



Review of Australia's defence capabilities



March 1986

**REVIEW OF AUSTRALIA'S
DEFENCE CAPABILITIES**

Report to the Minister for Defence
by Mr Paul Dibb

March 1986

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FOREWORD

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This is an edited version of the report presented to the Minister for Defence in March 1986. Editing has been limited to the removal of some classified material, including technical details on equipment performance and some of the discussion of defence intelligence capabilities. Minor stylistic changes have also been made. The deleted material is less than 24 pages, or 8 percent of the original report. The deletions do not affect the conclusions of the Review and all significant recommendations are discussed in full in this public version.

An Annex containing a detailed discussion of military contingencies is not included in this public version. The conclusions of the Annex are referred to in the Executive Summary.

This Report is not a statement of endorsed government policy. Nor does it necessarily represent the views of either the Department of Defence or the Australian Defence Force.



DEPARTMENT OF DEFENCE
Office of the Ministerial Consultant

Anzac Park West
Canberra, A.C.T. 2600
24 March 1986

The Honourable Kim C. Beazley, M.P.
Minister for Defence
Parliament House
Canberra, A.C.T. 2600

Minister,

In February 1985 you asked me to undertake a review of Australia's defence capabilities. You directed me to examine the content, priorities and rationale of defence forward planning and to advise you on which capabilities are appropriate for Australia's present and future defence requirements. I was to make judgements on the appropriate balances between equipment, personnel numbers, facilities and operating costs, between current readiness and long-term investment, and between the relative priority given to responding to various levels of possible threats.

The Report

My completed Report is attached. It provides a basis and rationale for the structure of the Australian Defence Force (ADF) over the next decade. An Executive Summary precedes the Report proper. The Report starts with Australia's strategic circumstances and an analysis of our defence planning deficiencies, then examines our capability requirements, and concludes by making specific force structure recommendations and costs them. I have taken this approach because I believe it provides the Government with the necessary overview of the relevant strategic, defence capability, and financial considerations. It is only by considering these factors together that rational decisions can be made about Australia's future defence requirements.

Foremost in my mind has been the need to provide the nation with a credible level of defence, and to indicate the directions in which our Defence Force should develop to meet Australia's unique needs. Financial considerations have not driven this Review, although I was aware of the requirement to take due notice of the Government's financial planning guidance. It was rather more important, in my view, to identify clearly any deficiencies in our force structure and to allocate appropriate resources to them in the current Five Year Defence Program and beyond. Where capabilities currently in the force structure no longer command such a high priority, I have recommended some reductions.

In general I see no need for precipitate change: adjustments to our force structure can be made progressively over the next five years and more. We have time to develop Australia's defence force structure to a more self-reliant basis, because we are not imminently threatened. There are some lesser possibilities of conflict, however, involving the region, which are more credible in the shorter term, and where we would need to have an independent combat capability. The Review gives particular attention to the implications of these contingencies for our force structure.

Official strategic guidance indicates that we would receive at least 10 years' warning of a substantial military threat. Beyond that time-frame our security outlook is necessarily less certain. We should continue to maintain a core of skills which could be expanded in the event of deterioration in our strategic circumstances. In this context, the concept of warning time adopted in this Review is particularly important to our defence posture. It demands constant monitoring and assessment by our national intelligence agencies of developments in our region. A central defence policy requirement should be to continue to maintain a military advantage in appropriate capabilities and technology.

Another important consideration is that this Review is predicated on the assumption that Australia continues to have close defence relations with the United States. I have assumed that if the United States decides formally to suspend its commitments to New Zealand under the ANZUS Treaty, the United States-Australia ANZUS relationship will continue, as will bilateral Australian-New Zealand defence relationships.

At present we have privileged access to United States' intelligence, surveillance, defence science, weapons and logistic support arrangements. If our status should change in this respect, many of the judgements in this Review would have to be reconsidered. The financial costs, let alone the strategic implications, of not having a close defence relationship with the United States would be very considerable.

It may appear to be a contradiction, but if Australia is to become more self-reliant in its defence capabilities it will continue, for the foreseeable future at least, to require the tangible benefits of defence co-operation with the United States. To be able to defend credibly a continent the size of ours, and with our small armed forces, demands access to intelligence, high-technology sensors and military equipment. For much of this the United States is the best source by far, and for some, indeed, it is the only source.

Some problem areas

One of the problems encountered by the Review was arriving at satisfactory estimates of the size of force elements we need to meet our particular strategic circumstances. For much of our force structure this issue has not been comprehensively addressed. The Review could obtain no material centrally endorsed by the higher Defence structure which explained, for example, the strategic rationale for a 12-destroyer Navy, three fighter squadrons, six Regular Army battalions and an Army Reserve target of 30 000.

Few of the documents made available to the Review examine, in any rigorous, analytical way, the size of forces we should have for credible contingencies and as a contribution to the expansion base. Most focus on justifying the present force structure rather than estimating what our strategic circumstances require.

The key difficulty here is that the Department and the ADF do not agree on the appropriate level of conflict against which we should structure the Defence Force. Ultimately, of course, Government will determine the size of our defence forces. But when there is no common understanding between the Government's military and civilian advisers about what the ADF should be structured to do, decisions about our defence priorities cannot be properly informed.

To a large extent, these different views on how to interpret our strategic circumstances for the purposes of force development are the cause of much of the adversarial relationship that exists between the Department and the ADF. The Department believes that priority should be given to credible low-level contingencies and the expansion base as force structure determinants. The ADF considers that these requirements are best met in the context of planning force development on the basis of preparing for larger-scale contingencies.

These are important disagreements, which the Review has attempted to address both in terms of the intellectual arguments and by making some recommendations for institutional and organisational changes.

With regard to the argument about levels of threat, the Review has sought to narrow the options and to limit the scope for subjective judgement about our force structure needs. It focuses on those fundamental geographic and strategic factors, including current and prospective regional military capabilities, which provide a sound basis for analysis. This leads the Review to a position that accepts the priority need to prepare for credible contingencies below the level of major assault—but not at as low a level as the Department argues for, nor at the higher levels supported by the ADF.

Areas not addressed

Some people have indicated that they would expect the Review to address such issues as the morale and motivation of Service personnel, conditions of service, and the problems of particular defence industries. I regard such factors as relevant to our defence effort, but they are beyond my Terms of Reference. To comment on them more than superficially would have required me to introduce very complex issues that, while important, are not central to Australia's force structure requirements.

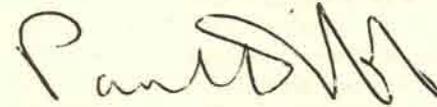
Acknowledgements

I would like to record my appreciation for the high level of co-operation, freely given, by the Secretary to the Department of Defence, the Chief of the Defence Force, the Chief of Naval Staff, the Chief of the General Staff, the Chief of the Air Staff, and their senior officers. I invited them to comment on successive drafts of this Report. Their detailed comments have been most helpful and, as a result, the content and balance of the Report have improved considerably. Responsibility for the judgements in the Report, of course, remains mine alone.

I have also received a number of submissions from industry, various national organisations, State governments, retired officers and private individuals, some of which have assisted the findings of this Review.

During the Review, I have visited military units and bases around Australia. Without exception, I was impressed by the high level of professionalism and the co-operation given to the Review. I am very conscious that the Recommendations of this Review will, if implemented, bring about important changes to some professional areas in the ADF.

The loyalty and support I have received from my staff have been outstanding. Without the hard work of Dr R. G. Brabin-Smith, Mr M. J. M. Brady, Colonel W. J. Crews and Mrs F. L. Beazley this Report would never have been completed on time.



Paul Dibb
Ministerial Consultant

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TERMS OF REFERENCE

Review of Australia's Defence Capabilities

1. You are to prepare a report for the Minister for Defence, to be completed within 12 months, on Australia's defence capabilities.
2. As much of the report as possible is to be written so that the Minister can make a major public statement on Australia's future defence capabilities.
3. The Terms of Reference of your report are¹:
 - (a) to undertake a review of the content, priorities and rationale of defence forward planning in the light of the strategic and financial planning guidance endorsed by the Government;
 - (b) to advise on present and future force capabilities and on the present and future balance between resource elements such as manpower, activities, operating stocks, facilities and equipment—where appropriate that advice should indicate priorities for changes to particular defence force elements within various time-frames; and
 - (c) to advise on whether strategic guidance by Government can be made more explicit for the purposes of future defence forward planning.
4. You should advise where appropriate on such matters as²:
 - (a) in the light of strategic guidance, the relative priority to be given to preparations for responding to various levels of threat, and their significance for defence preparedness and force expansion;
 - (b) the appropriateness of existing military command arrangements;
 - (c) the significance of the Reserves as a component of the force structure;
 - (d) in the light of the Government's defence policy for Australian industry, ways in which Australia's defence industry capacities should be enhanced; and
 - (e) any other matters which have an important bearing on the desirable future direction of Australia's defence capabilities.
5. In developing the above advice you should look as far forward as practicable. An appropriate time-frame could be the next 10 years, in which decisions will need to be taken that will shape major defence capabilities to the year 2000 and beyond.

13 February 1985

KIM C. BEAZLEY

¹ In a letter to Mr Dibb dated 19 February 1985, the Minister reiterated that the report would need to provide a basis and rationale for the structure of the Australian Defence Force.

² The subject of war reserves was subsequently added to this list.

EXECUTIVE SUMMARY AND FORCE STRUCTURE PROPOSALS

EXECUTIVE SUMMARY

Australia is one of the most secure countries in the world. It is distant from the main centres of global military confrontation, and it is surrounded by large expanses of water which make it difficult to attack. Australia's neighbours possess only limited capabilities to project military power against it.

But it would not be prudent to assume that we will always be able to conduct our affairs without challenge. Our strategic circumstances might change and become less favourable than today. There are risks inherent in our strategic environment that could pose difficult problems for the nation's defence.

DEFENCE PLANNING AND STRATEGIC GUIDANCE

Prospects for threat

Australia faces no identifiable direct military threat and there is every prospect that our favourable security circumstances will continue.

Global war between the Superpowers is most unlikely and provides no basis for planning our force structure. Our best protection against the risk of nuclear war is a government policy of support for the system of mutual deterrence and effective arms control.

There is no conceivable prospect of any power contemplating invasion of our continent and subjugation of our population. If a capable, unfriendly external power acquired a strategic lodgement in our region it would be possible to conceive of substantial military pressure or attack upon Australia. But the regional security situation would have to change dramatically and the interests of nations other than Australia would be threatened by the arrival in the region of such a power. United States interests would be directly affected in respect of both its own supremacy in the region and its obligations under the ANZUS Treaty.

It would take at least 10 years and massive external support for the development of a regional capacity to threaten us with substantial assault. But there are possibilities for lower levels of conflict—some of which could be very demanding—arising within shorter warning times.

These judgements about warning time, which have been endorsed by official strategic guidance for over a decade now, are key concepts for our defence planning

and they require regular review and testing. They allow our shorter-term preparations to be focused on the requirements of lower-level contingencies. But our planning and force structure development also should take account of the possibility that, at some future time, we may need to prepare against the prospect of more substantial threat.

Can strategic guidance be made more explicit?

If Australia is to have better defence planning we need a clearer understanding of the levels of threat that we could credibly face. The effects of geography and the constraints of regional military capabilities impose limits on what is practicable.

A thorough understanding of the physical characteristics of the sea and air gap to our north, and of Australia's northern hinterland, will enable us to take account of the limitations and risks that geography places on any opposing force. We also need to understand long-term trends in regional military capacity and potential, as well as those of external powers.

The significance of maritime trade

The potential for threat to our shipping needs to be better understood. *No country has ever blockaded a continent surrounded by seas such as Australia.* Yet there is a tendency to believe that the Australian economy is particularly vulnerable to an interdiction of our overseas trade, and that therefore we need a capacity to protect sea lanes to a considerable distance from our mainland.

Most military activities involving disruption of Australian trade could be handled by evasive routing. Moreover, Australia has the potential to become highly self-sufficient in basic commodities. There is a need to study these matters in more detail and to identify which routes and cargoes are most important, and what alternatives are available to us.

Future planning processes

Strategic guidance, military concepts, and force structure analysis are not properly drawn together under present arrangements. This leads to inadequate advice being available to Government, and makes it difficult to plan ahead with clarity. *Consideration should be given to new arrangements in which strategic and force planning concepts are integrated in a single planning document—perhaps along the lines of this Review.*

Institutional difficulties

Defence planning is not made easier by the adversarial attitudes that exist within the Defence community. The main reason for these differences is that the Department and the Australian Defence Force (ADF) do not agree on the appropriate level of threat against which we should structure the Defence Force. The Department believes that priority should be given to credible low-level contingencies and the expansion base as a basis for force structure determination. The ADF considers that these requirements are best met in the context of planning force development on the basis of preparing for larger-scale contingencies.

