NDMP Data Dictionary Project

Reference Guide of Phase 1

Attachment 1:

Environmental Scan/Literature Review

Also available is the Summary Report of Phase 1

Report January 2010

Prepared by the Australian Bureau of Statistics

In accordance with the
Project Plan for the Natural Disasters Mitigation Program (NDMP) of
Natural Disasters Project

For presentation to
The Advisory Group and Steering Committee for approval.

The NSW Fire Brigade (NSWFB) is the Sponsor of the Contract Material.

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1.0 Introduction

This environmental scan and literature review of emergency services organisations (ESOs) is based on the information supplied by each agency either as part of the documentation provided or from face to face meetings, including systems demonstrations, or directly from the agencies' websites. The Australian Bureau of Statistics (ABS) team would like to acknowledge those who took the time to provide this information, answer questions and demonstrate their systems. Screen-shots, information about processes followed in emergency management activities, schemas and value domain information was most useful in identifying key concepts. Demonstrations of the systems used by each agency was the most valuable way to obtain a complete understanding of the information systems as it provided valuable context to the reading material. Additional research was also undertaken by the ABS team, particularly for aspirational items. As a result, it is acknowledged that the information may contain gaps and the statements made within the report may be subjective. Where errors or omissions occur, readers should advise the ABS project team of corrections. On occasion, where references are not provided, the information has been obtained through discussion with contacts from each agency or from responses to the focus questions.

2.0 Summary of findings

It is clear from the environmental scan that all ESOs have strengths and weaknesses in different areas. It is also evident that, while ESOs are organised differently in each state, all perform very similar functions with common goals and outcomes.

The Australasian Fire and Emergency Services Authorities Council (AFAC) has provided a good avenue for following common standards in emergency management. Based on the material received and discussions held with selected agencies, the Australian Incident Recording System (AIRS) manual appears to be the only standard that is followed by most agencies. However, slightly different AIRS systems have been developed by different agencies. Some have shared their version of AIRS, e.g. the Country Fire Authority (CFA) has provided their AIRS system to the NSW State Emergency Service (SES) and the South Australian Fire Brigades, but given the real variety in systems and approaches it is clear that there is much to do in standardising core processes across the Prevention, Preparedness, Response and Recovery (PPRR) spectrum.

ESOs work with and support other agencies such as their rural or urban counterparts, police and ambulance in attending incidents. For major and/or complex disasters, other state and federal government agencies are often also involved. For this reason it is necessary for the roles and responsibilities and the protocols around responding to incidents to be clearly defined.

Budgets are tight for all ESOs and this is evident in the mix of legacy and new information technology (IT) systems supporting their business. Increasing costs and demands for services means that each agency is under pressure to deliver services more efficiently and effectively. Inefficiencies currently exist in agencies, with a clear separation between metropolitan/urban and rural fire services. Even where the metropolitan and rural fire services organisationally sit under one umbrella, such as in Queensland, technology systems are still separate, although here efforts are underway to unite the metropolitan and rural fire services. Technology systems play a vital role in supporting all facets of emergency management. Given the substantial investment required to develop bespoke systems ESOs would benefit from sharing technology systems and implementing national standards.

3.0 NSW

On 27 July 2009, the NSW Government created the new NSW Department of Police and Emergency Services (P&ES). This includes NSW Police, NSW Fire Brigades (NSWFB), NSW Rural Fire Service (NSW RFS) which includes Emergency Management NSW, NSW SES and the NSW Crime Commission. While day to day operations and reporting lines will not change, the new P&ES are committed to aligning their information management, but this will take time.

3.1 NSW Fire Brigades

The following information has been taken from the NSWFB website (www.fire.nsw,gov.au). NSWFB enhances community safety by minimising the impact of hazards and emergency incidents on the people, environment and economy of NSW through delivering the following services to the community:

- Fire services - managing fire emergencies in major cities, metropolitan areas and towns across regional and rural New South Wales.
- Rescue services - rescues at road, household and industrial incidents.
- Hazardous materials (Hazmat) - protecting 100% of the state population from hazardous materials incidents.
- Bushfire services - supporting the Rural Fire Service of NSW during and after bushfires in NSW and preventing the occurrence of bushfires through hazard reduction strategies.
- Urban search and rescue - urban search and rescue (USAR) is a specialist capability to locate, provide medical assistance to and remove victims who have been trapped or affected by a structural collapse.
- Counter-terrorism services - the Counter-terrorism and Aviation Unit manages the planning, development and implementation of counter-terrorism and aviation capability.
- Fire investigation - the Fire Investigation and Research Unit (FIRU) provides a range of investigative and research services to both internal and external customers including research into human and structural behaviour during fire, and the associated impacts for performance based building design.
- Building fire safety - the NSWFB plays an important role in building safety, both legislatively and as a community service.
- Community education - the NSWFB uses the expertise and experience of our firefighters to educate others in ways to prevent and prepare for emergencies.

NSWFB abides by various policies, legislation, government acts and regulations of which the primary ones are as follows:

- Fire Brigades Act 1989 (as at 28 October, 2009, Act 192 of 1989);
- Fire Brigades Regulation 2008 [2008-383]; and
- State Emergency and Rescue Management Act 1989 (as at 6 July 2009, Act 165 of 1989).

3.1.1 Overview of material provided

NSWFB provided a large amount of reading material including systems documentation, schemas, screenshots, answers to focus and supplementary questions and other information which is detailed in the Sources/References Appendix. The NSWFB website provided a holistic view of the organisation as it contains a wealth of operational information. NSWFB also demonstrated their key operational systems, providing valuable context for the supplied reading material and providing a better understanding of their information requirements.

3.1.2 NSWFB information systems and operational procedures

NSWFB has a range of software systems, some relatively new while others are legacy systems that have been in production for over ten years. While the current systems have supported NSWFB operations there are issues with the lack of integration between the systems. Knowledge of legacy systems is limited to a number of key staff and technical documentation for all systems is not readily available, with consequent difficulties in enhancing existing systems due to changing operational needs and the resultant need for new systems development. Where systems have been updated there has been effort in designing user friendly systems. However, systems where substantial data entry is required, and where the user interface makes it attractive to enter the 'easiest' option, means that the accuracy of the information can not be guaranteed, resulting in data quality issues (a situation not unique to NSWFB systems).

3.1.2.1 FireCAD (Fire Computer Aided Design) System [Response]

The NSWFB Fire Communications Centres handle all NSW fire emergency triple zero calls from Telstra's 000 call centre. Staff, who are qualified fire fighting personnel, record the call details and raise an incident using the FireCAD system, which despatches and tracks resources assigned to the incident. Colour coding is used to assist staff in making decisions, while various audio sounds in the forms of beeps are played by the system to alert staff of automatic fire alarm notifications (sent directly to the FireCAD system including location specific information) and incidents which have not yet been responded to. Human intervention is required in responding to incidents, typically when multiple calls are received for the same incident (e.g. a grass fire on a motorway), as every call is noted.

Emergency details taken include the phone number (if the caller phone number cannot be determined) and the building address. Voice Over Internet Protocol (VOIP) numbers appear in a different colour to indicate that the number may not be associated with the address of the caller as sometimes the VOIP number is the address of the VOIP telephone provider.

There are approximately 12,000 alarms connected to FireCAD with about 97% of fire alarm calls being false alarms. A building that has more than two false alarms within sixty days receives a fine; however NSWFB estimates that they currently miss out on around $300,000 in revenue from false alarms per annum.

Plans are underway to replace the FireCAD system (built in 1996) with a new system from VORTEX in a two year timeframe. This system is currently used by ACT Fire Brigades and the NSW Ambulance Service. Improvements in the new system include providing real time reporting functionality for incidents and the use of a relational database system at the back end. The current system uses a flat file system and is replicated across the four communications centres with resultant data combined nightly into a warehouse. The new system will ensure that any false alarms that occur are reported accurately. The current locality mapping of the FireCAD system makes it difficult to identify metropolitan and rural boundaries. The new system will use Global Positioning System (GPS) coordinates, identifying each individual property with clear boundaries.

3.1.2.2 Brigades Operational Support System (BOSS) [Response]

BOSS is a web based system with an almost real time view of FireCAD data. The data is replicated every ten minutes from the four NSW communications centres and provides a holistic view of incidents. As both the NSW Police and the NSW Ambulance Service, as well as NSWFB, have direct lines to the triple zero emergency call centre, it enables incidents to be attended by the agency location that is the closest to the incident and therefore has the fastest response time, particularly in rural localities, e.g. if a person is trapped in a vehicle the nearest fire brigade may be asked to attend the scene if police are much further away.

The BOSS Station Portal (below) provides a graphical web based entry point into the various NSWFB systems. It is a virtual desk with bookshelf style design and provides an attractive user friendly interface to the various systems and manuals (reference: "cars in short.doc").

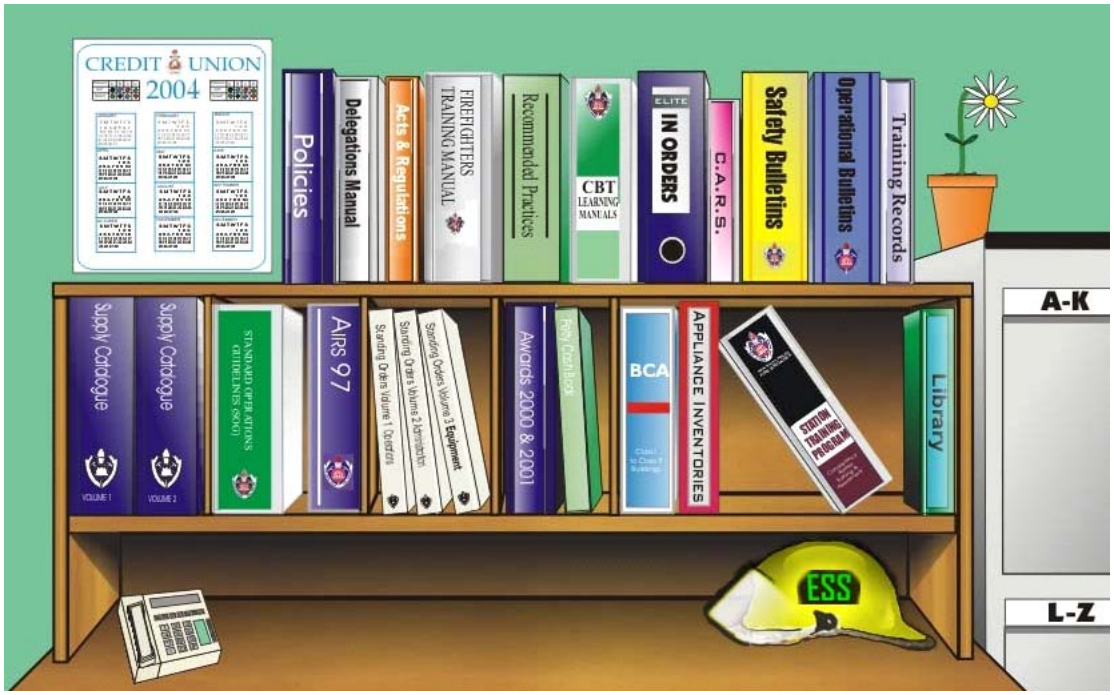

Fig 1 - Station Portal

3.1.2.3 Community Activity Recording System (CARS) [Prevention and Preparedness]

CARS is a central database which is used for recording information about local community activities which have been undertaken. The information is used for strategic planning and to measure the effectiveness of the NSWFB's preparation and prevention programs. Activities can include fire education for primary schools, bushfire risk assessments and court appearances. Data entry is minimal and fields are pre-defined to simplify reporting requirements. More than one station may attend the same activity but only one station will record details for the activity with the remaining stations adding extra information. Typically reporting is done at the end of the event though a report may be drafted prior to the event. The time spent at the event is recorded, excluding any travel time.

3.1.2.4 CAPABILITY [Prevention and Preparedness]

Commercial Safety Training Services (ComSafe) is provided by experienced and qualified fire fighters with the CARS system used to record training activities conducted by ComSafe trainers. The CAPABILITY web based system is used to collect and report on the commercial deployment of NSWFB resources for training in safety and preparedness for businesses. Information in CAPABILITY includes address details, reports on the services provided by trainers as well as preparedness outputs for industry and business.

3.1.2.5 Pre-Incident Planning system (ePIP) [Prevention and Preparedness]

ePIP is a database with information relating to sites of high risk and incident management procedures. High risk sites could include landmarks such as the Sydney Opera House or the Harbour Bridge, a restaurant or home for elderly people. Every building (and structure) that is constructed has a fire approval investigation completed at the end of construction. Information

relating to building inspections is recorded in ePIP. However, the activity reporting related to conducting a building inspection and the time taken is recorded in CARS. Use of two systems for this activity indicates that there could be a single system rather than distinct systems for related activities.

3.1.2.6 Australian Incident Recording System (AIRS) [Response]

Incident reporting is done through the use of AIRS, a legacy system based on the AIRS manual adapted by AFAC originally from the USA. The AIRS manual was developed in the late 1980's with significant changes made to it in 1997. Major changes to AIRS were made over five years from 2000 to 2005; it is unclear from the information provided what these changes were and whether the changes have an impact on the AIRS manual.

NSWFB describes AIRS as follows: *"To collect and report on responses to emergences. Data collected include: number of casualties, property type involved, location details, resource types & usage, cause & equipment, fire fighting methods and techniques, detection and suppression performance details."*

Incidents received from the communication centre via the FireCAD system are downloaded into AIRS, where an incident report is created. The first attending brigade and first station officer in charge is responsible for completing the incident report after attending the incident. Any other stations that were in attendance at the scene complete parts of the report relating to their involvement at the incident. AIRS requires a large amount of detailed information to be provided by the reporting officer, although it is not unusual for personnel that were not at the scene of the incident to complete the report and for rescue equipment and techniques not to be included. The user interface with the sheer number of fields that must be entered does not make it conducive to accurate and timely reporting. Many performance indicators and other measures are generated through the AIRS system.

Many shortcomings in AIRS were identified in the Doll Martin Report (Doll Martin Associates AIRS Review Report, 2006, pp 6–8), including the inability to group incidents and provide capabilities for complex incidents (e.g. multiple incidents at the one location such as fire, hazmat and rescue) and the severity or scale of the disaster.

There is also inconsistency across NSWFB systems in recording data, an observation that is not unique to NSWFB. The legacy systems of the Queensland Fire and Rescue Service (QFRS) have the same problem and the move towards the Operational Management System (OMS) will go a long way in classifying a lot of information which in turn has simplified reporting.

3.1.2.7 The False Alarm Reporting System (FARMS) [Prevention and Response]

FARMS is a management tool that is used to identify repeated patterns of false alarms at premises for further investigation and for generating false alarm invoices. Information about fire alarms is sourced from the FireCAD system.

3.1.2.8 FireTrac System [Prevention]

FireTrac enables the collection of incident data in order to determine fire cause and origin. It maintains the stringent chain of evidence that is required for submissions to the State Coroner's Office, NSW Police and the Australian Federal Police. It has the capability to store a diverse range of non-physical evidence electronically in a secure environment, and also allows investigation data to be entered into the system at the incident scene in real time (2004-05 NSW Fire Brigades Annual Report, p57, accessed online 17 November 2009)

3.1.2.9 The Bushfire/I-Zone database [Preparedness]

The Bushfire/I-Zone database helps determine the risk level of bushfire prone areas.

3.1.2.10 Qualifications database (QUADS DB) [Preparedness]

Like other ESOs, significant time and money is invested in training all NSWFB personnel. The QUADS DB tracks the training history and qualifications of all paid fire fighting personnel. Qualifications, competencies and evidence form an important part of the career progression for fire fighters. Training results are also recorded for individuals. Course details, including the training provider, are recorded, and reports can be generated on the training history of individuals or a group of staff or to search for staff with particular qualifications.

3.1.2.11 System to Automate Manual disposition (SAM) [Preparedness and Response]

SAM is a custom built rostering system and is a real time record of fire fighter assignments (up to the rank of Inspector) at Fire Stations and Cost Centres, sourced from the Human Resources system. SAM covers all shifts - 24 hours a day, 7 days a week. The user interface is based on the manual operation previously used which consisted of a colour coded white board detailing the minimum number of staff that should be in attendance at a station, who is on duty, who is on leave, anyone that is on sick leave and personnel that have been called in to cover another staff member. SAM provides features to assign shifts, record overtime and other resource management tasks.

