Maritime Search and Rescue Review

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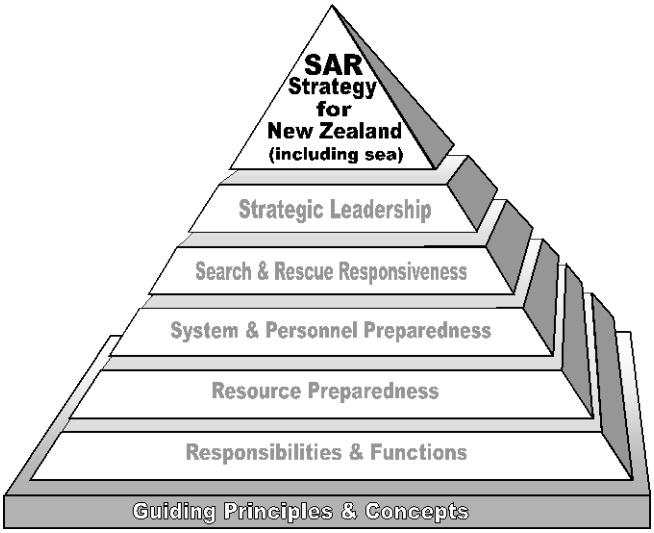
I Executive Summary

Background and approach

As a consequence of the Maritime Patrol Review in February 2001, a working group was formed to undertake a review of Maritime Search and Rescue in New Zealand (a list of the working group participants may be found in Appendix A along with the Terms of Reference in Appendix B).

Key agencies – the Police, MoT, MSA and CAA – submitted position papers which were synthesized by an independent consultancy into a SAR strategic framework depicted by the 'pyramid' as shown:-



The consultant conducted one-on-one interviews with all working group participants to further tease out issues and opportunities prior to facilitating a 2-day workshop where an agreed view was established.

A draft of this report was then compiled and distributed to all participants for critiquing prior to finalisation in its present form.

Key Findings

The principal issues in relation to how SAR is currently operating were identified as:-

- Need for integrated strategic coordination and governance for all SAR in New Zealand – marine, land and aviation.
- Need for better consistency of definition, performance standards setting & evaluation feedback mechanisms and statistical reporting across the key agencies involved in SAR.
- Need for strategic funding to drive the implementation of a coordinated SAR strategy.
- Need for improved communications and assurance of consistency in standards of response activation irrespective of the channel through which distress is notified.
- Need for better integration and shared access between agencies to key information, such as real-time knowledge on the various 'layers' of resource that can respond to a SAR.
- Need for consistent application of Coordinated Incident Management System (CIMS) principles.
- Need for sufficient funds to ensure adequate training at all levels and SAR exercising.
- Need for better formalisation of relationships.
- Need to make optimal use of current SAR resource capabilities resident within Coastguard.

Improvement Opportunities were identified by the working group to mitigate these issues and build a better SAR system for New Zealand. They are summarized below in accordance with the SAR strategic framework:-

Strategic Leadership:

- Create synergies with the Maritime Coordination Centre as it is put in place
- Form an effective New Zealand National SAR Governance "Board"
- Establish a full-time NZ SAR Secretariat, in support of the Governance Structure, to identify and maintain the most efficient and cost-effective SAR infrastructure for NZ
- Change the Classification of SAR to better reflect the type of incident, conditions in which it is occurring and the level of co-ordination and response required
- Define 'Success' in both an operational and outcome sense for SAR
- Set Maritime SAR Outcome and Operational Performance Targets
- Set Maritime SAR process performance standards
- Secure Strategic Funding
- Develop National equipment register
- Encourage Voluntary Registration
- Secure Strategic Funding of Volunteer Organisations
- Provide New Initiatives Funding

Search & Rescue Responsiveness

- More efficient communication
- Improve the Efficiency and Effectiveness of the Present SAR Service by physically operating the National Rescue Coordination Centre (NRCC) continuously
- Leverage from the Maritime Coordination Centre (MCC) being formed

System & personnel Preparedness

- Ensure marine advise is sought at an early stage of a maritime response
- Make better use of regional marine SAR centres
- Continue the promotion of CIMS at all levels
- Improve SAR competency & training development
- Continue SAR Incident Controller training
- Hold regular Police SAR coordinator seminars
- Ensure all new SAR Mission Controllerss undertake specilised training
- Improve compatibility of systems across co-ordination centres for easy data exchange
- Institute standard information sharing
- Institute agreed annual SAR exercise (SAREX) programme
- Ensure throrough SAREX debriefs and knowledge sharing

Resource Preparedness

- Ensure strategic alignment & synergies in resource management
- Develop and maintain appropriate SOPs and contingency plans for operational continuity
- Formalise Police MSA relationship
- Formalise Police Coastguard relationship
- Benchmark SAR operations against others, inside and outside of SAR context
- Develop protocols and methodology for establishing and maintaining volunteer partnerships
- Secure Coastguard's base-level funding
- Introduce Accreditation Programme for regional Coastguard SAR Centers
- Promulgate feedback lessons learnt from SAR incidents

Arising from these issues and improvements emerged two overarching themes, namely **(i)** Development of an integrated strategic framework & governance for SAR and **(ii)** the formation of a SAR Co-ordination Centre. A 'force-field' analysis on each theme suggests their implementation would be of significant value in enhancing SAR in New Zealand.

II Introduction & Framework

Introduction

This review of maritime SAR arose from the Maritime Patrol Review, conducted by the Department of the Prime Minister and Cabinet earlier in the year. In particular, the pending formation of a Maritime Coordination Centre (MCC) highlighted the need to assess whether it should coordinate maritime SAR or at least be an invaluable information resouce for those that do.

At the same time, there has been minimal governance of SAR in a holistic way for the past several years, despite the structures in place to do so. As noted by the Ministry of Transport,

> *"In reality, what we have is not really a system so much as a collection of separate arrangements that somehow have to be co-ordinated between the different agencies that are involved.*
>
> *As well as this gap between the actual and percieved structure of the "system"is the question of whether the present arrangements are the best that we can realistically manage"*

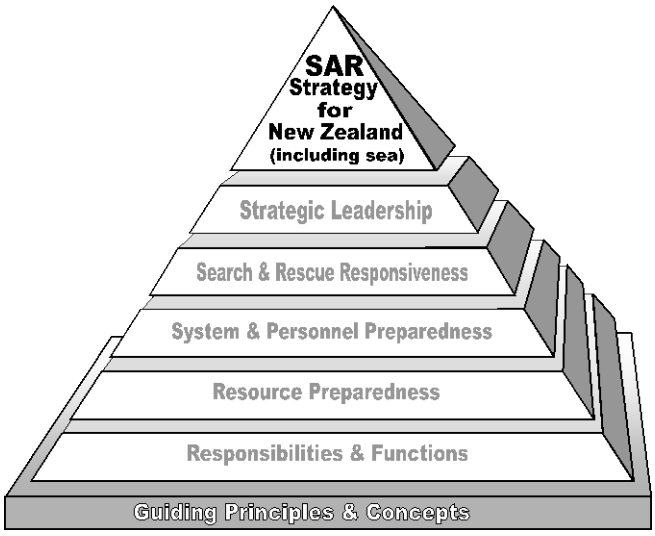
Cabinet Directive & Working Group formation

A Cabinet directive on 2 April 2001 required the Official's Domestic and External Security Committee (ODESC(M)) to implement the recommendations of the Maritime Patrol Review where one of the recommendations was to examine the merits of a co-ordinated national maritime SAR service.

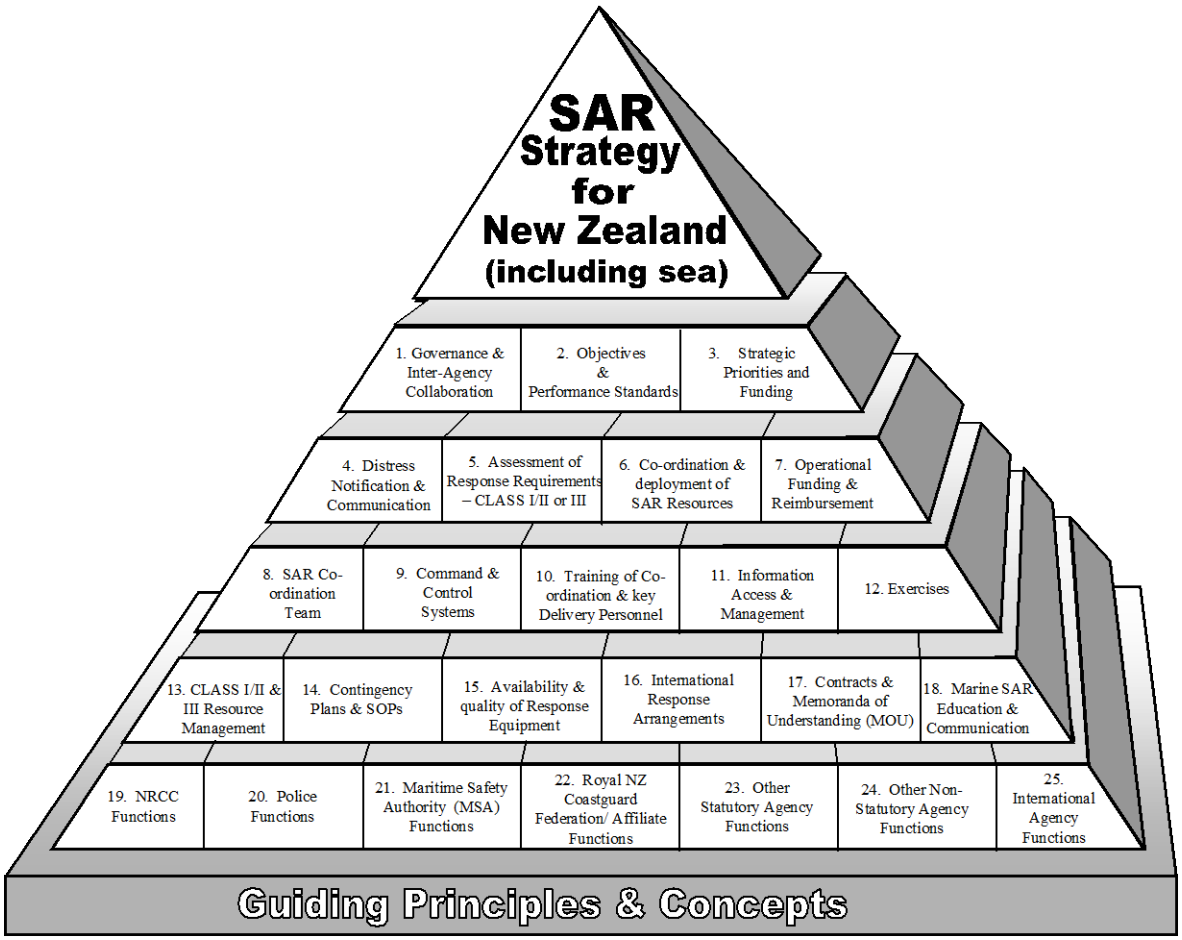
A Maritime SAR Review Working Group was convened with the goal of:-

- *Determining if it is possible to develop a more effective and efficient maritime search and rescue service for New Zealand; and if this is possible,*
- *Recommending to government the necessary steps for its implementation.*

3C Consulting, engaged to help facilitate this review, developed the following model for thinking about maritime SAR as a co-ordinated system as well as providing both a 'top-down' and 'bottom-up' framework for undertaking the review process:-



A more detailed breakdown of the model follows:-



Position Papers written by the principal agencies involved – the Police, NRCC and MSA – were integrated into this framework in preparation for the Working Group's 2-day workshop on 17-18th October. This report is a consequence of the workshop and follows the same format. In particular, The following are addressed in each component of the framework:-

- Key Aspects
- Background
- Issues
- Opportunities For Improvement

In recognition of the fact that improvement opportunities identified have different potential impacts as well as varying levels of difficulty to implement, each improvement opportunity has been prioritized according to the following scale:-

	IMPORTANCE (for SAR)			
LEVEL OF DIFFICULTY	**Critical**	**Important**	**Useful**	**Absolutely Useless**
Low	**1+**	**2**	**3-**	**-**
Medium	**2+**	**3**	**4-**	**-**
High	**3+**	**4**	**5-**	**-**
Impossible	**-**	**-**	**-**	**-**

III Guiding Principles & Concepts

Definition

For the purposes of this review, a SAR incident is where lives are, or are believed to be, in serious and imminent danger and an immediate response is justified

Guiding Principles

The following principles would appear to be the basis for SAR:-

1) While this review looks at SAR in a maritime context, we recognise all conclusions need to be integrated with SAR in total and will be considered accordingly.
2) Saving lives is the over-riding operational SAR guiding principle
3) Whilst saving lives in distress, we will not unduly risk other lives
4) SAR is free of charge to those being rescued
5) Non-government agencies enlisted to assist in SAR are entitled to fair reimbursement
6) The most appropriate resources should always be deployed.
7) It is appropriate to separate the co-ordination & tasking of SAR from service delivery (this doesn't necessarily preclude the same organization participating in both – there must however be transparency and accountability)
8) Performance standards will reflect international best practice within the operational constraints of New Zealand.
9) Sufficient and competent response-resources (currently volunteer groups and private operators) will be fostered to ensure appropriate level of local, regional and national capability
10) Service delivery should be contestable
11) Our operational standards should comply with all international conventions and protocols

Constraints

In undertaking this review, we recognise we are bound by the following constraints

- While extra funding might be forthcoming, it would require a sound business case which demonstrated added value and not just extra layering
- Cannot create new stand alone agency
- Outcome is subject to ODESC(M) endorsement and buy-in of key agencies
- SRR is not going to reduce in size – likely to get larger

IV Strategic Leadership

1. Governance & Inter-agency collaboration

1.1 Key Aspects:

- Governance Committee (NSRC or equivalent) – its roles, membership and accountability pathway
- Relevant empowering legislation and obligations (national/international)
- Management of overall integration of Strategic Framework (Pyramid)
- Linkages with land-based SAR

1.2 Background:

1.2.1 Class I-III Definition and Accountabilities:

Operations fall within three classifications: Class I, Class II and Class III. These terms are administrative classifications that define who is responsible for, and who controls, an operation. They also define who pays for it.