These are quite fundamental disagreements. *The recommendations made in this Review emphasise the weight to be given to credible contingencies—but not at as low a level as the Department supports.* If the Government accepts these recommendations the basis on which our force structure is determined will be settled. Within the Defence community, a conscious reduction in the amount of separate force structure work that takes place in civilian and military areas and an increased joint planning process would be helpful in developing agreed advice to Government.

This Review also believes that while the Service Offices should retain an advisory role, *the centralisation of military planning and policy under the Chief of the Defence Force (CDF), working in close association with civilian staff under the Secretary, is*

the only way in which an integrated ADF policy can be developed effectively. The Review recommends that the policy staff of ADF Headquarters should be increased and the operational requirements and force structure planning staffs of the single Services should be abolished.

THE BASIS FOR A NATIONAL DEFENCE STRATEGY

Australia must have the military capacity to prevent any enemy from attacking us successfully in our sea and air approaches, gaining a foothold on our soil, or extracting political concessions from us through the use of military force. To do this, we must develop our own solutions to our unique strategic circumstances.

Defence priorities

There are clear limits to our defence capacity and influence. We are a large country with a small population and industrial base. *But through a strategy based on the fundamentals of our geographic location we can maximise the benefits of an essentially defensive posture in our region.*

The security interests at stake in the range of more credible threats facing us are primarily Australian interests. We must therefore have the independent military capability to defend these interests.

Australia's vital defence interests are compact and easily identified. *The exercise of authority over our land territory, territorial sea and airspace is fundamental to our sovereignty and security.* We must also be able to protect our resource zones and defend our maritime approaches.

Most countries exert such sovereignty as a matter of routine. In our case it is a daunting task, considering the vastness and harshness of our territory, the length of our coastline, the size of our fishing and resource zones, the distance away of our offshore territories, and the disproportionately small size of our population.

A strong stable region free from external pressures is a fundamental security interest. We thus seek to co-operate with South East Asian and South Pacific friends in the development of their defence capabilities, and to exercise and train with them. The objective of this activity should be to promote a sense of shared strategic interests. Defence activities can thus contribute usefully to closer relations with our regional neighbours, but they are only one element in the network of political, trade, immigration and other relationships that we have with the region.

Peacetime tasks such as peacekeeping, preparing for counter-terrorist operations or naval visits to distant countries should not determine the structure of our defence forces.

Main areas of operations

An important and recurring theme of the Review is the need to concentrate force structure priorities on our area of direct military interest, where we should seek to exert independent military power. This area stretches over 4000 nautical miles from the Cocos Islands in the west to New Zealand and the islands of the South West Pacific in the east, and over 3000 nautical miles from the archipelago and island chain

in the north to the Southern Ocean (see Map 1 at the end of this Report). It represents about 10 percent of the earth's surface.

The Review also recognises a sphere of primary strategic interest encompassing South East Asia and the South Pacific generally. Developments here can affect our national security, but any military threat to Australia would be indirect. Our defence activities and projection of military power in this wider region should not determine our force structure, as they do in our area of direct military interest.

We have some security interests outside this region, but these are beyond the effective exercise of our military power. Our influence on developments in areas such as mainland Asia must rest primarily with diplomatic efforts undertaken in association with others. Although our economic interests are world-wide we cannot expect to protect them by military means.

If Government wished, there would always be an option to make a modest military contribution in support of our more distant diplomatic interests and the military efforts of others. But this should be seen essentially as a gesture of support, not as a contribution that could materially affect the outcome. *Our forces should not be specifically structured or equipped to undertake such tasks.*

Alliance relationships

The practical benefits of the ANZUS relationship for our defence effort are recognised in the Review. We would not have the same access to intelligence information, logistic support arrangements, weapons acquisition programs, and defence science and technology transfer from any other country.

But there is no requirement for Australia to become involved in United States contingency planning for global war. The presence of the joint facilities, together with the access that we provide to visits by United States warships and the staging through Australia of B-52 bombers, are a sufficient tangible contribution to the Alliance.

A suspension by the United States of its defence relationship with New Zealand under the ANZUS Treaty will not mean the end of the ANZUS relationship between Australia and the United States, or prevent close bilateral defence co-operation between Australia and New Zealand. Indeed, the importance of our shared strategic interests suggests that there is scope for the further development of our defence relationship with New Zealand, which might include joint military planning.

Regional considerations

In defence terms, Indonesia is our most important neighbour. The Indonesian archipelago forms a protective barrier to Australia's northern approaches. We have a common interest in regional stability, free from interference by potentially hostile external powers. At the same time, we must recognise that, because of its proximity, the archipelago to our north is the area from or through which a military threat to Australia could most easily be posed. This would require a fundamental change in present circumstances, which are characterised by a stable government in Indonesia.

In defence terms, the other ASEAN states do not have the geographical proximity to involve our military interests so closely. Any future military involvement that we might have in South East Asia would reflect an Australian judgement on the balance of our interests at the time. Our defence efforts in South East Asia should focus on the continuing development of relationships and associations that foster a sense of shared concerns for regional security.

In the South Pacific we are perceived as being by far the largest power. Our fundamental national security interest is to maintain the benign strategic environment that currently prevails, free from unwelcome external pressures. Our foreign policy, aid programs, and defence policy should be co-ordinated carefully with other regional

states, in particular New Zealand, so as to discourage Soviet naval visits, or other unwelcome military access in the South Pacific.

A STRATEGY OF DENIAL

These components of our national defence interests need to be drawn together into a single force structure concept. The Review has examined a number of possible strategies for the defence of Australia. Most of them, including the concept of deterrence, do not provide a basis for detailed force structure decisions. The 'core-force' concept, which has been used for the last decade, is not a strategy but it is a useful way of approaching force structure priorities in the absence of threat. But a more deliberate framework is required which focuses on our area of direct military interest and credible levels of conflict.

The Review proposes a layered strategy of defence within our area of direct military interest. Our most important defence planning concern is to ensure that an enemy would have substantial difficulty in crossing the sea and air gap.

This emphasises the need for good intelligence and surveillance capabilities and air and naval forces capable of denying the sea and air gap to an adversary, thus preventing any successful landing of significant forces on Australian soil. Closer to our shores, we require a range of defensive capabilities, including air defence assets, surface ships and mine countermeasures. *To the extent that lesser enemy forces might land we will need highly mobile land forces* capable of dispersed operations and having the ability to protect our military installations, infrastructure and civilian population in the north of the continent.

A strategy of denial would be essentially a defensive policy. It would allow our geography to impose long lines of communication on an adversary and force an aggressor to consider the ultimate prospect of fighting on unfamiliar and generally inhospitable terrain.

Levels of conflict

These priorities need to be qualified by consideration of the levels of conflict that are credible now and for the foreseeable future, and the time that would be available to develop our defences in response to possibilities for higher levels of conflict.

In this Review three levels of conflict are considered. The first two levels represent a range of low-level contingencies and escalated low-level contingencies that are credible on the basis of current regional military capacity. They cover a scale from low-level harassment and raids through to more concentrated conflict, but well below the level of an attempt to lodge and sustain substantial forces in Australia. At the third level of conflict there are possibilities for more substantial conventional military action—but well below the level of invasion.

The Review considers that priority should be given to more credible low-level conflict, which would be limited because of limited regional military capabilities. More substantial conventional military action against us could only occur were regional countries to develop over time the necessary capacity. This would take many years.

Our defence priorities must ensure that the ADF has available sufficient equipment, support and trained personnel to respond to credible military situations. We must also take some account of the possible demands of more substantial threats. The basic skills necessary for higher-level conflict should be available, to be expanded and further developed within warning time. But any tendency to prepare for unrealistically high levels of threat should be resisted.

CAPABILITY REQUIREMENTS FOR THE DEFENCE OF AUSTRALIA

In analysing our force structure requirements we must consider the numbers needed for particular elements of the Defence Force. For much of our force structure this issue has not been comprehensively addressed, and there has often been little agreement between the ADF and the Department of Defence on how strategic factors should inform judgements on the numbers of aircraft, ships or soldiers we require. The conclusions recorded in this Review thus represent its own judgements based on consideration of the enduring features of our geographical environment and our strategic priorities. Further refinement will be required in some areas.

Intelligence and surveillance

Our strategic intelligence capacity is central to our maintaining an advantageous military position. Our national intelligence assets and analytical effort should be oriented mainly to our sphere of primary strategic interest. Defence should ensure that its specialised intelligence and analytical requirements are satisfied independently. Special care needs to be given to the allocation of intelligence assets between current intelligence reporting, and the more demanding longer-term tasks of strategic warning and the maintenance of an intelligence data base on the region.

Defence needs for maps, charts and infrastructure information command a high priority so that military operations can be conducted effectively. The production of high-quality maps and charts is time-consuming, and best undertaken in circumstances of peace. The current state of mapping, charting, and environmental knowledge of nearby maritime areas of importance is less than satisfactory.

Australia requires a manifest ability to detect, identify, and track potentially hostile forces within our area of direct military interest. Until recently this was an almost impossible task, but modern technology in the form of over-the-horizon radar (OTHR) offers the prospect for the first time of broad-area real-time surveillance of our air and sea approaches out to 1500 nautical miles. Another promising new surveillance technology is the towed acoustic array, which is especially useful against submarines in favourable water conditions, in conjunction with our Orion long-range maritime-patrol (LRMP) aircraft.

For surface surveillance in credible low-level contingencies, we would need to operate our LRMP aircraft in response to OTHR and intelligence information. Surface vessels with helicopters could also make a contribution.

The Review supports the current priority given to intelligence, electronic-warfare and maritime surveillance forces. It considers that additional resources should be applied to the Jindalee OTHR program to exploit further this promising technology,

and to the mapping and charting programs. There is a strong case for considering at least a further two OTHRs.

Strike and interdiction

The possession by Australia of strike and interdiction capabilities is one of the most evident means of demonstrating our military advantage. But these forces would not play a significant part in low-level contingencies, except for display and patrol purposes to inhibit escalation. The widespread and intensive use of such capabilities would be most relevant to a threat of major attack on Australia, a contingency judged at present as remote and improbable. The warning time for such a contingency would be sufficient to allow considerable expansion of our strike capabilities.

In the development of our strike capabilities *preference should be given to strike against maritime targets because of the strategic importance of the sea and air gap. The development of land-strike capabilities is a lesser priority.* Acquisition of any strike capabilities with ranges greatly in excess of 1000 nautical miles from our northern coast could not be justified. Air strike or naval interdiction capabilities that could contribute to our allies in more distant areas should not be a force determinant.

Land-based aircraft and submarines are preferred for strike and interdiction in Australia's area of direct military interest. An Australian force structure that maintained capable weapons platforms equipped with modern sensors and stand-off weapons systems would provide an advantageous military capability.

Taking account of training needs in both the land and maritime modes, and the limited number of potential military targets, *we need up to two squadrons of strike aircraft, oriented primarily towards maritime strike but also capable of strike against military targets on land.*

The Review supports retention of the F-111 strike force with a minimum update program designed to sustain the aircraft in service until about the mid-1990s, when decisions about their long-term future will be required. This force, together with the maritime-strike capacity of the Orion LRMP aircraft and the F/A-18 aircraft, comfortably meets our needs for strike aircraft. *Enhancement of the land-strike capacity of the F-111 force is not required at this time.*

Australia's need for submarines is dictated primarily by the need to develop skills in anti-shipping and anti-submarine operations appropriate to higher-level conflicts, and to train other units in anti-submarine warfare (ASW). But submarines are versatile and can contribute in a range of contingencies in such areas as intelligence collection, surveillance, mining and special operations.

A force of about six submarines, able to operate concurrently from both our west and east coasts, would be a major inhibition on an enemy's use of surface assets against us at all levels of threat. Current plans to acquire new high-capability conventional submarines—with marked improvements in performance and availability—to replace the present Oberon boats will satisfy the requirement for submarines. There is some scope for lesser capabilities if cost pressures require this.

Anti-submarine warfare

An adversary might see interference with or interdiction of Australia's coastal and overseas shipping as a practical option, less demanding in resources than substantial assault of the mainland. Operations against coastal shipping in northern waters would place least demands on an aggressor's maritime capabilities, although submarine operations would be constrained by the shallow waters. Any enemy attacks in waters other than in the north would probably be by submarine.

Southern waters carry coastal traffic highly important to the national economy and our defence effort. Unless capable defensive systems were provided, shipping losses to modern, quiet, diesel-electric submarines could be considerable. There would

be a particular requirement to protect focal areas in southern waters, such as the approaches to Sydney, Newcastle and Wollongong, Bass Strait, Fremantle, and near Cape Leeuwin.

A mid-ocean submarine threat against our trade by a regional power is most unlikely, and the need for mid-ocean escort of shipping should not be given priority in Australia's force structure.

In view of the very limited regional submarine capability, there is no need to enhance our already considerable ASW forces beyond the need to introduce surface-towed acoustic arrays and to complete the program of helicopters for the guided missile frigates (FFGs). The acquisition of high-cost destroyers primarily for ASW has a low priority in present strategic circumstances.

