alexandra fires), CDEM emergency declarations may be utilised where such additional recovery actions (e.g. community welfare, lifelines reinstatement) are required to get around these issues of legality and to access government funding for these activities. However, many rural fire events fall between these two extremes, when community recovery actions are required but Civil Defence emergencies have not been declared (e.g. 2000 Wither Hills, 2003 West Melton and 2004 Mt Somers fires). In these instances, social recovery activities may be undertaken by the RFA under their responsibilities for either rural fire or CDEM, often in the absence of formalised procedures for doing so, or even in some cases (e.g. Mt Somers) by the community themselves.

There is again, therefore, a strong need for community recovery procedures to be clearly defined within rural fire plans. These procedures should preferably be tailored to reflect rural fire events (and not just reiterate general recovery processes contained within CDEM plans), and also specify the fire situations associated with escalating impacts for which the various recovery activities should be applied.

7. CONCLUSIONS

This research has shown that there is a distinction between the treatment of natural hazards covered by CDEM recovery plans (which are usually generic, and make no specific mention of fire) and fire suppression recovery covered by RFA fire plans (i.e. reinstatement of response capability and fireground remedial actions). As a result, recovery elements contained within fire plans are very different from recovery activities captured within CDEM plans.

For the two regions that were studied, the recovery section of the RFAs' fire plans is the shortest and least detailed section. Although all RFA fire plans must include a recovery section, the detail and content varies widely between RFAs depending on the importance they place on, and likely occurrence of, rural fire. In the case of TLAs, it can also depend on how they view their fire responsibilities against those for other natural hazards. Therefore firefighters, volunteer fire forces and landowners who are involved in fires could expect to receive different levels of support during the recovery process on the basis of their RFA type and its other responsibilities (e.g. CDEM). Cost implications for individual RFAs can limit the development of detailed recovery sections within their fire plans, especially when a serious rural fire is not considered to be a common likelihood. Additionally, RFAs can assume that recovery from a severe rural fire, which has a major impact on a community, is likely to come under the auspices of a Civil Defence and Emergency Management declaration. Legislation, in the form of both the CDEM Act 2002 and the FRFA 1977 and Regulations, also gives little guidance as to what activities are required or even recommended to be included within recovery plans.

None of the RFA fire plans studied included any mention of steps to assist with social or emotional community recovery. This is despite communities across New Zealand periodically suffering serious consequences during wildfire events. Case studies of the West Melton (Kelly et al., 2008), Mt. Somers (Jakes and Langer, 2008) and Wither Hills (Graham and Langer, 2008) fires point to a clear need to ensure that there is adequate provision for physical, social and emotional aspects of recovery for fire-affected communities.

The lack of guidelines for social and emotional recovery, and inconsistency in the content of fire recovery plans in general, highlight a strong need for community recovery procedures to be clearly defined within rural fire plans. These procedures should preferably be tailored to reflect rural fire events (and not just reiterate general recovery processes contained within CDEM plans), and allow for the scaling up of required recovery activities as the fire situation escalates.

8. FURTHER RESEARCH

A broader study of fire plans in other regions of New Zealand would add depth to the research. However, through circulation of the findings of this study and discussions with the Rural Fire Research Advisory Committee it will be possible to ascertain whether the two regions studied are representative of New Zealand. If discussions reveal some plans from other regions do include community recovery, it would be useful to examine these plans and make recommendations for improvements and best practices for consideration by other RFAs. It would be helpful to consider whether the establishment of a national fire plan or policy to provide generic guidelines for community recovery would assist RFAs in improving and expanding future plans.

It would be beneficial to repeat this assessment of RFA fire plans within the next five years to determine whether community recovery is planned for in the future, and to assess whether recommended changes to plans are taken up. Several RFAs contacted indicated that they were planning to develop community recovery plans, or to add social recovery activities to existing plans. It would therefore be useful to determine the extent to which plans were improved and the activities contained within them were being implemented.

It was evident that there was a general lack of specific guidelines for community recovery following fire events. The research highlights the need for further in-depth work to determine the best way to ensure that all areas of New Zealand have cohesive recovery plans in place. It would be helpful to build on the knowledge gained from fire-affected communities to establish specific guidelines and/or recommended best practises for community recovery for inclusion within future fire plans.

9. ACKNOWLEDGMENTS

This report was financially supported by Scion's Rural Fire Research Group through funding from the Foundation for Research, Science and Technology (FRST) (Contract C04X0403) and the rural fire sector (through members of the Rural Fire Research Advisory Committee).

The authors acknowledge the support of Kirsty Trotter in summarising the fire plans. The provision of background information by Paul Baker, Manager Rural Fire, Napier and Paul Hawke, Hasting District Council, review comments by Paul Baker and editing and formatting by Jane Hope and Rose O'Brien, Scion are appreciated.

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