

AUSTRALIAN EMERGENCY MANUALS SERIES

PART III

Emergency Management Practice

Volume 3—Guidelines

Guide 6

FLOOD RESPONSE

EMERGENCY MANAGEMENT AUSTRALIA

© Commonwealth of Australia 1999
First published 1999
ISBN 0 642 47348 X

Basic editing and typesetting by PenUltimate
Edited and published by Emergency Management Australia
Printed in Australia by Paragon Printers, Canberra, ACT

THE AUSTRALIAN EMERGENCY MANUALS SERIES

The first publication in the original AEM Series of mainly skills reference manuals was produced in 1989. In August 1996, on advice from the National Emergency Management Principles and Practice Advisory Group, EMA agreed to expand the AEM Series to include a more comprehensive range of emergency management principles and practice reference publications. The Series is now structured in five parts as set out below.

Parts I to III are issued as bound booklets to State and Territory emergency management organisations and appropriate government departments for further dissemination to approved users including local government. Parts IV and V (skills and training management topics) are issued in loose-leaf (amendable) form to all relevant State agencies through each State and Territory Emergency Service who maintain State distribution/amendment registers. All private and commercial enquiries are referred to EMA as noted at the end of the Foreword on page v.

AUSTRALIAN EMERGENCY MANUALS SERIES STRUCTURE AND CONTENT

Publishing
Status—Jun'99

□

PART I—THE FUNDAMENTALS

Manual 1	Emergency Management Concepts and Principles (3 rd edn)	A/R
Manual 2	Australian Emergency Management Arrangements (6 th edn)	R
Manual 3	Australian Emergency Management Glossary	A
Manual 4	Australian Emergency Management Terms Thesaurus	A

PART II—APPROACHES TO EMERGENCY MANAGEMENT

Volume 1—Risk Management

Manual 1	Emergency Risk Management	D
----------	---------------------------	---

Volume 2—Mitigation Planning

	Titles to be advised (covering PPRR)	P
--	--------------------------------------	---

Volume 3—Implementation of Emergency Management Plans

	Titles to be advised	P
--	----------------------	---

PART III—EMERGENCY MANAGEMENT PRACTICE

Volume 1—Service Provision

Manual 1	Emergency Catering	D
Manual 2	Disaster Medicine	A/R
Manual 3	Disaster Recovery	A/R

Volume 2—Specific Issues

Manual 1	Evacuation Planning	D
Manual 2	Safe and Healthy Mass Gatherings	D
Manual	Civil Defence	D
Manual	Community Emergency Planning (3 rd edn)	A/R
Manual	Urban Search and Rescue (Management)	P
Manual	Lifelines	D
Manual	Land Use Planning	D

Volume 3—Guidelines

Guide 1	Multi-Agency Incident Management	A
Guide 2	Community and Personal Support Services	A
Guide 3	Managing the Floodplain	A
Guide 4	Flood Preparedness	A
Guide 5	Flood Warning	A
Guide 6	Flood Response	A
Guide 7	Medical Aspects of NBC Hazards	D
Guide	Disaster Victim Identification	A/R

AUSTRALIAN EMERGENCY MANUALS SERIES STRUCTURE AND CONTENT

Publishing □
Status—Jun'99

PART IV—SKILLS FOR EMERGENCY SERVICES PERSONNEL

Manual 1	Storm Damage Operations (2 nd edn)	A
Manual 2	Operations Centre Management	A
Manual 3	Leadership	A
Manual 4	Land Search Operations (2 nd edn—Amdt 1)	A
Manual 5	Road Accident Rescue (2 nd edn)	A
Manual 6	General Rescue (4th edn—formerly Disaster Rescue)	A
Manual 7	Map Reading and Navigation (Amdt 1)	A
Manual 8	Four-Wheel-Drive Vehicle Operation (Amdt 1)	A
Manual 9	Communications (2 nd edn)	A
Manual 10	Flood Rescue Boat Operation (2 nd edn)	A
Manual	Vertical Rescue (2 nd edn)A/R	

PART V—THE MANAGEMENT OF TRAINING

Manual 1	Small Group Training Management (2 nd edn)	R
Manual 2	Exercise Management	D

Key to status: A = Available A/R = original version Available/under Review
D = under Development; P= Planned; R = under Review/Revision

FOREWORD

The purpose of this Guide is to provide a national reference for general guidelines on all important aspects of effective flood response. It has been developed for use by emergency management policy makers as well as flood response and support agencies.

Details of the development of the Guide and other related publications in the Australian Emergency Manuals Series are noted in the Preface on page xi. This Guide was sponsored, edited and published by Emergency Management Australia.

Proposed changes to this Guide should be forwarded to the Director General, Emergency Management Australia, at the address shown below, through the relevant State/Territory emergency management organisation.

This publication is provided free of charge to approved Australian organisations. Copies are issued to relevant users automatically (and upon request) through their State/Territory emergency management organisations.

To support the International Decade for Natural Disaster Reduction, the Australian Government will allow approved overseas organisations to reproduce the publication with acknowledgment but without payment of copyright fees. Manuals and Guides may be supplied to other Australian or overseas requestors upon payment of cost recovery charges.

Consideration will be given to requests from developing countries for multiple copies without charge.

Enquiries should be sent to the Director General, Emergency Management Australia, PO Box 1020, Dickson, ACT 2602 Australia, (facsimile +61 (02) 6257 7665, e-mail: ema@ema.gov.au).



CONTENTS

THE AUSTRALIAN EMERGENCY MANUALS SERIES	Error! Bookmark not defined.
FOREWORD	v
PREFACE	xi
CHAPTER 1 FLOOD RESPONSE OPERATIONS	1
THE NATURE AND TASKS OF FLOOD RESPONSE OPERATIONS	1
The Beginning of a Flood Response Operation	1
The End of a Flood Response Operation	1
Tasks in a Flood Response Operation	2
FLOOD RESPONSE OPERATIONS WITHIN THE OVERALL SYSTEM OF EMERGENCY MANAGEMENT	2
‘PPRR’	2
RELATIONSHIP BETWEEN FLOOD RESPONSE MANAGEMENT AND FLOODPLAIN MANAGEMENT	4
Floodplain Management Plan	4
Coordination and Inter-dependence	6
CHAPTER 2 MANAGEMENT OF FLOOD OPERATIONS	7
TYPES OF OPERATIONAL MANAGEMENT	7
Operations Managed by Combat Agency	7
Operations Managed by Emergency Management Structure	8
Operations Managed by a Combination of Both	8
Criteria to Address	8
ESTABLISHING CONTROL	8
Establishing Control over the Area	9
Establishing Control over Resources	9
Establishing Control over the Problem	10
Tying it Together	10
THE PRINCIPLES OF FLOOD RESPONSE OPERATIONS	10
CHAPTER 3 OPERATIONS CENTRES	11
INTRODUCTION	11
COMBAT AGENCY OPERATIONS CENTRE	11
EMERGENCY OPERATIONS CENTRE	12
FLOOD OPERATIONS CENTRE	12