Surface maritime forces

Risks inherent in our maritime environment, where we claim an extensive resource and fishing zone and have important offshore installations and territories, could pose demanding problems for the nation's defence. These could be exploited by an adversary possessing only modest maritime capabilities.

In low-level contingencies we are likely to want to operate maritime surface forces dispersed over broad areas of the northern and north-western approaches. Their most valuable characteristics would be their manifest military presence, endurance and good surveillance and communications capacities.

The Review recommends a new class of ocean patrol ship, perhaps to be known as the light patrol frigate, built in Australia, to complement our FFGs and guided missile destroyers (DDGs) and our Fremantle class patrol boats. The new vessels would perform ocean patrol and sovereignty tasks in our key maritime areas, for which smaller patrol boats would be unsuitable. In some circumstances they would be able to relieve higher-capability destroyer-type vessels for more demanding duties.

The Review judges that there might be a requirement in credible contingencies for up to about 24 surface platforms, including between 6 and 9 higher-capability destroyers and up to 10 of each type of light patrol frigate and patrol boat, depending on the circumstances. The higher-capability destroyers would provide a skill base for more substantial conflict in ASW, air defence, and the associated command and control. In low-level conflict, they would provide insurance against local escalation.

As a practical matter the number of higher-capability ships will be sustained at nine (six FFGs and three DDGs) through the 1990s, unless the modernisation of DDG HMAS Hobart is cancelled. Studies should be conducted over the next few years to help inform judgements in the early 1990s on new destroyers possibly to replace the DDGs. The introduction of the light patrol frigate will allow both a reduction in patrol boat numbers and deferral of a decision on a replacement type.

Mine countermeasures

At all levels of contingency, mining, or the threat of mining, could be employed against us. Many of our northern approaches are susceptible to mining, and their closure would have substantial political and economic effect. Ports such as Dampier, Port Hedland, Darwin, Gove and Weipa could be seen as particularly attractive for mining operations. The major ports of the south, essential for national survival, are also vulnerable.

At present Australia has a single, token mine countermeasures vessel, suitable only for training. This has resulted from poor planning and procrastination over many years. *This deficiency is unacceptable and Australia needs, as a matter of priority, a capability to clear mines.* It is important to ensure that all further delay to the minehunting catamaran program is avoided, and to prove quickly the Navy's new concept of minesweeping based on craft of opportunity. While the use of Naval

Reserves in mine countermeasures is attractive, the central element must be a core of the Permanent Naval Forces.

Maritime air defence

In all credible contingencies Australian maritime activity would be predominantly in our area of direct military interest. Land-based aircraft would be expected to provide maritime air defence where necessary. Land-based fighters can be complemented by surface ships equipped with air defence missiles, *but we should avoid policies that require naval surface vessels to be placed at risk of air attack without access to our own defending aircraft.*

Our fighter force should be able to deploy and operate readily across the northern maritime approaches. The consideration of our air superiority over these waters is imperative. To meet the needs of maritime air defence, two fighter squadrons would be a minimum requirement for the force-in-being and as an expansion base, noting the limited offensive air power available in the region.

The need to provide air cover for surface vessels is the strongest consideration affecting our priority now for aerial refuelling. While the F-111 can perform the role of a long-range air interceptor, *the provision of aerial refuelling for the F/A-18 would allow greater assurance that air cover for the Navy would be available.*

Continental air defence

A minimum of two fighter squadrons would be sufficient for continental air defence in credible contingencies, and as a basis for expansion. There is a related requirement, identified earlier, for two fighter squadrons for maritime air defence. These tasks overlap and *current plans for the introduction of 75 F/A-18 aircraft will satisfy our air defence requirements and maintain an advantageous military position.* Of the planned three F/A-18 squadrons, two should specialise in the air-to-air role, while the third should specialise in the air-to-surface role including maritime strike.

The successful operational performance of OTHR would dramatically enhance our air defence alert and early warning capabilities by the end of this decade. OTHR has a good prospect of proving generally sufficient for early warning and control in low-level contingencies. But there is some doubt as to whether OTHR would be sufficiently capable for the full range of credible contingencies. Investigation of airborne early-warning and control (AEW&C) options should go ahead, but there should be no acquisition of these systems until the ability, or otherwise, of OTHR to provide adequate targeting information to the F/A-18 is determined.

The acquisition of two additional mobile ground-based radars is proposed, to provide air traffic control and high-definition targeting close to airfields and major installations in northern Australia.

Our primary air defence capability resides in the Tactical Fighter Force. Surface-to-air missile systems are required in limited numbers only to develop co-ordinated command and control procedures appropriate for more substantial conflict, and to meet any low-level conflict needs.

Ground force priorities

Australia's needs for ground forces are strongly influenced by our being an island nation. The sea and air gap to our north would present a formidable obstacle to any aggressor. There is an important discontinuity in the progression of land force threats between low-level raids and the incredible prospect of major assault on Australian territory.

Even so, we could not expect in all conceivable circumstances to set up an impermeable barrier, and an adversary could expect some success in inserting small-scale ground forces. But any attempt by an enemy to assemble, transport and resupply

the larger forces needed for more conventional ground force operations could not escape detection. And the exercise of our air and maritime power would make its failure highly likely.

The priority demands on our ground forces are for the protection of military and infrastructure assets that support the projection of our air and maritime power, and the defence of civilian population and key points in the north of Australia from a protracted campaign of dispersed raids. Our forces must also provide an offensive capability to contain incursions and defeat enemy forces close to their landing areas. These are challenging tasks given the vast areas of likely operations in the north and the need to be seen to be providing a visibly adequate defence.

The possibility of fighting a conventional land battle in Australia is not so entirely improbable that we should not retain some limited skills and expansion capacity against such an event. But the appropriate forces for such circumstances should be developed within the framework of a force giving priority of manning and equipment to the needs of credible contingencies.

Ground force organisation and disposition

The minimum number of Regular infantry battalions that we require is six. A lesser number of Regular battalions could be faced with an impossible operational task. A similar number of Reserve battalions would also be required, to be available for early deployment from a Reserve Force of at least 10 battalions.

Army's main avenue of expansion will be through call-up of the Reserves. In due course, it would be appropriate to review again both the size of the Regular Army and the balance between Regulars and the Reserves.

To facilitate exercising in the north, to gain greater familiarity with the area, and in general recognition of its priority in credible contingencies, *consideration should be given to the basing in the north of additional elements of the Regular Army.* In the longer term this should be a brigade-sized formation, but practical considerations suggest first a Regular reconnaissance unit, based in the Darwin/Tindal area.

Ground force mobility

The need to move quickly and effectively against raiding groups suggests that our emphasis would be on forces able to operate over vast distances, and needing the minimum of logistic support. *Our ground forces will be predominantly infantry, lightly armed and air mobile.*

It is now timely to develop further the Operational Deployment Force (ODF) concept. *The Review supports Army's initiative to consider ways in which the priorities for 6 Brigade should be brought closer to those of the ODF.* It also supports Army's intention that the parachute capability now under development should be associated with the ODF.

There is a need to upgrade substantially the tactical mobility of our ground forces, principally by significant expansion of the utility helicopter force. This will provide greater deployment flexibility and fire support for units operating over wide areas in our inhospitable northern regions.

There is also a need for light armoured fighting vehicles in credible contingencies. While the current M113 may not be ideal, it is suitable for training and operations in the shorter term, perhaps with some modifications. An appropriate planning base would be that each battalion should have available a company group lift, some fire support, and a reconnaissance element. *Current M113 numbers are more than adequate and some reductions are recommended.*

In the long-term program for the replacement for the M113 there is time and scope for practical experimentation with different vehicle types. There may also be a place for specialised-mobility vehicles.

Mechanised forces

Mechanisation involves the integration of infantry mounted in armoured personnel carriers (APCs) with tanks, artillery, and with supporting arms and services also mounted. The benefits of this integration increase as the conflict becomes more conventional and intensive.

The Review concludes that *Army's current mechanisation plans rest on premises that are at variance with Australia's strategic circumstances.* Our warning time for large-scale conventional operations, to which mechanisation is principally relevant, would be very long. *The Review does not see priority for the mechanisation of 5/7 RAR and elements of HQ 1st Brigade and supporting arms to the extent already achieved.* It recommends that the emphasis of 5/7 RAR's training and development should be towards the priority needs of dispersed operations in credible northern contingencies. The integration of tanks with the mechanised infantry, and the support of medium guns, is not a priority.

Tanks

There is a need for a critical examination of our requirement for heavy armour. Tanks are relevant only as part of the expansion base. *The Review proposes that the Regular component of 1st Armoured Regiment be reduced and that it become an integrated unit with a substantial Reserve component.*

Artillery

Field artillery (105 mm) should be available in limited numbers to provide fire support to ground forces, but *opportunities for the traditional use of artillery against concentrated targets will be infrequent.* Medium artillery (155 mm) is an asset more appropriate to the expansion base.

Ground surveillance forces

There would be a priority for surveillance and reconnaissance elements, particularly for the timely identification of enemy activity during a period of heightened tension or in the early stages of hostilities. *The Review encourages the further development of the largely Reserve regional force surveillance units, including the possibility of increasing the Regular component.*

Close air support

There is little priority now for extensive skills in close air support. In present circumstances *there is no need for specialised ground-attack aircraft or helicopters.* Our requirements for close air support can be met with the F/A-18 force, and by the proposed inclusion of helicopter gunships within our expanded utility helicopter force.

INFRASTRUCTURE, LOGISTIC SUPPORT AND INDUSTRY

Northern facilities

If we are to project credible military power in the most vulnerable part of the continent, we require a larger permanent presence in the north of Australia. While there has been significant base development in recent years, *we should proceed now with a bare-base airfield on Cape York Peninsula, a modest naval facility on the north-west coast of Western Australia, and the basing of a Regular Army unit in the Darwin/Tindal area.*

Fleet support

The substantial expenditures and dislocation involved in an accelerated move out of Sydney Harbour would not be justified by any pressing strategic requirement, although there are some operational benefits. The move should be designed as far as possible to meet the needs of Navy, and the opportunity taken to select the most desirable locations for particular maritime forces. *Strategic considerations favour the location of the main submarine base at Cockburn Sound.*

As our naval presence in the west of the continent builds up, the purchase of a low-cost tanker to help support two-ocean deployments should be considered.

Army training areas

Because of the range of complex practical considerations involved, this Review is not in a position to comment with finality on current proposals for new Army training areas and facilities in New South Wales. The Review notes that its proposals for a reduced emphasis on mechanised and armoured operations may affect the basis of selection of a new field firing and manoeuvre area.

Ground force logistic support

We can use both civil and military assets to carry materiel to forward northern bases from major support areas in the south-east. But we need integral ADF logistic capacities within operational areas in the north. *There is a need to conduct a program of sustained exercises in the north, supported from bases in the south, to test and identify weaknesses in our logistic train.*

The RAAF's current airlift capacity (four B707s, 24 Hercules, 22 Caribou and 12 Chinooks) is generally adequate for current circumstances. But *we should plan on increasing our airlift capacity as part of the program to improve ground force mobility.* We should keep in mind the potential of new technologies such as the tilt-rotor.

Current amphibious capabilities are adequate for credible contingencies. Any additional sea transport required could be by civil vessel on charter.

Civil infrastructure and support

Because our forces would draw on civil assets, *it is important that defence considerations influence civil infrastructure developments particularly in the north.* Defence should also have a detailed awareness of the potential for civil support through the maintenance of a National Defence Infrastructure Directory.

Civil industry should contribute to the maintenance, adaptation, and through-life support of defence equipment. This is especially appropriate where a system is designed or manufactured in Australia, and where it has a priority use in credible contingencies.

If the ADF is to become more dependent on the civil sector in these crucial areas, it will need to be reassured about the co-operation of the trade union movement and the dependability of the work-force in the event of a national emergency. This requires the development of better relations between the ADF and the union movement.

Industry for defence

In the range of credible low-level conflicts facing Australia, there is a considerable likelihood that overseas resupply would be available. Military action to deny Australia overseas sources of important defence supplies is well beyond the capacity of regional states. Isolation from virtually all sources of overseas supply is possible only in the very unlikely circumstances of global superpower conflict.

Nevertheless, a measure of protection against restriction of overseas supply is appropriate. For credible contingencies, *the industrial capacity to maintain, repair and adapt defence equipment to the Australian environment would be fundamental to our combat effectiveness.* Comprehensive local capabilities in this category are of high strategic priority.

Too much of the debate about industry for defence is about designing and producing platforms and weapons in Australia. A substantial premium for indigenous design and production is justified only in the few cases where there is a unique Australian requirement, or where local participation contributes to an important overhaul and refurbishment capacity.

Those areas of Australian industry offering the most scope for further development and a contribution to self-reliance are generally in the private sector. There are, however, some arrangements with the private sector which involve a high degree of Defence intervention and subsidy and which need review.