3.1.2.12 The Community Fire Unit (CFU) database [Prevention and Preparedness]

The CFU consists of a team of local residents who live in urban areas close to bush land in NSW. They are trained as volunteer fire fighters who prepare and protect properties within their community from fires, including conducting fire hazard reduction activities such as fuel reduction in conjunction with local fire stations. The CFU database performs a similar function to QUADs in that it also tracks training information for over 6,000 CFU members and collects and reports data on CFU membership and human resource information. It also provides support for inventory ordering similar to the ESCAT and WILE systems detailed below.

3.1.2.13 Electronic Supply Catalogue (ESCAT) [Preparedness, Recovery]

ESCAT is a web based online ordering system for purchasing inventory with a direct link to the (3) suppliers. Each staff member has a purchasing limit, determined by the level of the officer. The CFU also use ESCAT for ordering with paid CFU staff ordering on behalf of their volunteers. ESCAT provides various features to allow querying of orders such as the total expenditure for a station or order history.

3.1.2.14 Where is Logistical Equipment (WILE) [Preparedness, Recovery]

WILE is an online database which allows fire officers, specialist staff and incident managers to instantly locate critical items of equipment so that they can be used as quickly as possible at an incident. It also ensures that the equipment used at incidents is reliably maintained. It records when equipment was used, monitors its service history, and flags when services are due. The system is used for planning, scheduling and budgeting for equipment maintenance (2004-05 NSW Fire Brigades Annual Report, p57, accessed online 17 November 2009). Items tracked may depend on the dollar value or the criticality for a rescue (e.g. breathing apparatus). However, equipment such as buckets and ladders are currently not tracked but could be by the system if required. NSWFB has adopted the concept of "container" to track the location of equipment and all equipment that is tracked has a serial number assigned to it.

3.1.2.15 Strategic Reporting System (SRS) [Prevention, Preparedness, Response and Recovery]

The SRS is the third reporting system (after FireTrac and FARMS) used by NSWFB. SRS provides strategic information, statistical outputs for PPRR, human resources (HR) and financial management. Information from various systems is aggregated into the SRS and is used by management for planning and reporting purposes.

The HR systems Sick Leave Analysis Tool (SLANT) and the Brigade Automated Retained Timesheets (BART) are out of scope for the purpose of this project.

3.1.2.16 Manual systems [Various]

Most NSWFB processes are supported by a technology system and it was reported that there are some databases (typically MS Access) used by some areas for supporting their operations. However, manual paper based processes still exist e.g. Debriefs is a paper based system for gathering information about the lessons learnt from an incident and is used for training and quality assurance purposes. Given linkages between AIRS, CARS and QUADS, Debriefs may not now be required.

3.1.3 Conclusion

NSWFB has a range of mainly stovepipe systems that support their business operations, but the lack of interoperability between systems and the duplication of essentially similar processes has meant more effort and time is expended by brigades personnel and administrative staff in meeting operational needs. The lack of knowledge, good documentation and the dependency on very few staff for supporting some systems is a risk that NSWFB has been managing for some years now. The increasing demands for timely reporting and the need to better prepare for natural disasters means this situation is untenable.

3.2 NSW State Emergency Service

The NSW SES is an emergency and rescue service dedicated to assisting the community and is made up almost entirely of volunteers. Major responsibilities are for flood and storm operations and providing the majority of general rescue effort in the rural parts of the state, including road accident rescue, vertical rescue, bush search and rescue, evidence searches (both metropolitan and rural) and other forms of specialist rescue that may be required due to local threats. Volunteers in a number of isolated communities have been trained as Community First Responders by the Ambulance Service of NSW. The Service's trained rescuers also support the full-time emergency services during major disasters and also assist other emergency services when they are performing major operations. These services include the NSW Police Force, the NSWFB, NSW RFS, the NSW Fire Brigades and the Ambulance Service of NSW (www.ses.nsw.gov.au). Relevant legislation includes: State Emergency and Rescue Management Act 1989 (as at 6 July 2009, Act 165 of 1989) and State Emergency Service Act 1989 (as at 17 July 2009, Act 164 of 1989).

SES volunteers are highly skilled and well trained to provide the rescue, first aid and other services necessary for emergencies. Frequently, volunteers travel outside their own areas, including interstate at short notice, to respond to emergency situations in other communities. Through the Australian Council of State Emergency Services (ACSES, now part of AFAC), all jurisdictions are working towards nationally consistent performance indicators in operational training, equipment, public education and management practices (State and Territory Emergency Services National Performance Indicators, November 2008, p6).

The following are identified as drivers of change within State and Territory Emergency Services (S/TES) (State and Territory Emergency Services National Performance Indicators, November 2008, p9):

- Recruitment and retention;
- Climate change;
- Changing demographics;
- Community expectations of S/TES;
- Time pressures/employment;
- Cost of volunteering;
- Leadership and management;
- Funding;
- Training; and
- Recognition.

The S/TES performance indicators (PIs) follow the PPRR Emergency Management framework.

3.2.1 Overview of material provided

NSW SES provided a large amount of material for this project, and had previously provided information and advice on the State and Territory Emergency Services Performance Indicator project in 2007, some of which was relevant. A meeting to demonstrate the operational systems used by NSW SES for emergency management proved invaluable in providing context for the operational aspects of NSW SES and provided answers to some of the questions raised by the documentation. Further information was later supplied by NSW SES to clarify points raised during the demonstration.

3.2.2 NSW SES Information Systems and operational procedures

As a primarily volunteer organisation, NSW SES systems and processes need to take into account that managing a volunteer workforce is different from that of a regular paid one. Technology systems therefore need to be designed to accommodate a diverse range of users and minimise data entry for reporting purposes from volunteers - systems need to be relatively simple and well integrated. At the meeting, it was noted that some volunteers are 'still coming to grips with using computers', although notebooks have been provided to volunteer units.

A vast majority (61%) of a volunteer's time is spent on training activities with the remaining time spent on preparedness (22%), response (14%) and other activities (3%). Ongoing training of volunteers is an important part of SES operations (State and Territory Emergency Services National Performance Indicators, November 2008, p17).

Education and community awareness activities are run to enable the community to become better prepared and more responsive before, during and after an emergency. Education packages for school aged children have been developed with some SES Units conducting school visits to talk about floods and storms and the role of the SES in emergencies.

3.2.2.1 Request for Assistance Online

Request for Assistance Online (RFA Online) is a web based operations management system built in 2005 to replace manual paper based systems for managing operations. It is capable of handling all emergency information received by the SES when responding to flood or storm emergencies or other activities. It performs call taking and despatch functionality, tasking, team management, and response operations. Management information is collected through activities recorded in the system when SES staff respond to emergencies or other activities (Request For Assistance Online – an Operations Management System implemented by the NSW State Emergency Service http://proceedings.com.au/tassiefire/papers_pdf/thurs_aedwards.pdf). RFA Online was developed to standardise operations management, replace manual reporting with an electronic system and provide situational awareness, visibility and better reporting functionality. Extensive consultation was held with volunteers and staff in rural, regional and metropolitan areas in developing the system.

RFA Online was developed to operate on minimal infrastructure over low bandwidth internet connections and is integrated with other NSW SES systems. It has been recognised that improvements to the base technological architecture would provide further performance improvements.

The features of RFA Online include:

- Requests for assistance from the public, agencies and internally;
- Duplicate checking;
- Job registration;
- Team management;
- Tasking and prioritisation;
- Job completion;
- Sector and event management;
- Operations log;
- Out of area assistance;
- Situation and activity reporting;
- Briefings;
- Management console;

- Mapping - SES mapping systems interrogate RFA Online for the display of response information on maps; and
- Reports generated on a monthly basis.

(Request For Assistance Online – an Operations Management System implemented by the NSW State Emergency Service http://proceedings.com.au/tassiefire/papers_pdf/thurs_aedwards.pdf)

RFA Online does not track equipment very well and it is difficult to determine whether equipment has reached the end of its useful life.

The first point of contact for storm and flood emergencies is the dedicated phone number 132 500 (unlike the triple 000 number for fires), which is used by all SES jurisdictions except NT. All NSW SES zone commands and units receive calls from the 132 500 number with the NSW SES headquarters in Wollongong being the first port of call. Calls are registered into RFA Online where they are typically monitored by each unit and self assigned. Assigned and unassigned requests for assistance are visible through the use of tabs. In the case of a major disaster, the Crisis Command Centre is activated, where the requests are managed accordingly.

3.2.2.2 SES Online

SES Online is the SES's corporate web portal and is primarily used as the management tool for human resources and learning and development activities of all SES members. SES Online is integrated with CHRIS, a human resource management system used for tracking volunteers and paid staff. Volunteers have access to their personal records through SES Online and are able to update their contact details when required. Other tasks that can be done include reassigning volunteers to another unit, recording and maintaining vehicle and boat information, research on flood intelligence, etc.

3.2.3 Conclusion

During the meeting, NSW SES's current reporting system was described as adequate for their current needs; however, improvements to the base technological architecture would provide performance improvements. The Productivity Commission and the NSW State Rescue Board are key drivers in any external reporting requirements across PPRR. Generally, these requirements are slow to emerge and have long implementation timeframes and can accordingly be managed through systems changes, training and communication with SES members. Any changes that are made to systems need to be done with great caution due to the potential impact on the volunteer workforce. Any additional reporting or changes to reporting is subject to whether there has been a mandate by government for the changes. NSW SES is receptive to any emerging trends in emergency management and is generally able to comply, provided there is adequate consultation and no additional reporting burden on volunteers (ref: Response to focus questions).

NSW SES works with other agencies to define requirements for whole-of-government solutions to:

- Computer Aided Dispatch;
- Inter Computer Aided Dispatch Emergency Messaging System;
- Emergency Information Management System;
- Operational Management System;
- Geographical Information Systems; and
- Shared Corporate Systems (2006/07 Annual Report, part 10 Information Management and Technology).

RFA Online has been patented and trials are underway with Queensland SES. There has also been interest from South Australia and Western Australia SESs.

Please note that rescue services in NSW are based on a network of 'accredited' rescue units located throughout the State. The rescue network is managed by the State Rescue Board through an accreditation process. Rescue units in NSW are predominantly provided by the following organisations:

- NSW Police;
- Ambulance Service of NSW;
- NSW Fire Brigades;
- State Emergency Service;
- NSW Volunteer Rescue Association Incorporated;
- Royal Volunteer Coastal Patrol; and
- Australian Volunteer Coast Guard Association Incorporated.

General Land Rescue Units are trained and equipped to handle a broad range of rescue tasks in their designated area of responsibility. Specialist Rescue Units are trained and equipped for a particular task or specialised capability for example vertical, caves, confined space, diving, swift water or flood rescue operations. Marine Rescue Units (MRU) are specifically trained, manned and equipped to carry out marine rescue operations. MRU are equipped with rescue vessels which have been accredited to respond within a specified rescue operational area, on a 24 hour, seven days a week basis.

3.3 NSW Rural Fire Service

Under the Rural Fires Act 1997 (Act 65 of 1997), the NSW RFS is the lead agency in combating bushfires and enabling the community to be better prepared and protected from bushfires. NSW RFS has fire management responsibilities for over 95% of the land mass of NSW. There are over 140 rural fire districts (generally based on local government boundaries). In some areas, neighbouring rural fire districts have agreed to pool resources, joining together both operationally and administratively to form Zones. This process of zoning enables cost-effective use of resources and skills with fire control centres (FCCs) formed as district offices.

Although fighting fires and protecting the community from emergencies is the most visible aspect of the RFS role, the Service has many responsibilities as the leading agency for bushfire management and mitigation in NSW (www.rfs.nsw.gov.au). Roles include:

- Operations (Firefighting): the preparation for, and response to, incidents. The RFS is the leading agency for coordinated bush firefighting and RFS volunteers are also responsible for structure fires in rural fire districts. It also supports other agencies in emergency situations such as transport accidents, flood and storm and search and rescue situations. A range of operational systems, resources and skills come together to ensure the RFS delivers efficient, effective response to incidents within its operational responsibilities.
- Learning & Development (Training): the RFS develops and implements training programs for fire and related agencies. Volunteers and staff undertake a variety of functions at fires and other emergencies throughout the state and at times interstate. Personnel are provided with the competencies (skills, knowledge and attitudes) necessary to undertake their duties.
- Community Safety: while fire is a natural part of the Australian landscape, the RFS has an important role in reducing the risk that fire, and other emergencies, pose to communities. This community safety role relies on the participation of all members of the community, land owners, councils and fire authorities in bushfire management. A wide range of RFS programs and personnel have been developed to involve all land managers and NSW residents in bushfire management and prevention and protection from other emergencies. These include: fire education programs, risk management planning, hazard reduction, safer building in bushfire prone areas, among many others.
- Management: the RFS is committed to providing a world standard community-based fire and emergency service with functions including creation of emergency plans to ensure appropriate response to incidents; developing training programs so volunteers and staff have the skills they require; assessing risks to communities; and developing risk mitigation plans, such as hazard reduction and public education.

3.3.1 Overview of material provided

NSW RFS provided a large amount of predominantly schema information. This included schemas and descriptions of the Fire Incident Reporting System (FIRS) and Resource Management System (RMS) Database Designs. Members of the ABS Project team met with NSW RFS to view demonstrations of the systems and to obtain more information on them.

3.3.2 NSW RFS Information Systems and operational procedures

As detailed in the NSWFB section, operators in the Communications Centres use a computer aided dispatch (CAD) terminal to determine whether the fire or other incident is in an area under the responsibility of the RFS or NSWFB or both. If the call requires a response from the RFS, the district Firecom or Base Operator (often located in the RFS FCC) is contacted. The operator provides incident details, including type of incident, location and information about the informant (http://www.rfs.nsw.gov.au/type). The type of incident determines the initial response, e.g. a small grass or bush fire may require one unit while a large bush or grass fire may require five units.

Once the unit arrives, an assessment of the situation is made and also how it may develop, any hazards and whether more assistance is required from other RFS or other agency units. Crews then deal with the incident. The RFS uses the Incident Control System (ICS) to:

- Control the response activities at the fire/incident - through the operational sequence RRAPID (Reaction, Reconnaissance, Appreciation, Plan, Issue of orders, Deployment);
- Combat the fire/incident;
- Coordinate and support activities at the incident e.g. collecting and analysing information, predicting fire behaviour, tracking resources, preparing strategies to control the incident over time; and
- Provide logistical facilities, services and materials.

Following any fire/incident extensive debriefings occur to understand, mitigate or prevent problems encountered during the incident from recurring.

Communication systems used include telephone, paging (over 10,000 pagers state wide) and radio, with a network of communication towers forming the base of the RFS radio communications systems. As firefighters respond to the incident they strategically communicate with their command or control centres through private mobile radio (PMR) and the government radio networks (GRN). At the scene, responding resources use tactical communications to coordinate their movements using fireground radio frequencies. Both strategic and tactical communications systems are used to communicate with airborne appliances to coordinate reconnaissance, water bombing, crew transport and other tasks. A communications platform exists between the RFS, NSW Fire Brigades, National Parks and Wildlife Service and NSW Ambulance to allow tactical communications between these agencies as they work together at an incident.

Aircraft are one of the most essential firefighting tools of the RFS with about 100 aircraft used each fire season including fixed wing agricultural aircraft, light and medium helicopters, Air Cranes, medical and transport aircraft. Aircraft support firefighting efforts by water bombing, dropping aerial incendiaries during backburning or hazard reduction operations, performing reconnaissance flights, air attack supervision, conducting medical evacuations and transporting firefighters (www.rfs.nsw.gov.au).