	Staffing	12
	Liaison	14
	Communications	14
	Location	15
	ADDITIONAL INFORMATION	15
CHAPTER 4	MANAGING RESOURCES AND SUPPORT	17
	RESOURCE DIRECTORIES	17
	FUNCTIONAL COORDINATORS AND SUB-COMMITTEES	17
	Engineering	18
	Essential Services	19
	Transport	20
	Supply/Resupply	21
	MUTUAL AID ARRANGEMENTS	22
	COMMONWEALTH RESOURCES	22
	LOCAL DEFENCE FORCE AID	22
	TASKING/DEPLOYMENT OF RESOURCES	22
	PAYMENT FOR USE OF RESOURCES	22
CHAPTER 5	SANDBAGGING	25
	INTRODUCTION	25
	TYPES OF SANDBAGS	25
	FILLING SANDBAGS	25
	SANDBAG WALLS	27
	WATERPROOFING	29
	SOME PLANNING INFORMATION	29
CHAPTER 6	PUBLIC INFORMATION	31
	DISSEMINATION	31
	MANAGEMENT	32
CHAPTER 7	EVACUATION	33
	INTRODUCTION	33
	THE PLANNING PROCESS	33
	Initial Actions	33
	Follow-up Actions	34
	EVACUATION CENTRES	35

Registration	35
Security of the Evacuated Area	36
ADVICE TO THE PUBLIC	36
RETURN OF EVACUEES	36
REQUIREMENTS FOR GENERAL EVACUATION PLANNING	36
AIDE-MEMOIRE	37
CONCLUSION	37
ADDITIONAL INFORMATION	37
Annex:	
A. Flood Evacuation Aide-Memoire	38
GLOSSARY	41

PREFACE

This Guide has been prepared by a team of experienced flood response operations managers from around Australia, led by Doug Angus from the Queensland Department of Emergency Services. It is one of four Flood Guides sponsored by Emergency Management Australia to improve our reaction to our most costly natural hazard. The other Guides are: 'Flood Warning', 'Flood Preparedness' and 'Managing the Floodplain'. The project was coordinated by Major General Hori Howard, Director General of New South Wales State Emergency Service.

The Guide focuses on tasks, rather than methods, which should be developed as part of organisational Standard Operating Procedures. Reference is made to Australian Emergency Manuals, also sponsored and published by Emergency Management Australia, in which can be found considerably more detail on 'Operations Centre Management', 'Emergency Catering' and 'Disaster Medicine'. Other Manuals in the series, such as 'Communications', 'Flood Rescue Boat Operation', 'General Rescue' and 'Evacuation Planning', are also relevant.

This Guide is designed to be used by emergency management policy makers, response and supporting agencies alike and will provide broad guidance on all important aspects of flood response operations. It reflects considerable expertise over many years of successful operations in Australian States and Territories.

Every attempt has been made to use neutral terminology. However, because these guidelines cover operational matters, it is inevitable that there will be different terminology used in some areas. This will not detract from the value of the guidance provided.

CHAPTER 1

FLOOD RESPONSE OPERATIONS

IN A NUTSHELL ...

It will be important to identify and announce officially the commencement and conclusion of flood response operations because of special provisions which usually apply.

Flood response operations, like other hazard management operations, are best conducted using a comprehensive approach to emergency management. A comprehensive approach incorporates:

- *prevention;*
- *preparedness;*
- *response; and*
- *recovery.*

Flood response operations form part of the emergency management measures which are integral to the floodplain management process.

Recovery operations should commence as early as possible during flood response operations.

THE NATURE AND TASKS OF FLOOD RESPONSE OPERATIONS

1. A flood response operation consists of managing and executing a range of activities during the development, passage and recession of a flood. These activities are aimed at protecting the community, minimising property damage and reducing the disruption to community activities.

The Beginning of a Flood Response Operation

2. A flood response operation starts at the first indication of flooding. This may coincide with the issue of a formal flood warning or prediction by the responsible agencies. In many cases, though, it will coincide with a local recognition of conditions which could lead to flooding including heavy or sustained rainfall or actual stream rises. Recognisable start points exist and should be utilised by the combat agency to declare operations commenced. The official commencement of flood operations may be necessary to activate plans, invoke special command and control arrangements or provide access to special funding. The simplest criterion will normally be the opening of a combat agency headquarters for dealing with impending flooding.

The End of a Flood Response Operation

3. The completion point for a flood response operation is defined as the point at

which the threat to life and property or the imposition of significant nuisance has passed. This point is often not easy to recognise but it is the flood operations manager's responsibility to announce it as it will often signify the end of any special arrangements and is the point at which combat agency headquarters close and control is handed to the recovery agencies or to the local authority.

Tasks in a Flood Response Operation

4. In its simplest form, a flood response operation could consist of:
 - distributing warnings and other flood-related information to the community;
 - ensuring essential services are maintained or quickly re-established;
 - maintaining access routes;
 - protecting, maintaining and repairing existing structural mitigation works;
 - constructing expedient mitigation works (such as temporary levees);
 - securing areas;
 - conducting search and rescue operations;
 - evacuating persons and providing for their immediate welfare;
 - protecting property and possessions;
 - coordinating the essential needs of isolated persons and communities;
 - coordinating the immediate welfare of stranded travellers; and
 - ensuring the welfare of flood-affected animals (pets and farm livestock).

FLOOD RESPONSE OPERATIONS WITHIN THE OVERALL SYSTEM OF EMERGENCY MANAGEMENT

5. The Australian approach is that 'response' is one of the four emergency risk management treatments (known as 'PPRR').

'PPRR'

6. The four PPRR elements, in order, are:
 - **prevent** the impact or reduce its severity;
 - ensure **preparedness** within the community;
 - provide an effective **response** immediately following any hazard impact; and
 - provide for the **recovery** of the community.

Typical measures under PPRR may include:

PREVENTION/MITIGATION

Zoning/land use management
Building codes
Building use regulations
Relocation of buildings
Safety improvements

Legislation
Public Information
Community awareness/education
Tax, insurance incentives/ disincentives

PREPAREDNESS

Community awareness/education
Disaster plans
Training/test exercises
Emergency communications
Evacuation plans

Mutual aid agreements
Warning systems
Resource inventories
Provision of special resources

RESPONSE

Implementation of plans
Implementation of emergency
legislation/declarations
Issuing of warnings
Activation of operations centres
Mobilisation of resources

Notification of public authorities
Keeping the public informed
Providing medical assistance
Providing immediate relief
Conducting search and rescue
Carrying out evacuation

RECOVERY

Establishment of recovery centres

Provision of community/individual recovery services, including:

- personal support;
- food, clothing and temporary accommodation;
- health and safety advice;
- information;
- practical advice; and
- clean up.

Provision of physical recovery services including:

- restoration of essential services;
- management of public and environmental health issues;
- reconstruction and redevelopment of infrastructure;
- provision of economic recovery services;
- implementation of financial assistance schemes;
- management of public appeals; and
- insurance.

7. It is important to note that these four major elements are not sequential. For example, recovery operations must begin while flood response operations are still occurring. They are **aspects** of management, not phases.
8. Successful emergency management depends on the comprehensive approach being followed. All four aspects need to be addressed to reduce the likelihood of death or injury within a community, to reduce property damage and to minimise disruption of the community's normal activities.

RELATIONSHIP BETWEEN FLOOD RESPONSE MANAGEMENT AND FLOODPLAIN MANAGEMENT

9. Floodplain Management is the process of managing flood-affected land to reduce flood damage and disruption to the community while ensuring the sustainability of the floodplain. It is usually undertaken using a floodplain management plan.