Class I.
An operation that can be carried out efficiently and effectively by Police alone.

Class II.
An operation that requires the assistance of departments or persons outside the Police.
The Police are responsible for class 1 and class 2 searches. These include operations on land, lakes, rivers and coasts.

Class III.
An operation for a missing or distressed ship beyond harbour limits, or aircraft, that is coordinated by the National Rescue Coordination Centre (NRCC).

- is associated with activated Emergency Location Transmitters (ELT's) or missing or distressed aircraft;
- requires the use of national and international civil and/or military resources, or co-ordination with other States, controlled from the NRCC; or
- begins as Class I or Class II operation but where, by mutual agreement, full responsibility is transferred to the NRCC by the NZ Police

The major issue with marine SAR is that action must be immediate and swift for a person in the water.

The responsibility for Class I & II was given to the Police under Notes of Deputation by the Minister of Justice in 1935 and by the Commissioner of Police under a 1936 memorandum. Specifically:-

- the Police regard the coordination of land and marine search and rescue operations as core business;
- the Police are a disciplined, accountable body able to provide national coverage 24 hours a day, seven day a week;
- the Police have the expertise to take action to deal with emergency situations;
- the Police have the skills and planning forethought and use these skills all the time in their daily work;
- the Police have the contact resources and coordinating role for emergency services;
- the Police have national training programmes, national coverage, and trained personnel;
- the Police are involved in both land and marine SAR coordination. This allows Police coordinators to be experienced and trained in both aspects. In many SAR incidents there is often an overlap;
- the Police have accountability regimes in place which subject any decision made to independent review. This can be done through Ministerial direction, the Police Complaints Authority, Questions in Parliament, Judicial review, internal disciplinary procedures, etc.;
- the Police are required by the Coroners Act to investigate any death and report these incidents to the coroner. Where a death has occurred in a maritime situation, the Police are already involved and able to thoroughly investigate these incidents.
- the Police have powers of compulsion under the various acts to complete any action that is necessary for saving life, preventing injury, or for rescuing any injured or endangered persons.

The responsibility for Class III has resided with the CAA since its formation in 1992 and was formally ratified by way of Prime Ministerial direction on 1 July 1996. One SAR organisation is deemed to be responsible for covering all of New Zealand's international SAR commitments. Also under Prime Ministerial direction, the Minister of Transport bears responsibility for the organization of New Zealand SAR and the conduct of SAR operations utilising national civil and military resources co-ordinated from the NRCC. The Minister's responsibilities are delegated through the Civil Aviation Authority to the Director of Civil Aviation who, in turn, has delegated responsibility to the Manager NRCC for policy and funding matters and to the respective SAR Mission Co-ordinator (SARMC) for the management and coordination of all Class III SAR operations within the New Zealand Search and Rescue Region (NZSRR).

1.2.2 International Obligations and related legislation:

The New Zealand Government has an obligation to establish and provide aeronautical and marine Search and Rescue (SAR) services under the following international conventions that it has ratified:

(a) Convention on International Civil Aviation, 1944;

(b) Convention for the Safety of Life at Sea,1974; and

(c) International Convention on Maritime Search and Rescue, 1979.

New Zealand's international obligations are embodied in New Zealand law through the New Zealand Civil Aviation Act, 1990, Section 14 which states, "*The principal functions of the Minister under this Act shall be to promote safety in civil aviation at a reasonable cost, and to ensure that New Zealand's obligations under the international civil aviation agreements are implemented*". Further, " *... the Minister shall ... administer New Zealand's participation in the Convention and any other international aviation convention, agreement or understanding to which the government of New Zealand is a party".*

The Maritime Transport Act 1994 at Section 199 (1) also states that, "*The Minister shall establish, maintain and operate a Rescue Coordination Centre for the conduct of marine search and rescue operations"* and goes on to say, at Section 199 (3), that "*the Minister may contract out the operations referred to in this section"*. The Minister, through a letter from the Secretary of Transport dated 24 June 1996, has contracted the Civil Aviation Authority with providing the marine search and rescue service in accordance with this Section of the Maritime Transport Act.

1.2.3 Current Governance Structures:

The **National Search and Rescue Committee (NSRC)** meets once a year and, in theory, is responsible for developing and providing advice on national SAR policy issues, SAR funding levels, training standards and requirements and overall SAR community performance to the Civil Aviation Authority, which is responsible to the Minister of Transport for Class III SAR policy and coordination services. There is also a **SAR Operations Committee (SAROC)** which meets twice a year and is responsible for reviewing NRCC operational procedures and recommending changes to the Manager NRCC to improve SAR operational effectiveness. Both committees comprise component bodies from the Ministry of Defence, Police, CAA, MSA and other relevant Government Departments and volunteer groups.

Police SAR Advisory Committees: A requirement of Police General Instructions (GI S376) is for SAR Advisory Committees to be formed and established within each district. Where applicable, there can be more than one committee. These committees provide an opportunity for all maritime users to be represented. The primary aim of these committees is to establish relationships between users and ensure maximum cooperation. Police usually chair these meetings which are required as a minimum to be held annually. The committees also prevent any single organisation from taking a domineering role within the district.

1.2.4 Comparison with Overseas SAR Co-ordination Structures:

Canada, United States and United Kingdom all have single crown agency responsibility for marine search and rescue. The agency is the Canadian and American Coastguard and in the United Kingdom, Her Majesty's Coastguard. In Canada and the United States the Coastguard operate rescue craft and assist in the coordination of rescues through Rescue Coordination Centres. HM Coastguard in the United Kingdom has 400 employees nationally and provides a 24/7 response capability for marine coordination and control. The resource used for rescues is a volunteer organisation, the Royal National Life Boat Institute (RNLI). The Police do not have any major role in these countries, except to provide support if required.

In Australia, there are two agencies with the responsibility for search and rescue, the Police and Australian Maritime SAR (AusSAR), who manage their Rescue Coordination Centre.

What is consistent is volunteer agencies provide resources and are coordinated by a government agency. In the New Zealand example, the Police provide the coordination for the majority of marine search and rescue working with the Coastguard and other response agencies.

1.3 Issues:

1.3.1 Need for Strategic Coordination and Governance

The whole system should have goals/direction with one body to guide SAR efforts.

There is growing pressure from a number of SAR-related organisations/groups for definitive strategies in the following areas: Standards, Training, SOP's, MOU's and OSH responsibilities. Additionally a number of organisations/groups are taking a more aggressive attitude in their approach to SAR, and are not necessarily recognising Police as being the key responsible agency for Class I & II, deviating from what has traditionally been recognised as the standard Police approach**.**

The New Zealand National Search and Rescue Committee has clearly been ineffective in providing cohesion and strategic leadership to SAR. The committee has no full time officers, and only meets once a year.

1.3.2 Need for dedicated resource

Whatever the outcomes of the review, it is imperative that people involved in SAR activities should be solely dedicated to the incident and not encumbered with other duties at these times SAR needs to be, and be seen as, a whole – integrated and coordinated.

1.3.3 Ensuring present national SAR organization is not degraded

For more than fifty years the New Zealand national SAR organisation has been based on a joint aviation and marine RCC being responsible for coordinating the actions of military, Police and other SAR assets to conduct Class III SAR operations. The present arrangements ensure that New Zealand continues to meet its international SAR obligations and they have been recognised internationally and recommended to other countries as a practical, cost effective and efficient means of establishing a SAR system that they would do well to emulate.

When considering different management structures, operational arrangements and organisational responsibilities for the management of maritime search and rescue, there is a need for great care to ensure that the present effectiveness level of national SAR organisation is not degraded.

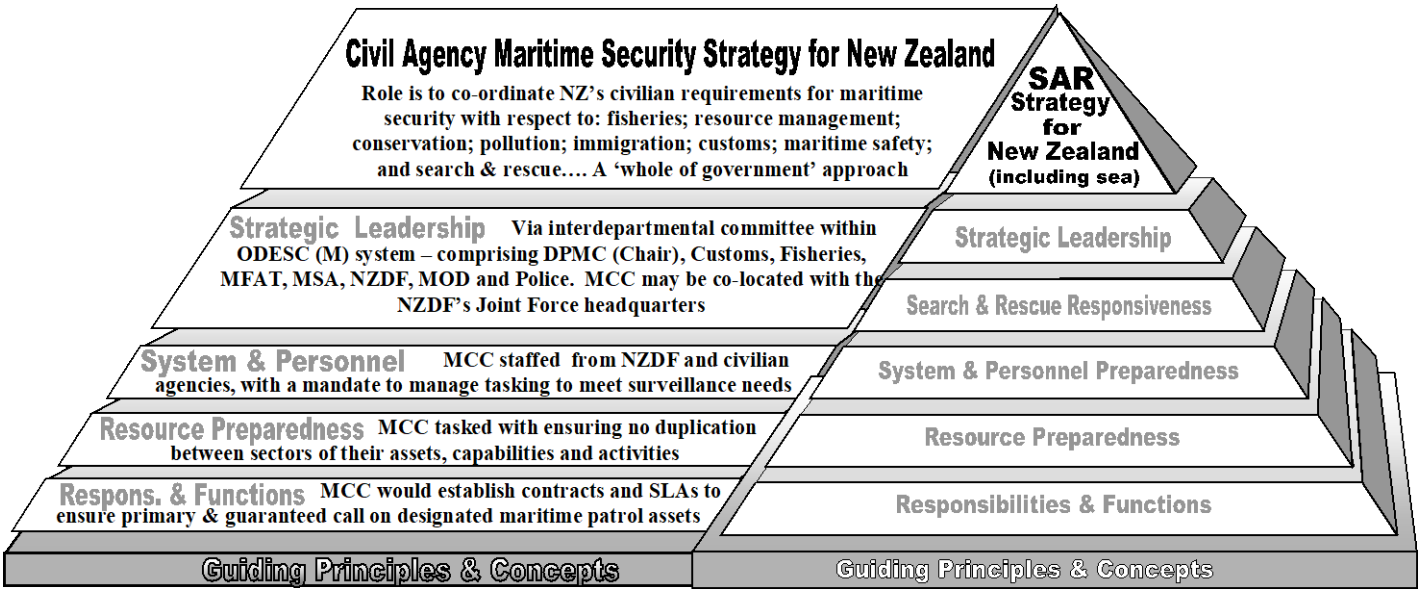
1.3.4 No Marine SAR Committees in Waikato & Northland:

Waikato and Northland Police districts do not have formal marine SAR committees as per the requirement from General Instructions. However these districts do have Police representation on their local Coastguard committees. This will be rectified within the next 12 months.

1.4 Opportunities for Improvement:

1.4.1 Creating synergies with the Maritime Coordination Centre as it is put in place (Priority 1+)

Although the final form of the MCC has yet to take shape, it's strategic framework would appear to have many parallels with that of coordinating maritime SAR as shown below:-



Many of the service providers to the MCC and SAR coordinating bodies are the same. Much of the intelligence or knowledge pool with the MCC would also be of potential value for SARs (especially CLASS IIIs). Moreover, creating synergies accords with a 'whole of government' approach.

Apart from sharing information and service providers, there may also be a case for having shared governance ….. such as ODESC (M) with a CAA & MoT addition replacing the NZSCRC.

1.4.2 Forming an effective New Zealand National SAR Governance "Board" (Priority 2+)

The New Zealand National Search and Rescue Committee is seen as relatively powerless. Overseas studies have shown structures for national search and rescue committees in the United States and United Kingdom. These studies provide a template for a revamp of the New Zealand National Committee structure.

1.4.3 Establish a full-time NZ SAR Secretariat, in support of the Governance Structure, to identify and maintain the most efficient and cost-effective SAR infrastructure for NZ (Priority1+)

A NZ Search & Rescue Secretariat should be established to give real substance to the Governance Structure, along the lines of National SAT Secretariat in Canada. The functions of the SAR Secretariat would include, but not necessarily be limited to,

(a) ensuring better communication between government agencies;

(b) coordination of strategic and new-initiatives funding for SAR;

(c) providing the SAR services in areas of standards, training, etc,;

(d) developing SAR Services for coordinating agencies;

(e) producing SAR Prevention Strategies;

(f) being a coordination centre for reviews, studies and promotions.