3.3.2.1 Bushfire Risk Information Management System

The Bushfire Risk Information Management System (BRIMS) manages activities related to prevention and preparedness in bushfire prone areas. While built by NSW RFS, BRIMS has a user base that also includes Forests, NSW and NSW National Parks and Wildlife. BRIMS modules include:

- Hazard Complaints User Guide - allows registered users to view and modify all information related to the management of hazard complaints e.g. record, report and manage hazard complaints for all land types and land owners; run embedded complex complaint tracking business rules; record work inspections and outcomes; record mitigation works; and record work requests for works programs.
- Bush Fire Management Committee User Guide (BFMC) - provides a concise and one stop shop for authorised users to record and track information pertaining to the Bush Fire Management Committee, conforming to the requirements of the legislation e.g. links all BRIMS modules for integrated reporting; maintains administrative information on committee structures and membership; maintains funding approval details for works programs; enquire and report on the number of annual works plans and annual reports submitted; record and track attendances at the BFMC committee meetings; track status and currency of Bush Fire Risk Management Plans; record and track hazard reduction activity; record and track fire mitigation works funding.

- Fire Danger - Total Fire Bans (TOBANS).
- Fire Permits - addresses when a permit is required and who needs to obtain a permit.
- Referred Development Application: provides a framework for consistency of information storage for designated users of BRIMS that provides information to the RFS and other agencies; tracks approval process for building development applications referred from local council in bushfire prone areas; enters data into the BRIMS system that provides an audit function and support the RFS position on determinations; facilitates improved customer information and customer service for external agencies; council can track status of their referrals; reports on a range of outcomes of the referred application process; automatically sends correspondence to clients; notifies designated officers when development applications are running close to their due dates; provides an accessible database of information that facilitates consistency when an officer is undertaking a development application; and includes mapping tools to identify land parcel sand bush fire prone land.

3.3.2.2 Other schemas:

- The Electronic Service Delivery Model Application (eSDM) - has been developed to automate the current paper-based approach to business planning, budgeting, performance management and quarterly reporting in order to streamline these systems and to better meet RFS legislative obligation to annually report performance under the Annual Reports (Departments) Act 1985. These reports are becoming more stringent, particularly with regard to providing quantifiable output and outcome measures; and aligning reporting with strategic and corporate planning objectives.
- ICON DB Rural Fire Service - an Operational Management System (similar to IMS and RFA Online) showing the report format of "SitRep".
- CFA FIRS/OMS/RMS. The application RMS - also called TRAIN, keeps track of the Training, Qualifications and Competencies of firefighters.
- State fuel schema - a database schema to monitor the NSW RFS theatre of operations, specifically with respect to potentially flammable natural material including forests, grasslands, trouble and funds crops, orchards, etc. (Appears to be a legacy system with no users or knowledge of this system).
- 000 contact schema - describes a system for maintaining NSW RFS contacts for phone coordination role of NSW RFS operations, in response to 000 calls arriving via FireCAD.
- Aircraft database schema - maintains and manages aircraft services to the NSW RFS.
- ATS database schema - described as a system 'whipped up over a weekend in Access' (the code and the tables are entirely coded in MS Access). When NSW RFS units began moving to lend assistance to the Victorian fires in February 2009, there appeared to be no way to coordinate the NSW RFS and other non-Victorian firefighting units in the bushfire areas. There were stories of initial complements of NSW RFS firefighters flying by regular airline down to Melbourne and there being no ground support from any organisation. The system was designed to organise and coordinate everything from accommodation through to their in ticketing assignment to other NSW RFS units.
- FIRS database design - an official manual from the CFA fire zone set of applications, describes the use of the fire incident reporting system, which implements the Guinness classification scheme to a number of Australian Fire and Rescue Services e.g. Vic CFA, NSW RFS, Tasmanian Fire Service, and WA Fire and Emergency Services Authority (FESA). There is an accompanying FIR schema (a Microsoft Visio counterpart).

3.3.3 Conclusion

There are a large number of systems used by RFS, some of which are legacy. Where possible, there has been sharing of some systems which may have been modified to serve particular needs of the agency. However, there appears to be considerable variation in the systems which limits interoperability of fire units when they need to respond to cross border or interstate incidents e.g. 2009 Victorian Bushfires.

4.0 Victoria

There are a number of Victorian agencies responsible for emergency management and emergency services. These include:

- The Office of the Emergency Services Commissioner (OESC) - provides leadership in emergency management for Victoria, with specific responsibilities for ensuring the delivery of efficient, equitable and integrated fire and emergency services and oversees the state's emergency management arrangements, which are described in the Emergency Management Manual Victoria.
- Fire Services:
  i. Victorian Metropolitan and Emergency Services Board (MFB) is the primary provider of fire and rescue services for the Melbourne area;
  ii. Victorian Country Fire Authority (CFA) is responsible for a large part of outer Metropolitan Melbourne, as well as provincial towns and small rural communities; and
  iii. Victorian Department of Sustainability and Environment (DSE) has the statutory responsibility (Section 62 (2) of the Forests Act (1958), National Parks Act (1975) and Emergency Management Act (1986)) to prevent and suppress wildfire in all Victoria's national parks, State forests and protected public lands. DSE also conducts community fire education programs similar to those of CFA and works with CFA on the rural/urban interface across Victoria.
- Emergency Services: Victorian SES.

4.1 Victorian Country Fire Authority

The following information is from the CFA website (www.cfa.vic.gov.au). Victoria's natural environment is among the most bushfire prone in the world and the Victorian CFA is responsible for an area that is home to more than half the State's population. A large part of outer Metropolitan Melbourne, as well as provincial towns and small rural communities, comes under the protective umbrella of CFA. This protection encompasses some of Victoria's critical infrastructure, including the power industry of the Latrobe Valley, gas production facilities at Longford in Gippsland, oil refinery facilities in Geelong, as well as major tourism areas, alpine resorts, extensive plantations, marine environments and growing mining industries. Divided into nine Areas comprising a total of 24 Regions, CFA is one of the worlds largest and most highly regarded volunteer based emergency service organisations. Under the Country Fire Authority Act 1958, CFA responds to a variety of State-wide fire and related emergency incidents including:

- Wildfires;
- Structure fires;
- Transport related fires;
- Other emergency activities including flood assistance; and
- Specialist activities e.g.:
  i. specialist rescues (confined space, trench, high angle, industrial);
  ii. urban search and rescue; and
  iii. specialist responses (aviation, marine, hazardous materials, chemical, biological and radiological).

Other activities include:

Prevention services:
- Land use planning - fire prevention planning and land use planning at a municipal level;
- Structural fire safety - fire safety building inspections;
- Dangerous goods;

- Municipal fire prevention; and
- Projects to improve prevention.

Preparedness services:
- Integrated fire management planning and operation of one of the State's major emergency coordination centres;
- Community information and development - delivering community awareness, education and safety programs;
- Fire Ready Victoria;
- Fire equipment maintenance;
- Projects to improve preparedness; and
- Research and development - post-incident analysis and fire investigation.

Response services:
- Incidents and total fire bans - working together with Forest Industry Brigades;
- Service delivery standards;
- State-wide reporting against CFA Act Section 29;
- Operations performance analysis; and
- Projects to improve response.

Recovery services:
- Joint CFA and DSE post fire season survey; and
- Projects to improve recovery.

Please note that as a result of the Victorian Bushfires Royal Commission there may be changes in the operations and/or legislation and/or other activities of the CFA in the future. The 2009 Victorian Bushfires Royal Commission Interim Report is also included as part of the environmental scan/literature review (www.cfa.vic.gov.au).

4.1.1 Overview of supplied material

While initial documentation was sparse with only answers to the focus questions sent, a subsequent meeting provided more detail on the systems used as well as additional information (e.g. chronological factors pertaining to the architecture framework, operational scenarios and anecdotes, historical contexts). Systems mentioned at the meeting included CFA Online which consists of two interfaces: Brigades Online (see below), and the CFA staff Intranet.

The CFA website (www.cfa.vic.gov.au) proved to have a large amount of relevant information and links to other web based information systems.

4.1.2 CFA information systems and operational procedures

The core operational systems of the CFA are strongly based on the CFA FIRS/OMS/RMS applications, and a data warehousing tool is emerging as well. The data warehousing tooling involves cubing of CFA data confronted with ABS Census type data. The interfacing of the cubes is carried out simply through Microsoft Excel 2007. The following table describes CFA's main information technology systems and their respective fit into PPRR.

Name	Purpose of CFA system	PPRR data	Source/Collection	System type
TRAX	Database recording non-response service delivery and compliance	prevention, preparedness	CFA members - on receipt and scheduling of requests	IT system, on-line data entry

RMS	Resource Management System - database recording CFA service delivery assets and people	preparedness, response	CFA members - brigades and staff - as required	IT system, central database updated regularly and synchronised over the network RMS supports and is integrated with IMS, FIRS, TRAIN
IMS	Incident Management System - database supporting real time data entry of incident details, resource allocation and activity status	response	CAD, CFA members, ICC members - during incidents	IT system, on-line data entry except for time stamps transferred from CAD (v3.9)
FIRS	Fire Incident Reporting System - database supporting full AIRS incident reporting	response	CAD, call centre, CFA members - following incidents	IT system, central database updated regularly and synchronised over the network and call centre data entry except for time stamps transferred from CAD
TRAIN	Training database recording CFA training courses and qualifications	preparedness	CFA members - as required to record qualifications	IT system on-line data entry
CAD	Computer Aided Despatch - database for interfacing to computer aided dispatch data	response	ESTA - on receipt and dispatch of incident	IT system, populated from Emergency Services Telecommunications Authority
Section 29	Database recording capacity of each CFA brigade as captured by questions and inspection	preparedness	CFA members - annual inspection process	IT system, web-based on-line data entry requiring some manual inspection and tabulation
PIMS	Performance Investigation Management System - database capturing recommendations and actions for service delivery improvement from operational and external reviews	prevention, preparedness, response, recovery	HQ Operations - on receipt of review feedback	IT system, on-line entry requiring manual tabulation of data
FIMS	Fire Investigation Management System - database capturing fire investigation records	recovery, prevention	Fire investigators and HQ Operations - on completion of fire investigations	IT system, on-line entry
ESA	Database for reporting non-response service delivery	prevention, preparedness	CFA members - quarterly summary of activity	IT system, on-line data entry requiring some manual tabulation
Data ware house	Overarching data repository extracting date from above independent databases and	prevention, preparedness, response,	automatic extract	IT system, automated extraction of data from above

	applying consistent business rules for performance reporting	recovery		databases
SAP	Financial transactions and controls	Not directly attributable to PPRR but are essential in recording plans and activities	Source via data entry from regional offices, electronic transactions as well.	Database.
GIMS	Government Infrastructure Management System – asset tracking and budgetary control for activity and controls	Not directly attributable to PPRR but are essential in recording plans and activities	Officers in Asset management and project and financial control,	Budgetary control database, Originally developed as Mincom commercial Ellipse the Government version is GIMS

During the meeting with CFA, there was discussion on:

- The difficulty of getting the balance right between PPRR e.g. for smoke alarms, there was no way to measure the effectiveness of installation campaigns (this differs from the FIRS reporting where the reporting officer is always present at the incident);
- Internal measures within Operations are primarily indicators about effectiveness, containment and response time;
- Making data warehouse type data available through CFA website or a web page accessible to all CFA staff (aspirational);
- 2003 Activity Based Output Model should be reviewed and refined, possibly using metadata registries e.g. International Standards Organisation/International Electrotechnical Commission (ISO/IEC) 11179;
- Uncertainty around understanding performance indicators e.g. for fire confinement data at an operational level was there a general increase or decrease in incidents, and, if so, was this attributable to certain CFA community activities or was this attributable to climate change, etc.;
- The Operational Dashboard and incident data will be updated daily;
- Whether insights into the data could benefit from providing browser based data to set up and save queries;
- The lag of the recording of incident information in FIRS up to 14 days behind IMS (CAD data packets) showing the unwieldiness of FIRS classified data when dealing with recording a complex incident, especially given the predominantly volunteer based workforce;
- Learning lessons from older systems of what worked and what didn't work and integrating legacy systems to produce results rather than starting from scratch;
- The management of strike teams, from creation through to management, using IMS;
- The use of the qualification and capability measurement system TRAIN e.g. the concept of auto detection of possible roles based on qualifications and prior learning; and
- Confrontation of data warehouse information with ABS Population Census data or, with other data, a mash-up interface accessible to CFA through web access could be considered.

4.1.2.1 Brigades Online

The Brigades Online system (which is supported by CFA Online Services) is designated as a browser based viewer into most of these systems and is an additional system which is envisaged to roll out to become accessible for all CFA staff. Since its launch in 2001 a great deal of content

has been developed and the site is continually growing with user feedback playing an important role in the future site shape. Currently about 800 of the approximately 1,200 CFA brigades are now using Brigades Online to better manage themselves. Content on the site includes:

- Reports of training records, service history and incident attendance;
- Over 1000 printable CFA documents, manuals and forms;
- Information about CFA programs including community safety, community meetings, juniors and brigade owned vehicles;
- Volunteers can check and change contact details online;
- Area and Region information including brigade lists, association contacts and calendar dates;
- A Storyboards section, where the community can upload media like photos of videos stories of those who have been affected by the fires, including the 2009 Victorian bushfires;
- Links to CFA publications in a 19 languages other than English (including Arabic, Chinese, Croatian, Fijian, German, Greek, Italian, Japanese, Khmer, Korean, Macedonian, Malay);
- The FireReady kit including the new fire ratings;
- Links to the Bureau of Meteorology website and the Victorian Bushfire Reconstruction and Recovery Authority website (www.wewillrebuild.vic.gov.au); and
- Programs, resources, curriculum maps and emergency planning as educational resources for schools and teachers.

5.0 Queensland

5.1 An overview of Queensland Emergency Services agencies

The Department of Community Safety (DCS) was created in March 2009 and includes the Queensland Ambulance Service, the Queensland Fire and Rescue Service (QFRS), Queensland Corrective Services and Emergency Management Queensland (EMQ). The role of EMQ is:

- Leading and coordinating activities undertaken before, during and after a disaster or emergency to minimise adverse community impacts;
- Disaster awareness including community safety and education programs, and the Emergency Services Cadets;
- Response and recovery services including State Emergency Service (SES) volunteers, Emergency Service Units, EMQ Helicopter Rescue and state disaster response management;
- Supporting volunteer marine rescue organisations as well as contract and community helicopter providers; and
- Actively engaging with local government to promote disaster management and volunteer management priorities.

Other agencies and services within DCS are:

- QFRS Rural Operations, including the Rural Fire Service whose main roles and responsibility include fire mitigation, prescribed burning, volunteer training, community awareness and education (http://www.fire.qld.gov.au/);
- QFRS Volunteer Scientific Officers;
- Honorary Ambulance Officers;
- State Emergency Service;
- Emergency Service Units;
- Volunteer Marine Rescue Association Queensland;
- Surf Life Saving Queensland;
- Australian Volunteer Coast Guard Association; and

- Royal Life Saving Society (QFRS Strategic Doctrine, p13).

5.2 Queensland Fire and Rescue Service

Queensland's increasing population presents the single greatest challenge to ESO service delivery across the state. Climate change also has a major impact on delivering services with higher annual temperatures, lower rainfall, longer droughts and more severe tropical cyclones predicted by 2030 (QFRS Strategic Doctrine p12).

QFRS is the primary provider of fire and rescue services throughout Queensland (http://www.fire.qld.gov.au/about/). QFRS (urban and rural) and the Qld SES are operationally separate but share some systems and are moving towards further unification.

QFRS also provides a vast range of other fire and rescue services including:

- Rescue - road accident and other types of rescue;
- Chemical and hazardous material management;
- Community awareness and education on fire and road safety issues;
- Building fire safety inspection, investigation and prosecution;
- Administering legislation relating to fire and safety, hazardous materials facilities and hazard mitigation;
- Rural land management advice regarding the role and use of fire;
- Fire scene investigation;
- Alarm monitoring and response; and
- Commercial training in firefighting, fire safety and evacuation procedures.

The QFRS has responsibilities within the DCS to administer the following Queensland legislation:

- Fire and Rescue Service Act, 1990;
- Dangerous Goods Safety Management Act, 2001;
- Emergency Services Legislation Amendment Act, 2001 and 2002; and
- Disaster Management Act 2003.