Floodplain Management Plan

10. A floodplain management plan is a comprehensive document that addresses all issues related to land use on the floodplain and the associated risks and hazards of flooding (see Guide 3, 'Managing the Floodplain' for details). A floodplain management plan will incorporate a variety of management measures to mitigate risk and hazard. Management measures fall into four basic categories:

- **Structural flood mitigation works**, such as levees or channel improvements, are aimed at modifying flood behaviour, ie 'keeping the water away from people'.
- **Land use planning controls**, such as zoning, are aimed at ensuring land use is compatible with flood risk and hazard, ie 'keeping the people away from the water'.
- **Development and building controls**, such as minimum floor levels and flood-proofing, are aimed at reducing the risk of inundation and amount of damage that occurs during flooding and recognises that 'people will get wet at some time'.
- **Flood planning measures**, such as preparing for floods, training, increasing the level of community awareness, flood warning, and response and recovery plans, are aimed at reducing the impact of the flood hazard by modifying the response of the population at risk to flood events.

11. The following table shows the relationship between the four groups of floodplain management measures and the four components of emergency management as applied to the flood hazard.

Relationship between flood emergency management for flooding and floodplain management

Floodplain Management Measure	Flood Emergency Management Component			
	Prevention	Preparation	Response	Recovery
Structural works	xxx		*	
Land use planning controls	xxx		*	#
Development and building controls	xxx		*	#
Flood planning measures	x*	***	***	*##

- x Floodplain Management Planning
 * Flood Planning
 # Recovery Planning

12. The following aspects of the above table should be noted:

- The **prevention** component of emergency management, as applied to flooding, is addressed essentially via the floodplain management process, which is largely the responsibility of local authorities.
- The **preparation** and **response** components, together with initial recovery, are addressed via the flood planning process, which is the responsibility of flood management agencies.
- The **recovery** component is addressed principally via the recovery planning process, which is the responsibility of the designated recovery management agency.

13. Floodplain management and the flood planning process are linked as follows:

- Flood planning measures are an essential component of responsible and effective floodplain management.
- Structural works will affect flood behaviour, and hence flood response operations.
- Land use planning controls define the location and nature of development across the floodplain. This, in turn, affects the population at risk and the degree of risk, factors which affect flood response operations.
- Development and building controls (for example, minimum floor levels and the provision of evacuation routes) also affect flood risk and hazard and hence flood response operations.

- The nature and scale of recovery operations are affected by land use planning decisions and development and building controls.

Coordination and Inter-dependence

14. The floodplain management process, the flood planning process and flood response and recovery operations are highly inter-dependent. Best practice requires that floodplain managers, flood operations managers and recovery managers recognise this inter-dependence and that an appropriate and coordinated mix of structural works, land use controls, development and building controls and flood planning measures is defined and used to reduce flood risk to acceptable levels.
15. Integration of effort across the floodplain management process, the flood management process and the recovery management process can best be fostered by appointing flood management and recovery management representatives to the Floodplain Management Advisory Committee that oversees the floodplain management process.

CHAPTER 2

MANAGEMENT OF FLOOD OPERATIONS

IN A NUTSHELL ...

Flood response operations can be managed by:

- *a designated combat agency;*
- *the overall emergency management structure; or*
- *a combination of both.*

Establishing control over a flood response operation involves gaining control over:

- *the area;*
- *resources; and*
- *the likely effects.*

General principles to be applied to flood response operations are:

- *response and initial recovery operations should commence at local level;*
- *combat agencies must be able to deploy additional resources under their own authority; and*
- *agencies responsible for preparedness, response and recovery operations should be allowed to carry out their normal roles.*

TYPES OF OPERATIONAL MANAGEMENT

1. Flood response operations can be managed in three different ways, ie by:

- a designated combat agency;
- the overall emergency management structure; or
- a combination of both.

Operations Managed by Combat Agency

2. The operation is managed by the operational head of the combat agency acting as the flood operations manager. During lower levels of flooding the management task may be limited to controlling the activities of the combat agency. However, most flood response operations will involve supporting agencies which will provide their support directly to the combat agency. In this type of operation the emergency management structure does not provide the control—the combat agency does. However, the emergency management structure can coordinate support to the combat agency if required. This type of

management can only be effective where the combat agency has the authority enshrined in legislation or plans for the management of such operations and has the responsibility to coordinate flood planning.

Operations Managed by Emergency Management Structure

3. The operation is managed by a person in a specific controlling position within the emergency management structure. This person becomes the flood operations manager. Participating agencies perform specified tasks within the overall operation and will be relied upon to provide specialist advice to the flood operations manager. The distinguishing feature of this type of operation is that agency leaders respond to meet the requirements of the emergency manager.

Operations Managed by a Combination of Both

4. The operation is managed by a person in a specific controlling position within the emergency management structure who becomes the flood operations manager. Combat agencies are nominated for particular functions and they carry out these functions under the general direction of the emergency manager.

Criteria to Address

5. The flood response management system selected will depend, to a significant extent, on the overall emergency management system it must fit within. In deciding upon the system of management, the criteria which should be addressed are:
 - the organisation responsible for flood response operations should be made responsible for flood planning, or at least be required to forge close links with it;
 - the organisation responsible for flood response operations should be responsible for flood intelligence, or at the very least, have close links with it;
 - the flood response management system should be designed so operations are managed initially at local level, but should allow for escalation to district or region and State level as necessary; and
 - responsibilities of all participating and supporting agencies should be laid down in detail in either emergency plans (DISPLANS) or flood plans.

ESTABLISHING CONTROL

6. One of the most difficult tasks confronting a flood operations manager can be to establish effective control over a flood response operation. During a flood which develops slowly, control measures may be established progressively as the water rises. However, in the case of flash flooding, control may have to be established quickly to minimise loss of life, injury or damage to property.
7. Establishing control has three elements which must be attended to concurrently.

Control must be established over the:

- area;
- resources; and
- nature of the problem.

Establishing Control over the Area

8. Establishing control over the area requires the flood operations manager to:

- arrange reconnaissance to define the actual or likely extent of the inundated area;
- define the present and potential inundated areas and ensure all appropriate agencies are advised of the location and outer limits of present and likely inundation;
- review flood intelligence to establish the effects of the flood on people and property;
- find out what routes in to and out of the area are useable and by what type of vehicle;
- designate access and egress routes for response personnel and others;
- establish perimeters or cordons to control movement into and through the area if required; and
- advise the community of what measures should be taken to protect themselves and their property, of what they should and should not do, and of the current and expected situation.

Establishing Control over Resources

9. Establishing control over resources includes the need to:

- establish liaison with resource providers;
- find out from other agencies:
 - what resources they have in the affected area;
 - which of those resources are available for tasking and at what time; and
 - what additional resources they might need or can deploy to the area from outside using their single agency arrangements;
- find out from the next higher level of control what back-up resources are available to be called upon;
- establish and advise reporting arrangements for incoming resources;
- establish reporting or marshalling areas to which resources can be sent to wait for further tasking; and

- decide what is the best system of control of all major resources and advise all agencies so everyone knows who is in charge of each element.