1.4.4 Changing the Classification of SAR to better reflect the type of incident, conditions in which it is occurring and the level of co-ordination and response required (Priority 2)

There appears to be little merit in distinguishing between Class I and Class II and, if anything, has lead to other groups undertaking their version of a Class I without advising the Police. Accordingly, it is recommended that the new system be at two levels only:-

- LEVEL I (LOCAL) would still be a localised/ regionalised response involving a single/multiple agency (Police or 'accredited' equivalent) with accountability to Police
- LEVEL II (NATIONAL) is a national response involving multiple agencies and co-ordinated by national SAR Coordination Committee

1.4.5 Marine SAR Committees: Ensure all districts have Marine SAR Committees in place by 30 June 2002 (Priority 3-)

2. Objectives & Performance Standards

2.1 Key Aspects:

- Scope of SAR area (NZSRR)
- Definitions of component aspects of SAR and what constitutes success of each component
- Objectives/Vision for Maritime SAR
- Agreed performance targets
- Agreed system performance standards and monitoring (including audit & management review)

2.2 Background:

2.2.1 New Zealand SAR Region (NZSRR):

The New Zealand Search and Rescue Region (NZSRR) is a combined ICAO and IMO region covering over six million square miles of ocean expanses and relatively small, isolated land masses extending from latitude five degrees south to the Antarctic continent and bounded by the 163E and the 131W meridians of longitude. In this diverse SRR environment the SAR organisation must be capable of responding to SAR incidents ranging from international air or sea-going traffic in remote oceanic areas, to those involving domestic commercial air and coastal traffic, or general aviation and recreational users in distress in the rugged terrain of New Zealand or the coastal waters of any of the Pacific Island States within the region.

2.2.2 Police Statistics for CLASS I/II marine SARs:

Between 1996 and 2001 there have been a total of 2292 class 1 and 2 marine SAR incidents, an average of 458 annually. There has been a notable increase in the number of recorded incidents during the last financial year. This has been linked to districts more accurately recording the work they complete in marine SAR.

During the financial year 2000 – 2001 Police completed 11,026 hours towards marine policing duties under the coding of 1 W, or water related policing incidents. Police are required to keep statistics of search operations. Whenever Police coordinate an incident, a statistics form, called the P130 is completed and forwarded to the Office of Commissioner for recording.

There are differences in statistics for SAR operations when comparing the Coastguard and Police records. Police records show Coastguard units were involved in 221 or 37% of Police coordinated activity.

2.2.3 NRCC Statistics for CLASS III SARs

During the period 1995-2000 inclusive, the NRCC coordinated 4,458 Class III SAR incidents with the Centre being fully activated on 116 occasions. In this six year period there were 1,291 aviation, 671 marine and 84 land-based Class III SAR events and a further 2,412 Class III incidents of an undetermined nature.

During the year 1 July 2000 to 30 June 2001, there were 531 Class III SAR incidents managed by the NRCC that were initiated by the COSPAS-SARSAT system detecting distress beacons within the NZ SRR..

2.2.4 Police Performance Standards

There are few complaints recorded about how a class 1 or 2 Search and Rescue Operation land or marine (SAROP) is completed. No official complaint has been recorded within the last two years. Police take the role of land and marine SAR coordination seriously. The absence of formal complaints, law suits and significant public criticism demonstrates this success and professionalism.

2.2.5 NRCC Effectiveness

Professional standards are set for CLASS III responses via the NRCC SAR Operations Plan, other NRCC documentation and the computer support systems in place. NRCC's compliance with the Quality Management standards required by ISO 9002:1994 is verified by regular Quality Audits conducted by the CAA's Internal Audit programme and by Bureau Veritas Quality International. The NRCC's professionalism is also reflected in the CAA's Performance Agreement with the Minister where the Target Performance Measure for the provision of Class III SAR services requires an appropriate SAR response within 10 minutes of any initial notification of a SAR incident and is consistently achieved.

However, criticisms of NRCC's initial actions and response times in two recent Coronials would suggest that there is scope for further improvement.

2.3 Issues:

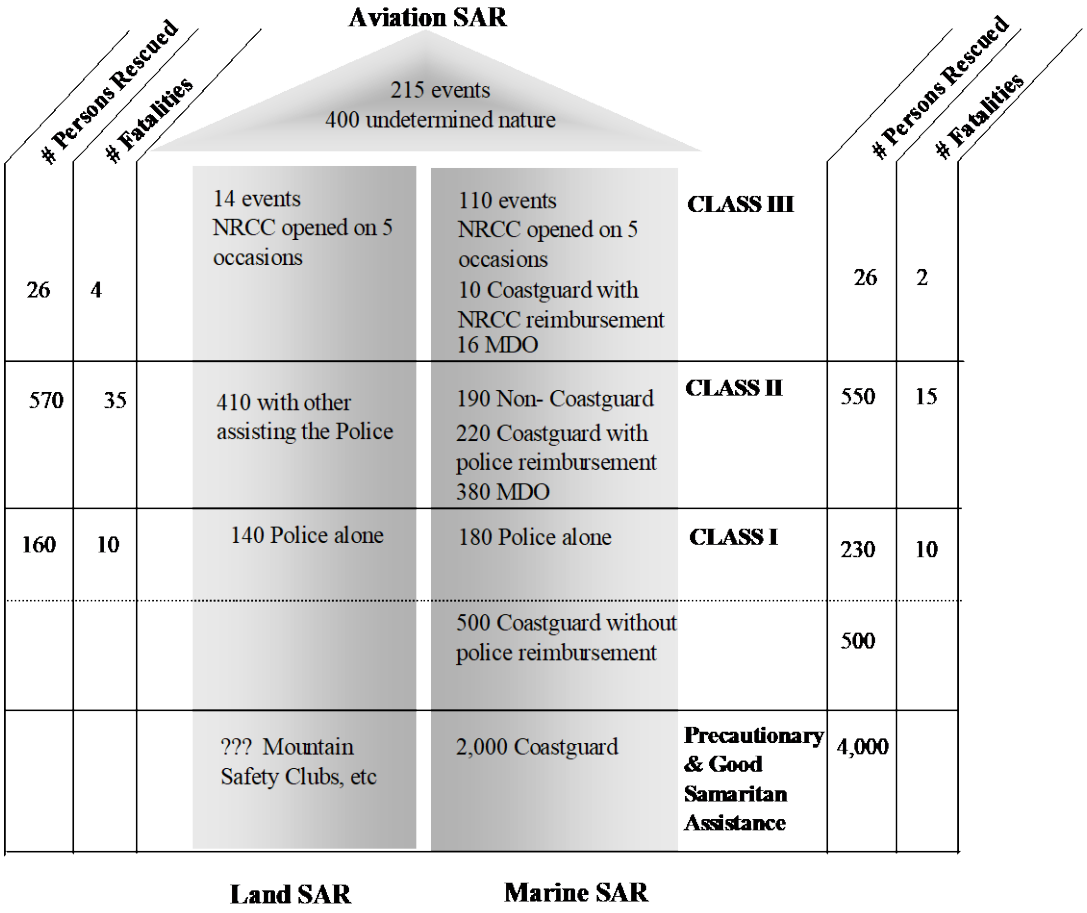
2.3.1 Lack of consistency of SAR statistics within and between agencies

Whilst agencies would appear to have detailed statistics on what they do, it has been very difficult reconciling each agency's statistics with those reported by other agencies, or indeed other parts of the same agency. The diagram on the next page has been constructed to give best 'guesstimates' of what is happening for SAR – both maritime and other.

For the purposes of the review, indicative figures are good enough …. but it is important that clear operational definitions are applied consistently between and within agencies if a comprehensive and credible overall SAR picture is to be tracked in relation to an integrated strategy in future.

In the maritime area, a particular concern is the discrepancy between Coastguard and Police statistics on Coastguard's level of involvement in SAR. If one completely discards the 'Good Samaritan' forms of assistance (boat-tows, etc.) and takes the most serious 20% of Coastguard's 'precautionary' SARs, this renders an estimated 500 lives being saved outside the CLASS I/II system. Additionally, the Coastguard is involved in over 50% of those recorded as CLASS II.

Part of the problem could be non-reporting by Coastguard or the Police not doing the necessary paperwork when a SAR is reported, especially in those instances when the Coastguard has already mounted and perhaps completed a successful SAR.



2.3.2 Lack of clearly defined performance standards

What constitutes 'success' and what target levels of success can be expected at reasonable cost?

Sections 5.6.6 – 5.6.14 of IAMSAR (International Aeronautical and Maritime Search And Rescue) Manual Vol 1 provide a rudimentary approach to defining a SAR system's effectiveness and efficiency. The following table shows NRCC's performance over the past three years for SAR overall in accordance with these formulae:-

Year	NRCC Effectiveness (1)	NRCC Efficiency (2)	Modified NRCC Efficiency (3)
00/01	100%	7.4	$26,000
99/00	90%	6.3	$22,100
98/99	92%	7.5	$15,200

(1) Is the percentage of lives saved of those who are still alive at the time of notification
(2) Is the NRCC Effectiveness value multiplied by an arbitrary scaling factor of 100,000 and divided by NRCC's direct programme costs for the year

(3) Cost/lives saved

The numbers of lives saved were 52, 65 and 81 respectively in each of the three periods listed.

It is certainly difficult to understand what (2) really means with its arbitrary scaling factor and (3) lacks much meaning also until fixed and variable costs are separated and the latter standardized on a per life saved basis.

2.3.3 Lack of standards in response and feedback mechanisms

There is a need for standards in response and improvement in feedback for performance monitoring. Feedback should not be just about reporting when things go wrong but also acknowledging when things go well.

2.4 Opportunities for Improvement:

2.4.1 Define 'Success' **(Priority 2)**

The following are proposed as SAR Outcome definitions of success:-

Successful Search
- Bringing a credible resource in an acceptable timeframe to the precise location where lives are or were in distress

Partially Successful Rescue
- Where at least one person in distress is retrieved alive

Fully Successful Rescue
- Where all persons in distress are retrieved alive

Partially Successful Recovery
- Where at least one missing person's body is recovered

Fully Successful Recovery
- Where all missing persons' bodies are recovered

At the same time, a SAR Operational definition of success takes into account the massive SARR New Zealand is responsible for and the low likelihood of persons surviving for more than 1 hour in the water.

- A SAR is deemed to be an 'operational success' depending on whether a credible resource could reasonably be expected to reach the location within a timeframe such that those persons in distress, given their 'environment' at the time, could still be expected to be alive. If 'yes', then people must be rescued for the operation to be deemed an operational success. If 'no', then rescuing any survivors is certainly an operational success ….. but so too is the situation where there are no survivors.

	Credible response within range?	
	Yes	No
All persons rescued	✓	✓
Some persons rescued	partial	✓
No persons rescued	✘	✓

2.4.2 Set Maritime SAR Outcome and Operational Performance Targets

Outcome Targets will vary depending upon distance from shore , such as

	Up to 12 nm	Up to 24 nm	Up to 200 nm	> 200 nm
% Successful Searches	99%	95%	80%	50%
% Partially Successful Rescues	95%	90%	60%	40%
% Successful Rescues	90%	80%	40%	25%
% Successful Recoveries	95%	85%	50%	30%

whereas Operational Targets will be independent of distance from shore *per se :* **eg** 999 out of 1000 maritime SARs will be an 'operational success' (and so even with no operational failures you can still have fatalities) **(Priority 2)**

2.4.3 Set Maritime SAR process performance standards

This is about ensuring Police/NRCC land and marine search and rescue practices are current and reflect best practice. Such measures relate to:-

- Timeliness:- Will define maximum elapsed times between key stages of an occurrence
- Quantity:- Measures extent to which sufficient information / equipment / personnel available for each phase
- Quality:- Measures quality and usefulness of information / equipment / personnel available for each phase

All these can be wrapped up into a single 'SAR performance index' if a post SAR review is done and validated by independent peer review. It's a form of objective subjectivity!

The key is to establish a series of credible generic templates that capture all the critical success factors or determinants of a successful SAR. An example follows:-

Example of SAR performance index calculation

1. **How quickly was the initial notification channeled to the correct SARMC for initiation of a response? (75 points)**

0% 10% 20% 30%	*40% 50% 60% 70%*	*80% 90% 100%*
• **Greater than 5 minutes**	• **Between 2-5 minutes**	• **Less than 2 minutes**

2. **How complete was the information forwarded about the incident and person (s) / equipment involved? (100 points)**

0% 10% 20% 30%	*40% 50% 60% 70%*	*80% 90% 100%*
• **Vital information missing that would have resulted in a better assessment**	• **Information accurate and mostly thorough in key areas**	• **Very thorough and accurate information in all respects**

3. **How quickly was a credible response tasked and underway following SARMC notification? (150 points)**

0% 10% 20% 30%	*40% 50% 60% 70%*	*80% 90% 100%*
• **Rather slower than the 5 minute IAMSAR standard**	• **Close to the 5 minute IAMSAR standard**	• **Rather faster than the 5 minute IAMSAR standard**

4. **To what extent were all appropriate sources of assistance considered and deployed? (125 points)**

0% 10% 20% 30%	*40% 50% 60% 70%*	*80% 90% 100%*
• **A significant source was overlooked**	• **All available sources were considered but deployment was less than optimal**	• **Rather better than the 5 minute IAMSAR standard**

5. **etc.**

The assignment of points to each of the questions is based on their criticality – the points for the whole questionnaire must total 1000 points. Then, by multiplying the % scores by the points assigned to question and adding them up, an SAR Performance Index is derived (overall score out of a 1000).

SAR Performance Index = 75 * 60% + 100* 80% + 150 * 30% + 125 * 90% + ……
= 45+ 80+45 + 112.5 + …..
= 734 (out of a possible 1000 point total for perfection**)**

Index results can be averaged across SARs as well as their distribution plotted and trends tracked over time, etc **(Priority 2)**

3. Strategic priorities & Funding

3.1 Key Aspects:

- Agreed funding mechanisms for Maritime SAR
- Maritime SAR demand expectations
- Summary of strategic priorities and Business Plan for Maritime SAR enhancement

3.2 Background:

3.2.1 No overall strategy exists for SAR in New Zealand at present.

While individual agencies have strategies in place, as do tasking bodies such as Coastguard, there is no overall strategy or prioritization of initiatives.