5.2.1 Overview of material provided

There was initial uncertainty within QFRS of what was expected of them in the project, their role and the material required from them. QFRS therefore provided only a limited amount of reading material at the beginning, with no screen shots, system documentation or schemas. However, a subsequent face to face meeting to demonstrate the operational systems used by QFRS for emergency management proved invaluable in providing context for the operational aspects of QFRS and filled in gaps that were unclear from the reading material, both initial and that subsequently provided. The website (http://www.fire.qld.gov.au/about/) was also found to be a good source of information.

5.2.2 QFRS information systems and operational procedures

The term PPRR is not used by QFRS which instead uses the 5Rs which are conceptually the same (apart from the first 'R'): Research (information and analysis), Risk modification (prevention), Readiness (preparedness), Response and Recovery. The 5Rs are based on a risk management framework that arose from the 2003 National Inquiry on Bushfire Mitigation and Management. QFRS states that "the 5Rs approach presents a more holistic methodology to emergency management as it emphasises the crucial role that research and information plays in ensuring the effectiveness of managing risk" (source: "Emergency Oct 07", p7 from the QFRS Commissioner, www.emergency.qld.gov.au/.../Emergency_Oct_07_contents.pdf). The

Emergency Management Information Development Plan (ABS cat. no. 1385.0) also uses the 5Rs to acknowledge the importance of risk analysis (exposure and vulnerability) within emergency management.

5.2.2.1 Emergency Services Computer Aided Despatch system (ESCAD)

When a triple-zero (000) call is made, it is re-routed from Telstra to the appropriate emergency service (Fire, Police or Ambulance) and subsequently the closest communications centre to the location of the incident. There are seven QFRS Fire Communications Centres (Firecom) located across Queensland. Fire Communications Officers (FCOs) gather information from the caller, including the geographical location and the nature of the emergency. ESCAD is used for notifying the most appropriate station of the emergency and the FCO maintains contact with the dispatched fire crew, usually by the use of radio communications and to action further requests for assistance as required. Updates on the location of the fire crew and status of the incident are entered by Firecom staff into ESCAD, although currently the system can inefficiently result in both urban and rural brigades attending the same incident. The GPS tracking of vehicles is currently being integrated into ESCAD. ESCAD was purchased from the USA (from VISI CAD) but it should be noted that it is different to the system used by NSWFB (http://www.fire.qld.gov.au/about/communications.asp).

Automatic fire alarms notifications are also sent directly to ESCAD. Upon receiving a notice, Firecom staff assess the call and request the closest station to attend the incident. Many unwanted alarms occur and where more than one unwanted alarm is received from a building in a sixty day period, QFRS charges for attendance to encourage building owners/occupiers to ensure their fire alarm systems are functioning correctly and are maintained. Unwanted alarms (alarm activates incorrectly) are different to false alarms. A false alarm is where the alarm is activated correctly (e.g. the alarm is functioning) but the incident may be caused by burnt toast that has not resulted in a fire.

ESCAD also supplies information to the QFRS GIS unit web mapping application which provides a graphical interface with real-time information on fires and road crash rescues. Selecting an incident on the map allows the user to view further details about the incident.

5.2.2.2 AIRS

The station officer manages operational work related to response activities. From an operational perspective, each station is responsible for the portfolio of work they will be undertaking. The first attending brigade is responsible for reporting on the incident using the QFRS AIRS system (built around 1997), based on the AFAC endorsed AIRS Manual. Plans are currently underway to replace AIRS with a new system (see below). QFRS have made changes to the AIRS 97 manual and system, retiring many codes that were considered not relevant (in most cases due to the information being more related to US conditions rather than Australia). The QFRS AIRS system user interface is driven by AIRS code and therefore without the AIRS manual it is not possible to enter data correctly. The user interface is such that there are not many rules to enforce accurate reporting of incidents e.g. the 'undetermined' or 'not classified' fields being selectable at the top of the screen making it the easiest option to select for an incident report. Another flaw identified by the current AIRS system is its inability to enter multiple incidents, something identified by NSWFB as also being an issue with their system.

QFRS Rural Fire staff currently record incident details on paper forms and data entry clerks later transfer the information to the system. Volunteer fire fighters report on most incidents attended through paper forms.

5.2.2.3 Station Management System (SMS)

The SMS is a facility for recording non-incident related activities such as building inspections, education visits, public relations, and other tasks related to station operations such as equipment testing. Information such as the task details, time taken and the person who undertook the task is recorded in the system. A register of all buildings or premises that are inspected for fire safety is maintained by the SMS. Building fire safety equipment such as fire hoses, hydrants and smoke alarms are also recorded. Reporting in the SMS is not mandatory and as a result there are data quality concerns. In addition, rostering for operations staff and inventory is managed and tracked through the SMS.

Information collected from ESCAD, AIRS, SMS and other systems are loaded into the data warehouse for reporting purposes. Management reporting is generated through the web based reporting system CORE. Depending upon the source of information, real-time data can be accessed but generally there is a four day lag from when the report is entered to it being available in the warehouse. Various performance indicators and other measures are generated from the data warehouse. Most have been defined by QFRS and others are based on the Report of Government Services (ROGS) measures. QFRS is moving towards the use of ROGS reporting.

5.2.2.4 Rural Information Management System (RIMS)

Rostering for QFRS Rural Fire operations staff and inventory is managed and tracked by RIMS. Rural AIRS uses a reduced level of incident reporting compared to QFRS AIRS. This reduced level has been associated with the challenge of getting information back from volunteers.

A number of issues have been identified with the current legacy systems resulting in inefficiencies. Duplicated reporting occurs due to different reporting tools being used that are not linked together in any way.

5.2.2.5 Operations Management System (OMS)

After extensive research and a national and international search for a system that would support their operations, QFRS invested $18 million on the new OMS. The decision to build a bespoke system was made after finding that a complete end to end system was not available. OMS will be replacing a number of legacy systems including the QFRS AIRS, SMS, and Rural AIRS in 2010. A change management process is currently underway including staff training on the new system. Metropolitan fire stations will migrate to the new system in 2010 with rural stations following a few months later.

QFRS are confident that the new system will deliver vast improvements to operations resulting in improved delivery of services. OMS will provide a one stop shop for fire personnel in managing their operational requirements. Incident reporting classifications will still be based on the AIRS manual in OMS. Unlike QFRS AIRS, the classifications are not listed solely by code in OMS but include a description of the item. Effort has been made to reduce the amount of data entry required for incident reporting through transferring many details about an incident from ESCAD. ESCAD data is replicated (or loaded) into OMS with a six second delay in the information being transferred. The concept of a task has been removed from OMS and replaced with activity. Incidents are defined as consisting of one or more events.

In summary OMS is providing an end to end solution for operations management with the following features and more planned for the future:

- Incident reporting;
- Record of personnel training;
- Activity reporting (e.g. community activities such as fire education);
- Access to HR information (e.g. leave, applying for leave);
- Rostering (including tracking of staff on sick/annual leave);

- Premise details where inspections were conducted;
- Database of buildings with monitored alarms;
- Report generation feature;
- Crew attendance at Incidents;
- Messaging;
- Pay claims generation calculator (internal travel only);
- Rural equipment database; and
- Street hydrant management tool.

OMS sources human resource information from the Integrated Human Resources Information System (IHRIS) which contains details about all QFRS employees and is used at a regional and state administration level but not by operational staff. All personnel in IHRIS are also in SMS but not all people in IHRIS are in SMS. SMS is used by operations staff for staff management.

OMS contains reporting features that support the 5Rs, including a dashboard feature for rostering. More features are planned including electronic time sheets and inventory management. The longer term vision is to provide access to systems such as OMS in trucks, thereby improving operations resulting in improved service delivery.

5.2.2.6 Asset Management System (AMS)

While QFRS has made efforts to classify most information for consistent data entry there are still areas needing attention such as the use of standard naming conventions for equipment. Legislation dictates what equipment must be tracked and is defined as managed items (e.g. breathing apparatus). Anything else is classified as unmanaged items. AMS is used for tracking equipment.

5.2.2.7 QFRS/Incident Management System (IMS)

QFRS has adopted the Australasian Inter-Service Incident Management System (AIIMS) in a system known as the QFRS /Incident Management System (IMS), used for both rural and urban incidents (p62, www.fire.qld.gov.au/about/pdf/QFRS_Strategic_Doctrine.pdf).

5.2.2.8 Volunteer Information Management System (VIMS)

A number of legacy technology and paper based systems are currently used to manage the volunteer workforce. VIMS is being built to provide end to end support and management of volunteers. It contains volunteer details, rank and responsibilities, stores and equipment, attendance and activation, and training and qualifications information. See Qld SES for further information.

The Queensland SES and volunteers use the web based Request for Assistance (RFA Online) system to report incidents (see Qld SES and NSW SES sections for further information). There are plans to ensure interoperability between VIMS and RFA Online (FRS - EMQ Volunteer Management System requirements specification).

5.2.3 Conclusion

There are obvious efficiency savings to be made through using common infrastructure, the most obvious being coordination of response activities. The Qld government structure of having all emergency services under one organisational umbrella has made it easier to migrate from separate, stovepipe technology and operations towards common systems and coordinated operations although there are still some barriers that need to be addressed in migrating to OMS. The move to a single system will ensure QFRS is technologically advanced compared to other ESOs.

6.0 Other Victorian agencies

6.1 Metropolitan Fire and Emergency Services Board

The following information is taken from the website (www.mfb.vic.gov.au). Under the Metropolitan Fire Brigades Act 1958, the Victorian Metropolitan and Emergency Services Board (MFB) is the primary provider of fire and rescue services for the Melbourne area. Services include:

Emergency response:

- Suppression of all types of fires;
- Urban search and rescue, including road accidents;
- Emergency Medical Response (EMR) First Responder Program;
- Emergencies on waters in Port Phillip Bay and the metropolitan river system;
- Industrial accidents and hazardous material handling and storage incidents;
- Supporting other combat agencies in emergencies;
- Chemical, biological and radiological emergencies; and
- Strategic, expert advice to the State Government on major events and anti-terrorist activities.

Non-emergency services:

- Input into the development of Australian Standards, Codes of Practice and Regulations affecting community safety;
- Delivery of community safety activities including education to increase awareness and preparedness;
- Conduct building regulation related inspections of fire and life safety systems and maintenance compliance;
- Development of fire safety and emergency plans for major events;
- Fire investigation and cause analysis, and the provision of data to the community and external authorities (within Privacy Act);
- Review and inspection of the dangerous goods handling and storage practices and fire safety systems of major hazardous materials sites;
- Representation on councils for fire prevention planning and community risk management;
- Attendance at and participation with local councils in municipal emergency management planning exercises;
- Provision of expertise, technical advice and skills acquisition services to interstate and international organisations;
- Servicing and sale of fire safety equipment; and
- Participation in appropriate fundraising activities.

6.1.1 Overview of material provided

The focus questions provided some information on the MFB systems and information requirements and there was an offer made by them to visit them to have their systems explained in more depth. However, the deadline and the budget did not permit this opportunity. A copy of a comparison of their Key Performance Indicators (KPIs) with those of NSWFB was also sent. The focus questions confirmed that they use PPRR as defined by the ROGS. Response data is collected through two computerised systems:

- Firecom which is automatically populated from the computer aided dispatch system used by the Emergency Services Telecommunication Authority (ESTA) and is updated as the incident is occurring;

- AIRS which captures the incident report and is completed by the Officer in Charge of the incident with some automatic population of fields in AIRS from the Firecom system. Reports are completed following the incident, although they can take up to a month to be completed.

There are no organisational systems for capturing Preparedness, Prevention or Recovery activities and no consistent business rules or definitions for the individual agencies. All information is captured locally.

The data collection is focused on events by geography, type and services (*ad hoc* and localised). The data is used:

- For internal performance reporting to inform operational and support services decision making;
- Incident management;
- Strategic resource allocation and location; and
- External performance reporting.

Data quality and consistency are reliant on operational members who may not be interested or qualified to complete the information required (e.g. structure fire dollar loss) or who don't understand the importance of reporting accurately what they see as an administrative function (perceived reporting burden). Those who use the data, such as analysts, face difficulties trying to apply pressure on sources to ensure data are correct. There has been a tendency for individuals to maintain their own extracts of data from the operational databases - extracts are based on slightly differing business rules and interpretations and arrive at different correct answers to the same question. To alleviate this problem, an Internal Data Quality Reference Group has been proposed for the MFB.

The emerging requirements for the MFB are likely to be in the capture of data in relation to Prevention, Preparedness and Recovery. At a national level, the basic information should be on the group engaged with, the activities undertaken and the quality outcome of activities and any ongoing concerns (which would then inform future activities). It is likely that the Royal Commission will increase the focus on community outcomes flowing from service delivery.

As well as internal reporting, Victorian Treasury and ROGS, MFB also supplies information to the Victorian Office of Emergency Services Commissioner (OESC).

There were a large number of MFB KPIs which were similar to those of NSWFB or could be derived from systems used. Notable omissions included:

- For prevention: per cent of building designs reviewed within legislative timeframe; number of persons hours performing community safety activities and number of person hours performing hazard reduction activities; per cent of households with smoke alarms installed.
- For preparedness: number of pre-incident plans developed, reviewed and completed and per cent of LGA meetings/councils attended.
- For response: number of person hours assisting another combat agency.
- For recovery: number of recovery pamphlets distributed; per cent of requests for information to settle insurance claims answered within 15 days.

6.2 Victorian State Emergency Services

The Victorian State Emergency Service (VIC SES) is a volunteer based emergency service for the State of Victoria under the Victoria State Emergency Service Act 2005, the Victoria State Emergency Service Regulations 2006, and the Emergency Management Act 2005. It has a wide range of roles including planning for and responding to floods, severe storms, earthquakes, road accident rescue as well as search and rescue. It also provides a support role to other emergency

service agencies including the Victoria Police and has a major planning role providing support and guidance to Government departments and municipalities as well as providing an audit role on all municipal emergency plans (www.vic.ses.gov.au).

6.2.1 Overview of material provided

Information was received as part of the 2007 State/Territory Performance Indicator Project. Some additional information was received later in the project which cast light on a number of operational aspects of the Victorian SES. These included:

- Membership - structure, rules and processes;
- Operational tasks undertaken, including relationships, which is useful for incident reporting (however missing definitional/description of entities);
- Road rescue arrangements, including callout and response protocols and time durations; and
- Equipment.

6.3 Victorian Fire and Rescue Squad

The Victorian Fire and Rescue Squad (VFRS) is a volunteer organisation which provides a professional fire and rescue service for motorsport events and promotes an awareness of the high safety standards required for the protection of those attending.

6.4 Conclusion

Information provided by MFB proved useful in the comparative gap analysis as it highlighted differences and similarities with the other large metropolitan fire brigade in Australia - NSWFB. Much of the additional information used in the environmental scan came from the respective websites.

7.0 Other Queensland agencies

7.1 Queensland State Emergency Service

The Queensland State Emergency Services (Qld SES) is part of Emergency Management Queensland (EMQ) and sits under the Qld Department of Community Safety. Under the Disaster Management Act 2003, the SES is a volunteer based organisation that is designed to empower people to help themselves and others in their community in times of emergency and disaster (www.ses.qld.gov.au). The SES becomes involved in preparing for and responding to many different types of disasters and emergencies including:

- Cyclones;
- Storms;
- Floods;
- Crime Scene/Forensics Searches;
- Public events;
- Body recovery;
- Earthquakes;
- Cliff rescues;
- Transportation incidents (road/rail/air);
- Landslides;
- Searches for missing persons;
- Animal disease outbreaks; and
- Providing support to other emergency services.

SES Members also assist other emergency services with provision of:

- Emergency lighting;
- Emergency welfare services;
- Control of traffic at emergency scenes; and
- Emergency communications.

7.1.1 Overview of material provided

Information on Qld SES, as part of EMQ, was primarily in regard to the new VIMS and RFA Online, which has also been mentioned under QFRS. Further information on these systems is below. Contact with the Department was also made in regard to some other, mainly legacy systems which are undocumented and underutilised e.g. the Building Fire Safety DB, ICT Community Safety, Compliance and Prosecution. The aim, as described above, is to broaden the SMS and AIRS into the OMS, to be rolled out in state-wide in 2010.