The Government's defence factories and dockyards are highly subsidised and in urgent need of further rationalisation and the introduction of rigorous commercial cost-accounting practices across the full range of their functions.

ORGANISING AND PLANNING FOR CONFLICT

Command and control arrangements

No radical changes are required in ADF command and control arrangements, but the framework of functional commands should be developed further so that peacetime arrangements more closely reflect the Joint Service requirements of credible contingencies. *The Review recommends a detailed examination of the need for a regional joint force command in northern Australia, which might be established on an experimental basis in the first instance.*

The trend should be for the joint command structure under the CDF to gain authority at the expense of the single Services. This is not an argument for the abolition of the single Services, but recognises that over time the single Services are becoming less concerned with the conduct of combat operations.

Allocation of assets

The option of transferring the Orion force from Air Force to Navy to promote integration with Fleet assets has been considered in the course of this Review. The conclusion, on balance, is that efficiency will best be served by Air Force retaining responsibility for these fixed-wing aircraft. However, they should be assigned for most operational activities to the Maritime Command.

Ground force operations are somewhat different. *Combat efficiency may be enhanced if ground force tactical helicopters and their crews were operationally part of the Army.* This Review considers that its recommendation to enhance the helicopter lift capability for the Army provides a suitable opportunity to integrate the helicopter element into the Army structure.

Stockholding policy

It is unsatisfactory that there is no agreement within Defence on policy for war reserves and stockholding, and that the ADF's sustainability in combat cannot be easily assessed. The Review recommends that a start would be to determine the adequacy of existing stocks to sustain military operations for periods of three months and six months in circumstances of intermittent low-level conflict in the north of the continent.

No need is seen for large defence stocks to be held as a contingency against the absence of overseas supply in wartime, although there may be justification for procuring greater reserve stocks of selected spare parts.

War administration

High-level co-ordination and planning for wartime administration is not an urgent requirement. The kinds of credible contingencies which could arise in short time-scales would not require major adjustment to our machinery of government. Rather, some broad guidelines need to be developed principally so that relevant Federal and State authorities are aware of potential Defence requirements, and to provide a basis for military planning and exercising. This planning should be related firmly to the potential requirements of credible contingencies, not concepts of national mobilisation to defeat an invasion force.

Civil defence

Civil defence skills and capabilities appropriate to more credible contingencies are readily available within the civil community. The Defence role can be properly limited to training and planning. *There is, however, a need to test our civil defence capacities in the north of Australia in exercises.*

Except for the towns located near to the joint facilities, civil defence measures against the remote prospect of global nuclear war do not require priority in our planning.

RESERVE FORCES

There is a particular role for Reserve Forces in the defence of the north of Australia. Reserves provide a surge capacity to allow the Defence Force to increase its rates of effort and they can have a major role in maintaining expansion base skills. They also can provide valuable local knowledge in support of military operations and they can protect key points and installations. *There is a requirement both for enhanced local recruitment programs and for training in the north by Reserve Forces located in the south.*

The Review argues for a modest increase in some elements of Reserve Force strength in such areas as mine countermeasures, aircraft maintenance and armour. But a smaller number of well trained forces is more important than a large number of predominantly 'nominal' Reservists. It proposes that Reserve conditions and training should be improved. *The decision to tax Reserve pay should be rescinded or, failing that, Reserve pay and allowances should be re-examined.*

Call-out legislation

Planning on the use of Reserves in contingencies likely to arise in the shorter term will remain dependent on some assurance that they can be called upon in a timely manner. *Legislation to permit restricted call-out of Reservists in circumstances short of the declaration of a defence emergency is required.*

COCOS AND CHRISTMAS ISLANDS AND PAPUA NEW GUINEA

There are only two contingencies of possible threat external to the Australian continent that should be considered in force structure planning—Cocos and Christmas Islands and Papua New Guinea. It is the general conclusion of the Review that capabilities developed for the defence of continental Australia and our maritime approaches will provide options for appropriate force deployments to Cocos and Christmas, and in support of Papua New Guinea, should these be required.

RESOURCE IMPLICATIONS

The Review has not been conducted as, nor was it intended to be, a cost-cutting exercise. It does not provide a basis for short-term variations in defence funding.

Levels of defence expenditure

The use of the Five Year Defence Program (FYDP) system has greatly improved financial and force structure planning. But some of the potential benefits have been lost because of the lack of consistent financial allocations by governments. *For most of the last decade, defence planning has been caught between elevated planning guidance and depressed budgetary growth, leading to a pattern of deferrals of major projects.*

The Review recommends most strongly that more realistic financial guidance should become the norm. This would do much to reduce waste of managerial and executive effort, and would allow longer-term force structure needs to be kept in a clearer perspective.

With some modest adjustments, *the Review's recommendations can be accommodated by changes to the 3.1-percent real growth program developed by the Department of Defence for FYDP 1986-91, and there is no indication of difficulties beyond that period.*

The balance between resource elements

Within the FYDP period, the Review's recommendations on new capital equipment more or less balance out. Beyond it, the Review identifies a specific need for some \$1300 million, but this is a modest fraction of the funds likely to be available for capital equipment at that time. There is probably flexibility for other areas of defence spending to grow at the expense of capital equipment, were this required.

Capital facilities planning is overshadowed by uncertainty concerning the relocation of the Fleet Base from Sydney. Nevertheless, *the Review judges that the major recommendation not already planned—Army basing in Darwin/Tindal—could be accommodated if funds for capital facilities were sustained for a few years beyond the FYDP broadly at the levels now programmed within the FYDP.* With an eventual reduction in the need to develop any further new strategic facilities, the funds allocated to this part of the Defence Vote could reduce, perhaps by the mid-1990s.

Manpower changes are difficult to assess accurately, but in numerical terms the net result of the Review's recommendations is small. The programmed growth of 500 new positions and the redistribution of 550 other positions should allow the new capabilities to be accommodated. *Continued broad constraint on the numbers of civilian and Service personnel within the Defence function is justified.*

The Review's recommendations are likely to require a modest increase in operating costs beyond the three-percent average growth already programmed. The main initiative is the recommended basing of Regular Army elements in Darwin/Tindal and increased training in the north generally. Some transfer of expenditures from the personnel component of the Defence Vote to operating costs could also come from the greater use of Australian industry to support the Defence Force. Overall, an increase of up to about \$60 million per year in operating costs could be appropriate. *The Review supports the allocation of a funding wedge for stocks to sustain operations in credible contingencies—but primarily for spares rather than ammunition.*

CONCLUSION

To provide an appropriate defence for a country in Australia's unique strategic circumstances is exceedingly complex. In the absence of an identifiable threat, the question of what sort of defence capabilities are most relevant, and how much we need, are necessarily matters of judgement.

This Review has sought to narrow the options and to limit the scope for subjective judgement by focusing on the unchanging nature of our geographic circumstances and the levels of threat that we might realistically expect. *The central theme of this Review is that Australia is a defensible continent and that, with some important reordering of priorities, we can provide for our own defence.*

FORCE STRUCTURE PROPOSALS

INTELLIGENCE AND SURVEILLANCE

JIO and DSD

- Maintain current levels of activity, with progressive investment in new technology. (\$10 million programmed for improvements to JIO over the next five years.)

Electronic warfare (EW)

- Ensure that we can adapt our EW systems to the operational environment, especially for credible contingencies.
- Continue current and proposed programs to update electronic support measure (ESM) systems. (About \$100 million approved or programmed for early decision.)
- Allocate sufficient resources to establish and run the Defence EW Data Base (DEWDAB). (About 10 specialists.)

Over-the-horizon radar (OTHR)

- Expand and accelerate the current development program by applying additional resources, especially to surface detection. (\$46 million programmed for decision in 1985-86, to convert experimental Jindalee radar into an operational system.)
- Make program provision for two additional OTHRs to enter service by early 1990s, and possibly another two by mid-1990s. (Per radar: \$105 million capital cost, \$2 million annual operating cost, and at least 40 Defence personnel. Years of decision about 1987-88 and 1990-91.)
- Manage OTHR on a Joint Service basis and integrate with the ADF command support system.
- Review future needs for other systems for maritime surveillance when the full potential of OTHR for surface surveillance is clarified.

Long-range maritime-patrol (LRMP) aircraft

- Retain the 20 Orion LRMP aircraft for maritime surveillance and strike (both anti-surface and anti-submarine operations).

Surface-towed acoustic arrays

- Retain priority for an early decision on development and a later decision on further acquisition. (\$56 million programmed for decision in 1986-87, and \$23 million in 1989-90. 48 personnel eventually required.)

Mapping and charting

- Retain priority for AUTOMAP III. (\$13 million programmed for decision in 1986-87.)
- Increase defence manpower allocated to mapping by up to 50, subject to examination of alternatives such as greater use of civil contract.
- Delete proposed acquisition of photo-survey aircraft from the Defence Program, and use civilian contractors. (Delete \$67 million programmed for decision in 1986-87. Contract cost estimated at \$0.7 million per year.)
- Retain priority for a second Flinders class survey ship (AGS-02). (\$48 million programmed for decision in 1986-87. Thirty uniformed personnel for the ship and 20 civilians in the Hydrographer's office.)

- Continue with the Laser Airborne Depth Sounder (LADS) and the four Survey Motor Launches (SML). (Approved projects, expected to enter service from 1987-88. \$24 million for LADS and \$15 million for SMLs. 50 uniformed personnel.)

STRIKE AND INTERDICTION

Strike aircraft

- Retain the F-111 force with a minimum update for service until around the mid-1990s. (Reduce Avionics Test Equipment update from \$91 million to \$60 million. Reduce Simulator update from \$41 million to \$14 million. Defer by one year and reduce Avionics update from \$219 million to \$150 million. Delete Precision Guided Munitions (\$62 million) and Electronic Countermeasures (\$60 million). Reduce total update package from about \$470 million to about \$225 million.)

Submarines

- Retain the program for six new submarines but establish a financial ceiling and, if necessary later, explore options for lesser capabilities. (\$2650 million programmed for decision in 1987-88.)

MARITIME DEFENCE

Mine countermeasures

- Avoid further delay to testing and evaluation of the two prototype catamarans for inshore minehunting (MHI), and if successful construct at least four more. (\$211 million programmed for follow-on MHIs, for decision in 1987-88.)
- Retain high priority for trials of Australian concepts for minesweeping. (\$100 million programmed for trials and acquisition of new sweeping concepts, for decision in 1986-87 and beyond.)
- If these concepts are successful, acquire four vessels and lease craft of opportunity for minesweeping. (Make program provision of \$37 million for decision on acquisition in about 1988-89.)
- If these concepts are not successful, acquire three minesweepers urgently from overseas. (Cost in the order of \$300 million.)
- Retain high priority for establishment of Mine Warfare Systems Centre. (\$46 million programmed for decision in 1987-88.)

Destroyers and patrol vessels

- Build in Australia eight ocean patrol ships/light patrol frigates, to enter service from the early-to-mid-1990s as the last three destroyer escorts (DEs) and first five Fremantle class patrol boats pay off. Plan on a decision in 1987-88 for design development. (Estimated cost of \$2000 million is balanced by reductions in earlier proposals for new surface combatants and new patrol boats. About 1000 personnel for these new ships and their helicopters to become available from the five Fremantles and three DEs.)
- Consider cancelling the modernisation of, and paying off, the third guided missile destroyer (DDG) HMAS Hobart. (Save \$32 million from capital equipment program; reduce annual operating costs by \$8 million; reallocate the crew of 330.) Government may wish, however, to retain nine rather than eight capable destroyers in the fleet.
- Continue with studies for a possible DDG replacement, with a view to funded industry studies in the late 1980s and government decision on source selection in

the early 1990s. (Make program provision of \$20 million for industry studies for decision in about 1988-89.)

Naval Helicopters

- Retain plans for a further eight Seahawks. (\$193 million programmed for decision in 1986-87.)
- Dedicate some Sea King helicopters to precursor minesweeping.
- Purchase 12 reconnaissance helicopters for the light patrol frigates. (Make program provision of \$200 million, for decision in about 1988-89.)
- Defer acquisition of further utility helicopters to beyond the FYDP 1986-91. (Defer provision of \$340 million programmed for decision in 1989-90.)
- Do not use Defence funds to acquire and operate helicopters for offshore counter-terrorist operations after the Wessex helicopters leave service in 1989.

AIR DEFENCE

- Conduct preliminary investigation of airborne early-warning and control options while OTHR's ability to provide targeting data for the F/A-18 is being established. (Retain program provision of \$2 million, for decision in 1987-88.)
- Defer acquisition of airborne early-warning and control systems. (Defer by one year the provision of \$500 million currently programmed for decision in 1988-89.)
- Continue with proposal to acquire a ground-based radar to cover the approaches to Darwin/Tindal. (\$16 million programmed for decision in 1986-87.)
- Acquire a further two mobile tactical air defence radars. (Make program provision of \$40 million, for decision in the 1989-95 time-frame.)
- Continue with program to acquire 75 F/A-18 fighter aircraft.
- Modify the four B707s for in-flight refuelling of F/A-18 aircraft. (Retain program provision of \$45 million programmed for decision in 1986-87, but consider deferral in the event of programming pressures.)
- Do not acquire a Tropospheric Scatter Communications System. (Delete provision of \$41 million, programmed for decision in 1990-91.)