3.3 Issues:

3.3.1 Lack of boat registration and/or licensing in place for the pleasure boat sector makes for a serious lack of information on boats when their occupants are in distress and makes it difficult to operate a user-pays regime

Whilst this view is not the official policy of any agency *per se*, a number of working group participants considered registration (and possibly licencing) of key importance in establishing a mechanism for having boaties fund SAR. Less than 13,500 of NZ's 250-300,000 recreational boaties belong to any coastguard and most decline to make a donation even when they are rescued!

Registration would also provide rapid access to valuable intelligence when boats are in distress. At present, 60,000 VHF boat-owners are part of Coastguard's voluntary boat registration database – something which could easily be expanded to accommodate 300,000 boaties. (Even re-deployment of the fire service levy paid by boaties would bring in $4M annually but such would involve changed in legislation).

3.3.2 Insufficient funding for training at all levels

Financial support for search and rescue incidents is never in doubt and is always fully funded. However, there are problems in funding training for marine search and rescue in some districts. The proposed Memorandum of Understanding between the Coastguard and the Police includes provisions covering training, and may assist. Police funding will continue at a National level in the form of sponsoring training at the Royal New Zealand Police College, and the annual grant to Coastguard.

3.3.3 Insufficient funding for equipment and scoping of need

There is insufficient funding for equipment and a lack of thorough scoping of needs matched against a register of current equipment levels and capabilities.

3.4 Opportunities for Improvement:

3.4.1 Secure Strategic Funding:

Have sufficient funding set aside for SAR governance body to implement its strategy. Objectives include:

- The enhancement of SAR activities by federal and provincial/territorial organisations with specific jurisdictional responsibilities.
- The promotion of projects designed to further the National SAR Plan (NSP).
- The communication of SAR "best practices" to all parties involved in search and rescue in Canada. **(Priority 2+)**

3.4.2 Develop National equipment register:

Need for strategic funding for equipment and thorough scoping/register of equipment needs/capabilities. **(Priority 2+)**

3.4.3 Encourage Voluntary Registration

Encourage vessel registration for all craft by looking for industry partnerships to provide a benefit to becoming registered - e.g. reduced insurance for registered vessels - free membership to Coastguard. ***(Priority 2)***

3.4.4 Secure Strategic Funding of Volunteer Organisations:

Care should be exercised here as, in doing so, the result may simply be a reduction in Lottery Grants Board funding and no real increase in overall funding levels. Conversely, the SAR Secretariat could be proactive in sourcing Grant funding for response-resource bodies **(Priority 3+)**

3.4.5 Provide New Initiatives Funding

This funding would be for one-off capital intensive initiatives (step changes verses incremental improvements) **(Priority 4)**

4. Distress Notification & Communication

4.1 Key Aspects:

- Methods for receipt of distress message
- Channels for communication
- Gathering of sufficiently accurate and complete information from distressed party

4.2 Background:

4.2.1 Police Communication Centres:

Police operate three communication centres in Auckland, Wellington and Christchurch. These centres provide a rapid response to any marine or land emergency. Marine plans are kept as part of the SOP's the centres operate under.

Police can be contacted through the 111 emergency line with Police accountability commencing as soon as a call is logged at the centres.

Police communicators receive training in handling of emergency situations. Drop sheets have been created to deal with any situation.

4.2.2 Maritime Operations Centre:

The MSA operates the Maritime Operations Centre (MOC) as a communication centre for maritime distress frequencies. The MOC has the allied emergency service phone numbers which give rapid access to the Police Communications Centres.

The MOC provides 24 hour monitoring of distress frequencies (VHF voice via 26 coastal sites, HF voice and digital via Taupo Maritime Radio, and satellite) covering the New Zealand SRR and further (Nav Area XIV).

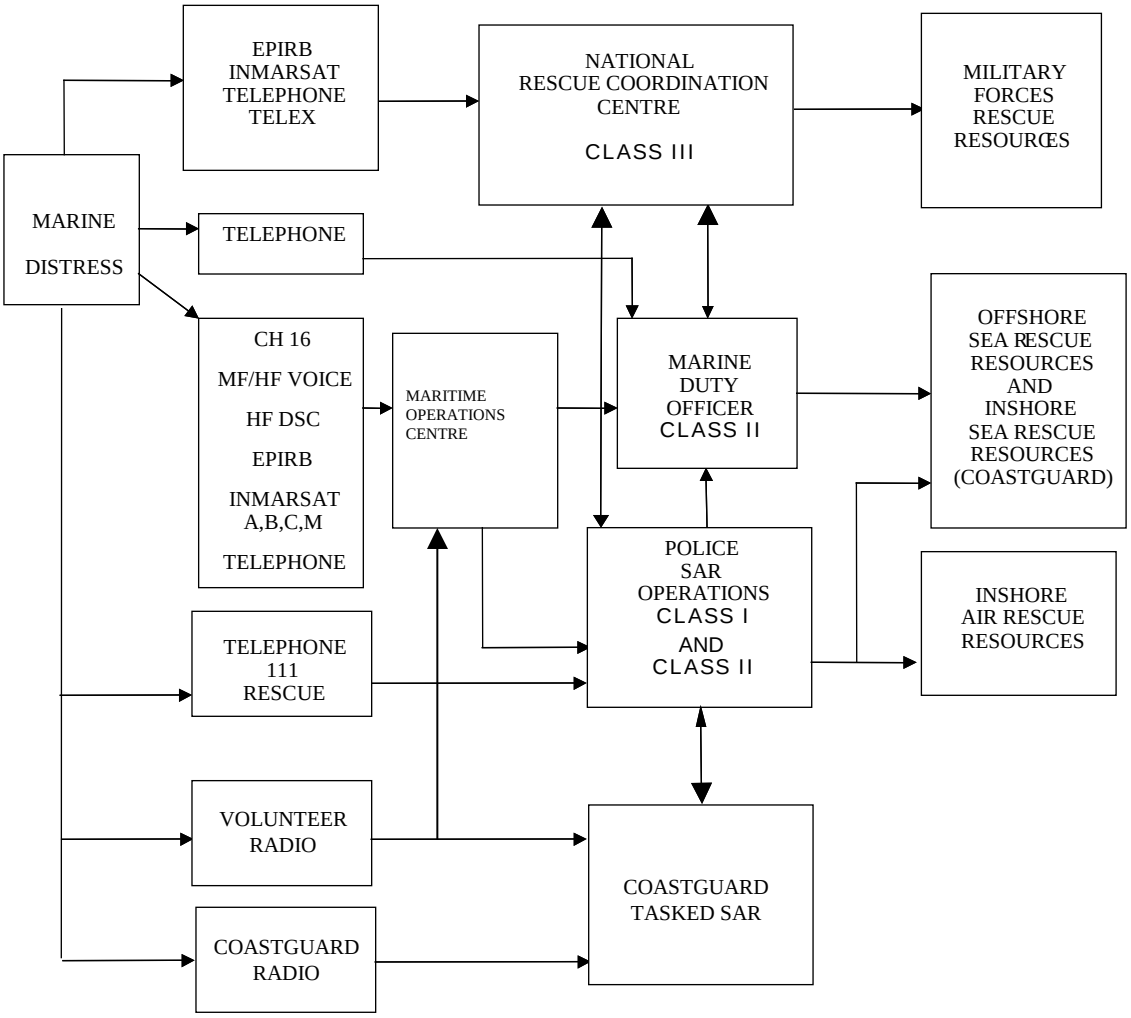
There is total New Zealand coverage by Channel 16 with 24 hour listening watch; the is also good co-operation between MSA's maritime radio and Volunteer Radio Operations.

4.2.3 Initial Alerting

A Class III SAR operation managed by the NRCC may be the result of a declaration of an Emergency Phase (INCERFA, ALERFA or DETRESFA) by Air Traffic Services (for either a civil or military aircraft), a COSPAS-SARSAT distress beacon alert, a request from the Marine Duty Officer (MDO) of the Maritime Safety Authority (MSA), or information provided by the Police following an emergency "111" call. Alternatively it could be the result of a Class I or II SAR Operation being re-classified as a Class III SAR Operation and becoming the responsibility of the

NRCC or it could be the result of international exchanges and dialogue with an adjacent RCC leading to the decision that the New Zealand RCC should be assume the SAR coordination responsibility for an international SAR situation.

Alerting for CLASS I & II SAR operations can also come via a number of channels, including those handled by Coastguard directly. The possibilities are shown in the diagram below:-



4.2.4 Satellite Surveillance.

The COSPAS-SARSAT international SAR system using space satellites keeps a constant and precise lookout for distress beacons. Local User Terminals (LUT's) in the NRCC receive information from satellites and relay data to the Mission Control Centre (MCC) operated by AusSAR in Canberra, for position resolution. If the source is located within the NZ SRR, the Mission Control Centre alerts the SARMC through the Aeronautical Fixed Telecommunications Network (AFTN) centre in Christchurch.

The Wellington COSPAS-SARSAT Local User Terminal (LUT) became operational in November 1991 and the NRCC was established at that time as the SAR Point of Contact (SPOC) for COSPAS-SARSAT Alerts within the New Zealand SRR. Initially the NZLUT was able to track and process distress beacon transmissions detected by the constellation of Low Earth Orbitting (LEO) satellites. Modifications to the NZ LUT in 2000 have resulted in the NRCC now being able to also process distress beacon signals detected by the geostationary satellite (GOES 10). This additional capability facilitates the detection and reporting of the newer 406MHz digital distress beacons (PLBs, ELTs and EPIRBs).

The NRCC is also responsible for establishing and maintaining the NZ National 406MHz Distress Beacon Register, which is a critical element in the process of taking advantage of the new technology beacons. As at September 2001 there were 1800 406MHz distress beacons on the New Zealand Register.

4.3 Issues:

4.3.1 Need for proper 24 hour manning of CLASS III responses

While the response capability, as a rostered standby resource, is compliant with international conventions, there is a need to determine whether a significant improvement in response capability could be achieved through manning all entry points on 24/7 basis.

The present system of not continuously operating or staffing the NRCC is a compromise to contain costs. Over the years and with the assistance of technology this arrangement has been found to be adequate and appropriate, in view of the relatively small number of SAR incidents that arise within the NZ SRR. On the other hand the NRCC's initial actions and response times have been the subject of comment at two recent Coronials and have the potential for creating an unfortunate situation should some critical NRCC personnel be delayed when in transit to the NRCC to participate in a future SAR operation.

4.3.2 Need for improved communications

Communications can be a challenge and always offer scope for further improvement. Communication issues include:-

- Communications Centres not always being aware of local issues
- There are a number of possible linkages at the Class II/III boundary.
- Potential confusion between the Roles of MDO/SARMC

4.3.3 Insufficient use of Channel 16:

Whereas Channel 16 is a 'line-of-sight' simplex line, recreational boaties and mariners have a preference for local coastguard repeater signals as others nearby can pick it up without being in 'line-of-sight'. Cell phones are also in common use and likely to grow with a new cellphone service is being introduced at present.

4.4 Opportunities for Improvement:

4.4.1 More efficient communication

Need for reduced delays and discrepancies in passing information and achieving more direct linkages between distressed party, search co-ordinators and rescue craft. **(Priority 1+)**

4.4.2 Improving the Efficiency and Effectiveness of the Present SAR Service by physically operating the NRCC continuously

The employment of additional duty personnel so that there is, as a minimum, a SARMC and a MDO on duty at all times, would not only ensure that the NRCC's SAR response was optimised but would also provide specialist staff and capacity to accomplish those SAR-related functions that are presently tending to be neglected. These include such things as SAR education and training (which are presently the responsibility of each element or organisation that contributes to the overall national SAR effort), trials and evaluation of products and equipment, and more effective liaison with the large volunteer SAR community in New Zealand.

Increasing the hours of operation of the NRCC would require a full-time Manager NRCC, in addition to six full-time SARMCs, six full-time MDOs and an administrative clerk. It is estimated that this revised establishment change would result in the NRCC personnel and support costs having to increase by up to $750,000 annually, with some counterbalancing reduction in the MSA's cost for providing and funding MDOs for NRCC duties.

Co-locating of the NRCC with the Maritime Operations Centre offers a cost-effective multi-skilled approach to augmenting a base 24/7 manning of SARMCs as well as achieving more direct linkages between two of the key response agencies. **(Priority 4)**

5. Assessment of Response Requirements – CLASS I/II or III

5.1 Key Aspects:

- Building knowledge of location scenario and what level of resource is needed – CLASS I/II or III
- Building knowledge of available resource options that can be deployed
- Matching to achieve optimal SAR response – development of SAR Response Plan
- Assessing SAR Co-ordination team composition and activating as appropriate

5.2 Background:

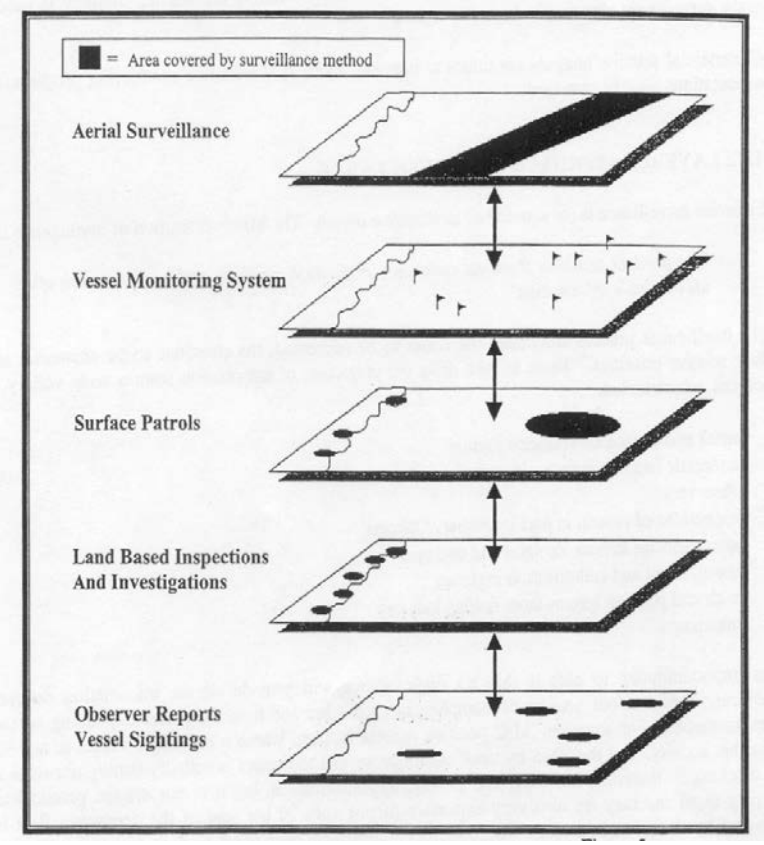
5.2.1 The importance of knowing what resource is available at the time of a SAR

A dominant reason for having co-ordination of a response is to be able to build and maintain a true picture of response capability from a wide variety of sources. The establishment of the MCC will be an invaluable resource to help enhance overall SAR intelligence in this respect.