7.1.2 Qld SES information systems and operational procedures

7.1.2.1 EMQ Volunteer Information Management System (VIMS)

The VIMS is a training, equipment and communications package for SES and Rural Fire Volunteers, currently in development. According to the EMQ VIMS System Requirements Specification (p13), VIMS will provide:

- A single point of truth for all EMQ volunteer information by integrating or replacing current disconnected systems;
- Consistent performance of EMQ activities by implementing operational doctrine and policy;

- Consistent and accurate reporting through unification of information and elimination of duplication; and
- A clear delineation of memberships across EMQ and other branches of DCS.

VIMS will replace a number of systems and databases currently held. It is intended that:

- An Active Directory will be used to authenticate user access to the system.
- Volunteer contact details and updates will be provided to Saba and volunteer training history and qualifications will be retrieved from Saba for use in VIMS.
- Requisitions made through VIMS will be passed to SAP.
- Active Volunteer details will be regularly provided to the Volunteer Portal for registration purposes.
- VIMS will provide the data (or database function) required by RFA On-Line and retrieve (or store) incident and activation information.
- A barcode reading system is being trialled by the Far Northern Region. If successful, time and attendance information for training, meetings and activations not recorded in RFA On-Line may be retrieved from this system.
- The Geographic Information Systems (GIS) will provide VIMS with the organisational structure and structural relationships within EMQ, e.g. which units belong to an area. GIS will provide additional services such as address validation.
- Reports will be provided through a corporate reporting tool such as Cognos or Oracle Application Express.
- Further integration may be possible with these additional systems:
    i. Volunteer Directory Services can be used to authenticate appropriate limited access to the system by volunteers.
    ii. SHE may be accessed to provide data about volunteer workplace incident and hazard reports.
    iii. Potential exists to interface with 132 500 to provide local controller contact details and record community first contact information.
    iv. While no requirement has yet been identified the Grants, VISICAD and AMS systems can also potentially provide information to VIMS.

7.1.2.2 Request For Assistance (RFA) Online

RFA Online is a software program designed by NSW SES and adapted for use by Qld. It will allow EMQ and SES to manage, monitor and report on tasks and activities undertaken on a daily basis and on an incident basis. It creates and manages a team and then tasks the RFA to the team. The team can:

- Be put on site;
- Create a reconnaissance report;
- Record what equipment has been left on site;
- Record that a follow up needs to occur with another agency; and
- Record when a team leaves the site.

RFA Online will:

- Lessen duplicate jobs;
- Handle transfers of teams between areas;
- Provide evidence on the work done by SES teams; and
- Help justify the equipment used.

7.1.3 Conclusion

The Queensland ESOs are in the process of updating their systems to enable more interoperability and provide the requisite information and functionality to undertake the 5R activities required to ensure a safer community.

8.0 South Australia

8.1 Overview of SA emergency service agencies

8.1.1.SAFECOM

The South Australian Fire and Emergency Services Commission (SAFECOM) is the agency responsible for supporting the two firefighting services, the Metropolitan Fire Service (MFS) and the volunteer-based Country Fire Service (CFS), and the State Emergency Service (SES). It undertakes strategic policy planning, governance and resource allocation for the overall fire and emergency services sector and also supports emergency management planning across the state. Relevant legislation includes: SA Emergency Management Act 2004, SA Fire and Emergency Services Act 2005, SA Fire and Emergency Services Regulations 2005, SA Emergency Management Plan (vs 2.1 - 25th June 2009).

8.1.2 SA Metropolitan Fire Service

The SA Metropolitan Fire Service (MFS) is the primary provider of structural fire fighting services to the State of South Australia and is responsible for the protection of the SA community from the effects of fire, chemical incidents and other emergencies. It also invests considerable resources in identifying risks to the community, fostering behaviours that increase community preparedness and ensuring South Australian buildings are safe places to live and work. In addition to fighting fires, personnel also respond to a broader range of emergencies that include Road Accidents, Urban Search and High Angle Rescue. Firefighters must also deal with Chemical, Biological, Radiological (CBR) and other Hazardous Materials (Hazmat) (www.samfs.sa.gov.au/site/about_us/).

8.1.2 SA Country Fire Service

The SA Country Fire Service (CFS) is a volunteer based, fire and emergency service dedicated to protecting life, property and environmental assets in regional and semi metropolitan South Australia. The CFS attends bushfires, structure and motor vehicle fires, road crash rescue, hazardous material spills as well as working closely with local government to perform the important role of fuel removal, bushfire prevention and community bushfire and fire safety education (www.cfs.sa.gov.au/site/).

8.1.3 SA State Emergency Service

The SA SES is a volunteer based service which renders immediate assistance during emergencies and disasters, to provide community response to day to day incidents such as vehicle accidents, searches, cliff rescues, flood and storm damage situations and any other incidents that might require search or rescue responses. The SA SES also has legislation for flood and storm relief (/www.ses.sa.gov.au/site/about_us/).

8.2 Overview of material provided

Limited information was provided, mostly on AIRS for incident reporting and the upgraded version of AIRS which is now being used by both MFS and CFS. The provision of the table which summarised the AIRS manual was useful. There was no information provided on SA SES systems, however previous information was received from SA SES on the S/TES Performance Indicator project, some of which is relevant.

8.2.1 AIRS/Modified AIRS

MFS and CFS provided information which is currently collected using AIRS. Each AIRS Block was documented using a new worksheet, so use the tabs at the bottom of the spreadsheet to source the information for the different AIRS Blocks. The upgraded version for MFS is now being used by both MFS and CFS. The MFS and CFS system is an SQL Database with a web front for an on line AIRS Report from Stations. AIRS Reports are automatically created from the SA Despatch system and information populated during the incident via radio is automatically populated into the AIRS Reports, so Station Officers log into the AIRS system on return to station and confirm details already entered and then complete the rest of the required fields. Both the despatch system and AIRS are linked to the Critical Resource and Incident Information Management System Online Network (CRIIMSON) which is the operating system for live incident information and community warnings. The new system was built 2 years ago. There are some CFS/MFS codes for information collection that are not available as an AFAC code.

8.3 Conclusion

The information was reviewed against other states however there was little new additional information that needed to be added to that already compiled.

9.0 Western Australia

9.1 Fire and Emergency Service Authority

The Fire and Emergency Services Authority of Western Australia (FESA) coordinates the response to a wide range of emergencies including fire, cyclones, storms, floods, road crash, hazardous material spills, earthquakes and tsunami as well as undertaking search and rescue operations on land and water. It helps the West Australian community prepare for, prevent and respond to and recover from an emergency. FESA staff also have responsibility for:

- State Emergency Management Committee - peak WA emergency management body;
- Emergency management policy and planning;
- Emergency management training and development; and
- Mitigation - a State Mitigation Committee provides a coordinated whole-of-government approach to disaster mitigation ensuring appropriate access to Commonwealth Natural Disaster Relief Arrangements funding and the effective identification and implementation of mitigation strategies on a state-wide basis.

FESA also supports other key initiatives including:

- AWARE (All West Australians Reducing Emergencies) - aims to enable local government and their respective local emergency management committees, relevant agencies and the community to identify emergency hazards or risks and develop appropriate treatment options through the emergency risk management process through a grants scheme or training in emergency management;
- Emergency management legislation;
- Natural Disaster Mitigation Program; and
- Natural Disaster Relief Arrangements (http://www.fesa.wa.gov.au/).

FESA is the umbrella organisation for three separate operational services:

- Fire, which includes career and volunteer Fire and Rescue Services as well as local government controlled Bush Fire Brigades;
- Volunteer SES – who respond as the hazard management agency to natural hazard emergencies; and
- Volunteer Marine Rescue Services – who provide a combat role to marine emergencies in support of Western Australia Police as the hazard management agency (source: response J Tomlinson - datasets_11.8.pdf)

FESA administers the following Acts:

- Fire and Emergency Services Authority of Western Australia Act 1998;
- Fire Brigades Act 1942;
- Bush Fires Act 1954 - local governments are also vested with responsibilities under this Act, in relation to bush fire prevention, control and extinguishment, including the establishment and running of volunteer bush fire brigades;
- Emergency Services Levy Act 2002; and
- Emergency Management Act 2005.

9.1.1 Overview of material provided

Limited information was provided for Fire Services and SES which contained aspirational items and detailed issues for consideration which are not reflected in the summary below.

9.1.1.1 AIRS

Fire Services data currently collected is as outlined and defined in the current AIRS data dictionary. Some specific issues for consideration (gaps in data) are:

- Hazardous materials incident data - current coding has limitations and sometimes greater detail is required;
- Expansion of information to include smoke from anything other than a 'normal' fire;
- Off site impact should be considered;
- Container codes should consider illegal containers e.g. ammonia;
- Dust explosion should be a type of explosion (can cause injuries and bush fires); and
- Preventative actions coding should be considered e.g. actions to mitigate future hazards.

Aspirational datasets for Fire Investigation and Analysis include:

- Type of fire related injury (e.g. smoke inhalation, burn, shock);
- Whether first aid administered e.g. oxygen therapy, resuscitation, burn treatment;
- Whether ambulance called/whether victim went to hospital;
- Percentage of body burns sustained, severity of burn injuries (1st, 2nd or 3rd degree) and parts of body burned (e.g. head, trunk, arms, legs);
- Age of patient; and
- Actions leading up to injury e.g. smoking, sleeping, refuelling, engine maintenance, cooking, attending fire, extinguishing fire (with extinguisher, water, blanket).

No rescue incident information was received.

9.1.1.2 EM2000

Database systems for WA SES services are currently 'stand-alone' and have different levels of capability in terms of data collection and reporting. SES is currently using a system called EM2000 based on a Lotus Notes platform (no longer technically supported and is very restricted in reporting capability). It is proposed to replace the system during 2008-09 with systems being considered including the OMS system developed by CFA for the Victorian SES. The intention is to link the new system into the OMS system wherever possible. Definitions for SES are based on Emergency Management Australia definitions wherever appropriate. Datasets are currently collected as per the national S/TES performance indicator project.

Aspirational data: Level of preparedness in relation to:

- Allocated resources (equipment and appliances) to meet identified risk;
- Number of volunteers to meet risk profile; and
- Proportion of volunteers training in line with risk profile.

9.1.1.3 EMWA Extranet

Emergency Management Western Australia (EMWA) is a division of the Fire and Emergency Services Authority of WA (FESA). EMWA provides whole-of-government emergency management (EM) services and is working to enhance the safety of communities across WA through a significantly improved EM capability. The strategic direction of EMWA is to develop and improve the State's EM arrangements - through capacity building, advisory and support services. Capacity building consists of activities or services aimed at improving the EM capability of an individual, organisation or community and includes: policy and planning; ongoing engagement of key stakeholders in respect of the Emergency Management Act 2005 and related matters;

training and development; facilitation of community-centred emergency management, through direct assistance to local governments and local emergency management committees; state mitigation initiatives; and natural disaster relief and recovery arrangements.

The EMWA Extranet has been developed to assist emergency management practitioners in their daily business. It is only available to registered users. Amongst other things, it provides:

- An on-line resource of relevant material in the way of a document library;
- Work spaces for individual committees;
- Access to policies, procedures, guides and forms from the State Emergency Management Committee and EMWA; and
- Facilities for all level of committees to prepare and submit their annual business plans and annual reports.

9.2 Conclusion

Apart from noting the aspirational items, many of which were too detailed for the high level conceptual model and gap analysis but will prove useful in Phase 2 of the Project, there was little to add.

10.0 Tasmania

10.1 Overview of Tasmanian emergency services

The Department of Police and Emergency Services consists of the Tasmanian Police, the Tasmanian Fire Service, the Tasmanian State Emergency Service and the Forensic Science Service Tasmania. Relevant emergency service legislation includes: Emergency Management Act 2006, Fire Damage Relief Act 1967, Fire Service Act 1979, Fire Service (Continuity of Regulatory Arrangements) Act 2006 and General Fire Regulations 2000.

10.2 Tasmanian Fire Service

The Tasmania Fire Service (TFS) protects life, property and the environment from the impact of fire and other emergencies. It is the operational arm of the State Fire Commission and consists of both career and volunteer firefighters. TFS undertakes:

- Emergency response;
- Emergency call handling and dispatch;
- Fire investigation;
- Training;
- Community fire education;
- Building safety;
- Fire equipment sales and service;
- Building and maintaining TFS vehicles;
- Maintaining a State-wide communications network; and
- Fire alarm monitoring.

Emergency capabilities include the capability to respond to structural fires and bushfires, as well as:

- HAZardous MATerial incidents (HAZMAT);
- Chemical, Biological and Radiological incidents (CBR);
- Urban Search And Rescue (USAR); and
- High Angle Rescue Teams (HART).

The TFS has a close co-operative relationship with the other emergency services in the State; Tasmania Police, State Emergency Service and the Tasmanian Ambulance Service. In addition, the TFS has mutual aid arrangements with Forestry Tasmania and the Parks and Wildlife Service to ensure major bushfires are adequately resourced and managed. These relationships enhance emergency response across the State. TFS also contributes to Tasmania's security through its participation on the State Disaster Committee (www.fire.tas.gov.au).

It should be noted that the Tasmanian Parks and Wildlife Service is responsible for the management of bushfires on all reserved land in Tasmania. This management includes:

- Control of unplanned bushfires;
- Planned burning to reduce fuel loads and make fire control easier and safer;
- Planned burning to help maintain biodiversity, promote regeneration of plants that depend on fire and to maintain suitable habitat for animals; and
- Maintaining assets that assist with bushfire control, e.g. fire trails, firebreaks and waterholes.

10.2.1 Overview of material provided

TFS supplied AIRS fields and codes information as well as a design schematic. Also included were fire investigation reports for wildfire and for structure fire. This material was similar to other AIRS information and reporting used by other ESOs. Emergency incidents are managed using AIIMS ICS principles. Brigades are notified of emergency incidents by the TFS State-wide control centre (called Firecomm). Firecomm is located in the State Headquarters in Hobart and operates 24 hours a day.

10.3 Tasmania State Emergency Service

The Tasmania SES provides an emergency volunteer response capability for severe storms and floods, road crash rescue, search and rescue/recovery and a range of other general rescue and community support roles. In addition the SES provides whole of government advice and executive support to the State Emergency Management Committee and Regional Emergency Management Planning Groups and takes the lead with much of the State's emergency management planning and emergency risk management work (www.ses.tas.gov.au).

The SES undertakes:

- Storm damage - temporary repairs to ensure that buildings are secure until owners can arrange for permanent repairs;
- Floods - relocate stranded people, evacuate stock to safe areas and sandbag to protect property;
- Road crash rescue - volunteers trained in road crash rescue use the jaws of life and other specialised tools to rescue trapped persons from vehicle accidents in rural areas; and
- Search and rescue - highly trained and welled equipped volunteers are often involved in assisting the Tasmania Police with search and rescue operations on land and inland waters with some equipped with the skills for vertical rescue, bush and snow searches.

No information was provided for Tasmanian SES for this project, however some relevant information was contained in the S/TES performance indicator project documentation.

11.0 Northern Territory

11.1 Overview of NT emergency services

The Northern Territory Police, Fire and Emergency Services is a Tri-Service. It is responsible for the protection of life and property and the provision of disaster and emergency management to widely dispersed communities throughout the Northern Territory (www.pfes.nt.gov.au). Relevant legislation includes:

- Fire and Emergency Act;
- Fire and Emergency Legislation Amendment Act 2009;
- Fire and Emergency Regulations; and
- NT Disasters Act.

11.2 Northern Territory Fire and Rescue Service

The Northern Territory Fire and Rescue Service (NTFRS, in conjunction with Bushfires NT) is the primary provider of fire and rescue services throughout the Territory. The NTFRS provides a vast range of other fire and rescue services including:

- Rescue – road accident and other types of rescue;
- Chemical and hazardous material incident management;
- Community awareness and education on fire and safety issues;
- Juvenile Fire Awareness and Intervention;
- Fire safety compliance inspection of commercial buildings and building plans;
- Administering legislation relating to fire and safety in buildings and on rural property;
- Rural land management advice regarding the role and use of fire as a hazard mitigation tool;
- Hazard abatement;
- Fire cause investigation;
- Fire alarm monitoring; and
- Fire safety advice to the general community.