GROUND DEFENCE

Army size and structure

- Retain the approximate present size of the Regular Army (32000). Review the balance between the Regular and Reserve components when more experience is gained from operating in the north.
- Ensure that the emphasis of all Regular battalions is towards the priority needs of dispersed operations in northern contingencies, with good tactical mobility once deployed.
- Reduce emphasis on mechanisation. The integration of tanks with mechanised infantry is not a priority.

Armour

- Operate up to 500 M113 light armoured fighting vehicles. Increase the number in store from about 100 to about 300. (Release about 35 personnel for higher-priority tasks. Reduce operating costs by about \$1.3 million per year.)

- Gain further experience in the north with the M113, and perhaps other specialised vehicles (wheeled, tracked, and other), to inform judgements on a new vehicle eventually to replace the M113, beyond the year 2000.
- Allocate a total of 50 tanks to an integrated Regular and Reserve unit and to Training Command. Increase the number in store from 27 to 53. (Release up to 180 personnel for higher-priority tasks. Reduce operating costs by up to \$0.5 million per annum.)

Tactical helicopters

- Acquire about 36 tactical helicopters in addition to the 36 (and 20 attrition reserve) already in the program. Acquire a further 20 as the associated attrition reserve. (Make program provision of \$580 million for decision in about 1988-89, and \$230 million beyond FYDP 1986-91 for the attrition reserve. This would require some 375 personnel and \$12 million in annual operating costs.)
- Improve the combat efficiency of helicopter support to Army, preferably by integrating the helicopters into the Army structure.

Ground surveillance capability

- Continue to support and develop the Reserve regional force surveillance units in the north of Australia. Consider ways to ensure early availability in time of tension, such as increasing the Regular component and introducing legislation for call-out of Reserve elements.
- Continue the evaluation and familiarisation programs under way for surveillance devices. Expand if successful. (Make program provision of about \$25 million, for decision progressively from 1987-88.)

Artillery

- Retain the present (approved) program of 65 Light Guns for the Regular Army. Acquire 46 guns for the Army Reserve. Acquire additional guns for the Reserves only if further analysis shows the need. (Reduce provision of \$53 million for 83 Army Reserve guns to \$29 million, programmed for decision in 1986-87.)
- Transfer one battery of medium guns in 8/12 Medium Regiment from Regular Army to Reserves, preferably within an integrated unit.

Close air support

- Do not acquire specialist close air support aircraft (fixed wing or rotary wing). Continue with plans for tactical utility helicopters to have some gunship capability, and for the F/A-18 to provide basic skills.

INFRASTRUCTURE AND SUPPORT

Northern infrastructure

- Retain priority for, or possibly advance, a bare-base airfield on Cape York Peninsula. (\$30 million programmed for approval in 1989-90.)
- Advance the priority for a modest naval facility on the north-west coast. (\$15 million programmed for approval in 1990-91.)
- Plan to base units of the Regular Army in the Darwin/Tindal area, with initial phases by the early 1990s. (The Review's preference is for at least an infantry battalion, but practical considerations may suggest initially a reconnaissance unit. The capital facilities cost of the latter is an estimated \$100 million.)

Afloat support

- Plan on the eventual acquisition of a low-cost tanker of about 6000 to 7000 tonnes. (\$20 million programmed for decision in 1990-91.)
- Do not acquire a second fleet replenishment ship of the same class as HMAS Success. (Provision of \$266 million already deferred beyond the FYDP 1986-91.)

Ground force transport support

- Do not acquire additional Tobruk class ships. Do not plan on replacing the six heavy amphibious landing craft (LCH) once they reach life of type (1996-97). (Cancel plans for a decision in 1993-94 on new LCHs at a cost of \$105 million.)
- Plan for the replacement of the 22 Caribou and 12 older Hercules (C130E) aircraft on the basis of acquiring 20 new Hercules-type aircraft. (Increase planned expenditure in the 1990s from \$578 million to \$700 million.)

Naval support facilities

- Take advantage of the move of the Fleet Base from Sydney to establish a more geographically rational and strategically relevant siting of naval bases.
- Establish the main submarine base at Cockburn Sound WA (HMAS Stirling), with a secondary base on the east coast.

Communications and command support

- Maintain current levels of support for the development of secure communications such as DISCON, Parakeet and Raven.
- Maintain priority for Defence use of AUSSAT.
- Continue the current ADF command support system proposals, but ensure that the emphasis is on interaction with functional and regional commands. Develop single-Service command support systems as accessories to the central ADF system. (Some \$200 million programmed for these systems.)

RESERVE FORCES

Naval Reserves

- Set a long-term goal of 3000 (from the present 1100).
- Provide 400 personnel to support mine countermeasures operations. Expand activity in current areas of responsibility (intelligence, control of shipping, clearance diving, and patrol boat operations).

Army Reserves

- Limit strength to 26000 (compared with present goal of 30000) including up to 10000 in infantry elements, about 8000 in combat support functions, and about 8000 in logistic support and training activities.
- Identify particular Reserve infantry battalions for specific key-installation security tasks in the north.
- Enhance the Reserve regional force surveillance units. Increase the Reserve role in retaining expansion base skills in armour and medium artillery. Increase the extent of integration and affiliation with Regular units. Increase Reserve participation in logistic support activities.

Air Force Reserves

- Set a long-term goal of 2000 (from the present 1350).
- Expand the employment of Reserves in transport aircraft operations, maintenance support and airfield defence guards.

PART 1 DEFENCE PLANNING AND STRATEGIC GUIDANCE

This Part of the Review addresses the content, priorities and rationale of current defence planning. Major issues are identified for resolution, and advice is offered about ways in which strategic guidance can be made more explicit.

THE BASIS OF FORWARD PLANNING

The last 15 years have seen a fundamental change in Australian strategic perspectives. Until the late 1960s, Australian defence planning and policy assumed that our forces would normally operate in conjunction with allies, and well forward of the continent. We saw our security as inextricably linked with the security of others.

When Australia itself was threatened during the Second World War we turned to the United States. We promised our military resources to General Macarthur who conducted Australia's defence as an extension of the United States war effort, largely free from political direction by the Australian Government.

After the war we remained deeply suspicious of Japan and exacted the ANZUS Treaty as the price for peace with that country. We also co-operated with Britain in the testing of nuclear weapons and missiles. Australia sent military forces to Malaya, Borneo, Korea and Vietnam. We acquired a new threat in Communist China, combining old racial fears with new ideological concerns.

Yet fundamental changes were abroad in both international and domestic perspectives. The British withdrew from 'East of Suez', and with the strain of meeting its Vietnam commitment came a United States recognition of the limits of its military power and a caution about further foreign military involvements. The 1969 'Guam Doctrine', espoused by President Nixon, called on allies to make greater contributions towards their own security, and to assume the primary responsibility of providing for their own defence.¹

Within Australia, there was a new sense of nationalism and a recognition that our future security was bound up with the newly independent states of South East Asia. New defence concepts, based on the notion of defending Australia itself, were publicly expressed in the 1976 *Defence White Paper*. The White Paper emphasised Australia's independent regional defence interests and the requirement for increased self-reliance, depending on US military support only in the event of an overwhelming threat to our security.

1. This requirement has been reiterated by successive United States Administrations. In a major policy statement in November 1984, Secretary of Defense Caspar Weinberger said 'We have learned that there are limits to how much of our spirit and blood and treasure we can afford to forfeit in meeting our responsibility to keep peace and freedom. So while we may and should offer substantial amounts of economic and military assistance to our allies in their time of need, and help them maintain forces to deter attacks against them—we cannot substitute our troops or our will for theirs'.

Despite the realignment of our priorities to greater defence independence, tensions continued between traditional alliance and global considerations on the one hand and the new national and regional emphasis on the other. The task of developing a force structure to reflect our new strategic priorities was not made easier by the fact that much of our equipment, and some of our doctrine, continued to be obtained from traditional associates. It is only in recent years that the primacy of defence-of-Australia tasks has achieved general acceptance within the Defence community.

Strategic guidance

The key planning document that guides Australian defence policy is the *Strategic Basis* paper, produced every three to five years. It draws upon intelligence assessments contained in *Australia's Security Outlook* produced by the Office of National Assessments and endorsed by the National Assessments Board. The current *Strategic Basis* was prepared by the Defence Committee and accepted by the Government in 1983. References in this Review to current strategic guidance are references to concepts developed in this document.

The 1983 *Strategic Basis* paper is the latest in a series of documents which have developed a philosophy of defence self-reliance for Australia. This thinking had its beginnings as early as the 1968 *Strategic Basis*, which articulated the need for forces 'prepared to deal with sporadic attacks and raids on the mainland, which could be more readily attempted and could take the form of small scale air and submarine attacks and commando raids'. Nevertheless, the practical implications of this were not well developed because of the continuing preoccupation with possible overseas commitments at a time when Vietnam was a major focus of concern.²

The 1971 *Strategic Basis* paper, for the first time, canvassed the prospect of varying levels of threat developing over increasing time-scales. The newly-introduced Five Year Defence Program (FYDP) was seen as a means by which acquisitions, force levels and activities could be ordered to suit the needs of self-reliant national defence. The more clearly perceived needs could be satisfied first, and the more remote and ill-defined ones handled by assessments of how and when threats of varying magnitude might develop. An ambitious range of studies was envisaged to try to develop these propositions, but a general force structure conclusion was enunciated in the following terms, which have changed little over the last 15 years:

The increased emphasis on the defence of Australia itself in the long term will almost certainly call for a blend of offensive and defensive naval and air forces supported by and supporting highly mobile and hard hitting army forces; in most instances we see our forces operating as a joint force complementary to each other. Static defence of numerous fixed positions will play only a limited part in the relevant concept and the mobility of all the forces concerned will be a key factor in its development. The provision of improved mobility for all Services, not only beyond but also within Australia, co-ordinated where practicable with civil resources and including infrastructure, should therefore undoubtedly assume a high priority in our planning.

The 1973 *Strategic Basis* paper contrasted the regional tensions and conflicts of the 1960s with a perception of the future—subsequently proved generally accurate—that South East Asian nations would be preoccupied with their own national affairs and local disputes. It included a summary of Australia's security situation that is still relevant 13 years later:

Australia is remote from the principal centres of strategic interest of the major Powers, namely Western Europe and East Asia, and even those of secondary interest, the Mediterra-

2. In a perceptive comment on that conflict the 1968 paper observed 'The Vietnam War has amply demonstrated the fundamental fact that where governments are politically weak, administratively incompetent and unable to attract loyalties by drawing the population into effective programmes for economic reform and growth, then the military force faces an almost impossible task in countering insurgency'.

nean, the Middle East and the North West Pacific. Having ratified the Nuclear Non-Proliferation Treaty we are not a factor in the Powers' nuclear calculations and dealings. We are not a principal party in the shaping of any regional affairs relevant to their interests, nor are we under present threat from our immediate neighbours. Because of its location and size Australia is a difficult country to invade, conquer and occupy. Moreover, we are a Power of sufficient substance to discourage any thought that we may be susceptible to low-level pressure . . . it can be said that Australia is at present one of the more secure countries in the world.

Thinking on lead times was developed and the notion of an expansion base was also introduced in the 1973 paper.

By 1975 this thinking had crystallised in the concept of a 'core force', able to undertake peacetime tasks and to deal with 'a range of low-level contingencies which have sufficient credibility', and 'with relevant skills and equipment capable of timely expansion to deter or meet a developing situation'. Substantial global and regional involvement of Australian military forces was firmly rejected. In an embryonic attempt to sketch a long-term strategic concept, the 1975 paper observed that 'conventional forces can only attack Australia by using sea and air approaches, and Australian strategy should look to having adequate naval and air power for interdiction, including forward operations, while at the same time having in being those ground and other forces capable of dealing quickly with any lodgements which might nevertheless be made'.

The 1976 *Australian Strategic Analysis and Defence Policy Objectives* (ASADPO) paper refined the concepts of the 1975 paper. It observed that a warning time which began when specific threats were perceived was too narrowly based, and that defence planning and preparations could be expected to be responsive to adverse strategic changes in advance of a perceived threat. This theme was subsequently taken up in the 1976 *Defence White Paper*, which said that Australia's defence interest was not confined to the presence or absence of threat but was concerned with a broader range of developments, including those that introduced uncertainties into our strategic prospects.

Drawing on some long-overdue and innovative work, known as the 'Defence of Australia' studies, *ASADPO 76* provided examples of credible low-level contingencies to be considered in shaping the force structure during the then-current FYDP.³ It concluded that major assault against Australia was the least conceivable contingency, and that capability related to it should command a low priority in the force structure (subject to the requirements of the expansion base).