5.3 Issues:

5.3.1 Lack of fully integrated approach at present

There does not appear to be a fully integrated approach to maximizing all the various resources through good use of intelligence of the various "layers" of resource that can potentially be deployed (as schematically illustrated in the MFish Maritime Patrol Review submission):



5.4 Opportunities for Improvement:

5.4.1 Leveraging from the MCC

Being closely aligned to the MCC should render significant benefits in harnessing all available resource in an optimum manner **(Priority 2)**

6. Coordination and deployment of SAR Resources

6.1 Key Aspects:

- Activating SAR resources
- Monitoring deployed resource and updating SAR Response Plan as appropriate (PDCA Cycle)
- Post-SAR reviews
- Record management

6.2 Background:

6.2.1 Application of the over-riding principle.

In keeping with 'saving lives' being the over-riding guiding principle of search and rescue, the most appropriate resources available will be deployed to maximise the chances of a successful SAR and such decisions are not governed by cost. At the same time, highly expensive resource options are not chosen without being deemed to be adding real value to the operation.

6.2.2 SAR Termination or Suspension.

If a SAR operation results in a successful outcome, the SARMC has the authority to terminate the SAR action. If, however, the SAR action is unsuccessful, the decision to authorise the suspension of the SAR effort resides with either the Chief of Defence Force, the Director of Civil Aviation or the Director of Maritime Safety, depending upon the nature, circumstances or target of the unsuccessful search.

7. Operational Funding & Reimbursement

7.1 Key Aspects:

- Register of Delegated Authorities
- Financial record management

7.2 Background:

7.1.1 Police Expenditure:

There are many hidden costs associated with Police involvement in SAR. The figures provided should not be taken as the full amounts the Police spend on search and rescue. What is not included is the time Police officers spend completing activities such as members of the various marine SAR committees, administration search and rescue etc. The real cost is considerably higher.

The figures for the last 5 years are:

2000/2001	$285,006 (598 operations)
1999/2000	$537,477 (438 operations)
1998/1999	$344,214 (440 operations)
1997/1998	$332,439 (415 operations)
1996/1997	$571,968 (401 operations)

These figures are costed in the areas of messing, civilian vessels, Coastguard vessels, commercial fixed wing, commercial helicopter, commercial vessel, miscellaneous, non Police, other Police, Police helicopter, Police vessels, RNZAF fixed wing, RNZN vessels, SAR squad, specialised other, transport. Full details are as below.

Resource	**2000/01**	**1999/20**	**1998/99**	**1997/98**	**1996/97**
Accom./messing	*142*	*2070*	*1021*	*Nil figures*	*540*
Civilian Vessels	*12985*	*17391*	*16148*	*16770*	*26338*
Coastguard	*38588*	*36746*	*34549*	*26929*	*25184*
Fixed wing	*8890*	*29459*	*19029*	*8210*	*12744*
Helicopter	*100682*	*204875*	*121588*	*114977*	*114923*
Commercial vessel	*14780*	*16475*	*18069*	*12915*	*31659*
Miscellaneous	*360*	*9149*	*250*	*73*	*292*
Non Police	0	1075	1400	650	2813
Police	55965	112178	55518	111454	195292
Police Helicopter	7500	29955	25420	11250	91024
Police vessels	25738	44223	31989	3400	22992
RNZAF fixed wing	0	0	0	0	0

Resource	2000/01	1999/20	1998/99	1997/98	1996/97
RNZN vessels	0	600	0	Nil figures	0
SAR Squad	18407	232244	18131	23673	42666
Spec other	402	10319	720	1700	4906
Transport	*565*	*715*	*200*	*435*	590
Total	285006	537477	344214	332439	571968

(Italics represent budget items that *could* be split off)

7.1.2 MSA Expenditure:

Maritime Radio - 24 hour monitoring of distress frequencies:

Service	Funded by	Links
Hardware – aerials, radio components, linking, interfaces	Funded by Marine Safety Charge. Owned by MSA and BCL.	MSA, BCL
MOC hardware – radio interfaces, computers, databases	Funded by Marine Safety Charge. Owned by BCL.	MSA, BCL
MOC staff and management	Funded by Marine Safety Charge. Employed by BCL.	MDO
MSA support (including radio engineer)	Funded by Marine Safety Charge.	
	Value of network – $30 million Ongoing costs – $3.4 million annually	

Marine Duty Officer / SAR Adviser – location in Wellington for access to NRCC.

Service	Funded by	Crown Links
Nautical Adviser to Class III SAR including Medevacs	Crown	MOC, NRCC (Police, Customs)
Nautical Adviser to Police in Class II searches	Crown	Police
Investigate reports of missing or overdue vessels	Crown	Customs, Overseas agencies
Authorise the use by MOC of CQ and XXX messages to shipping, as well as the use of Safety-Net messages. Evaluate and Issue Coastal Navigation Warnings.	Crown	
Assess in consultation with medical authorities requests for medical help and where necessary assist in arranging transportation.	Crown	NRCC (Life-flight trust)
Authorise the issue and cancellation of Tsunami warnings to shipping.	Crown	Civil Defence / Emergency Management
Provide overseas agencies with information relating to missing and overdue vessels. Liase with marine SAR authorities in adjacent SAR areas	Crown	Overseas agencies
Provide urgent nautical advice to shipping as requested.	Crown	
	Crown funding financial year 2001/2002 $428,000.	

7.1.3 NRCC Funding and Expenses

The level of Crown funding for the Civil Aviation Authority to provide the Output of Class III Search and Rescue Services during FY 2001/02 is $1.350M (GST inclusive), which is made up as follows ($M):

Personnel (incl salaries, allowances, recruitment)	-	0.250
Training and Travel	-	0.075
Building Rental/Lease	-	0.045
Maintenance Contracts	-	0.240
SAR Operating Costs (estimate of variable costs)	-	0.260
Communications/telecommunications	-	0.040
Miscellaneous (subscriptions, insurance, etc)	-	0.015
Capital charges, Depreciation and Transfers for external Services	-	0.425
Total		**$1.350M**

Use of RNZAF aircraft for SAR is, however, to all intents, unrestricted. There is no fixed budget governing SAR military flying activity. Notwithstanding a degree of interruption to Air Force operational activity, something in the order of 200 military flying hours are allocated for SAR activity annually. There are no inter-departmental accounting procedures or cost-recovery arrangements in place for SAR activity. The use of RNZAF assets by the NRCC is therefore not reflected as an operating cost to the NRCC.

8. SAR Co-ordination Team

8.1 Key Aspects:

- Composition and Maritime SAR Competency requirements
- Co-ordination centre resource management & communications

8.2 Background:

8.2.1 Police link with Maritime Safety Authority

The Marine Duty Officer (MDO) role is becoming more prominent and they feature in district and Communications centres plans. Police and MSA have continuing joint training activities to ensure the role of the MDO and MOC are fully understood. . **(ref: Police Position Paper, pg 11)**

8.2.2 Role of Marine Duty Officer

The MDO is a Master Mariner employed by the Maritime Safety Authority of New Zealand to answer the telephone as a first point of contact. The call can be from a mariner requiring advice, assistance or rescue, or a SAR organisation asking for advice or assistance, or a private individual with a SAR related request or query. He has deep sea command experience and training in basic search and rescue techniques with the resources available to him. Sequenced procedures are laid out in his manual for the response to all of the more common distress calls and signals received. The MDO is also the first point of contact for any reports of marine oil pollution. There are 6 duty officers on a roster to ensure coverage and one is rostered as a back up for emergencies.

8.2.3 NRCC Management Systems & Personnel

The NRCC is established within Aviation House, the CAA Head Office building in Lower Hutt. It is equipped with modern facilities and equipment using up-to-date technology and staffed by professionally competent team members possessing the range of skills necessary to cope with all potential SAR situations. The Manager NRCC, who is a senior CAA Officer with other CAA management responsibilities, employs a full time SAR Administration Officer and a part-time (50%) Assistant Administration Officer to provide the operational and administrative services necessary to maintain the NRCC in a continuous state of readiness to provide SAR services.

SAR Mission Controllers (SARMCs): The NRCC is fully staffed and configured for 24-hour SAR operations but, in the absence of a major SAR event, is normally attended during business hours only by the Administration and Assistant Administration Officers. The administrative staff also carry out the SARMC duties during these business hours while five additional SARMCs are contracted by the Manager NRCC and rostered for SAR duties to ensure the complete 24 hour coverage. The SARMCs are equipped with

electronic pagers, portable telephones, a facsimile machine, a laptop computer and a "Pack-up Operations Bag" containing a comprehensive range of SAR planning aids to permit an immediate and effective response to a SAR Alert that may arise at any time, day or night. Extraneous duties of the SARMCs include providing a 24-hour service for the receipt and notification to CAA Air Safety and Transport Accident Investigation Commission investigators of any aviation accidents or incidents that have occurred. The SARMCs also hold the delegated authority to prescribe, designate and promulgate any area of New Zealand as a Restricted Airspace zone for the purpose of controlling or excluding certain aircraft from such areas for particular purposes. SARMCs have traditionally been personnel with varied and extensive operational backgrounds, including SAR activities, in either the Police, Air Traffic Control or military aircrew service.

The ultimate responsibility for the conduct of Class III SAR operations rests with the SARMC who is contracted by the Civil Aviation Authority (CAA). When the SARMC deems necessary, the NRCC will be activated for search coordination by a team of specialists drawn from the appropriate contributing organisations. Team composition will be at the discretion of the SARMC, who will retain overall responsibility for the conduct of the SAR operation, including final approval of the specific search plan. There exists a close and strong NRCC team support structure with each contributing organisation undertaking to provide suitably trained and qualified personnel for specific SAR duties. In the event of the SAR target being a merchant marine vessel on the high seas or when such vessels are engaged as Search and Rescue Units (SRUs), assistance will be provided by the MSA in the person of a MDO; if naval vessels are the SAR target or the SRU, by the Royal New Zealand Navy; if military aircraft, by the Royal New Zealand Air Force; if Army resources, by the New Zealand Army; if volunteer land or marine services or vehicles, by the Police or any of the other SAR volunteer organisations that are available and considered appropriate in the circumstances, for example NZ LandSAR or an affiliate of the NZ Coastguard.

Air Directing Officers (ADOs). The RNZAF involvement in Class III SAR extends to the deployment, when necessary, of Air Directing Officers (ADOs) to the NRCC and/or outlying localities for control of both civil and military aircraft on SAR tasks. ADOs are trained in preliminary planning of air search operations and allocation of aircraft on searches and can perform a role analogous to a SAR On-Scene-Commander. The ADO may request the involvement of civilian aircraft through the SARMC and, in conjunction with the SARMC, update search probability areas as fresh intelligence is received. The ADO becomes a valuable human resource in the conduct of SAR actions in the more remote reaches of the NZ SRR where first hand knowledge of local conditions and more direct communications make local command strategically preferable. The RNZAF's operational policy requires RNZAF aircraft, when employed as SRUs in distant search actions, to carry as crew at least one ADO who may assume SAR direction duties while on board the aircraft or may be disembarked for duties at a convenient ground locality in the sector.

Public Relations Officer (PRO). A simple and effective public relations mechanism is in place within the NRCC. During a Class III SAR operation the SARMC may contact one of two NRCC-contracted employees to attend the NRCC and perform the Public Relations Officer function. At intervals, a facsimile summary of the SAR operation and its status is transmitted to media outlets. A recorded telephone voice-mail message and commentary is also maintained and available for access by the media or members of the public on a dedicated media "hotline". This pro-active facility and routine obviates undue media interruption, establishes good relations with the press and serves the legitimate purpose of keeping the community informed. Benefits flow back to the SAR organization as a co-operative media can be an effective resource in the conduct of SAR.

8.3 Issues:

8.3.1 Need to maintain complementary Staff Synergies.

The "cross-fertilisation" that results from bringing various specialist aviation and marine experts into the SAR forum is considered to have proved beneficial. Similarly, the synergy that has resulted from civil aviation, defence and marine specialists blending their expertise in the single NRCC has proven dynamic and effective. There is an element of commonsense advantage about these complementary staffing arrangements. For these advantages to prevail over sectional interests there must be a pervasive, broad vision of the humanitarian aspect of SAR, and there must be a closely defined set of staff procedures indisputably established. This arrangement presently exists within the NRCC.