Establishing Control over the Problem

10. Establishing control over the problem includes the need to:

- determine the exact nature of the problem in terms of:
 - numbers of casualties and deaths;
 - details of persons needing evacuation or other assistance;
 - numbers and locations of buildings destroyed or damaged; and
 - actual or potential damage to essential infrastructure;
- determine how the nature of the problem may change as the flood develops;
- decide what can be done to minimise further damage;
- establish a system of priorities for responding to specific problems;
- establish a system for allocating personnel and resources to tasks such as on an individual basis, or by sectors, or by discrete incidents; and
- keep the community informed.

Tying it Together

11. Once control is established over these three aspects the flood operations manager is able to plan for and direct the most effective and appropriate response. As much of the above as possible should be arranged before a flood as part of preparing a community for flooding (ie through the flood plan). However, under some circumstances these matters may need to be addressed in a short timeframe or, in the worst case, as the flood is occurring.

THE PRINCIPLES OF FLOOD RESPONSE OPERATIONS

12. The following principles, which apply to emergency management operations in general, also apply during management of a flood response operation:

- **Responsibility for response and initial recovery should rest initially at local level.** If local agencies and available resources cannot cope they are augmented by those at district level. If these also cannot cope, support coordinated from the State, and possibly resources provided from the Commonwealth and other States and Territories, are used.
- **Designated flood combat agencies must be permitted to deploy additional resources from their own service** from outside the affected local area or district if they are needed to conduct operations.
- Preparedness, Response and Recovery **operations should be conducted with all agencies carrying out their normal functions** wherever possible.

CHAPTER 3

OPERATIONS CENTRES

IN A NUTSHELL ...

Flood response operations may be controlled from:

- ***a combat agency operations centre; or***
- ***an emergency operations centre.***

Apart from the flood operations manager, the key appointment in a flood operations centre is that of Operations Centre Manager.

Whenever possible, flood intelligence staff should be included in the staff of the flood operations centre.

Liaison is provided from supporting agencies to the combat agency.

Liaison Officers must be able to:

- ***advise the flood operations manager about their own agency;***
- ***pass on tasks to their agency and assist with coordination; and***
- ***pass and obtain situation reports.***

INTRODUCTION

1. Floods are managed from an operations centre, the function of which is to assist the flood operations manager conduct flood response operations. It will also:
 - monitor operations;
 - coordinate support;
 - liaise with all agencies involved in the flood operations; and
 - pass information to other agencies and the community.
2. Operations centres fall into one of two categories:
 - combat agency operations centres; or
 - emergency operations centres.

COMBAT AGENCY OPERATIONS CENTRE

3. In a combat agency operations centre, the flood operations manager **commands** the combat agency personnel and resources committed to the operations. The operations manager:
 - sets tasks, by directing **what** is to be done;
 - sets times and priorities, by directing **when** the task is to be done; and

- may direct **how** the task is to be done, but only by elements of the combat agency.
4. In all but low-level floods, the combat agency will be supported by other agencies. These agencies will be **controlled** by the combat agency rather than commanded. That is, they will be tasked and given timings, but left to determine how the tasks will be accomplished.

EMERGENCY OPERATIONS CENTRE

5. In an emergency operations centre the flood operations manager:
- monitors an operation conducted or managed by a combat agency;
 - coordinates resources in support of a combat agency;
 - directs an operation or part thereof;
 - sets tasks by directing **what** is to be done; and
 - sets times and priorities by directing **when** tasks are to be done.
6. Individual agency commanders then direct **how** their agency will perform or contribute to the performance of each task. Control or direction of the operation is affected through the operations centre.

FLOOD OPERATIONS CENTRE

7. In order to carry out its functions, a flood operations centre (whether it is a combat agency operations centre or an emergency operations centre) will, upon activation:
- establish communication with all agencies and activate those which are likely to be needed;
 - review flood plans and intelligence and confirm the details of the flood risk;
 - seek additional information, often by reconnaissance;
 - provide information to the community at risk;
 - alert recovery agencies;
 - marshal resources;
 - make operational decisions;
 - keep a record of events; and
 - review the accuracy of flood intelligence.

Staffing

8. The key appointment is that of **Operations Centre Manager** who, depending on the length of shift, will need one or two counterparts. The Operations Centre

Manager is responsible for the efficient functioning of the centre and will deal direct with the Flood Operations Manager.

9. It is fundamental that any agency responsible for managing flood response operations will have extensive flood intelligence available on the effects of flooding on communities within its area of responsibility. To maximise the use of this intelligence, it is highly desirable to have a dedicated **flood intelligence staff** to advise on the likely effects of flooding and to help disseminate flood bulletins.
10. Other staff will be provided, as resources permit, for:
 - operational planning;
 - maintenance of displays, plotting and log keeping;
 - public information and media;
 - resource coordination; and/or
 - general clerical, keyboard, radio operator etc. support.
11. At the local level many of these functions will be combined due to either a lack of facilities or, more likely, a lack of trained staff. The absolute minimum number required to operate a flood response centre is four:
 - **Operations Centre Manager**, whose duties will encompass:
 - flood intelligence;
 - operational planning;
 - resource coordination; and
 - public information and media.
 - **Operations Support Officer**, whose duties will include:
 - maintaining displays, plotting and logkeeping; and
 - general clerical, keyboard support and radio operator.
 - **Plus one relief for each position.**
12. In the event that additional staff are available, priority should be given to the flood intelligence function, which could be combined with public information.

Liaison

13. Liaison with police and all supporting agencies is essential during flood response operations. The basic principle is that **liaison is provided from the supporting agencies to the supported agency**.
14. Liaison officers must be able to:
 - advise the flood operations manager of the capabilities and status of their parent agencies;
 - pass on tasking directions to their agencies and help coordinate support from them; and
 - pass and receive situation reports to and from their agencies.
15. At local level in particular, the supporting agency commander/manager may be the most appropriate liaison officer for particular flood response operations, because he/she can commit resources. It is best practice to authorise all liaison officers to commit resources.
16. It will not always be necessary for liaison officers to operate from the flood operations centre to ensure appropriate communication is maintained. The flood operations manager must, however, be prepared to direct required staff to report immediately to the centre in the event that having them liaise from home should prove to be ineffective.

Communications

17. Flood operations centres will need to communicate with both response and supporting agencies. Wherever possible, communications facilities should include dedicated operational links at least between the flood operations centre and the response agencies. At local level such links will probably be by radio and the flood operations manager should be prepared to provide additional radios to response organisations and perhaps to supporting organisations in the event of equipment incompatibility. All organisations should, however, use their own internal radio systems.
18. Whenever possible, the public switched telephone network should be used to keep radio networks free for urgent operational traffic.
19. Within each operational communications system at local level there must be public access so assistance can be called for. This will require telephones and trained operators who are available throughout the operation to take calls for assistance and pass them to the operations staff for action. These telephone lines and numbers should be separate from the normal operations centre lines and numbers, or operational communications are likely to be interrupted. A simple solution is to maintain silent numbers for operational use.
20. Facilities will be required for public access operators and, whenever possible,

these should be in a room separate from the flood response operations centre itself.

Location

21. The main requirements for a flood response operations centre are that it:

- is flood free;
- has at least one flood-free access and egress route; and
- is suitable as a communications site.