The 1979 ASADPO document built selectively on the foundation of the documents of 1975 and 1976. The focus on maritime contingencies was further sharpened to give priority to capabilities for the defence of 'any military convoys, our coastal shipping, focal areas proximate to Australia and our off-shore resources'. There were some cautionary words about the distorting effect on force structure priorities and planning should the Government want to 'keep open' the policy option of a military response to any substantial contingency external to the continent, given the prospect that there could be a coincident threat to Australia.

The 1979 paper attempted to give more focus to defence planning through an examination of credible contingencies, drawing on the Defence of Australia studies which were then close to finalisation. It also attempted to set out—for the first time—a summary of defence policy objectives and capability requirements. *ASADPO 79* reaffirmed the assessment, going back as far as 1971, that even with the support of a

3. The Defence of Australia studies postulated two levels of conflict—a low-level conflict involving harassment and raids, and an escalated conflict involving a ground force lodgement on Australian territory. Some aspects of these studies were tested in military exercises, particularly the Kangaroo 83 Exercise in the north of Western Australia.

major power, it would take at least 8 to 10 years for the development of a regional capacity to mount a major military attack against us.

In the 1983 *Strategic Basis* paper this important judgement is repeated and earlier deliberations on the defence of Australia are consolidated and augmented. Forms of military pressure that are credible in the shorter term are illustrated by reference to relatively small-scale harassment and raids on remote settlements, coastal shipping, and other targets around Australia's north.

The 1983 paper favours a more extensive articulation of the core-force philosophy in place of the listing of objectives and capability requirements at the end of *ASADPO 79*. As with all strategic guidance since 1971, it recommends the use of contingency studies to assist in the refinement of capability requirements. It also recommends, for the first time, the development of military strategy and operational concepts for the defence of Australia.

The strategic guidance developed by the Defence Committee over the last decade or more may thus be regarded as a continuum. Although certain thoughts and strategic concepts have been developed in more detail, there is substantial continuity of thinking. Successive Defence Committees (and some 20 different Service Chiefs and Secretaries of Departments) have endorsed the *Strategic Basis* series of documents which have, in turn, been agreed to by governments of various political persuasions.

The current *Strategic Basis* paper is the latest in a series of documents which have articulated a philosophy of defence self-reliance in a regional context. Its regional concepts are generally well developed and intellectually rigorous. The same cannot be said about its analysis of the global situation, which tends to exaggerate the risks of superpower confrontation and the Soviet Union's military superiority.

The limitations of strategic guidance arise not so much from any failings in the arguments in the document, but from the limitations inherent in an approach restricted to the development of broad strategic concepts. While strategic guidance has developed some important principles for force development, these have not proven easy to apply. This is primarily because there has been a lack of agreement about the appropriate level of conflict against which the Defence Force should be structured.

Current procedures for force structure planning

Current planning is based on the core-force concept.⁴ But the lack of simple procedural clarity and precision in the guidance for determining the priority of core capabilities has tended to frustrate force structure planning.

In practice, the force development processes of the senior Defence committees (the Defence Committee, the Defence Force Development Committee, and the Force Structure Committee) take account of strategic guidance, credible contingencies and warning-time/lead-time considerations on an essentially *ad hoc* basis, usually in the context of major equipment proposals. No comprehensive review of defence capabilities has been conducted since the 1981 *Defence Force Capabilities* paper, which was endorsed by the Defence Force Development Committee (DFDC) only 'as a background document for planning staff'. The 1981 paper was not considered by the Government. Its concluding judgements are highly qualified and provide only limited guidance on the preferred priorities for particular capabilities.

The absence of agreed concepts and guidance in the force planning area leads to difficulties in government consideration of defence issues. Ministers are first asked to endorse the broad principles contained in strategic guidance. They are subsequently asked to approve specific equipment proposals without the opportunity to consider how these proposals relate to an overall defence concept and plan for the development of our force structure.

4. The core-force concept is discussed in more detail later in this Part of the Review.

This is an unsatisfactory state of affairs. This Review considers it is not sufficient for the Defence Committee to prepare strategic guidance for consideration by Ministers that limits itself to general observations and conclusions. Ministers should be informed at the same time of the strategy proposed for our defence effort, and the main force structure and resource implications. The policy implications of this recommendation are addressed in more detail later in this Part of the Review.

Military planning

Force structure planning deficiencies have been compounded by the lack of a comprehensive military strategy and operational concepts for the defence of Australia. In the absence of more definitive guidance, each Service has developed its own planning. Navy's *Plan Green* and *Plan Blue* aim to identify those factors that provide guidance for medium-term and long-run naval force development. *The Army Development Guide* was written to provide Army staff with an indication of the direction of expansion so that the elements of the expansion base could be identified. Air Force's *RAAF Development Goals* sets out the long-term development goals of Air Force to provide guidance for planning staffs. These documents are not co-ordinated with one another, nor do they necessarily follow closely current strategic guidance. Some of their force structure objectives are unrealistic.

In recognition of this deficiency, a series of documents have been prepared in Headquarters Australian Defence Force (ADF) and considered by the Chiefs of Staff Committee (COSC) over the last year or so. The first, entitled *Military Strategy 85*, attempts to extend strategic guidance by the development of principles for the defence of Australia. The second, the *ADF Concept for Operations*, aims to establish a common basis from which joint-force and single-Service planning can be developed. A third document, entitled *The Military Basis for Force Development*, and yet to be endorsed by the COSC, is intended to establish an agreed list of broad military priorities for capability development.

Military Strategy 85 is a useful first attempt to apply a number of important military principles to the problems of Australian defence, but it suffers from some deficiencies. The first problem is procedural. *Military Strategy 85* was produced by Headquarters ADF staff and endorsed by the COSC with only limited consultation with civilian policy and planning staffs. Rather than being just a military strategy paper, it is in effect more ambitious and attempts to develop a national defence strategy for Australia. Any such paper will be of little practical value for defence planning unless it is accepted by the Defence community as a whole, not only the Chiefs of Staff.

Another deficiency is that rather too much of the document amounts to a rewriting of Government-endorsed strategic guidance. Development of military planning might more properly have been expected to build on that guidance, and Headquarters ADF now recognises this deficiency.

Two concepts contributing to a proposed strategy of defence in depth for Australia are developed within *Military Strategy 85*—those of 'influence' and 'control' as applied to our regional defence environment. Influence may be a useful foreign policy or broad national security concept, but its utility as a military concept is limited by the fact that many situations are beyond effective military influence. This is not to deny the Defence contribution to broader foreign policy objectives in our region, but simply to point out that the concept of influence makes little practical contribution to the development of a more precise defence planning framework. The concept does not assist in setting force structure or operational priorities, and is a most uncertain basis for decision-making about capability needs.

The *ADF Concept for Operations* paper is a more useful military planning document. It contains a good exposition of important factors in low-level contingencies,

particularly geographic features, the use of forward bases and logistic problems. The treatment of higher-level contingencies is more uneven in quality, perhaps reflecting the speculative assumptions that must underpin any planning in this area. Indeed, it might be concluded that future work in the provision of a conceptual framework for contingency planning should more profitably concentrate on credible low-level contingencies.

The draft *Military Basis for Force Development* paper has been developed during the course of this Review. Its value lies in its comprehensive treatment of capability requirements, in which single-Service perceptions and priorities have been largely subsumed in a broader ADF perspective. While there are some differences of approach and judgement on particular elements, its general thrust and conclusions are consistent with the priorities established in this Review. Unlike the Review, however, the paper does not attempt to develop strategic and force structure principles into judgements on numbers and types of equipment and personnel within capability elements.

These three papers represent an important step forward in the development of military planning for the defence of Australia and the ADF ought to give priority to the further development of this work. Two points are important. The first is that the concepts developed must continue to emphasise the development of ADF requirements and not be distorted by single-Service perceptions of need. The second is that the development of ADF thinking in these areas is not an end in itself. Military planning and other defence planning needs to be integrated at all levels so that Government can be provided with comprehensive advice and policy options.

Institutional barriers

It is not within my Terms of Reference to examine the organisational or institutional problems of the Defence community. However, I am directed to advise, where appropriate, on 'any other matters which have an important bearing on the desirable future direction of Australia's defence capabilities'. In this context, it has to be said that there are problem areas that hinder the provision of timely and agreed defence advice to Government. Indeed, it was the inability of the ADF and the Department to agree even on basic force structure concepts that brought about this Review in the first place.

There are a number of issues that require attention. Some of these were identified by the Defence Review Committee into the Higher Defence Organisation in 1982 (the Utz Committee). That Committee's report correctly stated that the scope for 'improving working habits and relationships' was considerable, but it did not address the institutional flaws which arguably aggravate those relationships.

This Review considers that relationships between senior military and civilian staffs have improved since the time of the Utz Committee. The tensions of earlier years were perhaps a consequence of the changes in our strategic thinking that began 15 years ago and are continuing today. During this period there have been many instances where established and traditional attitudes and judgements have been challenged and replaced. But there is still a lack of agreement on our defence concepts and priorities. This arises from different civilian and military views on how to interpret our strategic circumstances for the purposes of force development. The Review has attempted to overcome some of these differences. It looks forward to the time when the adversarial situation between military and civilian staffs is reduced. This latter remark is made having in mind that disagreements inevitably arise in large organisations such as Defence and, to some extent, may even be healthy.

There are also some important organisational matters that require attention because they will affect any implementation by Government of the recommendations in this Review. The first of these is that there is still a tendency, contrary to the philosophy of the Tange Reorganisation in 1973 and the Utz Committee, for military and civilian

advice to be developed separately. It was, I believe, fundamental to Tange's Defence Reorganisation Report that advice to Government should not fall into military and non-military compartments. The Utz Committee correctly stated that the only feasible approach to defence administration at the higher levels is a concerted approach which marries the contributions of the two component parts, the Department and the Defence Force, in a collaborative relationship which recognises more positively the vital role which each plays.

The tendency towards less *joint* planning has been exacerbated by the creation of separate policy and planning staffs in the Department, the single Services, and the ADF Headquarters. The proliferation of these staffs encourages vested interests and institutional rigidity. Part of the problem is that Parliament requires more detailed accountability and governments need advice on ever more complex issues. But there can be little doubt that the creation—for whatever reason—of more policy staffs and more competing centres of authority results in slower advice, and fosters adversarial attitudes. The need for these staffs and how they are used requires critical reappraisal.

Some military organisational problems need to be resolved. A small Headquarters ADF staff was established some 18 months ago to support the Chief of the Defence Force (CDF) in his command function, to centralise military planning, and to provide a joint-Service input to the policy-formulation process. It is perhaps too early to expect that this transfer of responsibilities from the Service Offices would have been completed. But ADF input to this Review clearly reflects the weight of separate Service views rather than the integrated view of the COSC.

The Review believes that the centralisation of military planning for force structure matters under the CDF is the only way in which an integrated ADF policy can be effectively developed. It is recommended that consideration be given to increasing the size of the Headquarters ADF policy staff and abolishing the relevant single-Service operational requirements and force structure policy staffs. Headquarters ADF has already initiated consolidation of operational intelligence and is now examining the important area of logistics. The next step should be the centralisation of military operational requirements staffs within Headquarters ADF. These staffs would still be responsive to the Chiefs, but would be required to develop an ADF approach to force structure proposals. The Service Chiefs of Staff would continue to provide professional advice to the CDF and be responsible for single-Service doctrine, training and management of personnel, and the acquisition and maintenance of equipment and stores.

Need for joint planning

There would seem to be scope to develop a more streamlined and co-operative approach to defence planning. At present, too much energy is directed towards jurisdictional battles involving civilian and military central staffs and single-Service staffs. These conflicts are neither creative nor productive. Key planning documents take excessive time to produce, and some important studies are simply abandoned in the face of institutional intransigence. Too many planning documents represent the lowest common denominator and contain ambiguities and inconsistencies to accommodate entrenched institutional interests. Added to this is an obsession with the meaning of particular words and concepts, which in themselves become a major impediment to agreed Defence views.

Under the present system, single-Service 'requirements' tend to become fixed early in the process and there is considerable resistance to consideration of alternative means of achieving capability objectives. This problem would be alleviated if, as mentioned above, the single-Service operational requirement staffs were transferred to Headquarters ADF. Moreover, the higher committee system seems to be preoccupied with

equipment matters. Other important areas of policy, such as manpower and supply, do not get sufficient attention.⁵

Some point to the committee system within Defence⁶ and observe that this provides fertile ground for adversarial attitudes. But simplistic solutions, such as doing away with the committee system, would not be appropriate. The Utz Committee concluded that the committee system is essential to the joint process of consultation. More importantly, there is a need for more interaction and a strengthening of the joint approach to force structure planning on a day-to-day basis between the Department and the ADF.

A further review of the Defence organisation is not required, as the basic organisational structure seems reasonably sound. The central issue is more one of getting people with the right attitudes and motivation to perform well within it.