The NTFRS provides these services as well as responding to fires in homes, buildings, vehicles and on the land, and maintaining a maximum level of operational preparedness of staff and fire and rescue equipment (www.pfes.nt.gov.au).

11.3 Northern Territory Emergency Service

The Northern Territory Emergency Service (NTES) provides a volunteer response capability for emergency events. This response may be on an individual basis or in support of other elements of the Tri-Service. In addition, NTES has a responsibility for facilitating emergency planning and education in the NT (www.pfes.nt.gov.au).

11.3.1 Overview of material provided

NT supplied a number of documents including output statistics, various strategic and business plans which provided a good list of performance indicators and activities structured around the PPRR domains. These included:

Prevention:

- School based education services;
- Visits to schools;
- Visits to station by schools;

- Basic fire awareness;
- Evacuation drills;
- Hazmat abatement - burn offs;
- Fire break inspections; and
- Other.

Response:
- Structure fires contained to room of origin;
- Number of structure fires;
- Medical assistance when St John NOT available; and
- Response time within 8 minutes.

Preparedness:
- Community awareness programs delivered;
- Volunteer/auxiliary training programs delivered;
- Volunteer recruitment; and
- Vehicles, equipment and facilities.

There was also mention of the NT Fire Alarm System (NFAST) which was said to be 'best practice' although no further information was received.

11.4 Conclusion

While there was some additional information received the main interest in NT was to compare a 'small' ESO with larger ESOs e.g. from NSW, Victoria or Queensland.

12.0 Australian Capital Territory (ACT)

The ACT Emergency Services Agency (ESA) operates under the Emergencies Act, 2004. ESA is responsible for the overall strategic direction and management of the four services (the Fire Brigade, Ambulance Service, Rural Fire Service (RFS) and the SES). The ESA's role is to protect and preserve life, property and the environment, and to provide an effective and cohesive management of the four emergency services (www.esa.act.gov.au).

12.1 ACT Fire Services

The ACT Fire Services consists of the ACT Fire Brigade and the ACT Rural Fire Service (RFS). Services to the community include:

- Respond to structure fires;
- Respond to bushfires;
- Respond to vehicle fires;
- Undertake motor vehicle accident rescue;
- Respond to building collapse;
- Undertake animal rescue;
- Conduct fire investigation;
- Respond to hazardous materials incidents;
- Respond to chemical, biological and radiological incidents;
- Ensure fire safety compliance in buildings;
- Conduct fire hazard inspections; and
- Coordinate community fire units.

12.2 ACT State Emergency Service

The main function of the ACT State Emergency Service (ACT SES) is to undertake planning and response operations for storms and floods (www.ses.act.gov.au/)

12.2.1 Overview of material provided

The ACT RFS and ACT SES are dispatched via “Vision”, a Computer Aided Dispatch (CAD) system utilised by the ESA. They then use hand written log books to record their response and who is their on call member. Both services are looking into acquiring a reporting system similar to AIRS to record their activities. Data contained in and produced by CAD is exported to primary and secondary databases. Reports using this data are then produced as required utilising proprietary programs such as Crystal Reports Access, BOSS, etc. The SES use a proprietary program called VETtrak for their training records.

The ACT Fire Brigade uses AIRS as its incident response reporting system. Many of the PPRR activities other than Response are recorded using a variety of other means, from commercially available programs such as VETtrak (for training activities) to station diaries held at each fire station. For example:

- Prevention - various Excel spreadsheets, Access database, station diaries, Critical Incident Stress Management (CISM);
- Preparedness - VETtrack for skills acquisition/maintenance and course attendance, Excel;
- Response - AIRS; and
- Recovery - CISM, MS Access database

Additional examples of this information were received later in the project.

12.3 Conclusion

Similar to NT, the ACT provided an opportunity to investigate less sophisticated ESOs, which could substantially benefit (in the future) from the outcomes of this project.

13.0 Australasian Fire and Emergency Services Authorities Council

13.1 Landscape Fire Performance Measures

The Australasian Fire and Emergency Services Authorities Council (AFAC) Landscape Performance Measurement project provides a framework for landscape fire performance measures. The project uses AIRS data and data standards wherever possible and a data dictionary has been prepared that will be used in conjunction with Business Rules. The data dictionary describes in detail the standards for the data elements required to calculate the measures. Its use will ensure individual agencies and jurisdictions collect, store and report on data that is comparable at a national scale. If data for the landscape fire performance measures is required in AIRS, non contributing agencies will be encouraged to commence contributions in time to meet the reporting requirements outlined in this document.

Within the Business Rules, various groups are assigned to those agencies with legislated responsibility for the group. Group A (Life and Injury), B (Economic Losses), E (Ignition Prevention) and H (Response) are assigned to the agencies with legislated responsibility for the control and management of landscape fires in rural areas. Landscape fires will also be the responsibility of urban fire services however at a reduced scale. Group C (Volunteer Time) is assigned to agencies that use volunteer firefighters. Group D (Damage) are assigned to agencies with land management responsibilities as well as the rural fire services. Group F (Community Prevention) and Group I (Prescribed Burning) are assigned to rural fire services and land management agencies with prescribed burning. Each measure contains information including:

- Objective, name, original comments;
- Data elements, rationale, existing definitions;
- Data sources and history;
- Links to other projects; and
- Discussion, actions and recommendations.

These landscape performance measures are relevant to the project as it provides information on landscape fires which needs to be taken into consideration within the model and subsequent Data Dictionary as well as considering how AIRS will be used in this process.

The aim of the Landscape Performance Measures project is to use existing sources for the provision of data and, specifically, the AIRS data and data standards wherever possible. However, not all AFAC member agencies have responsibility for landscape fires and not all relevant agencies contribute to AIRS. From Table 3 p9 of the Business Rules for Landscape Fire Performance Measures, the following Australian agencies currently report to AIRS:

- ACTFB;
- NSWFB, NSWRFS;
- NTFRS;
- QFRS;
- SA MFS;
- TFS;
- MFB, CFA;
- FESA; and
- ASA (Air Services Australia).

The following agencies are required to report to AIRS:

- ACT RFS;

- BNT (Bushfires Council of NT);
- CFS (SA Country Fire Service);
- FT (Forestry Tasmania);
- DSE (Vic Department of Sustainability and Environment); and
- DEC (WA Department of Environment and Conservation).

Aspirational items in relation to the framework include (Data Analysis v0.2 28 January 2009):

Reduce loss of life and injury: (Note - to be collected from AIRS including fire type)
- A1: Fire Deaths per 1,000,000 persons.
- A2: Fire Injuries per 100,000 persons

Reduced economic loss:
- B1: the number of primary dwellings destroyed.
- B2: percentage of area of high value/high risk zones burnt by wildfire.
- B3: percentage of area of commercial plantations lost from wildfire.
- B4: number of stock killed.
- B5: kilometres of fencing damaged.

Reduced disruption to the community and its ability to function:
- C1: Total number of hours by volunteers on wildfire suppression.

Reduced damage to the environment, heritage and cultural assets:
- D1: Number of cultural heritage sites damaged by wildfire.
- D2: Number of times the National Environmental Protection Measures standard for PM10 particulates resulting from wildfire and prescribed burns is exceeded each year in major population areas.
- D3: Proportion of harnessed water catchments impacted by high intensity wildfire.

Number of preventable fires is reduced:
- E1: Number of Deliberate Ignitions.
- E2: Number of Accidental Ignitions.

The community is more informed of the role of fire in the landscape and supports prescribed burning:
- F1: Percentage of community who understand the role of prescribed burning.
- F2: Percentage of community supporting prescribed burning as a necessary act in the protection of the community.

The community is informed about the risk they face from wildfire, are prepared for wildfire, and behave appropriately when a wildfire occurs:
- G1: Percentage of households in high risk areas that have prepared in accordance with community education guidelines.
- G2: Percentage of households that understand risk and know what to do.
- G3: Number of people that implement appropriate behaviours.

Fires are contained to as small an area as possible:
- H1: Percentage of fires contained to within determined standards in high value zones.
- H2: Percentage trend in median fire size in high risk / high value zones.
- H3: Percentage of specified fires not contained prior to 1000 the next day.
- H4: The number of landscape fires reported.

Fuel reduction is maintained to within specified standards:

- I1: Percentage of target area that is treated to specified standard during prescribed burns.

AFAC has also provided a number of useful glossaries and standard reference materials. These include:

- Vic Department of Sustainability and Environment - Fire Management - Glossary of Fire Terminology.
- Vic Department of Sustainability and Environment - draft Incident Responses Information System Dispatch/Deployment Business Practices October 2005 (used by CFA).
- Vic Emergency Manual - Chapter 8 (data and standards).
- AFAC Wildfire Glossary - Indexed January 2009 - to seek to facilitate a greater understanding between wildfire and land management agencies and support organisations during the prevention of, preparedness for, response to and recovery from wildfires.
- AFAC Strategic Plan 2008 – 2015.

13.2 Victorian 2009 Bushfire Research Response: Final Report October 2009

Aspirational items in regard to:

- Communication;
- Community shelters;
- Importance of redirected effort into fire plans - even if you don't think you're at risk;
- Stay and go policy - leave early, also know your own limitations;
- Building and planning provisions including type of water tanks, location/protection of pumps/pipes; and
- New catastrophic warning and its implications.

13.2.1 Fire Behaviour

- Spotting ahead of the main fire front played a significant role in the forward rate of spread of all the fires.
- The current fire behaviour meters under predict the forward rate of spread seen on the day.
- Further work is required to understand the detailed progression of the fire across the landscape.

13.2.2 Human Behaviour

13.2.2.1 Planning and Preparedness

- Many residents were not prepared for the severity of the February 7 bushfires.
- Many who lived in suburban locations had not planned or prepared for bushfires because they did not consider themselves at risk.
- A considerable amount of last-minute planning and preparation took place on the day.
- There are many examples of 'weak links' in people's planning and preparation that affected their ability to implement their fire plan.

13.2.2.2 Information and Warnings

- Agencies such as CFA and local councils had been only modestly successful in informing members of at-risk communities about effective preparation and planning for bushfires.

- Predictions in the preceding week were that Saturday 7th February was to be a day of unprecedented fire danger. There was only modest awareness of the implications of this in the community.
- The lack of timely information about developing threats to specific areas may have contributed to many people being surprised by the sudden impact of the fire.
- Environmental clues such as smoke were important in alerting people to developing threats and in many instances prompted an active search for more information or a decision to leave or initiate defence.

13.2.2.3 Intentions and Actions

- Half of the households interviewed reported at least one household member whose intention was to stay and defend. The perceived success of the 'stay and defend' strategy in past bushfires appears to have influenced people's intentions to stay and defend.
- A quarter of households interviewed reported at least one household member whose intention was to leave during a bushfire. Beliefs about the survivability of houses and their safety as a refuge during bushfires were paramount.
- A significant number of residents intended to wait and see what the bushfires were like before deciding whether to stay or go. These residents wanted to stay and defend their homes and properties, but were not fully committed or confident in their ability to do so in all conditions.
- Approximately 10% of interviewees had not previously considered how they would respond to a bushfire. These residents typically lived in more suburban locations and did not consider themselves to be at risk from bushfires.
- Around 45% of households reported that a household member stayed to defend. Some of those who intended to stay and defend left because of the severe conditions.
- Around 55% of the households reported that a household member left because of the fires. There appear to have been many late evacuations.
- A very small number of interviewees sheltered passively throughout the fire.
- Some of those who stayed to defend may have exposed themselves to considerable danger by moving around fire-affected areas.

13.2.2.4 Emerging Issues and Themes

- It appears many residents endeavoured to return to their properties as soon as possible after the main fire danger had passed, for many reasons but a main driver was to check on the status of and defend property.
- Many community members regarded public buildings, ovals and emergency services facilities as safe places of refuge during a bushfire. There is some evidence of support for purpose-built community shelters in which residents can take shelter during a bushfire.
- Some of those who stayed to defend their homes and properties reported a range of factors that influenced their capacity to defend. These included heat exhaustion, dehydration, breathing difficulties, and eye irritation. A range of pre-existing medical conditions, such as asthma and arthritis, also inhibited some people's capacity to defend.
- Anecdotal evidence suggests that many of those who sheltered passively inside their homes may have done so in bathrooms (note - no fire agency in Australia advocates sheltering in bathrooms as a safe and appropriate response while sheltering in homes).

13.2.3 Building and Planning

Results of over 1000 homes surveyed:

- Active defence of structures has a major influence on house survival.

- Building quality, detail and possibly house age appear to be factors influencing the likelihood of house loss.
- Brick houses performed significantly better than mud brick and light-weight constructions clad with timber and cellulose cement sheet.
- The potential for wind damage of structures should be a key factor in future building consideration in bushfire-prone areas.
- Approximately 20% of house loss in the chosen study areas appears to be directly related to their immediate proximity to adjacent forest fuels.
- House loss has occurred at distances greater than 380 metres from continuous forest and this figure may be substantially greater once a broader set of houses is analysed.
- Over half the surveyed houses lost in the bushfires were not in regions classified by a Wildfire Management Overlay.
- Metal and concrete water tanks are more likely to maintain an effective water supply for house defence than polyethylene and fibreglass tanks.
- Design, location and degree of protection of water pump and pipe-work are important factors in maintaining an effective water supply throughout the fire event.
- Mains water pressure and mains electricity cannot be relied upon during the fire event.
- Vegetation overhanging or immediately adjacent to houses, whether it is isolated of continuous, is a key factor influencing the likelihood of house loss.

New regulations that adopt the Australian Standard for Design and Construction of Buildings in Bushfire-Prone Areas (AS 3959-2009) came into effect in Victoria on 11 March 2009. The new regulations stipulate that every new home built in Victoria will undergo a Bushfire Attack Level (BAL) site assessment as part of the application for a building permit, to determine which method of construction is to be used. There are 6 BALs, replacing the 4 levels in the 1999 version of AS 3959.

14.0 United Kingdom

Like other ESOs across the world, United Kingdom (UK) emergency services face an increased variety of demanding situations. Major incidents caused by natural disasters, industrial accidents and the threat of terror attacks are challenges that require preparation at a national level. These incidents demonstrate how important it is for emergency services to be able to work together for the benefit of public safety. The 'Fire and Resilience Programme' will ensure an effective, resilient capability that will respond seamlessly in all situations, whether they are day to day incidents, large incidents needing a regional response, or major national disasters caused by terrorism, accidents or nature. There are three fully integrated projects in the Programme:

- New Dimension - the supply of specialist equipment to deal with a range of incidents including: urban search and rescue, rescue from collapsed structures, flooding, mass decontamination, identification and detection of unknown potentially hazardous substances, high volume pumping and enhanced command and control;
- Firelink - the provision of a digital radio-communications system for the Fire and Rescue Service that is common to all emergency services in England, Scotland and Wales, enabling them to talk to each other on the same secure network. The new system will have: clearer voice quality compared to analogue radios; facilities for storing shared data; the option to talk directly between officers' cars and appliances; national links between control centres and vehicles wherever they are; and the ability to identify the location of a caller using a mobile phone; and
- FiReControl - a network of nine regional control centres supporting the mobilisation of Fire and Rescue Service resources throughout England to replace the existing 46 fire and rescue service control rooms which rely on different technologies and operational procedures. The new network will use a single national operating system, providing all nine regional control centres with access to the same information, latest technology and functionality that is currently only available to a few. The first of these centres are expected to be up and running by Summer 2010 (June – August). This will enhance the service provided to communities when responding to both routine and major incidents.

Local fire services are run by locally accountable Fire and Rescue Authorities, with 63 Brigades in England, Wales, Scotland and Northern Ireland. Communities and Local Government provide support, equipment and training to the fire and rescue service as well as supporting regional and local organisations to develop emergency planning through multi-agency forums with the police, ambulance service and others (www.communities.gov.uk).

14.1 Prevention and Preparedness

Fire and Rescue Authorities work closely with the community to promote fire prevention. Online services through the Fire Gateway portal include home fire safety checks as well as general information on basic and common-sense precautions for anything that could cause a fire.