ADDITIONAL INFORMATION

22. More details on operations centre management are contained in Part 4 of the Australian Emergency Manuals Series, Part IV, Manual 2: Operations Centre Management.

A State Emergency Service flood operations centre

CHAPTER 4

MANAGING RESOURCES AND SUPPORT

IN A NUTSHELL ...

Resource Directories are essential for effective flood response operations.

The wide range of support which may be needed during flood response operations should be coordinated by functional service coordinators or sub-committees.

Resupply of isolated communities can be a major component of flood response operations.

Public health can be a major problem in a flood response operation.

The flood operations manager will need to know the status of roads in the operational area and will require a system to pass that information to all involved agencies and the public.

A pre-determined system of payment of providers is essential.

RESOURCE DIRECTORIES

1. The identification and location of resources which could be required during a flood operation are essential for a successful operation. Flood operations managers and supporting agency managers at all levels must maintain resource directories, which must contain 24-hour contact information and which should be updated before each flood season.
2. As governments are progressively contracting out services, flood operations managers must be prepared to make more use of the private sector. This will invariably involve new financial arrangements.

FUNCTIONAL SERVICE COORDINATORS AND SUB-COMMITTEES

3. A proven method for a flood operations manager to obtain resources not available through his or her own agency is through functional service coordinators or sub-committees.
4. If the nature of the support likely to be required is relatively simple and will be provided by a single department or organisation, a functional service coordinator will normally suffice. However, if the support needed is likely to be complicated, or drawn from several departments or organisations, a functional service sub-committee may be more appropriate to ensure technical advice is available and all providing departments or organisations are directly represented. In such cases, the lead or major agency should provide the coordinator for the function.

5. Functional service sub-committees are formed from agencies with like interests or roles and are tasked with providing support to flood operations. An example is provision of advice and equipment for restoring public utilities and facilities through an engineering functional service sub-committee. The sub-committee becomes operational on request of the flood operations manager and provides resources and advice as requested.
6. Functional service sub-committees could encompass a range of functional areas including:
 - engineering;
 - essential services;
 - transport; and
 - supply.
7. Each sub-committee should appoint a coordinator and should consist of appropriate member agencies. They must be an integral part of the emergency management structure.

Engineering

8. Engineering support can be a major requirement during flood response operations. It will be the flood operations manager's responsibility to ensure the engineering functional service sub-committee is aware of the possible range of requirements so they may be included in the engineering functional service supporting plan. Support could range from advice about potential actions to provision of major engineering equipment and will often involve maintenance of essential services.
 - **Engineering Advice**—Engineering advice can be required at short notice during flood response operations, particularly concerning the state of levees and other flood mitigation structures and on expedient engineering work.
 - **Levees**—Whenever there is a flood warning for a community protected by levees the flood operations manager must arrange for the integrity of the levees to be checked and their heights confirmed. It may be necessary for expedient engineering works to be undertaken at short notice to increase levee height or strength: out-of-area resources may be required for this purpose.

There is always the possibility that illegal or unlicensed levees may have been constructed in such a way as to increase the flood threat to a community. The flood operations manager may need to institute a reconnaissance of the area affected by the flood and it may be necessary to arrange destruction of such illegal levees.

Once flood waters have arrived, the flood operations manager needs to ensure regular reconnaissance is conducted to maintain the integrity of levees and other structures. If a problem is suspected, technical expertise will

be required quickly to determine the appropriate remedial action.

Essential Services

9. The flood operations manager needs to ensure providers of essential services are kept advised of the flood situation. Essential service providers must keep the flood operations manager abreast of their status and ongoing ability to provide those services. The flood operations manager must take whatever action is necessary to assist the service providers to safely maintain those services for as long as possible. In the event that the services are interrupted the flood operations manager may be required to make alternative arrangements for their provision.

- **Electricity**—Many services rely on electricity to operate, and the removal of supply can have significant ramifications. The flood operations manager needs to be aware of these interdependencies.

In some cases, restoration of power will be sufficiently important to warrant the provision of an emergency supply to selected agencies. In such cases priorities will need to be established at the highest level.

Flood-affected buildings can be inherently dangerous where electricity is concerned and operational teams need to be briefed about potential dangers before entering affected areas.

- **Water**—One of the biggest problems during a major flood can be obtaining a supply of potable water, as there is the danger of flood-affected storage areas being polluted. Liaison must be established with the local health and water authorities early in the operation and maintained throughout. The flood operations manager should be prepared to arrange for an alternate supply if local supplies are polluted.
- **Sewerage**—Effluent systems are susceptible to floods. Changing water tables, flooded treatment ponds and plant, broken pipes and lack of electricity can cause problems. The flood operations manager must be kept informed of the health risks and there may be a need for temporary facilities to be provided, or in extreme cases for the affected community to be evacuated.
- **Medical**—Early attention must be paid to the viability of medical facilities located in an area at risk of flooding. They must either be protected from flooding or closed and the occupants evacuated.

As response agency personnel are well trained and equipped for the situation it can be expected that few casualties amongst them will result. Medical issues will generally arise among flood victims and are likely to centre around special needs groups if there is to be any evacuation. The issues which must be considered include arrangements for:

- transferring patients;
 - specialist transport requirements for the aged and infirm;
 - continuing correct medication for all evacuated patients/residents;
 - all medical evacuees to be accompanied by their personal medical records;
 - providing trained emergency nursing staff and carers for any moves and for temporary facilities;
 - providing special diets where required; and
 - providing sufficient stocks of inoculations and vaccines for those at risk from disease outbreaks in the aftermath of the flood.
- **Public Health**—Public health can be a major problem in a flood. It is most significant for communities which are isolated for any length of time and where evacuees are placed in temporary accommodation.

The flood operations manager must ensure the public health organisations which are providing support to the operation are attending to:

- water supply;
 - shelter;
 - food supplies;
 - toilet and ablution facilities;
 - refuse collections and disposal;
 - vermin and vector control;
 - infectious disease control;
 - personal hygiene;
 - disposal of dead stock and other animals;
 - disinfection; and
 - hazardous materials.
10. As can be seen from the above, considerable capability and expertise are required. Further guidance is contained in the Australian Emergency Manuals Series—Part III, Volume 1, Manual 2: Disaster Medicine.

Transport

11. Transport is a key requirement in most flood operations as there is the possibility of having to move large numbers of people or large quantities of goods. Consideration should be given to all means of transport—road, rail, air and water as appropriate. In determining transport requirements the flood operations

manager will need to consider only the broad nature of the task and timings and should then hand over detailed planning to the transport functional sub-committee.

- **Detailed Planning**—The transport functional sub-committee will normally undertake detailed planning which will involve consideration of:
 - category (road, rail, air, water);
 - types of vehicles required;
 - loads;
 - detailed timings;
 - selection of routes;
 - fuel;
 - control; and
 - special skills required or possible danger posed to drivers or vehicles.
- **Road Closures**—The authorities responsible for closing and opening roads must ensure the flood operations manager is kept informed. These authorities will normally give priority to protecting their assets and will tend to close roads early and delay their opening to protect the surface. The flood operations manager should seek an agreement with these authorities for movement of essential personnel and supplies. In the event that restrictions are imposed on civilian traffic it will be essential for positive control to be established over the routes affected, and this will often require police assistance.