Recommendations for future planning procedures

The process whereby the major defence planning documents are produced also requires attention. At present about every three years the Defence Committee produces the *Strategic Basis* document, which examines Australia's strategic circumstances and their broad implications for defence planning. As mentioned earlier, only on one occasion has a companion document been produced which outlined the defence capabilities required in some sort of general priority order (*Defence Force Capabilities*, produced by the DFDC in 1981).⁷ For the rest of the time, the committee system tends to use the *Strategic Basis* document as broad guidance, but relies more on interpretation of doctrine based on such concepts as the 'core force', 'the expansion base', 'warning time', 'deterrence', and 'credible contingencies'.

A major problem here is that the *Strategic Basis* document does not develop arguments for capabilities priorities. There is no joint machinery which regularly reviews the strategic context, capabilities requirements, and force structure priorities in the one document, or even in closely associated documents. It is recommended that a process might be considered whereby every three years or so a similar approach to that undertaken by this Review might be undertaken. Such an approach would place rather more emphasis on the kinds of long-term force structure concerns defined in this Review and somewhat less on assessing detailed variations in our strategic environment, unless the latter were seen to be deteriorating seriously.

The practical consequence of this recommendation may be the establishment of new arrangements in which strategic and force planning concepts are integrated in a single long-term defence planning document, as this Review has attempted to do.⁸ As much as possible of the document should be made available publicly as a contribution to a better-informed defence debate within this country.

I see no compelling need for such periodic reviews to be undertaken by advisers from outside Defence. While an outside perspective can be useful, the necessary knowledge and intellectual skills exist within the Defence community. It would be appropriate for the preparation of this document to be the joint responsibility of the Secretary and the CDF, for submission to the Minister for Defence.

5. A particular matter which the Review has identified, and which is discussed further in Part 4, is that the mechanisms which monitor progress in Army force development for its overall consistency with strategic guidance are not as regular or thorough as they are for Navy and Air Force capabilities.

6. There are 15 high-level policy committees within Defence.

7. Earlier papers, such as that produced in 1976, tended to describe the capabilities available in our defence forces, rather than prescribe future force structure priorities.

8. A requirement will continue to exist for a separate intelligence assessment undertaken by ONA from time to time, both to inform defence policy judgements and to meet other government requirements.

KEY CONCEPTS FOR AUSTRALIAN DEFENCE PLANNING

The purpose of this section is to outline some key concepts in current Australian defence thinking, and to review their implications for the development of our defence capabilities. Agreed strategic concepts are required if our defence forces are to be developed in a logical and rational manner.

Nuclear threat

Australian judgements on the risk of nuclear war emphasise that superpower conflict is most unlikely. The threat of massive nuclear retaliation continues to be a powerful deterrent to global conflict. Australia is involved in this system of deterrence through our hosting of joint defence facilities. The satellite ground stations at Nurrungar and Pine Gap also have an important role in early warning and the verification of arms-control agreements. The joint facilities contribute to stability.

Our best protection against the risk of nuclear war is a government policy of support for the system of mutual deterrence and effective arms control. We should therefore continue to demonstrate our resolve to promote and contribute to the Western strategic community's deterrence of the Soviet Union.

If nuclear conflict occurred, it is possible—some say likely—that the joint facilities would be attacked. It is unlikely that Australian cities would be attacked, because they have little military significance and there would be much higher priority targets elsewhere. This judgement is not affected by the fact that some Australian ports are sometimes visited by United States Navy ships. It would be affected were United States nuclear forces to be based in Australia.

In the aftermath of global nuclear conflict there could be urgent conventional tasks for our defence forces, which are extremely difficult to plan for. They might conceivably range from coping with refugees through to sustaining stricken allies. The risk of nuclear conflict should not, however, be a determinant of our defence planning. The possibility that some isolated areas of Australia might be attacked in a nuclear conflict does have implications for civil defence planning. These are addressed in Part 5 of this Review.

Like Australia, all significant states in South East Asia and the South Pacific adhere to the Nuclear Non-Proliferation Treaty. No motive can now be seen for any regional state to acquire a nuclear-weapons capacity. It would take many years for any regional country to acquire such a capacity, and there would be intelligence indicators of this. Beyond our region, neither China's nuclear capability, nor India's or Pakistan's nuclear potential, has any direct significance for Australian security.

It is a fundamental Australian defence interest that nuclear weapons not become a factor in security relationships in our region. We can best achieve this through support for the Nuclear Non-Proliferation Treaty and practical nuclear-free zones which ensure that nuclear weapons are not based in our region, but which allow transit rights for our allies. We should maintain our intelligence capacity to detect any covert weapons program in our region. There is no foreseeable requirement for Australia to consider acquiring nuclear weapons.

Conventional global war

Strategic guidance concludes that sustained conventional global war between the Superpowers is very improbable. The Review considers that asymmetries in conventional forces in key theatres—both on land and at sea—mean that one side or the

other would have to resort to tactical nuclear weapons early in the conflict to avoid destruction of its conventional forces. Once the nuclear threshold were crossed it is highly questionable whether resort to all-out nuclear exchanges could be avoided.

In any conventional phase of global conflict the United States would seek our military assistance in its struggle with the Soviet Union. At the minimum we would aim to protect our maritime approaches against any Soviet threat. But such threat to Australia would be limited because we are remote from the theatres of likely super-power confrontation in the North Pacific and elsewhere. Whether and in what ways we might assist the United States beyond our neighbourhood could only be judged at the time. No requirement is foreseen now for pre-committing our limited forces to ANZUS contingency planning for global war.

In any prolonged conflict our access to overseas supplies would be affected. Australia could survive at an adequate, if reduced, standard of living because basic requirements for community survival, such as food and fuel, could be supplied from local sources with the introduction of appropriate measures for conservation and rationing. But the United States and its European allies would give first priority to their own military needs. We could not assume that they would give any priority to our military requirements, except in so far as this made a direct contribution to their effort against the Soviet Union. The only military supplies of which Australia could be assured would be those in which we were self-reliant or those we had been able to stockpile before the start of conflict.

Such considerations are essentially speculative. Both the improbability of global conflict and the likelihood of early escalation to nuclear war mean that the contingency of conventional war between the Superpowers provides no basis for planning our force structure, or for policy in areas such as stockholding.

Warning time and assessing the threat

The concept of warning time has been a central element in Australian defence planning since the early 1970s, when our strategic thinking began to emphasise Australia's independent defence needs. The development of the concept of warning time has been part of the process by which Australia has distinguished its unique strategic circumstances from those of traditional associates. Our allies face a direct and identifiable threat to which they might have to respond in time-scales measured in days and weeks. Australia faces no presently-identifiable major military threat, and all conceivable threats would be preceded by a build-up of forces and a deterioration in relationships.

These judgements have been refined in successive reviews of Australia's strategic prospects and defence planning requirements, as mentioned earlier. The conclusion that Australia faces no specific military threat, and that substantial threat would take many years to emerge, continues to be valid.

Our strategic position underpins this judgement. We have no land borders with any other state, and nowhere do our military forces face the forces of another power. We are distant from areas of great-power rivalry, and there are no major issues of territorial sovereignty which could involve us in large-scale conflict. There are sometimes strains in our relations with neighbours, but these occasional tensions have not escalated to military conflict.

It is acknowledged that the political intent of governments can change relatively rapidly. Even so, there is a large gap between political hostility and its translation into military intent, capabilities or conflict. Changes of government in our region, whether left wing or right wing, do not necessarily imply deterioration in our strategic circumstances. Governments of quite different political persuasions have a capacity for acceptance of shared strategic interests. They do not lightly contemplate the use of military force. While political attitudes may change, it takes time for disputes of substance to arise, for the conclusion to be reached that the objective could not be

obtained through negotiation, and for a decision to be made to use force—even at a limited level.

Above all else, our geographic position provides assurance that we would have considerable intelligence warning of the possibility of substantial threat, simply because the ships, aircraft and transportable forces necessary to threaten Australia are not operated by any country in our region. A number of states possess land forces and local air and maritime forces that are relevant to their self-defence and preservation of internal security. While these could conceivably be used against us in some local dispute, no regional state possesses the large quantities of advanced long-range aircraft and ships, and transportable mobile land forces and their associated equipment, that would be required for an effective assault upon Australia. These are the most expensive and sophisticated forms of defence technology for any country to acquire.

Our most important neighbour, Indonesia, has neither the motive nor the capability to threaten Australia with substantial military assault. Its principal security concerns are internal stability and potential threats from its north. Were these attitudes to change it would take time for any disputes to develop into major military confrontation. Leaving aside the question of motivation, Indonesia simply does not have the military capabilities that would allow it to consider a sustained level of intensive joint operations against Australia. These capabilities could not be acquired quickly, even with outside assistance.

Looking well beyond Indonesia there are a number of states that have considerable military capacity or potential. China, India, Vietnam and Japan fall into this category. All are preoccupied with strategic problems in their own regions that determine their defence planning priorities. They are 2000 nautical miles to more than 3000 nautical miles away from Australia. Their long-range force-projection capabilities are limited and will remain so.

Even if they had access to bases in the archipelago, there would still be the formidable problem of attacking Australia across the sea and air gap. Such a threat would require fundamental change in the strategic orientation and military capability of these states, which would challenge the security interests of countries other than Australia. Further, it is difficult to imagine that Indonesia would other than resist to the utmost any attempt at 'neo-colonialism' by such states.

Were a potentially hostile power to gain access to military bases in the South Pacific, particularly Papua New Guinea, this would have direct and important implications for our security interests. It would open up a wider range of possible threats involving east-coast centres and maritime interests which we share with New Zealand. Such a development could not occur quickly. It is a long way from fisheries access to the development of a major base capable of supporting military forces that could threaten Australia. Even then, the sea and air gap to our east would be a formidable problem, and any enemy would need to protect long and vulnerable lines of communication through the central and northern Pacific, where United States air and naval forces predominate.

The two Superpowers alone possess the military capabilities that could threaten Australia with large-scale invasion. Even then, the Soviet Union has only limited distant amphibious-assault capabilities and experience. It is difficult to see what purpose would be served by such Soviet adventurism. Such threat could not go unchallenged by the United States, whose powerful maritime forces alone would deter the Soviets from such a hazardous adventure.

Australia thus faces no identifiable direct military threat and there is every prospect that our favourable security circumstances will continue. There is no conceivable prospect of any power contemplating invasion of our continent and subjugation of our population. It would take at least 10 years and massive external support for the development of a regional capacity to threaten us with substantial assault. But there

are possibilities for lower levels of conflict—some of which could be very demanding—arising within shorter warning times.

Defence preparation time

These judgements about warning time are not universally accepted within the Australian Defence community, although they have been endorsed by successive governments. The Services have some difficulty with using the concept as a planning base, and they question whether sufficient defence preparation time would be available to acquire long-lead-time equipment.

Very few countries in the world face Australia's favourable strategic circumstances free from direct military threat. The proposition is accepted in this Review that even if political intent can change relatively quickly, considerable time is required for the development of a major dispute and the necessary military capabilities for substantial assault on Australia.

Military preparations for serious assault on Australia would be evident long beforehand, because of our access to the most advanced intelligence collection systems in the world and our ability to detect clearly apparent adverse trends years beforehand. This essential transparency of our strategic environment is one of our most important national assets. It gives confidence in warning time for substantial attack against Australia. But because the necessary capabilities already exist in the region, warning time for lower-level contingencies could be much shorter and this should be recognised in our force structure planning.

There may be some grounds for caution about the nature of Government response to the possibility of threat and the implications for defence preparation time. While it is sensible to expect Government to be responsive to any developments with the potential for seriously weakening Australia's security, it will be a matter of judgement when in fact we have entered warning time. There may be a temptation for a government to delay action until the situation is clarified. Delay may also be proposed to avoid actions that would be seen as provocative. Some time may elapse before warnings of possible threat are accepted, and Government decides to respond with military preparation.

These uncertainties alone require a considerable defence effort simply to maintain the basic elements of defence capability, even if long periods for expansion could be guaranteed in all circumstances. Some military capacities—both equipment and manpower—take time to acquire and absorb, although in time of emergency this period can be compressed. Moreover, the defence effort that we undertake is an important factor in the threat equation. The existence of our defence forces, and in some circumstances a demonstrable willingness to use them, may help prevent the emergence of threat.

The core-force concept

The 'core force' is central to current defence planning, and it builds on the concept of warning time just discussed. Although it has been in use for some 10 years now, the core-force concept does not seem to be well understood or accepted, either within the Defence community or outside.

The core-force philosophy is based on the proposition that the ADF must be capable of dealing effectively with the kinds of defence contingencies that are credible in the shorter term, while providing a basis for timely expansion to counter deteriorating strategic circumstances should these arise. The core force is not a static concept. Rather it is a planning model for the allocation of priorities in the light of current requirements, and the need to be responsive to changes in our strategic prospects.