14.2 Response

When 999 is dialled, the call will be answered by a telephone exchange operator who will ask you which emergency service you require and the telephone number that you are dialling from. While staying on the line you are connected to the Fire and Rescue Control Room in the area called from, not the local fire station. On connection to the Fire and Rescue Service the telephone exchange operator passes your telephone number to the fire brigade control operator. The following questions are then asked: What is on fire? What is the address? What is the nearest main road? What town are you in? Emergency calls to the Fire and Rescue Control Room are handled, from receipt of the call to mobilising the Fire Appliance, in less than 60 seconds.

14.3 Urban Search and Rescue

USAR provides the Fire and Rescue Service with a national capability to respond to major emergencies involving chemical, biological, radiological and nuclear (CBRN) events, search and rescue, major flooding incidents and major transport incidents. This national capability augments existing local and specialist capability based on nationally assessed risk and wider planning assumptions. This capability will also be available for use by the Fire and Rescue Services whilst carrying out their normal business. The strategic objectives of the USAR are:

- To enhance the capability of the fire and rescue service to respond to and manage three simultaneous and large scale structural collapse incidents.
- To enable the Fire and Rescue Service to respond and deal with a wider range of incidents with enhanced safety.
- To provide a tiered structure of response to incidents.

Any response to an incident involving structural collapse consists of four sequential steps or levels:

- Level 1 Response – Predetermined Attendance (PDA) and local Fire and Rescue appliances and crews.
- Level 2 Response - PDA plus additional response of specialist appliances from within the Fire and Rescue Service where the incident occurred or from an adjoining Fire and Rescue Service. This may include the nearest USAR team if requested.
- Level 3 Response - would include the attendance of reinforcing pumps and special appliances from neighbouring Fire and Rescue Service. Such incidents could be dealt with using the resources from within a Region, or as a consequence of geographic location, adjoining region(s). It is anticipated that the nearest USAR team would be mobilised and additional support e.g. engineers, hazmat resources would be required.
- Level 4 Response - will include large numbers of personnel and equipment from beyond the affected Region over an extended period of time.

Source: (www.fire.gov.uk)

14.4 UK Fire and Rescue Service

The UK Fire and Rescue Service provided a number of useful documents, including some schemas for their Incident Recording System (IRS) including:

- Religion and ethnicity;
- Training materials;
- IRS Guidance Master; and
- IRS Information Modelling Pack.

The UK's Fire Service reports to the Office of the Deputy Prime Minister (ODPM), as part of the House of Commons. The current UK Fire Service is almost wholly Response oriented in its reporting. The set of data forms used in operational reporting focus primarily on fire response. The national fire incident statistics database contains information on around a million fire-related incidents per year attended by the UK Fire Service (59 brigades). The main collection relates to fires involving property, casualties and/or rescues (termed ‘primary fires’) - some 230,000 incidents a year. However, UK fire brigades keep records of all fire-related incidents that they attend. Data is collected on fires and false alarms attended by the UK Fire Service with the fires split between:

- Primary fires – collected individually on the form entitled 'Fire Data Report 1' ('FDR1') – these are the more serious fires, and involve property and/or casualties;
- Secondary fires – collected in aggregate form on 'FDR3' each month for each brigade – these are the less serious fires, often outdoors and do not involve property or a casualty;
- Chimney fires – 'FDR3' fire in an occupied building but confined to the chimney and with no associated casualties;
- False alarms – malicious or good intent or due to apparatus - 'FDR3'.

The form 'FDR1' is much more complex and information is collected for each incident under the following sections:

- Section 1 - Brigade information (brigade and call numbers);
- Section 2 - Incident information (geo-codes, risk category, times and dates, etc.);
- Section 3 - Location of fire (type of property, location, occupancy, vehicles);
- Section 4 - Extinction of fire (fire-fighting equipment, appliances, etc.);
- Section 5 - Supposed cause, damage and other fire details;
- Section 6 - Life risk (persons involved, fatal, non-fatal, rescues, names, etc.); and
- Section 7 - Additional information (free text -often a useful part of the form).

Relevant aspects of these schema have been transferred to the draft data model.

The 'Review of the National Fire and Rescue Incident Statistics Collection', February 2004 introduced an Integrated Risk Management Plans (IRMP) and a greater emphasis on fire reduction through Community Fire Safety (CFS). These developments:

- Lead to demands for new and better managed data;
- Require more information on resources used;
- Cover non-fire incidents; and
- Imply greater need for geo-coded data that requires better location referencing than at present; either accurate grid references, full correct addresses or postcodes.

15.0 United States of America

There is a plethora of material on the United States (US) emergency services accessed through the various websites. The following attempts to provide an outline of key agencies, frameworks, systems and operations within the US and on future work which could impact on the draft data model and the National Emergency Services Organisations Data Dictionary.

The National Strategy for Homeland Security, October 2007, outlines the US strategy to guide, organise, and unify the US's homeland security efforts by providing a common framework. Expressed goals are strongly terrorist orientated, but it does include preparedness for natural disasters. The Department of Homeland Security's (DHS) Preparedness, Response and Recovery document outlines these activities and programs most of which are coordinated or originate in the Federal Emergency Management Authority (FEMA).

Within FEMA, relevant Directorates include:

- The National Preparedness Directorate (NPD) was created (post-Katrina) to unify DHS' preparedness, mitigation, response and recovery missions. NPD oversees the coordination and development of the capabilities and tools necessary to prepare for terrorist incidents and natural disasters among all levels of government. Divisions of NPD are: Preparedness, Policy, Planning and Analysis; Technological Hazards Division; 'National Integration Center'; Community Preparedness Division; and Preparedness Coordination Division. Frameworks, Guidelines and Systems include: the National Response Framework (NRF); the National Preparedness Guidelines (NPG); and the National Incident Management System (NIMS).
- Disaster Assistance Directorate: ensures that all individuals and communities affected by disasters of all sizes are able to return to normal function with minimal suffering and disruption of services. It does this through programs such as Individual and Public Assistance, emergency and disaster declaration processing, etc.
- Response Division: provides the core coordinated federal operational and logistical disaster response capability needed to save and sustain lives, minimise suffering, and protect property in communities that become overwhelmed by natural disasters, acts of terrorism, or other emergencies. Activities encompass the coordination of all federal emergency management response operations, response planning, logistics programs and integration of federal, state, tribal and local disaster programs.
- Mitigation Directorate: manages the National Flood Insurance Program (NFIP) and a range of programs designed to reduce future losses to homes, businesses, schools, public buildings and critical facilities from floods, earthquakes, tornadoes and other natural disasters.
- US Fire Administration - uses National Fire Incident Reporting System (NFIRS), the standard national reporting system used by US fire departments to report fires and other incidents to which they respond and to maintain records of these incidents in a uniform manner. Also includes information on training, technical support, and information for vendors who develop NFIRS-compatible software programs. From the website www.usfa.dhs.gov/fireservice/nfirs/ you can download coding handbooks, sample forms, and a system documentation manual.

The National Preparedness Guidelines, September 2007, includes: the Vision; Planning Scenarios, a diverse set of high-consequence threat scenarios of both potential terrorist attacks and natural disasters; the Universal Task List (UTL), a menu of some 1,600 unique tasks that can facilitate efforts to prevent, protect against, respond to, and recover from the major events that are represented by the National Planning Scenarios; and the Target Capabilities List (TCL), which defines 37 specific capabilities that communities, the private sector, and all levels of government should collectively possess in order to respond effectively to disasters. The Guidelines reinforce the fact that preparedness is a shared responsibility.

The NRF presents the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies. It establishes a comprehensive, national, all-hazards approach to domestic incident responses. It:

- Describes how communities, tribes, states, the federal government, private-sectors, and non-governmental partners work together to coordinate national response;
- Describes specific authorities and best practices for managing incidents; and
- Builds upon NIMS which provides a consistent template for managing incidents.

NIMS is a comprehensive, nationwide systematic approach to incident management with:

- A core set of doctrine, concepts, principles, terminology and organisational processes for all hazards;
- Essential principles for a common operating picture and interoperability of communications and information management;
- Standardised resource management procedures for coordination among different jurisdictions and organizations; and
- Is scalable and applicable for all incidents.

Key benefits are:

- Enhances organizational and technological interoperability and cooperation;
- Provides a scalable and flexible framework with universal applicability;
- Promotes all-hazards preparedness;
- Enables a wide variety of organizations to participate effectively in emergency management/incident response; and
- Institutionalises professional emergency management/incident response practices.

NIMS is applicable to all incidents and all levels of stakeholders, including levels of government, private sector organizations, critical infrastructure owners and operators, non-governmental organisations and all other organisations who assume a role in emergency management. Elected and appointed officials and policy makers, who are responsible for jurisdictional policy decisions, must also have a clear understanding of NIMS to better serve their constituency. The 'National Integration Center' (NIC) Incident Management Systems Integration (IMSI) Division publishes standards, guidelines, and compliance protocols for determining whether a state, tribal or local government has implemented NIMS.

Built on existing structures, such as the Incident Command System (ICS), NIMS creates a proactive system to assist those responding to incidents or planned events. The ICS is a standardised, on-scene, all-hazards incident management approach that allows for integration of facilities, equipment, personnel, procedures, and communications operating within a common organisational structure; enables a coordinated response among various jurisdictions and functional agencies, both public and private; and establishes a common process for planning and managing resources. To unite the practice of emergency management and incident response throughout the country, NIMS focuses on five key areas, or components. These components link together and work in unison to form a larger and comprehensive incident management system. These include:

- Preparedness;
- Communications and information management;
- Resource management (Incident Resource Inventory System - IRIS);
- Command and management; and
- Ongoing management and maintenance.

The issue of communications and interoperability is of the utmost importance within US emergency management. This includes:

- The National Emergency Communications Plan (NECP) - a strategic plan to improve emergency response communications;
- Use of Organisation for the Advancement of Structured Information Standards (OASIS) standards in NIMS e.g. Emergency Data Exchange Language and Messaging or Common Alerting Protocol v1.1;
- The National Information Exchange Model (NIEM); and
- SAFECOM - a communications program within the US Office for Interoperability and Compatibility that provides research, development, testing and evaluation, guidance, tools and templates on communications-related issues to local, tribal, state and federal emergency response agencies working to improve emergency response through more effective and efficient interoperable wireless communications.

As well as the above, there are also:

- Urban Search and Rescue (FEMA) - teams of individuals specialising in urban search and rescue, disaster recovery and emergency triage and medicine;
- Disaster Recovery programs (FEMA); and
- Homeland Security Exercise and Evaluation Program (HSEEP)

15.1 Department of Homeland Security Data Model

The DHS Geospatial Data Model (GDM) is the product of the DHS's Office of the Chief Information Officer, Geospatial Management Office in support of urgent DHS mission requirements. It appears to be an effort to aggregate data from state and local governments, which have some of the best base and event data, with federal data. It seems to be an attempt to create a common understanding between 50 plus states, over three thousand counties and twenty thousand taxing entities, a “service oriented architecture” published in UML and Extensible Markup Language (XML). A definition of the DHS GDM found on the Federal Geographic Data Committee (FGDC) site reads as follows: “This DHS GDM is a standards based, logical data model to be used for collection, discovery, storage, and sharing of homeland security geospatial data. The model will support development of the Department’s services-based geospatial architecture, and will serve as an extract, transform, and load a template for content aggregation.”

Given the advanced state of the US frameworks and model, the ABS Project team have transferred some aspects of the DHS Data Model into the draft data model, and, in particular, are recommending the use of ISO/IEC 11179 as a standard in the model. Further data model creation recommendations are in Attachment 3.

16.0 New Zealand

16.1 NZ Fire Services

The New Zealand (NZ) Fire Service Commission is the overseeing authority controlling the New Zealand Fire Service and the New Zealand National Rural Fire Authority. Established under section 3 of the New Zealand Fire Service Act 1975, the New Zealand Fire Service, Whakaratonga Iwi, has the statutory role of fire safety, fire prevention, and fire extinction. In February 2007 the Commission adopted five strategic objectives to guide service delivery. The strategic objectives are:

- Strategic Objective one - Improve community fire outcomes;
- Strategic Objective two - Increase integration of urban and rural service delivery;
- Strategic Objective three - Contribute to enhanced community security;
- Strategic Objective four - Improve service performance accountability, and resource management; and
- Strategic Objective five - Develop and protect our people and promote internal stakeholder partnerships.

(www.fire.org.nz)

The National Rural Fire Authority is responsible for coordinating the rural fire management activities of NZ. Activities include:

- Regional rural fire coordination;
- Rural Fire Authority (RFA) audits;
- Rural fire management training;
- Monitoring fire danger conditions throughout the country;
- Administering the Rural Fire Fighting Fund;
- Providing technical advice;
- Providing grants to RFAs; and
- Performance Assessments of RFA's.

RFAs are:

- The Department of Conservation for state areas;
- NZ Defence Force for most of its own lands;
- Rural Fire District Committees for specially Gazetted areas; and
- Territorial Authorities for all areas that fall outside the above.

RFAs are primarily concerned with the control of vegetation fires and fire prevention activities (www.nfra.org.nz).

The NZ Fire Service Station Management System (SMS) records activities, in the form of Tasks, that the fire fighters need to undertake and will contribute to risk evaluation and prevention initiatives. SMS is primarily an operational, though not necessarily just a response, tool, and the prevention initiatives, and their planning, occurs outside of SMS as they are driven by the organisation's strategic objectives. SMS is continuously being improved through reviews for fire incident reporting, investigation reporting and management of the built environment (risk matrices, evacuation planning, hazardous chemicals management, etc.) that will impact on SMS design on due course. Future phases are planned to expand the scope of the operational applications. SMS uses MS technology throughout.

Information provided included the excellent SMS manual and a simple data model by the vendor. Diagrams show keys, with relationships and attributes.

16.2 NZ Emergency and Rescue Services

The New Zealand Police coordinate search and rescue activities in New Zealand for Class I and Class II searches. The Rescue Co-ordination Centre coordinates Class III searches that involve activations of Emergency Locator Beacons, missing aircraft and ships at sea. Class I searches are where the Police do not require any additional assistance and Class II searches are where assistance is needed. Police officers in each district are trained as Search and Rescue (SAR) Coordinators. They work with volunteer groups such as the Royal New Zealand Coast Guard Federation, the Amateur Radio Emergency Corps (AREC) and the New Zealand Land Search and Rescue Inc., and other similar organisations.

The Police are usually the first point of notification when people are overdue from an outdoor activity such as tramping, boating, or hunting. A SAR response is initiated and if necessary the Coast Guard, New Zealand Land Search and Rescue and AREC volunteers are called in to help. The police use the expertise of skilled volunteers to co-ordinate the search. These volunteers may be land and marine advisers. The Police annually control over 1,100 land and marine search and rescue incidents. Occasionally a search is called off within an hour, but some searches can go for several days and involve police search and rescue squad members, Coastguard, New Zealand Land SAR, rescue helicopters, Defence Forces, and other volunteers.

NZ Urban Search and Rescue (USAR) is a multi-agency operational framework, administered by the New Zealand Fire Service and Ministry of Civil Defence and Emergency Management. USAR is a vital part of New Zealand's response capability for dealing with urban emergencies. It involves the location and rescue of people trapped following a structural collapse arising, e.g. from a single building collapse, or as a result of a major landslide or earthquake. USAR combines the capabilities of New Zealand's emergency services and combines specialist technical task-forces with local community volunteer rescue teams.

NZ USAR operational units comprise three NZ USAR Task Force Teams, and Regional Response Teams. Incident control is by local civil defence and emergency services operating under the Co-ordinated Incident Management System (CIMS). Each of New Zealand's 16 regions has its own Civil Defence and Emergency Management Group, whose job is to co-ordinate local emergency agencies and emergency management, and to establish and support local USAR teams.

17.0 Other information: Australian - general reference material

17.1 Report on Government Services

The annual *Report on Government Services* (ROGS), provides information from all state and territory jurisdictions on selected performance indicators in order to improve the effectiveness and efficiency of service expenditure. ROGS' Chapter 9 on emergency management provides:

- An overview of emergency management;
- A useful framework for measuring the performance of emergency management and frameworks covering performance indicators (PIs) for fire events, road rescue and ambulance (out of scope of project) across PPRR; and
- Roles and responsibilities of Australian, State and Territory and Local Governments, and emergency service organisations.