There may be a need to establish a facility to gather information about main access routes cut by flood waters or closed by the responsible authorities. This information should be passed to the travelling public through the media on a regular and pre-determined basis. Any such facility should be separate from the flood operations centre and will need separate public telephone lines to enable enquiries to be answered. The numbers will need to be advised regularly to the public through the media otherwise the flood operations centre is likely to be overwhelmed.

- **Rail, Air and Water**—The same considerations, as given to road closures, need to be given to rail, water and air transport.

Supply/Resupply

- **Ordering/Procurement**—The flood operations manager will require a system to provide control over items which may be supplied in emergency situations. This control can be achieved by developing lists of authorised items and/or by establishing local community vetting committees. Local government will normally be responsible for vetting committees

In the case of isolated properties or travellers in an emergency, there can be a need for resupply using standard packs for which there is normally no charge. More normally, resupply of isolated properties will be undertaken by

restocking from normal suppliers at cost to the occupants with the emergency transport provided free of charge.

Resupply of isolated communities will normally be coordinated by local government by arranging orders from normal wholesale suppliers for delivery to local retail outlets. However, the flood operations manager will often need to coordinate scarce transport resources.

- ***Operational Supplies and Equipment***—There may be a need to vet the requirement for any operational items requested. The simplest way to achieve this is for the local flood operations manager to forward requests to the next higher level for approval. It is essential that accurate identification is provided for all items. This may include:
 - part number (if applicable);
 - model (if applicable);
 - manufacturer;
 - supplier; and
 - possible alternatives.

The flood operations manager must establish a system for receiving, distributing and retrieving all non-consumable equipment.

MUTUAL AID ARRANGEMENTS

12. Agreements should be developed between agencies at local, regional, State and interstate level for supplying resources.

COMMONWEALTH RESOURCES

13. Flood operations managers will need to be aware of the potential for Commonwealth assistance and the procedures for obtaining it.

LOCAL DEFENCE FORCE AID

14. Flood operations managers will need to be aware of the procedures for obtaining support from Defence Force facilities which may be in or near to the area of flood operations.

TASKING/DEPLOYMENT OF RESOURCES

15. Resources are allocated on a priority basis as determined by the flood operations manager with the advice of the providing agencies. The 'user' agency is responsible for managing the resource. If there is adequate time, resources should be prepositioned.

PAYMENT FOR USE OF RESOURCES

16. It should be expected that resource providers will seek payment, so a pre-

determined system of payment for the individual provider or a generic system needs to be established and should be specified in the emergency management arrangements.

RAAF aircraft being loaded to resupply a floodbound town

CHAPTER 5

SANDBAGGING

IN A NUTSHELL ...

Sandbagging is a useful means of raising or strengthening levees and protecting important assets.

Mechanical assistance is very important for speed.

To be effective, sandbagging must be done correctly or it can give a false sense of security.

INTRODUCTION

1. Sandbags are often used during flood response operations to strengthen or raise the height of levees, to construct temporary levees and to protect important facilities such as telephone exchanges, electricity sub-stations and, on occasions, individual buildings. However, more often than not, they are laid incorrectly and their effectiveness is reduced.
2. Sandbagging is slow and labour-intensive and earthworks can be more effective provided they are properly constructed and bedded in. The decision to use sandbags should only be taken after alternative methods of flood protection have been examined.
3. Particular care is necessary in the case of temporary levees, because they can divert the flow of water which may place additional pressure on existing levees or cause unintended damage to other areas.

TYPES OF SANDBAGS

4. There are many types and sizes of sandbags available, and either jute or plastic bags are suitable. The preferred size is 825 millimetres long by 250 millimetres wide—the dimensions of the standard army or military sandbag. Larger sizes are not recommended as they can be too heavy to handle. A standard sandbag, properly filled, will weigh around 18 kilograms.
5. Sandbags are normally packed in bales of 1,000, which contain 20 bundles each of 50 bags. A bale of sandbags weighs 210 kilograms, so mechanical handling equipment may be required to unload and perhaps to move them to the filling area.

FILLING SANDBAGS

6. Filling sandbags by hand is arduous and time consuming, so mechanical filling machines are desirable. The New South Wales State Emergency Service utilises purpose-built sandbag filling machines and can provide details. However, ready-mix cement trucks can be used as improvised mechanical fillers.

7. If mechanical devices are not available it is wise to construct filling devices. A simple aid can be made from a length of 200 millimetre pipe as shown.

Figure 5:1 – Sandbag Filler

8. A more sophisticated device can be made by using aluminium or galvanised iron bent to a semi circular shape, slightly smaller than the mouth of a sandbag to make a chute, ie 200 millimetres, attached to a frame on a 45° angle.
9. The sand is shovelled into the top of the chute, while the fillers hold the mouth of the bag over the bottom of the chute. This method at least doubles the number of bags which can be filled manually.

Figure 5:2 – Inclined Chute Sandbag Filler

10. Sandbags should be turned inside out before filling as this provides additional strength to the seam. They should never be filled more than half to three quarters full, the necks should be tied and the ends folded over.

SANDBAG WALLS

11. Sandbag walls should never be constructed with a vertical face, because a wall so laid will possess little strength. They should be laid in a pyramid shape with never less than two rows at the top of the pyramid.

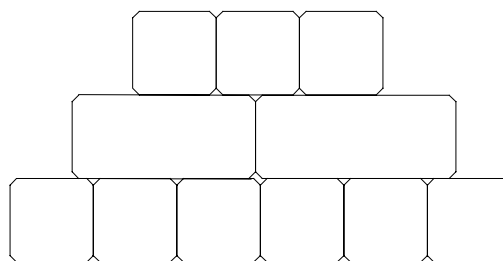


Figure 5:3 – Sandbag Wall Cross-Section Showing Pyramid Formation

12. Sandbag walls should always be keyed into the ground for maximum strength. This is achieved by digging a trench along the line of the wall to the depth of one sandbag and the width of two sandbags.

Figure 5:4 – Sandbag Wall Key Trench Cross-Section

13. Sandbag walls are constructed using alternate rows of 'headers' and 'stretchers'. Headers are sandbags placed end on to the direction of the water with the neck facing away from the water and stretchers are placed side-on with the seam opposite to the direction of the water. The bottom row of sandbags on the surface is always laid using headers, with the neck folded over and facing away from the direction of the water.

Figure 5:5 – Sandbag Wall Construction Design

14. Sandbags should always be flattened out after they are laid, using the back of a shovel, a pick-handle or similar implement.
15. The maximum recommended height for a sandbag wall is 1.5 metres. If there is a requirement for protection greater than the recommended height, a mixture of

earth and sandbags is preferable. The diagrams below illustrate the methods of construction.

16. These methods are also suitable for raising and strengthening the height of levees.

Figure 5:6 – Sandbag Wall Construction Methods

WATERPROOFING

17. Sandbag walls are not waterproof, but waterproofing can be achieved using plastic sheeting which is threaded through the layers. Avoid placing any on the outside wall in the direction of the water.