8.4 Opportunities for Improvement:

8.4.1 Ensuring marine advise is sought at an early stage of a maritime response

Have better access to appropriate maritime expertise getting the correct marine advise at the start of an incident to the Police (MDO/SAR Advisor/Local advisors) **(Priority 2)**

8.4.2 Making better use of regional marine SAR centres.

Both Auckland and Christchurch currently have fully operational marine SAR centers run by Coastguard. As the Royal NZ Coastguard implements its strategy, there will be more regional centers established and these should be fully utilised in coordinating regional and local SAR responses **(Priority 3)**

9. Command & Control Systems

9.1 Key Aspects:

- Coordinated Incident Management System (CIMS) for key agencies

9.2 Background:

9.2.1 Key elements of Incident Command Systems:

Incident Command Systems were first developed in the United States to combat forest fires and are recognized internationally as an effective system for managing all types of emergencies. Aspects include having common terminology, a modular organization, integrated communications, a single command system, a single response action plan, a manageable span of control for supervisory management and clearly designated incident command and support facilities.

9.3 Issues:

9.3.1 Police appointment of Incident Controllers:

Police are committed to the Coordinated Incident Management System (CIMS). However Incident Controllers are appointed by District Commanders, and can be SAR trained Police persons, or the duty Police officer etc. International best practice supports trained persons be assigned to these positions.

Police will be reviewing the appointment process as part of an update planned for General Instructions and the Search and Rescue chapter of the Manual of Best Practice.

Although some Police have specialist marine SAR training, current policy allows for any Police person to control a search.

9.4 Opportunities for Improvement:

9.4.1 Continue the promotion of CIMS at all levels:

Continue the promotion of the Coordinated Incident Management System (CIMS) for SAR incident management **(Priority 1+)**

10. Training of Co-ordination & Key Delivery Personnel

10.1 Key Aspects:

- Identification of training needs at all levels – coordination & delivery
- Training delivery & competency assessment
- Recording and updating Maritime SAR Competency Register

10.2 Background:

10.2.1 Royal NZ Police College Training for Incident Controllers:

Two years ago the Police initiated a new training course for Police incident controllers in land and marine SAR. The two-week course completed at the Royal New Zealand Police College uses the internationally recognised Emergency Response Institute Managing Search Operations course for land coordination. The skills obtained from this course can be used when the second phase of the course is completed, a one week course on marine SAR planning. The course is based on Australian Police SAR training and uses Police SAR personnel from Australia as tutors.

- The last course had four members from the Coastguard as students as part of a joint training initiative. This has been extended to the next series of courses planned for March and August 2002, which the Coastguard Federation has agreed to jointly fund.

- As a result of these courses, the Police skill level in coordination of marine SAR has increased. Currently there are fifty trained Police marine controllers.

- Police are the only professional group within New Zealand who are completing marine search and rescue training courses.

- Police are currently planning joint training on the marine incident controller's courses for Coastguard members. Police are also involved in joint training of aircraft observers with the National Rescue Coordination Centre, Police Districts and Coastguard.

10.2.2 Training for aircraft observers:

The Police and NRCC, as part of a combined training initiative run joint training for aircraft observers at an annual course at the Police College. Each year 30 persons are trained in aircraft observation techniques. At the last course there were greater numbers of Coastguard Air Patrol members trained.

10.2.3 SAR Mission Coordinator (SARMC) Training:

Only one of the CAA's seven SARMCs have attended specialist civilian SAR training courses at a recognised training facility. All SARMCs and the Manager NRCC are graduates of either RNZAF or NZ Police SAR Courses and the Air Directing Officer's Course which extends over a week and covers such subjects as search planning, aircraft performance, Air Force standard operating procedures and aircraft allocation and tasking procedures. Each of the SARMCs underwent a six-

week period of on-the-job training as part of their orientation and introduction to NRCC duties and all are now highly experienced operational SAR officers.

10.3 Issues:

10.3.1 Not always sufficient funding available for training and exercising:

Districts budgeting priorities sometimes affect training and exercising

10.4 Opportunities for Improvement:

10.4.1 SAR competency & training development:

Review and develop appropriate SAR competencies and training for all SAR participants **(Priority1+)**

10.4.2 Continue SAR Incident Controller training:

Continue joint training between Police and Coastguard for marine search and rescue controllers at the Royal New Zealand Police College **(Priority1+)**

10.4.3 Hold regular Police SAR coordinator seminars:

Run a seminar for Police SAR coordinators covering land and marine issues (this has been annual event for the past two years). **(Priority 2)**

10.4.4 Ensure all new SARMCs undertake specilised SAR Mission Coordinator training:

Any new staff recruited by the NRCC as SARMCs would benefit from undertaking a specialised SAR Mission Coordinator training course. As it is not considered cost-effective for New Zealand to mount its own domestic SAR training programme at this level, the most convenient and appropriate would be at the Australian National SAR School. Australia and New Zealand share a common culture, have similar demography and operationally akin air and maritime transport systems. **(Priority1+)**

11. Information Access & Management

11.1 Key Aspects:

- Maritime SAR data-base management
- Interface with Maritime Co-ordination Centre
- Other data-base access arrangements
- Monitoring of data-base integrity

11.2 Background:

11.2.1 LINZ/Terralink/Airways Publishing.

The NRCC has arrangements with national mapping agencies for the automatic receipt of every new edition of maps and charts to supplement the computer-based 'MAPMASTER' digital mapping system that permits access to regional marine and topographical information.

11.3 Issues:

11.3.1 Lack of integration of information

There are a variety of repositories of maritime information which fall in to a number of categories. This information is recorded in various formats and manners that are generally either inconsistent, or impractical to consolidate and make available to relevant allied agencies.

These repositories include but are not limited to:

- Coast Guard Units
- Coast Guard Federation (including training and VHF callsign allocation)
- Customs
- Fisheries
- Military
- Private Radio Stations
- Fishermen's Association Radio Stations
- Harbour Radio Stations
- NRCC
- MSA
- MOC
- Police
- Met Service

The categories of information include but are not limited to:

- current positional information
- contact information for vessel and owner
- vessel details

- emergency equipment details i.e EPIRBs, medical equipment etc
- historical information on previous voyages and incidents

11.4 Opportunities for Improvement:

11.4.1 Improve compatibility of systems across co-ordination centres for easy data exchange

Encourage compatible computer mapping and search programme software across co-ordination centers **(Priority 3)**

11.4.2 Institute standard information sharing

Institute standard information sharing eg to allow each key agency to construct combined 'live' pictures **(Priority 3)**

12. Exercises

12.1 Key Aspects:

- Maritime SAR exercise programme – CLASS I – III
- Feedback & improvement

12.2 Background:

12.2.1 NRCC exercising

The NRCC is required to conduct a major SAR exercise to test the effectiveness of the NZ SAR organisation at least once every three years. The last major SAR exercise was conducted in 2000.

12.2.2 Police exercising

Each Police District is required to sponsor marine SAR exercises (SAREXs) on a regular basis.

12.2.3 AusSAR Exercising

Australia (AusSAR) requires co-ordinators to have regular exercises (approximately monthly**)**

12.3 Issues:

12.3.1 Insufficient emphasis on and funding for exercises in some Police Districts

Exercises are not given sufficient high priority and funding to happen often enough

12.4 Opportunities for Improvement:

12.4.1 Institute agreed annual SAREX programme

Develop, implement, conduct and review an agreed annual exercising programme for all levels of SAR activity **(Priority 2+)**

12.4.2 Ensure throrough SAREX debriefs and knowledge sharing

Emphasise debriefing of SAR exercises and incidents to ensure maximum learning and knowledge transfer throughout appropriate SAR entities (using external expertise – eg SAR Secretariat - to assist with assessment and transfer) **(Priority 1+)**

13. Class I/II & III Resource Management

13.1 Key Aspects:

- CLASS I/II Police Infrastructure
- CLASS III NRCC Infrastructure
- MOC Infrastructure

13.2 Background:

13.2.1 New Zealand Police infrastructure

Police SAR organizational structure: The Police SAR organisation comprises Police at local, district and national level, SAR squads (where established) and civilian volunteers. Each district has a SAR coordinator to administer and supervise SAR. In the event of an operation the District Commander appoints a Police Incident Controller.

Police Coverage: Every Police station in the country is aware that SAR is core business for Police. Police members currently take ownership for any missing person scenario. 50% of any search is intelligence gathering, usually carried out by Police. This includes interviewing NOK, checking boat ramps, dealing with victim's etc.

Police Search and Rescue Squads Police have search and rescue squads located in all the Police districts. Squad members are trained in search and rescue techniques and perform roles such as liaison, interviewed next of kin, search management and other areas. Majority has been trained as aircraft observers and are available on call.

Police SAR compulsion powers: The Police also have powers of compulsion under the various acts to complete any action that is necessary for saving life, preventing injury, or for rescuing any injured or endangered persons.

Police Management of Class I/II: Unless Government is prepared to fund a new structure at a significant cost, there are no other existing agencies that can complete what is currently achieved by Police in the class one and two land and marine incident management.

In summary, Police are authoritative, widely dispersed, trained personnel, with efficient communications, command and control structure, three communication centers, active land SAR units, active water units in main centers, active and cooperative links with private SAR resources - both aircraft and marine, and a 24 hour / 365 days continuous operation.

13.2.2 NRCC Facilities.

The NRCC is a modern, secure, well-designed and well-equipped operations centre occupying 110 square metres on the ground floor of Aviation House. Notable amongst its technical features are an independent generator for the provision of no-break power to all electrical facilities, an independent, dedicated air-conditioning system, and a High Frequency radio system for direct communications between the RCC and aircraft or vessels. The NRCC operates a fixed line telephone and facsimile network with a digital call recording system and back-up mobile telephones available for each NRCC operating position. The NRCC also has a Mobile Earth Station terminal that provides global telephone, facsimile and data network access utilising the Inmarsat system and a terminal of the Aeronautical Fixed Telecommunications Network (AFTN) for teleprinter access to aeronautical addressees worldwide. The NRCC has extensive fixed and portable computer-based resources dedicated to the SAR task, including direct access to the CAA's aircraft and air operator databases. The COSPAS-SARSAT Local User Terminal (LUT) processors are housed within the NRCC while the tracking antennas are mounted on the building roof. The COSPAS-SARSAT LUTs are highly-automated and track, receive and process distress beacon information from low-earth orbit and geostationary satellites and interfaces with the COSPAS-SARSAT Mission Control Centre (MCC) located within the Australian RCC in Canberra..

13.2.3 Marine Duty Officer facilities & resources:

Equipment for the Marine Duty Officer.

Telephone: Mobile phone handed around to each MDO and to back up MDO. Hands free mounting fitted into car.
Facsimile: During working hours at the MSA. Fax lines to all MDO's homes, transferable but not mobile.
VHF: Portable VHF stored at MSA office.
Car: With VHF fitted and mobile phone booster and charger fitted.
Computer: Portable computer in bag with power connector and data connections.
Databases: Available on portable computer and some at NRCC of EPIRBs and ELTs registered in NZ
Information and Data: Available via the internet, phone and fax through international marine organisations (IMO, ITU, Lloyds, Cospas-Sarsat).
MSA Database: Through the internet/intranet is the complete database of NZ registered vessels and all foreign vessels, which work in the NZ zone.
Files: Hard copy files of appropriate contacts nation-wide and international.
Charts: Covering all of New Zealand and the south pacific region.
Books: Publications including all appropriate SAR manuals, pilot books, tables and regulations.

Facilities for the Marine Duty Officer

Books: Publications including all appropriate SAR manuals, pilot books, tables and MSA office with docking station for computer, and phone, fax, printer, copier at hand.
Desk at NRCC with computer connection, phone, fax, printer, copier, telex, Inmarsat mini M, HF radio audio VHF radio audio and command room audio monitoring
Back up facility at Police Wellington headquarters with computer connection, phone, fax and printer.

13.3 Issues:

13.3.1 Number of separate infrastructures (NRCC, Police, MOC, Coastguard, etc)

13.4 Opportunities for Improvement:

13.4.1 Strategic alignment & synergies in resource management

Ensure strategic alignment and synergies of resource management between agencies (understanding, protocols, MoUs, regular feedback reviews) **(Priority 3+)**

14. Standard Operating Procedures & Contingency Plans

14.1 Key Aspects:

- SOPs for Maritime SARs
- Contingency Plans mitigating all key potential risks impacting on effective and efficient SAR coordination

14.2 Background:

14.2.1 Police Contingency Plans:

The Police are required to prepare emergency and disaster contingency plans. These plans provide for immediate action in the event of a SAR incident.

14.2.2 NRCC References:

- New Zealand CLASS III Search and Rescue Policy Manual
- CLASS III Search and Rescue Operations Plan
- IAMSAR Manual Volume 1 – Organisation & Management
- IAMSAR Manual Volume 2 – Mission Co-ordination
- IAMSAR Manual Volume 3 – Mobile Facilities

14.3 Issues:

14.3.1 Need for appropriate SOPs and contingency plans for operational continuity

14.4 Opportunities for Improvement:

14.4.1 Develop and maintain appropriate SOPs and contingency plans for operational continuity **(Priority1+)**

15. Availability & quality of Response Equipment

15.1 Key Aspects:

- Register of Maritime SAR support agencies
- Alignment of agency capability and equipment with Maritime SAR demand expectations

15.2 Background:

15.2.1 Police vessels:

Police maritime units are currently operating at Auckland and Wellington. Their duties have a search and rescue component. Both units also act as a source of maritime advice to Police.