These frameworks and PIs, most of which are still not comparable, under development or do not as yet exist, clearly show that the emergency management sector is still quite immature in terms of information management and predominantly concentrated on the Response domain of PPRR although this is changing as ESOs work more within Preparedness e.g. community safety programs and Prevention. Also of interest are discussions of future directions and definitions of key terms.

17.2 Australian Emergency Manual series:

17.2.1 Australian Emergency Management Glossary - Manual 3

http://www.ema.gov.au/www/emaweb/rwpattach.nsf/VAP/(3273BD3F76A7A5DEDAE36942A54D7D90)~Manual03-AEMGlossary.PDF/$file/Manual03-AEMGlossary.PDF

The Glossary is a list of emergency management terms and definitions. Terms included are those likely to be encountered by emergency management workers.

17.2.2 Australian Emergency Management Terms Thesaurus - Manual 4

http://library.ema.gov.au/emathesaurus/

The Australian Emergency Management Terms Thesaurus provides a list of terms commonly used across the emergency management sector. The thesaurus includes terms likely to be used by the sector, but not those relating to specific areas of particular emergency services. It includes preferred terms, non-preferred terms, related terms and scope notes where available.

The *Glossary* is intended to be a dictionary and working tool for all in emergency management. It contains an alphabetical list of terms and definitions. The *Thesaurus* is intended to be a tool for people accessing information, librarians and file managers. It contains an alphabetical list of terms showing the relationship between many of these terms, with some abbreviated definitions included as 'scope notes'.

Other Manuals in the series were not used by the ABS Project team.

17.3 Australian Disaster Information Network Portal

The Australian Disaster Information Network (AusDIN) Portal is a multi-agency initiative to establish a national emergency management knowledge and information network to serve the Australian Community (www.ausdin.gov.au). It has comprehensive categories for:

- Alerts and warnings;
- Critical infrastructure;
- Disasters and emergencies;
- Education and training;
- Emergency management;
- Emergency response services;
- Information resources;
- Spatial information and mapping;
- Terrorism;
- Volunteers;
- Weather;
- Preparedness;
- Prevention and mitigation;
- Recovery; and
- Response.

17.4 Australian Emergency Management Arrangements

The *Australian Emergency Management Arrangements, 2009* provides a high level overview of how Australia addresses risks and impacts of hazards through a collaborative approach to PPRR for emergencies. The Arrangements outline the principles, structures and procedures that support national all-hazard coordination of emergency management in Australia and its offshore territories. The Arrangements are reviewed and reissued every 3 years. It contains:

- Purpose and currency;
- Legal and administrative framework: arrangements for EM; graduated response and recovery arrangements; roles and responsibilities of government (local, State/Territory, Commonwealth); roles of individuals, businesses and other parties (communities, insurance industry, planners, design building and construction, infrastructure providers, broadcasters);
- Prevention and preparedness: emergency planning; preparedness e.g. training, equipment, public education, public communication arrangements and stockpile of essential items, interoperability, critical infrastructure protection planning;
- Response;
- Recovery: recovery arrangements; recovery principles i.e. understanding context; recognising complexity; using community-led approaches; ensuring coordination of all activities; employing effective communication; and acknowledging and building capacity;
- Catastrophic disaster: it is not possible to immediately meet the needs of those requiring assistance within the existing capability of an individual State/Territory or nationally; it will take a considerable time from which to recover; and emergency response and recovery capability and other infrastructure are themselves significantly affected by the disaster; and
- Modal Arrangements for Leadership during Emergencies of National Consequence.

17.5 Ministerial Council for Police and Emergency Management, Emergency Management Extraordinary Meeting, Communiqué, 25 September 2009

Meeting held to consider preparedness for the coming bushfire season and to consider national priority projects for 2009-10. Aspirational items for noting:

- Enhancements to the National Registration and Inquiry System (NRIS);
- Media and education kits for the Standard Early Warning System (SEWS);
- EM training programs for remote Indigenous Communities; and

- Develop a national community awareness campaign on the role and value of EM volunteers.

Development of a National telephony-based Emergency Warning System (NEWS) will be soon. The Location-based Number Store administered by Commonwealth Attorney-General's will be available for the warning systems to run tests by early October. It will comprise a secure, central DB to hold geo-coded Integrated Public Database data. Further tests will run in November, thereafter the system will be fully operational.

New national framework endorsed for scaled advice and warnings to the community including revised arrangements for bushfire advice and alerts, with a new danger rating of Catastrophic (Code Red).

Handling of 000 calls:
- Report on status and feasibility of procedures for ESOs to deal with surges in demand;
- Develop a national protocol for the use of 'extreme event' recorded voice announcements to redirect non-emergency callers to alternative information sources in a crisis;
- Public awareness activities before and during a crisis to public is aware of these alternative sources of info to reduce the Triple 0 demand; and
- Commonwealth public information projects development to reduce non-emergency call loads on Triple 0 and an initiative to block mobile phone handsets of repeated non-genuine Triple 0 callers.

17.6 NEWS National Emergency Warning System Updates 1 - 6

NEWS is the national telephone based emergency warning system that sends messages via land lines based on the location of the handset and mobile phone based on an individual’s billing address. While NEWS aims to improve the ability to warn communities about emergencies individuals and communities still need to prepare themselves in case of an emergency. Telephone based warnings are just one of many tools for warning communities of emergencies. Over time, the updates have included:

- Governance;
- Tender process;
- Protocols;
- Communications;
- Building the system;
- Testing the system; and
- Training.

17.7 South Australian Fire and Emergency Services Commission 2009 Emergency Information Warning System Project Updates # 1, 15 September 2009 and # 2, 25 September 2009

Information on the SA implementation of NEWS and the system to be built by Telstra.

17.8 Links to various web sites

- www.ozemergency.org - anecdotal accounts of various in-scope agencies at work with scenario examples;
- www.triplezero.gov.au - the Australian Government 000 information with 000 links to all ESOs; and
- www.techrescue.org/smforum/index.php - a forum for ESO workers to discuss their activities e.g. road crash rescue - discussion about techniques, problems, hints and tips, training and operations in the road crash rescue arena; urban search and rescue, vertical rescue, etc.

These websites were used by the modellers to investigate scenarios for the model and also to discover additional information on the activities of emergency service workers from the workers themselves.

17.9 State and Territory Emergency Services National Performance Indicators, November 2008

The *State and Territory Emergency Services National Performance Indicators, November 2008*, is a report that records progress towards a national approach to the management and operations of the S/TES through a set of nationally consistent performance indicators. The aim is to maximise the effectiveness of operations in support of the community during emergencies and foster progress towards a goal of achieving greater recognition of the significant contribution volunteers make towards the safety of people of Australia. It includes:

- Strategies, key goals, outcomes and drivers of change;
- Structure across PPRR and the ROGS emergency management framework;
- Management information - annual cost of natural disasters, responsibilities, activities, staffing, budget, contribution by volunteers;
- Prevention and mitigation - legislation, education, outcome, future indicators;
- Preparedness - interoperability, people, training, Australian Emergency Manuals reviews, equipment, communication, planning, outcomes, future indicators;
- Response - operational management systems, call taking, public communications channels, operations, outcomes, future indicators; and
- Recovery - recovery committee membership, reviews, outcomes, future indicators.

17.10 Interim Report of the Victorian Royal Commission on the Victorian Bushfires 2009

There are opportunities to improve the content, sources and means of disseminating bushfire information and warnings to the public. The Commission's recommendations cover the following:

- Improving the quality of bushfire information and warning messages by adopting standard language already developed for national usage;
- Simplifying the format of bushfire warnings;
- Reintroducing the Standard Emergency Warning Signal to draw attention to broadcast warnings about life threatening fires;
- Extending the broadcasting of official warnings to commercial radio and television;
- Allowing the reintroduction of sirens in local communities where there is demand for them;
- Supporting the acceleration of the full introduction of a nationally developed telephone based automatic warning system;
- Pursuing research into the development of improved fire danger index systems;
- Enhancing the role of the Bureau of Meteorology in issuing daily information on bushfire risk;
- Improving technology and processes to accelerate the updating of common bushfire information on agency websites;
- Increasing the capacity of the bushfire emergency networks, the Victorian Bushfire Information Line, Telstra's Triple Zero service and the Emergency Services Telecommunications Authority to better handle peak demands, and to work more collaboratively during severe fire risk days; and
- Changes to be accompanied by an education campaign so that people understand the changes and how to interpret the information that is provided.

Stay or Go - the Commission recommended that the emphasis of CFA community education literature and advice be changed and improved to more realistically acknowledge the risks of extremely dangerous bushfires. For those who choose to stay and defend, the risks should be spelt out more plainly, including the risk of death. People should also be encouraged to recognise that not all houses are defendable in all situations and contingencies need to be considered in

case the plan to stay and defend fails. It is recommended that the CFA should have the authority to give specific advice about the ability to defend individual properties and whether residents should relocate rather than trying to stay and defend. Aids for self assessment of a home's defendability should also be improved and made more readily available. For those who plan to leave, there should be more explicit advice on triggers that should be used to determine when to go. People need to have options other than the simple alternatives of 'stay' or 'go'. The experience of these fires demonstrates that a personal fire plan needs to recognise that a person's preferred option may not be possible and sometimes fails. In the view of the Commission, the availability of local areas of refuge is an important and essential complement to the stay or go policy.

Refuges - the Commission recommended that the State commence identifying and establishing designated community refuges, particularly in areas of high bushfire risk.

Relocation - there appears little support for compulsory evacuation. However, the evidence before the Commission indicates that people need more guidance on whether they should plan to relocate because their house cannot be defended, and on the ease with which they can leave safely. There was recognition that bushfire warnings in some locations should advise people to urgently leave, even with an approaching fire.

Local government - Recommendations have been made that will enable municipal councils to have a preventative role in leading and contributing to some initiatives aimed at helping to make their communities safer and to protect people during bushfires. They are being asked specifically to review their Municipal Emergency Management Plans to ensure that they include appropriate provision for refuges and relocations that may occur during bushfires.

Road blocks - Victoria Police review its guidelines on the operation of roadblocks with the aim of creating a more flexible set of procedures, particularly for local people whose *bona fides* can be established.

Identifying bushfire risk - fragmented planning, including risk identification, was one of the factors that led to the development of the Integrated Fire Management Planning Framework endorsed in principle by the State in September 2006, but not yet implemented. The Commission endorses the concept of integrated, whole of government fire management planning. This has the potential to lead to the introduction of planning processes that make communities safer and are easier to use. This project should be given higher priority.

Emergency Management - immediate changes are required to the State Emergency Response Plan (SERP). The SERP does not clearly designate the agency responsible for issuing warnings and recommending relocation.

Other topics the Commission currently plans to address include:

- Climate change and fire weather;
- Psychological trauma among bushfire survivors;
- Methods for prevention, detection and management of arson;
- Demographic changes and growth in the rural/urban interface;
- Land use planning for private land, including vegetation management and defendable space;
- Public land management, including fuel management, prescribed burning and roadside clearing;
- Operational and organisational issues for Victoria's fire agencies, and emergency management generally;
- Essential services;
- Insurance;

- The economic cost of the fires;
- Recovery;
- Education;
- Terminology for fires; and
- Emergency procedures, such as refuges.

17.11 2009 Victorian Bushfire Royal Commission, Interim Report 2: Priorities for Building in Bushfire Prone Areas, November 2009

Aspirational items:

- Development of a bushfire bunkers standard by the Australian Building Codes Board and amendment of the Building Code of Australia to become the national standard and to be adopted by all jurisdictions.
- Amended Standards Australia construction requirements for buildings in bushfire prone areas AS3959-2009 on inclusion of unmanaged grassland, use of sarking as a secondary ember protection measure and increase ember protection measures at lower Bushfire Attack levels.

17.12 Managing our coastal zone in a changing climate, October 2009

Aspirational items:

- The recommendation for an overhaul of the building code to make homes more resilient and for the legal liability for future property losses to be sorted out;
- The recommendation that AEMC examine an improved early warning system for coastal areas in the event of extreme seas, storm surges, major erosion or flooding;
- The Surf Life Saving network be brought into the emergency planning system to deal with the impact of increasing storm hazards;
- The committee found serious gaps in the planning guidelines, the law, insurance and emergency planning that needed to be addressed; and
- The recommendation that the Federal Government consider adopting a nationally consistent benchmark on projected sea level rise as states and local governments struggle to work out their response.

17.13 Review of the National Fire and Rescue Incident Statistics Collection, Prepared by Katalysis Ltd for the Office of the Deputy Prime Minister, February 2004

A UK report that provided background reading in the UK material.

17.14 Narangba Industrial Estate: Multi-Agency Fire and Firewater Risk Minimisation Inspection Program

Accessed through the website www.emergency.qld.gov.au/publications/pdf/Inter_Agency_Report.pdf, it enumerates the nine classes of Dangerous Goods, including explanation of sub-risks, applicable legislation and compliance, the provisions of the Dangerous Goods Act which facilities classifications, sub classifications etc. There appears to be a great deal of crossover in codes and classifications. Also looks at the application to classes e.g. buildings and liquids and causes of definitional overlap.

17.15 Articles

'*Fire prevention on backburner*' Miranda Divine, Sydney Morning Herald, 20 August 2009: Background reading, details how prevention, preparedness and response is still not being

targeted effectively and how there are organisational and jurisdictional demarcation issues which impede emergency response.

ABC article accessed 2/11/09 on abc.net.au: *Establishment of Australian Civilian Corps:* The Australian Civilian Corps is a potential aspirational item and could impact on Australia's response and recovery activities. The Corps is a $52 million initiative to establish a rapid-response emergency team of Australian civilians with expertise in disaster management to be deployed across the (Asia-Pacific) region. The Corps will respond to natural disasters and conflicts by assisting recovery, reconstruction and development and the idea came out of the 2008 2020 summit. It will consist of 500 civilians who can be sent immediately to help in overseas disaster and conflict zones and is expected to be up and running by 2011. Specialists will be chosen for their skills in areas such as public administration, engineering, health administration and community development. They will be drawn from both the public and private sectors.

ABC article accessed 3/11/09 on abc.net.au: *High fire danger*, by Dani Cooper: Background reading, predicts that fires will become more frequent and more intense.

'*Claims about safety of fire bunkers false, warns watchdog*' by Josephine Tovey, Sydney Morning Herald, October 14 2009: Aspirational item regarding national standards for fire bunkers.

'*Mobile overhaul to sharpen disaster services*' by Mahesh Sharma, The Australian, 13 October 2009: Aspirational item for noting for recovery - new Centrelink technology will enable a full range of services to be delivered at disasters anywhere in the country. The Centrelink point-of-presence can be operated anywhere in Australia, using a 3G, ADSL or satellite connection and provides up to 10 staff to access the full range of Centrelink services and central servers.

18.0 Other information - international

18.1 International Standards Organisation: codes

The use of ISO codes promotes comparability:

ISO 22951 - Data Dictionary and message sets for pre-emption and prioritisation signal systems for emergency and public transport vehicles for quick despatch of police cars, fire engines and other EM vehicles to enable them to arrive at the incident scene;
ISO/IEC 11179 - 1: 2004: Information technology: Metadata registries: Part 1: Framework;
ISO/IEC 11179 - 2: 2005: Information technology: Metadata registries: Part 2: Classification;
ISO/IEC 11179 - 3: 2003: Information technology: Metadata registries: Part 3: Registry metadata and basic attributes;
ISO/IEC 11179 - 4: 2004: Information technology: Metadata registries: Part 4: Formulation of data definitions;
ISO/IEC 11179 - 5: 2005: Information technology: Metadata registries: Part 5: Naming and identification principles; and
ISO/IEC 11179 - 6: 2005: Information technology: Metadata registries: Part 6: Registration

ISO/IEC 11179 has been used by many organisations throughout the world (including ABS) to implement many metadata repositories. Some make the information content publically accessible. Some examples are:

- The Australian Institute of Health and Welfare has a publically available interface to its metadata repository which is based on ISO/IEC 11179. This interface is called METeOR (http://meteor.aihw.gov.au); and
- US National Cancer Institute - caDSR (http://ncicb.nci.nih.gov/NCICB/infrastructure/cacore_overview/cadsr/ISO11179).