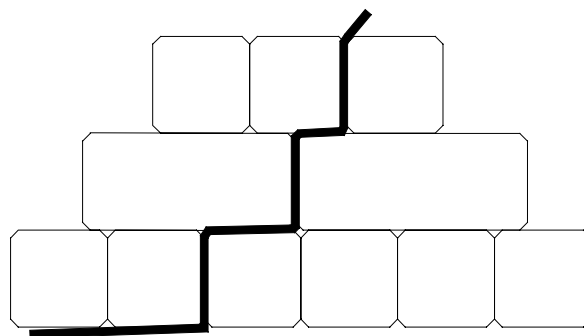


Figure 5:7 – Location of Plastic Waterproofing Sheet

SOME PLANNING INFORMATION

18. All figures presented here are approximate:

- A tamped sandbag will be about 250 millimetres high, requiring four rows above ground and one below for a height of one metre.
- The width of a header will be about 250 millimetres and that of a stretcher, 600 millimetres.
- It takes a party of five to fill and lay 60 sandbags per hour provided there is no significant carrying involved.
- It takes approximately 450 sandbags to construct a wall one metre high by 10 metres long. This includes the sandbags for the key trench.

Residents sandbagging to protect homes, north eastern Victoria, October 1993

CHAPTER 6

PUBLIC INFORMATION

IN A NUTSHELL ...

The flood operations manager is responsible for ensuring the community at risk is kept informed of what is likely to occur and what they should do to protect themselves and their property.

The media provides the primary means of passing information to the affected community.

The flood operations manager should be prepared to conduct regular media briefings and issue regular media releases.

DISSEMINATION

1. Public information during flood response operations is provided for the advice of those affected and for the public generally. The flood operations manager is responsible for ensuring information is disseminated to cover both requirements.
2. Information to the affected people will include disseminating flood warnings and, in particular, giving notification of the likely effects. It will advise them how to protect themselves and their property. Details are contained in 'Flood Warning: An Australian Guide'.
3. The range of specific issues on which the community at risk should be advised includes:
 - instructions on evacuation;
 - road closures;
 - public health;
 - maintenance of essential services and utilities;
 - security of evacuated areas;
 - damage minimisation;
 - how to obtain assistance; and
 - immediate welfare and recovery arrangements
4. Information on the flood response operation itself must also be provided to the community at large. If this is not forthcoming, operations will be impeded by general enquiries. The best method of providing this information is through regular media releases from the flood operations centre.

MANAGEMENT

5. To ensure effective management of the flow of information to the public during a flood response operation:
 - a media officer should be available to each flood operations centre, or a member of the operations centre staff must be tasked with performing the media function;
 - flood operations managers must be prepared to conduct regular media briefings;
 - if media releases are produced at more than one level (eg regional and state), great care must be taken to avoid contradictory statements—this is best achieved by staggering release times;
 - media releases should be authorised by an appropriate officer, normally the Operations Centre Manager, before release;
 - community groups can help pass information to the affected community, in particular by conducting doorknocks, when there is a requirement for evacuation;
 - the flood operations manager should identify all available means for passing information to the community at risk including less obvious channels such as Citizens' Band radio, ham operators and community radio stations; and
 - the flood operations centre should pass initial recovery information to the community to ensure information is flowing from only one source and is consistent.

CHAPTER 7

EVACUATION

IN A NUTSHELL ...

Evacuation planning is an essential part of flood planning, so if evacuation is required during a flood response operation, it should have been allowed for in the plan.

If immediate evacuation is required, the prime concern is to get the people to safety.

Security of the evacuated area is always a prime concern of evacuees.

INTRODUCTION

1. Evacuation may be identified as a requirement during planning. If the scale of the likely evacuation operation is large or its management complex, it may be prudent to prepare a separate evacuation plan. It can also be dealt with in the body of the emergency management plan or flood plan or it may be an annex or a sub-plan.
2. Evacuation may also be required at short notice in situations which have not been identified during planning. If these situations are to be handled adequately, there are common guidelines which must be followed and there should be some general planning undertaken in all areas where there could be a need for evacuation for any reason.
3. This guide covers how to plan for and actually conduct an immediate evacuation. It does not cover the factors to be considered in making a decision **whether** to evacuate, as these will differ from case to case. The prime consideration must always be the safety of the public—response agency commanders must exercise judgement.

THE PLANNING PROCESS

4. Whether an evacuation is pre-planned or immediate, the planning will be essentially the same although, in the latter case, it must be undertaken at speed and some steps may have to be omitted. The following paragraphs provide a guide on how to actually conduct an evacuation.

Initial Actions

5. Of primary importance is the safety of the people in the affected areas. A number of actions are essential.
 - **Self-evacuation**—A decision must be made at the outset as to whether or not evacuees will be permitted to use their own vehicles. Self-evacuation is

harder to control than an evacuation for which all transport is provided but it is economical, in terms of outside transport resources which, in any case, may not be available in time.

Self-evacuation may remove the need for an assembly centre, although use of one can aid control and provide a location for registration. Experience has shown that some evacuees will go their own way if they have transport and not attend assembly centres. It should also be remembered that some transport will always be required for those without their own vehicles and to cater for breakdowns or accidents.

- **Mass Transportation**— If some or all of the evacuees have to be moved out of a danger area by mass transport means, such as buses or trains, it will be necessary to identify pick-up and assembly areas—the latter possibly both within and outside the danger area. Any assembly area will ideally be under cover from the elements although, in the worst case, a large open area may have to suffice.
- **Doorknocking**—Once assembly areas have been identified, it is possible to begin moving people. The best means of initiating movement is by doorknocking, although emergency vehicle sirens and loudspeaker systems can be used. Because of the anxiety and confusion people will be experiencing, emergency services personnel must be on hand to advise and guide evacuees and keep people calm. They must also provide control at assembly centres.
- **Assembly Centres**—Movement to assembly centres may be in private vehicles, on foot or by mass transport means. Some transport will need to be provided for those who do not possess a vehicle or who are unable to walk significant distances.
- **Police Assistance**—Invariably, there will be those who will refuse to leave, so areas which have been evacuated must be checked. It is wise to arrange for police assistance to be on hand for this purpose.

Follow-up Actions

6. Once the people are safe, a number of actions must be undertaken, such as:

- movement to an evacuation centre;
- registration;
- welfare;
- security of the evacuated area; and
- advice and information to the public.

EVACUATION CENTRES

7. If the assembly centre is not suitable to be used as an evacuation centre, the people must be moved to a suitable location as soon as possible. The main requirements are that the facility should:
 - provide shelter from the elements;
 - have toilet facilities;
 - have space for parking; and
 - be sufficiently large for the number of people evacuated (in the event of a major evacuation several centres may have to be used) and for the functions which need to be performed. Such functions are likely to include:
 - registration;
 - first aid;
 - initial welfare; and
 - information to evacuees on such things as temporary accommodation.
8. Schools and other large public buildings are generally suitable.
9. Responsibilities for the various functions to be performed at evacuation centres should be detailed in emergency plans.

Registration

10. Evacuees must be registered at evacuation or registration centres (or hospitals in the case of casualties).
11. The police service is responsible for registration in most States, but whichever agency has the task it will normally need help—if registration is not accomplished quickly, victims will drift away. There is a standard national format for registering evacuees which the police hold. However, if it is not available, details which should be recorded are:
 - surname and initials;
 - date of birth;
 - home address;
 - destination;
 - contact phone number; and
 - permission to release information.
12. The police will establish an inquiry line as soon as practical. It is important to forward registration details to police as quickly as possible. This may be achieved by using the existing police computer network, facsimile or courier.