15.2.2 Lifeflight aircraft:

Fixed wing aircraft for patient transfer nationally, 24/365 on pager call

15.2.3 Private Coastguard Units:

There are a few units, mainly in big centers, variety of craft, generally well equipped, trained, effective local/coastal, 24/365 on call.

15.2.4 Private Aircraft:

Private aircraft are of variable availability, variable experience, limited equipment, limited experience, variable ranges, local/coastal, on call in some areas

15.2.5 Private fishing vessels:

Private fishing vessels - widespread availability, experienced seamen, variety of sized craft, generally within fishing grounds, possible language difficulties, 24/365 on call- questionable

15.2.6 Private pleasure craft:

Private pleasure craft are of limited availability- scattered, limited experience, limited communication, limit to seagoing/ oceangoing ability, nevertheless at times the only resource.

15.2.7 Commercial ships:

Commercial ships are scattered, on shipping routes, oceangoing ability, qualified, sometimes experienced, sometimes trained, possible language difficulties, 24/365 availability.

15.2.8 Armed Forces:

Armed forces aircraft and vessels; air force fixed wing; air force helicopters; naval coastal patrol craft; naval ocean going vessels; naval aircraft -generally very good availability, effective, skilled, trained, versatile, well equipped, professional.

- **Principal SAR Units**. Foremost amongst the mobile SAR resources available to the NRCC are the six RNZAF P3K Orion maritime surveillance aircraft. These aircraft have a radius of action of 1200 nautical miles, allowing for more than six hours loiter time on station. The aircraft are equipped with multi-mode radar and infra-red detection systems that make the aircraft capable of day or nighttime detection of waterborne targets. The Orions in the SAR configuration customarily carry dual Lindholme droppable equipment (comprising two marine supply containers and one ten-person liferaft in each set), smoke markers, flares and sonar buoys. The aircraft have a direction finding capability on UHF, VHF AM and VHF FM. RNZAF Orions regularly deploy throughout the Pacific region for extended periods with an ADO included as part of the crew in case a SAR mission arises at short notice.

- The RNZAF also operates five C130 Hercules aircraft, which are also available though infrequently used for SAR, and the Iroquois helicopter with its winch, its carrying capacity and endurance, is well suited to SAR activity within its 90 nms radius of action.

15.2.9 NRCC Resource Availability for CLASS III:

The NRCC does not own any rescue assets. Instead it relies upon a variety of international, national, government, commercial and volunteer organisations to provide the capabilities that are required to enable the NRCC to provide an effective and efficient SAR service.

In summary, the resources available to the NRCC for Class III SAR operations are:

(a) Civil Aviation Authority of New Zealand:
  (i) Financial/Administrative Support;
  (ii) Air Operator Client and Aircraft database access;
  (iii) Business Planning including Statement of Intent, Performance Agreement preparation, Monthly, Quarterly and Annual Reporting;
  (iv) Computer and other technical support;
  (v) Physical, personnel and electronic security;
  (vi) Typing, reception, registry and communications support services; and
  (vii) Backup Public Relations and Legal advice and support, as required.

(b) Maritime Safety Authority:
  (i) A Marine Duty Officer for NRCC duties;
  (ii) An alerting service in respect of missing or distressed marine craft needing a Class III SAR service; and
  (iii) The communications and other facilities associated with the Maritime Operations Centre.

(b) NZ Police:
  (i) A Police Liaison Officer for NRCC duties;
  (ii) Police SAR resources and facilities; and
  (iii) An alternative NRCC site and support facilities.

(c) NZ Defence Forces:
  (i) Navy, Army and Air Force Officers for NRCC duties; and
  (ii) Air, sea and land search and rescue units and logistic support elements.

(d) Department of Conservation:
  (i) Forestry rescue units; and
  (ii) Communications.

(e) Airways Corporation of New Zealand:
  (i) Aeronautical Fixed Telecommunications Network (AFTN) services;

(ii) Alerting service in respect of missing, overdue or distressed aircraft; and
(iii) A distress notification service in support of the COSPAS-SARSAT system.

(f) New Zealand Land Search and Rescue Inc:
(i) Land, alpine, cave and cliff rescue units;
(ii) Emergency survival equipment; and
(iii) Personnel for NRCC duties, as required.

(g) Royal New Zealand Coastguard Federation Inc:
(i) In-shore marine rescue units and Coastguard air patrols.

(h) Amateur Radio Emergency Communications:
(i) Communications; and
(ii) Personnel for NRCC duties, as required.

(i) Aircraft Operators:
(i) Fixed wing and rotary wing air rescue units throughout the country.

(j) Voluntary Search Advisers:
(i) Operational and environmental intelligence from marine, aviation and land advisers.

(k) New Zealand Meteorological Office of New Zealand:
Search area meteorological hind and forecasts.

16. International Response Arrangements

16.1 Key Aspects:

- Protocols for cooperation and assistance

16.2 Background:

16.2.1 Australian Search and Rescue Agency (AusSAR).

The NRCC has a contractual arrangement with the Australian COSPAS-SARSAT MCC operated by AusSAR for the operational support and management needed to maintain the efficacy of the New Zealand COSPAS-SARSAT LEO and GEOLUTs.

16.2.2 International SAR Authorities.

The NRCC maintains regular contact with adjacent and regional RCCs and other international organisations and authorities in developing and maintaining international SAR cooperation and in the provision of SAR support when necessary or requested.

16.2.3 Servicing New Zealand's extended SAR Region.

Requests from States within the New Zealand extended SRR (Fiji, Samoa, Tonga, Cook Islands) for RNZAF aircraft to assist in a SAR situation are acted upon without delay. The deployment of RNZAF aircraft outside the NZ SRR on SAR tasks requires the sanction of higher authority but a formal arrangement, the "NZ/Fiji Intergovernmental Agreement on SAR" enables Nadi RCC to directly approach the RNZAF if it is assessed that there is a need for additional SAR aircraft and staff to assist in the conduct of a SAR operation.

16.2.4 International Obligations.

ICAO and IMO have a 1985 Memorandum of Understanding to seek harmonization of aeronautical and maritime SAR services. The MOU recognises that International SAR Agreements that cover both aeronautical and maritime SAR provide the best basis for optimum cooperation.

The International Aeronautical and Maritime SAR (IAMSAR) Manual urges neighbouring States to enter into SAR Agreements. New Zealand has established such an Agreement with Australia and an Agreement that was being developed with Fiji has lapsed. Further draft Agreements are under development with the US Authorities in Hawaii and the French Authorities in New Caledonia.

New Zealand has obligations to ensure that the New Zealand ground segment of the COSPAS-SARSAT system is located, accomodated, upgraded and maintained to a standard consistent with the COSPAS-SARSAT sytem specifications. The NRCC is also required to comply with the COSPAS-SARSAT reporting and documentation requirements and to represent New Zealand at the COSPAS-SARSAT Council and other Working Group meetings that are held periodically.

17. Contracts & MOUs

17.1 Key Aspects:

- Strategic value of contracts and MOUs
- Interface with Voluntary Organisations

17.2 Background:

17.2.1 Police linkage with New Zealand Land Search and Rescue (NZLSAR)

NZLSAR is contracted by Memorandum of Understanding (MoU) to assist the Police in land search and rescue. They make available trained personnel with appropriate equipment for land search and rescue. Teams are supplied to assist in maritime SAR by completing cliff rescue and shoreline searches.

17.2.2 Police linkage with Rescue Helicopters

The Police have relationships with the various helicopter rescue trusts nationally. These groups are a prime response agency during any incident. They are able to respond rapidly to incidents using professional crew, volunteers and Police members as crewmembers. Police have membership of the majority of helicopter trusts nationally.

17.2.3 Police linkage with Surf Life Saving NZ (SLNZ)

Usually SLNZ perform their own rescues at the request of the public which are often minor incidents. The Police will activate a surf club if required. In areas such as Taranaki and Nelson the surf clubs are a prime close to shore asset and are able to respond rapidly for rescues.

17.2.4 Police linkage with Royal New Zealand Coastguard Federation

The Federation supports the affiliates who provide a SAR service. Police have a good working relationships with the Federation. A MoU is currently being validated and should be signed off by October 2001. The MoU covers issues such as training, responsibilities and communication.

17.2.5 Police linkage with Coastguard Affiliates and Air Patrols

The Police at local level have close working relationships with Coastguard units. A heavy reliance is placed on the local organisations to assist Police. In some areas the Coastguard units will operate with little Police involvement. Air Patrol members now attend the Police/NRCC aircraft observers course.

17.2.6 Resources for the Marine Duty Officer:

The Maritime Operations Center works under contract to the Maritime Safety Authority. MOC has communications installations for VHF coverage around the coast of NZ, MF and HF radio SSB and DSC to the south pacific region, Inmarsat C and mini M and telex to satisfy the GMDSS requirements of this region. They also maintain communication and information links to all the surrounding countries. Through their systems they have access to similar databases and

information sources as the Marine Duty Officer. The MOC is authorised to use the auto alarm signal and the “mayday”, “sécurité” and “pan” calls.

17.2.7 Australian Search and Rescue centre

Provides 24 hour monitoring of the Cospas-Sarsat satellite emergency radio beacon location system

17.2.8 Airways Corporation of NZ.

The NRCC has a contractual arrangement with the Airways Corporation to provide a SAR Alerting Service. This requires the AFTN Centre in Christchurch to contact the SARMC by telephone and facsimile whenever a COSPAS-SARSAT alerting message is received in New Zealand from the MCC in Canberra. The NRCC shares responsibility with the CAA for the operation of the AFTN, which is funded by the CAA.

17.2.9 Air Traffic Services (ATS).

The NRCC has a contractual arrangement to receive notification by AFTN, facsimile and telephone from the Supervisor of the Air Traffic Services Area Control Centre in Christchurch whenever there is concern for the safety or well-being of an aircraft operating within the New Zealand Flight Information Region. This initial notification from ATS is part of the aviation safety process that can range from ATS uncertainty to a full-blown Class III SAR operation for an aircraft that is either missing or in distress.

17.2.10 EMS Pacific Pty Limited.

EMS supplied and installed the NRCC LUT terminals & antennas and presently provides contractual, technical and operational maintenance & support of the NRCC COSPAS-SARSAT ground segment.

17.2.11 Various Contractors.

The NRCC has a range of individual contracts with different companies and organisations for the supply and maintenance of NRCC equipment, systems and services.

17.2.12 SAR Providers.

Commercial operators provide SAR services on repayment for tasks performed. Volunteer organisations or individuals provide SAR services on request and may receive payment for incurred costs for materials used in carrying out assigned tasks.

17.3 Issues:

17.3.1 No Formal SAR Relationship between Police and Coastguard or the MSA

Police do not have any formal agreements between the Royal New Zealand Coastguard Federation or the Maritime Safety Authority. A memorandum of understanding has almost been finalised between the Coastguard and Police and will be signed off in the next two months.

17.3.2 Relationships with volunteer groups need to be managed with care:

There is a real danger if the SAR interface with volunteer groups were to be put on a different professional basis for some groups and not others.

17.4 Opportunities for Improvement:

17.4.1 Formalise Police MSA relationship

The Police and Maritime Safety Authority to establish a formal relationship by way of either a letter of understanding or Memorandum of Understanding.**(Priority 3-)**

17.4.2 Formalise Police Coastguard relationship

Complete a Memorandum of Understanding with the Coastguard Federation **(Priority 2)**

17.4.3 Benchmarking Initiative:

Look at other successful volunteer groups in related and even completely different areas (eg Victim Support, NZ Land SAR, NZ Water Safety) so that all those supporting SAR in New Zealand can become better organized and more effective **(Priority 3-)**

17.4.4 Develop protocols and methodology for establishing and maintaining volunteer partnerships **(Priority 2)**

18. Marine SAR Education & Communication

18.1 Key Aspects:

- Improving public awareness of SAR preparedness and survival techniques
- Improving seafarer skills in assisting with SARs

18.2 Background:

18.2.1 Coastguard Boating Education Service:

The Coastguard BES offer training courses and qualifications for recreational boaties to learn about safe boating practices and what to do if in a situation of distress.

18.2.2 MSA:

The MSA promotes recreational boating safety through education and awareness raising. For commercial operations, MSA licenses seafarers, setting the required training standards which include aspects of SAR – such as legal obligations to assist when called upon and what to do.

18.2.3 CAA:

The CAA likewise has an obligation to ensure that commercial pilots are trained to required standards in aspects of assisting with a SAR response within their safety limitations at the time.

18.3 Issues:

18.3.1 Lack of feedback on actual incidents and lessons that can be learnt:

There are no formal policy for NRCC and the Police, as SAR Coordination Agencies, to gather feedback from SAR incidents and promulgate learnings to relevant parties.

18.4 Opportunities for Improvement:

18.4.1 Promulgate feedback lessons learnt from SAR incidents **(Priority 2)**

22. Royal NZ Coastguard Federation / Affiliate Functions

22.1 Key Aspects:

- Incorporates both Federation & Affiliates

22.2 Background:

22.2.1 Police dominant reliance of RNZ Coastguard Federation:

Search and Rescue has a high reliance on volunteers located in a variety of organisations. The greatest assistance comes from the Royal New Zealand Coastguard Federation. Coastguard expertise and resources are invaluable to Police.

The Police also use other groups for marine SAR, including commercial fisheries, helicopter trusts and Police vessels.