Security of the Evacuated Area

13. People will be reluctant to evacuate unless they can be assured their homes and possessions will be safe in their absence. Arrangements must therefore be made to ensure property is kept secure. It is also important to advise evacuees that the appropriate steps are being taken in this regard.

ADVICE TO THE PUBLIC

14. Whenever a major evacuation occurs, it is important to keep the general public informed otherwise emergency service switchboards will quickly become jammed and convergence will occur. On-site controllers should ensure regular situation reports are passed to the flood operations centre from where they can be transmitted to all media outlets. The advice provided should include instructions as to which areas to keep away from; the progress of the evacuation; and what is intended to be done in the affected area between the time of the evacuation and the time of the return of evacuees to their homes.
15. Invariably, some evacuees will escape registration. To avoid fruitless searches, media arrangements should include a request for anyone from the disaster area who has left the area but not been registered to call police and provide details.

RETURN OF EVACUEES

16. The successful conclusion of an evacuation normally depends on the safe return home of those evacuated. Arrangements for return must be made at the time of the evacuation if possible or, failing this, as soon as practicable thereafter. There may be occasions when the slow recession of flood waters or the degree of damage to buildings means return may not occur for days or weeks after the evacuation.

REQUIREMENTS FOR GENERAL EVACUATION PLANNING

17. As part of general emergency planning, prior planning must be done on an area basis so that, if an immediate evacuation becomes necessary, for whatever reason, the emergency services will be well prepared. This would normally include identification of:
 - sites suitable as assembly areas;
 - sites suitable as evacuation centres;
 - evacuation routes between assembly areas and evacuation centres;
 - organisations responsible for assisting police in actual evacuation tasks;
 - registration teams (include training requirement);
 - organisations responsible for arranging and coordinating transport; and
 - organisations responsible for operating evacuation centres.
18. These details should be included in district and local emergency management

plans and be known to all emergency services.

AIDE-MEMOIRE

19. At Annex A to this Chapter is an aide-memoire to help the flood operations manager in the event that an immediate evacuation is required during a flood response operation.

ADDITIONAL INFORMATION

20. More details on evacuation management are contained in the Australian Emergency Manuals Series—Part III, Volume 2, Manual 1: Evacuation Planning.

CONCLUSION

21. Evacuations are difficult to conduct successfully. However, the difficulties can be minimised if proper prior planning is undertaken. In circumstances where the need to evacuate a large or populous area is identified during the emergency planning process, an evacuation plan should be prepared as either an annex or a sub-plan of the emergency management plan or the flood plan. In areas where this is not the case, there is still the need for general planning, allocation of responsibilities and training. These details should be shown as an annex to the area emergency management plan or be included in the 'Responsibilities' section of the flood plan. They will only be effective if they are well known by all emergency services.

FLOOD EVACUATION AIDE-MEMOIRE

MAIN CONSIDERATIONS

- Define the area to be evacuated and the probable duration of the evacuation operation.
- Define needs in terms of:
 - numbers of people (use four per house or flat as a guideline);
 - destination;
 - the amount of time available before inundation occurs or evacuation routes are cut;
 - those who should go early; and
 - welfare requirements—involve the Welfare Service in planning.
- Define resources to meet these needs in terms of:
 - manpower;
 - transport;
 - supplies;
 - equipment;
 - communications; and
 - security of the evacuated area.
- Check availability, capability and durability of the required resources.
- Set priorities for evacuation in terms of priority areas or special needs groups.
- Decide how the evacuation will be carried out including:
 - delivery of warnings;
 - probable extent of self-evacuation;
 - assembly areas;
 - transport arrangements;
 - control and timing of movement;
 - reception and welfare needs; and
 - registration requirements.
- Promulgate details to all affected agencies with parts to play in managing the evacuation.

- Use the media to pass warnings, advice and information to the public, employing the standard emergency warning signal as a means of attracting attention.
- Discuss the need for a public information/inquiry service with police.

MOVEMENT

- The very young, the very old and those who cannot self-evacuate should be evacuated first.
- When allocating transport resources, keep in mind the priorities for areas or special needs groups, the need for unexpected medical evacuations and the extent of voluntary or self-evacuation.
- Define the routes to be used.
- Establish the control structure including:
 - assembly areas (if required);
 - traffic control;
 - signposting of the route and safety marking;
 - identification of control personnel;
 - check points (if required);
 - allocation of responsibilities;
 - communications;
 - fuel, vehicle repair and towing arrangements; and
 - welfare, (particularly first aid) enroute.

RECEPTION

- Location and signposting of evacuation centres.
- The need for and method of registration.
- Welfare needs including accommodation, health, social welfare and clothing.
- Communications with evacuation centres.
- Security at evacuation centres.

POST-EVACUATION NEEDS

Provide for handover to:

- the welfare services to look after post-evacuation needs such as resettlement, return to the evacuated area and rehabilitation; and
- the engineering services for matters relating to infrastructural restoration.

OTHER CONSIDERATIONS

- Be quite clear as to who has the authority to order and control an evacuation. This means knowing the extent of police and other emergency service powers.
- Make sure evacuees are kept informed of:
 - why they are being evacuated;
 - what the reception arrangements are; and
 - when they will be able to return to their homes.
- Keep in mind that people will, if possible, take their pets. In large-scale evacuations it is usually necessary to make separate arrangements for pets because people may not be able to take their animals with them.
- Make proper arrangements for the return home of the evacuees.

GLOSSARY

Combat Agency (or Response Agency)

An agency charged with managing a community's reaction to flooding. This may include responsibility for preparedness and/or aspects of the community's immediate recovery from flooding.

The Combat Agency or Response Agency should be identified by legislation, an emergency management plan, or by formal agreement.

Command

The direction of personnel and resources of an organisation in the performance of that organisation's role and tasks. Command relates to organisations and operates vertically within an organisation.

Control

The overall direction of emergency management activities in relation to a specific emergency situation. Control relates to situations and operates horizontally across organisations.

Authority for control is established by legislation or by formal agreement set out in memoranda of understanding or in an emergency management plan. The emergency service, or other agency, exercising control is known as the Lead Combat Agency, Response Agency or Responsible Flood Agency.

Coordination

The bringing together of emergency services and other resources to ensure an effective emergency management response. It is primarily concerned with the systematic acquisition and application of resources in accordance with the requirements arising from a hazard or the impact of an emergency.

Coordination relates primarily to resources: it operates vertically within an organisation as a function of the authority to command; and horizontally across organisations as a function of the authority to control.

Disaster/Emergency

Throughout this Guide the terms emergency and disaster are interchangeable.

Emergency Operations Centre

An emergency operations centre is a multi-agency operations centre which is established to control operations which are the responsibility of the emergency management organisation.

Flood Operations Manager

The Flood Operations Manager is the person who has overall responsibility for managing a flood response operation. The primary tasks of a Flood Operations Manager in a flood response operation include:

- monitoring an operation conducted or managed by a combat agency;
- coordinating resources in support of a combat agency/agencies; and
- directing an operation or part of an operation.