Type	1999 – 2000	2000 – 2001
Number of Class I	53	185
Number of Class 2	385	413
Total	438	598
Number of incidents involving Coastguard	177 or 41%	221 or 37%

22.2.2 Coastguard Resource Capabilities:

- 66 operational units affiliated to the RNZCF
- Comprising 57 surface SAR units and 9 air search units
- 43 Affiliates operate a total of 66 dedicated rescue vessels (DRV) with 3 more affiliates due to take delivery of a DRV within the next 6 months
- 11 Affiliates operate radio watch facilities with private rescue vessels (PRV) at their disposal
- Approximately 3,000 volunteers
- Comprehensive communications facilities and networks exist alongside modern electronic SAR tools
- Vessels are operated in accordance with recognised safety systems
- Crews are trained in SAR techniques
- Trained search controllers
- Coastguard has been set up to respond to incidents up to 12 miles offshore

22.2.3 Coastguard Strategy:

Operationally, most of the building infrastructure exists to construct an effective and efficient SAR system locally, regionally and nationally. This includes instituting a more professional approach (recognizing that being volunteer should not preclude being professional) through initiatives such as:

- developing consistent training modules (regional training courses; coastguard training courses; coastguard cadet training courses)
- bringing in a commercial qualification to recognize training, and
- introducing annual competency assessments.

The RNZCF has a mandate from its constituent members to restructure its operations to best meet the needs of marine SAR in the future

Coastguard is ready to partner with the other key SAR agencies in an accountable marine SAR system

22.3 Issues:

22.3.1 The need to make optimal use of current SAR resource capabilities resident within Coastguard

Coastguard would like to see how the existing resources employed by Coastguard can be best deployed in a fully integrated SAR system locally, regionally and nationally. The RNZCF mandate to restructure gives an ideal opportunity to build a marine SAR model which may encompass the components which are currently working well, redesign those which require improvement and discard those which are undesirable.

22.3.2 The difficulty Coastguard has in sustaining and enhancing its resource capability when funding is uncertain from sources such as sponsorships and the Lotteries Grant Board

22.4 Opportunities for Improvement:

22.4.1 Secure Coastguard's base-level funding

Support Coastguard in achieving security of base-level funding in recognition of their strategic importance as part of NZ's marine SAR response capability **(Priority3+)**

22.4.2 Introduce Accreditation Programme for regional Coastguard SAR Centers

Consolidate initiatives already part of Federation's Strategic Plan along with an Accreditation Status on a regional basis to play a more proactive role in in-shore and inland maritime SAR's at Class 1 equivalent & Class 2 equivalent levels which could include adopting local forward control with feedback to Police (currently managed as CLASS II by Police). **(Priority3+)**

VIII Emerging Themes and Force Field Analyses

THEME 1: Development of an Integrated Strategic Framework & Governance for SAR

What it is:

- A joint SAR governance body comprising all key government agencies (MSA, Police, CAA, Defence) with seconded representation from key delivery organizations (eg Coastguard)
- Has dedicated secretariat resource, responsible to SAR governance body but administratively accountable to single agency

What it does:

- Development, management and review of SAR strategy, including standards and training
- Allocation of strategic funding aligned to strategy
- Ensures strategic alignment and integrated operational interface of SAR operations with MCC (assuming SAR remains outside MCC)
- Government advocate for SAR and New Initiative Funding
- Undertakes accreditation of tasking bodies and regional 'on-scene commanders'
- Monitors performance levels of co-ordinating and tasking bodies, including the efficiency of communications
- Develops contracts for response service delivery with relevant agencies
- Defines boundaries and relationships with other relevant rescue bodies (eg Surf Life Saving) which sit outside framework

What Improvement Opportunities it links together:

All the improvement opportunities listed below either directly impact on or would be affected within the context of Theme 1:

1.4.1 Creating synergies with the Maritime Coordination Centre as it is put in place (Priority 1+)

1.4.2 Forming an effective New Zealand National SAR Governance "Board" (Priority 2+)

1.4.3 Establish a full-time NZ SAR Secretariat, in support of the Governance Structure, to identify and maintain the most efficient and cost-effective SAR infrastructure for NZ (Priority1+)

1.4.4 Changing the Classification of SAR to better reflect the type of incident, conditions in which it is occurring and the level of co-ordination and response required (Priority 2)

2.4.1 Define 'Success' (Priority 2)

2.4.2 Set Maritime SAR Outcome and Operational Performance Targets (Priority 2)

2.4.3 Set Maritime SAR process performance standards (Priority 2)

3.4.1 Secure Strategic Funding (Priority 2+)

3.4.4 Secure Strategic Funding of Volunteer Organisations (Priority 3+)

3.4.5 Provide New Initiatives Funding (Priority 4)

4.4.1 More efficient communication (Priority 1+)

5.4.1 Leveraging from the MCC (Priority 2)

8.4.2 Making better use of regional marine SAR centres.(Priority 3)

9.4.1 Continue the promotion of CIMS at all levels (Priority 1+)

10.4.1 SAR competency & training development (Priority 1+)

10.4.2 Continue SAR Incident Controller training (Priority 1+)

10.4.3 Hold regular Police SAR coordinator seminars (Priority 2)

10.4.4 Ensure all new SARMCs undertake specilised SAR Mission Coordinator training (Priority 1+)

11.4.1 Improve compatibility of systems across co-ordination centres for easy data exchange (Priority 3)

11.4.2 Institute standard information sharing (Priority 3)

12.4.1 Institute agreed annual SAREX programme (Priority 2+)

12.4.2 Ensure throrough SAREX debriefs and knowledge sharing (Priority 1+)

13.4.1 Strategic alignment & synergies in resource management (Priority 3+)

14.4.1 Develop and maintain appropriate SOPs and contingency plans for operational continuity (Priority1+)

17.4.1 Formalise Police MSA relationship (Priority 3-)

17.4.2 Formalise Police Coastguard relationship (Priority 2)

17.4.3 Benchmarking Initiative (Priority 3-)

17.4.4 Develop protocols and methodology for establishing and maintaining volunteer partnerships (Priority 2)

18.4.1 Promulgate feedback lessons learnt from SAR incidents (Priority 2)

22.4.1 Secure Coastguard's base-level funding (Priority 3+)

22.4.2 Introduce Accreditation Programme for regional Coastguard SAR Centers (Priority 3+)

Force Field Analysis for THEME 1:

The following analysis has been undertaken in an attempt to weigh up the advantages of proceeding with THEME 1 relative to the disadvantages or problems associated with making such a change. Each is scored in relation to its potential impact (positive or negative) as well as the level of difficulty associated with

- achieving the potential impact, in the case of positive aspects, or
- mitigating the potential impact, in the case of negative aspects.

The scores are then multiplied together and their products summed to get a grand total for the Advantages and, likewise, for the Dis-advantages. Note that the impact scores follow a 'geometric progression' so as to pull apart the more significant ones from the minor ones.

The 'upside' of proceeding with this Theme is clearly very high.

	Advantages	**Potential Impact**	**Ease of Implementation**	**Weighted Impact**		***Disadvantages***	**Potential Impact**	**Mitigation Difficulty**	**Weighted Impact**
A1	**Unified approach (one agency)**	8	2	16	**D1**	**Difficulty to achieve delegated responsibility**	8	1	8
A2	**Improved SAR delivery**	4	3	12	**D2**	**Needs to break-down agency boundaries**	8	1	8
A3	**Improved 'stakeholder' perception**	2	4	8	**D3**	**Need for Inter-agency funding commitments**	4	1	4
A4	**Improved access to resources**	4	3	12	**D4**	**Need for additional funding**	4	3	12
A5	**Fully integrated system that is defensible**	4	3	12	**D5**	**Additional human resources**	4	1	4
A6	**Improved use of resources**	4	2	8	**D6**	**Legal status unclear**	2	2	4
A7	**Universal standards**	4	2	8	**D7**	**Loss of autonomy for individual agencies**	2	1	2
A8	**Improved use of limited funds**	4	3	12	**D8**	**Not meeting raised expectations**	4	2	8
A9	**Political influence**	4	4	16					
A10	**Improve morale of SAR staff**	4	3	12					
A11	**Improved training & competencies**	8	2	16					
	Advantage Total			**132**		***Disadvantage Total***			**50**

Key:

Impact Scores:-

1 = Minor; 2 = Moderate/medium; 4 = Significant; 8 = Highly significant

Ease of implementation of Advantages:-

4 = Easy

3 = Practical

2 = Feasible but challenging

1 = Attainable with difficulty

0 = Impossible

Mitigation difficulty in nullifying Disadvantages:-

4 = Impossible

3 = Attainable with difficulty

2 = Feasible but challenging

1 = Practical

0 = Easy

THEME 2: Formation of a SAR Co-ordination Centre

What it is:

- Co-location of NRCC and MOC with 24/7 SAR Coordinators
- SAR Coordinators would integrate MDOs, SARMCs and have MOC staff as assistants
- Secondments of experts, as required (including media, defence, etc)

What it does:

- Detection & monitoring of distress signals (EPIRBs; Radio Voice; Satellite & Data; 111 referrals)
- Information focal point for all CLASS I-III SARs …. A centre of excellence with good data-bases, analysing and synthesising capability
- Develops and maintains national equipment register of needs and capabilities
- Maintains a national voluntary registration database
- Support for CLASS I & II SARs by Police & other accredited bodies (which retain local forward control but with feedback to SARCC)
- Coordination and management of CLASS III SARs
- Maintains close operational alignment with MCC (assuming SAR remains outside MCC)

What Improvement Opportunities it links together:

All the improvement opportunities listed below either directly impact on or would be affected within the context of Theme 2:

3.4.2 Develop National equipment register (Priority 2+)

3.4.3 Encourage Voluntary Registration (Priority 2)

4.4.2 Improving the Efficiency and Effectiveness of the Present SAR Service by physically operating the NRCC continuously (Priority 4)

5.4.1 Leveraging from the MCC (Priority 2)

8.4.1 Ensuring marine advise is sought at an early stage of a maritime response (Priority 2)

Force Field Analysis for THEME 2:

The following analysis has been undertaken in an attempt to weigh up the advantages of proceeding with THEME 2 relative to the disadvantages or problems associated with making such a change. The scoring mechanism are as applied in THEME 1

This analysis also shows a very clear 'upside'

	Advantages	Potential Impact	Ease of Implementation	Weighted Impact		Disadvantages	Potential Impact	Mitigation Difficulty	Weighted Impact
A1	Enhanced initial response capability irrespective of time of day	4	3	12	D1	Possible legislative changes and reassignment of SAR budget to other agency	2	1	2
A2	Improved cohesion and better integration	4	3	12	D2	Relocation and support for the COSPAS-SARSAT antennas, computer systems, databases and general support services	4	2	8
A3	Better standardisation of response	4	3	12	D3	Costs associated with NRCC relocation	4	2	8
A4	Improved use of funding	4	4	16	D4	Potential recruitment of new SAR personnel	4	2	8
A5	Better utilisation of infrastructure and support systems	4	2	8	D5	Need for training in cross-functional roles (MDO/SARMC)	4	1	4
A6	Reduction in linkages	4	4	16	D6	Increased staff establishment costs (FTEs from 1 to 6)	4	2	8
A7	Better communication and working relationships MOC & NRCC	8	4	32					
A8	Better 24/7 overall capability with MOC providing initial response back-up to NRCC (supporting NRCC 24/7 manning)	4	3	12					
	Advantage Total			120		*Disadvantage Total*			38

Key:

Impact Scores:-

1 = Minor; 2 = Moderate/medium; 4 = Significant; 8 = Highly significant

Ease of implementation of Advantages:-

4 = Easy

3 = Practical

2 = Feasible but challenging

1 = Attainable with difficulty

0 = Impossible

Mitigation difficulty in nullifying Disadvantages:-

4 = Impossible

3 = Attainable with difficulty

2 = Feasible but challenging

1 = Practical

0 = Easy

A Appendix: SAR Working Group Participants

The following people were either interviewed prior to and/or involved in the SAR workshop. The same group have been given the opportunity to critique a draft version of this report:-

Mr Russell Kilvington	Director, MSA and Chairman of the Working Group
Mr Alister Bisley	Secretary of Transport
Mr Roger Brown	Senior Policy Analyst, Ministry of Transport
Inspector Paul Brennan	NZ Police
Snr. Sergeant Gerard Prins	Co-ordinator, Search & Rescue, NZ Police
Snr. Sergeant Martin Paget	Officer in Charge, Police Maritime Unit, Auckland
Mr Rodney Bracefield	Manager, NRCC, CAA
Mr Terry Knight	Policy Analyst, CAA
Ms Catherine Taylor	GM Personnel Licensing & Aviation Services, CAA
Mr Kevin Rangi	CEO, The Royal NZ Coastguard Federation
Ms Kim Penny	Manager, SAR & Safety Communications, MSA
Mr Mark Janor	Manager, Maritime Operations Centre
Mr Ron Logan	Squadron Leader, NZ Defence Force
Dr Stuart Crosbie	3C Consulting

B Appendix: Terms of Reference

The following Terms of Reference was agreed between the MSA, MOT and Police at their first meeting on 6 July 2001 when this review was initiated:-

1. Identify the current Crown agency structure for maritime search and rescue within New Zealand

2. Identify the strengths and weaknesses of the present maritime search and rescue structure

3. Identify the resource available or potentially available to maritime search and rescue

4. Identify the strengths and weaknesses of the resources identified in 3. as available or potentially available to maritime search and rescue

5. Identify and justify a preferred maritime search and rescue model specifying in particular, its structure and capabilities and the steps to make it happen

6. To determine the type of support (financial and other) that would be required from the Government to implement the recommendations of this review