The core-force concept provides a useful set of principles on which to assess priorities for capabilities proposed for retention by or addition to the ADF. But it is

highly sensitive to judgements about changes in our strategic situation and the application of the concept of warning time. These are contentious issues within the Defence community. By definition, the core-force concept cannot predict how Australia's future 'terminal force' will be structured because that will depend upon strategic circumstances at the time. It does, however, avoid the trap of concentrating the force structure on preparing to meet what could be the wrong threat at the wrong time.

While the 'core-force' notion purports to establish a disciplined framework for force development, it has not proved sufficient as a practical planning tool. The Department of Defence acknowledges that the processes involved in judgements of what is most fundamental in the core force do not lend themselves to useful generalisation about priorities. Nor has the Defence community been able to refine the wide range of more substantial longer-term contingencies in ways that would assist the planning process, or even to agree on the relative priority to be accorded to longer-term possibilities as against the requirements of more credible lesser situations.

In consequence the core force has become something of a rationale for a force structure based on equipment decisions made in the 1960s in quite different strategic circumstances, and the automatic 'follow-on' replacement of this equipment. There is a tendency for the Services to emphasise a requirement for the full range of capabilities to be retained in the core force against the possibility they might be required as part of the expansion base.

These considerations lead this Review to conclude that the concept of a core force does not provide an entirely adequate basis for force structure decision-making. A more focused approach derived from a defence strategy to deal primarily with credible levels of conflict within defined geographic boundaries is proposed in Part 2 of this Review.

The concept of deterrence

More recently, the concept of deterrence has been advanced as a defence planning methodology because, it is claimed, it would enable Australia to control its threat environment. In the absence of perceived threats, it is suggested that Australia's defence planning should be oriented towards deterring aggression against us. This approach considers that an effective strategy can be based on an opponent's fear of our capacity to counter his attack and to respond with unacceptable force. To use the official ADF definition:

Deterrence is a state of mind brought about by the existence of a credible threat of unacceptable counter action.

The problem with deterrence as a force-planning concept is that there are historical examples where apparently inferior forces have attacked—that is, were undeterred—and have won. Deterrence relies essentially on influencing the enemy's *perceptions*, and this must be an uncertain basis for a conventional defence strategy. The military balance between two opposing sides, even if correctly assessed, is only one of several considerations—including domestic political imperatives—taken into account by policy-makers contemplating war.

The main difficulty with the concept of deterrence for defence planning is with its interpretation in terms of deciding what equipment to buy, at what degrees of technology and at what levels of readiness. Ultimately, all peacetime defence spending is deterrent in nature, in so far as we would not be doing it if we did not believe it would make a hostile act less likely.

One line of deterrence thinking is to emphasise the value of pre-emptive or retaliatory strike forces. Long-range strike assets, which would destroy the enemy's bases, internal lines of communication and infrastructure, are the kinds of military capability given a high priority in this approach. The problem here is that there can be a difference between the military capabilities that are relevant to an offensive

deterrent posture of this type, and the defensive capabilities that would actually be required to counter an enemy threat should deterrence fail.

For any Australian Government there would probably be political factors restraining the use of strike forces against the enemy's homeland, particularly in circumstances short of major conflict. The consequence could be that large resources are devoted to forces that are capable of punishing the enemy but which could not be effectively utilised. Moreover, if carried too far, a force heavily biased towards deterrent strike forces might make an adversary feel so threatened that he would have to build up his own retaliatory strike forces. This is not to deny the value of strike capabilities, but simply to point out their limitation as a basis for a defence strategy.

Within the context of deterrence, it is sometimes suggested that we should incorporate into the ADF specific capabilities that will cause a potential aggressor to respond disproportionately. This concept draws on an opponent's perception of the costs and risks of attacking us, and emphasises those military capabilities that would require a massive effort and lead time for a potential opponent to overcome. This is a useful concept, but it could also lead to distorting our force structure in particular directions. In a campaign having limited political objectives, the adversary may choose to tailor his attack below the threshold of commitment of our strike and interdiction forces, for example, or commit small-scale forces in a dispersed way to require a disproportionate effort on our part.

More fundamentally, a concept of deterrence based on disproportionate response, like a concept based on retaliation, depends upon a notional opponent's perceptions of relative military strengths and acceptable costs and risks. The deterrent power of a particular capability is not a constant applying in all contingencies.

For these reasons deterrence is not a basis for detailed force structure decisions, although it can be a useful element of our *general* defence strategy. Deterring aggression against us should be the outcome of our detailed defence planning and preparations, not the starting point.

National security interests

Current strategic guidance does not include a definition of our national security interests, but a basic definition was provided in the 1976 White Paper in the following terms:

to provide the nation with security from armed attack and from constraints on independent national decisions imposed by the threat of such attack.

This definition has been repeated several times since by Ministers for Defence and endorsed in the 1984 Report of the Joint Committee on Foreign Affairs and Defence, *The Australian Defence Force: Its Structure and Capabilities*. The Joint Committee observed that such a general definition needs to be developed to provide further guidance for the role of defence policy and the development of defence capabilities.

Part of the difficulty in defining national security interests rests in the fact that we face no identifiable threat or prospect of threat to focus our concerns. We have thus tended to define our national security interests in terms of what has to be prevented to preserve our present favourable situation, not in terms of what has to be done to promote our security.

Much of what are presented as national security interests are basically current political perceptions of what is favourable and unfavourable. We are told at one point in our history that our security depends upon an Allied victory on the other side of the globe; at another that our security is inextricably linked with preventing the downward thrust of Chinese communism.

Definition of our national security interests should begin with the statement that the exercise of authority over our land territory, territorial sea and airspace is fundamental

to our sovereignty and security. The size of our continent and the location of some external island territories make this a formidable task.⁹

The second element in our national security is our maritime environment. We are surrounded by three of the great oceans of the world—the Pacific, Indian and Southern Oceans. We have important economic interests in the maritime environment—a 200-nautical-mile Fishing Zone, a prospective Exclusive Economic Zone out to 200 nautical miles (and in some places beyond), and coastal and international sea lines of communication. Most importantly, it is over or through our maritime surrounds that any aggressor must pass to attack Australia. It is thus basic to our national security that we can protect our interests and demonstrate an independent military capacity in our maritime area.

To the north and east of Australia there are a series of archipelagos stretching from Sumatra through to Papua New Guinea and the nearby island states of the South West Pacific and New Zealand. Significant military threat to Australia could be projected from or through only these areas. Their security and stability are thus important to our security. We have a special interest in Papua New Guinea.

We have some security interests further afield. Conflict and instability in mainland South East Asia and Indochina would not be in our general security interest, but any military effects would be indirect. Tensions in areas elsewhere in the world remote from Australia and our neighbours, such as Africa, the Middle East, South Asia or North East Asia, do not automatically indicate change in our security prospects.

Superpower relations are in a different category because of the profound implications of global nuclear war. While our capacity to affect events is limited, we share with all nations a fundamental interest in avoiding global nuclear conflict.

Australia's principal national security interests might thus be summarised as follows:

- The avoidance of global conflict.
- The maintenance of a favourable strategic situation in South East Asia and the South Pacific generally; this is Australia's *sphere of primary strategic interest* where developments can affect our national security; it covers more than 20 percent of the earth's surface.
- The promotion of a sense of strategic community between Australia and its neighbours (Indonesia, Papua New Guinea, the nearby island states of the South West Pacific and New Zealand); this is Australia's *area of direct military interest* where we should aim to be able to apply independent military power; it accounts for almost 10 percent of the earth's surface.
- The defence of Australian territory and society from threat of military attack.
- The protection of Australian interests in the surrounding maritime environment, including our overseas territories and proximate sea lines of communication and focal points.

It is questionable whether any set of national aims and objectives can go much beyond these general statements. A detailed grading of national security priorities that would be of real practical value for defence force development is not possible. Defence policy is but one element in our national security. Other national policies and organisations have at least as much to do as defence policy in the promotion of a strategic environment favourable to Australia. The effective co-ordination of our policies in areas such as trade, immigration and political relations is thus basic to the effective pursuit of our national security interests. Defence can provide support for these other national policies but it cannot substitute for them.

9. Australia's territorial claims in Antarctica are beyond an effective defence effort. Our policy objective there should be the maintenance of the present international regime under which the Antarctic is not militarised and territorial claims are suspended.

CAN STRATEGIC GUIDANCE BE MADE MORE EXPLICIT ?

The Terms of Reference for this Review require me to advise on whether official strategic guidance can be made more explicit for the purposes of future defence forward planning. The following are my recommendations.

Levels of threat and force structure planning

It is important that our defence capability planning should be better aligned to the priority emphasis of strategic guidance. The Government has approved guidance which requires that the force-in-being be capable of dealing effectively with current and foreseeable tasks and the kinds of military contingencies that are credible in the shorter term, including deterrence of such escalation as an enemy may be capable of. Almost by definition, credible contingencies must be of kinds able to be mounted by forces which are in existence or which could be introduced and made operational quickly without a major redirection of the adversary's national priorities.

The constraints of regional military and economic capabilities and the effects of geography limit at this time what is practicable. The periodic testing of these limits, through the study of contingencies accepted as credible, is a necessary discipline of force development. These studies are sensitive because they involve assigning a hostile intent to regional countries which at present are friendly. The Review's conclusions on credible levels of conflict are set out in Part 2.

Effects of geography on force development

There is a requirement to study more seriously the effect of geography on force development. Because of its proximity, the archipelago to our north is the area from or through which a conventional military threat to the security of Australian territory could most easily be posed. A thorough understanding of the sea and air gap to our north, and of Australia's northern hinterland, will enable us to take account of the limitations and risks that geography places on any attacking force.

The sea gap to our north and to our east is a formidable barrier to any enemy, and the problems of crossing it need to be assessed thoroughly. Any serious military operations against Australia would require air and naval assets capable of protecting forces that would have to cross hundreds of miles of water. Except for Torres Strait, the nearest foreign territory varies from 250 nautical miles in the Timor and Arafura Seas, to 900 nautical miles from our north-west coastline, and out to 1000 nautical miles to the island chain (the Solomons, Vanuatu and New Caledonia) that screens our eastern approaches. Even the narrow Torres Strait is a hazardous stretch of water for an invader to cross.¹⁰

There are few nations that could undertake such hazardous and exposed operations. Experience in projecting and sustaining large-scale power in opposed conditions across large expanses of ocean is confined to Western nations. The ports and airfields closest to Australia are not well suited for supporting major operations against us. Improvements needed to make them suitable would be part of the warning we seek.

Strategic guidance acknowledges that the paucity of population and of transport and other infrastructure in northern Australia, and the nature of the land, will tend to focus military operations of substance against Australia on the few areas where

10. According to the Navy Hydrographer, the presence of extensive uncharted reefs, the absence of navigational aids, strong tidal streams, prevailing winds and the distance of at least 80 nautical miles combine to make Torres Strait a significant barrier to seaborne crossing from north to south.

there are targets of value, for example airfields, port facilities and transport links. It would be inappropriate to consider the north of Australia as one unbroken and tempting target for an attacker. It is more likely to be perceived as a long and physically hazardous coastline, with a forbidding hinterland that has very few assets capable of supporting military operations.

The few tempting targets, such as Darwin, Derby or Broome, are like islands dotted in an otherwise harsh and largely empty terrain of mountains, semi-desert and mangrove swamp. Problems of military operations in this area need to be better understood, both in terms of their implications for Australian forces and as a guide to what sort of forces an attacker would be able to use.

Sea lines of communication and economic vulnerability

Current strategic guidance addresses the question of Australia's dependence on sea lines of communication for its economic viability, but not in sufficient detail. There is a tendency elsewhere to believe that the Australian economy is particularly vulnerable to an interdiction of our overseas trade, and that therefore we need a capacity to protect sea lanes out to a considerable distance from the Australian mainland. Such judgements seem to be based on an inadequate understanding of the underlying strengths of the Australian economy and on the likelihood of our trade being singled out for attack. They are also based on a tendency to overestimate the importance of trade to our national economy.¹¹

Australia is one of the few countries in the world to be so fortunate as to have an exportable surplus of energy, minerals and foodstuffs. In the event of widespread interdiction of our overseas trade, which is likely to occur only in global war, Australia could plan on being practically self-sufficient in most food, raw-material, and energy resources. Most of the essential needs of the civil community could be met without external supply if appropriate measures of conservation and rationing were introduced. Those essential goods that are presently imported (such as industrial machinery, transport equipment, spare parts for the Defence Force, lubricants and rubber) could be stockpiled or alternative sources arranged—even if at higher cost—if there is any significant change in our current judgement about the unlikelihood of global conflict.

It is difficult to conceive of lesser military activities involving the selective disruption of Australian trade which could not be handled by diverting Australian shipping away from focal points. No country has ever blockaded a continent surrounded by seas such as Australia. Important Australian trade passes through choke points in the archipelago to our north, but there are options for re-routing maritime traffic including south of the continent. Enemy operations against our trade in open ocean areas are assessed as unlikely because of limited regional capabilities and our option of evasive routing.

Strategic guidance correctly focuses on more credible situations, involving threats to Australia's coastal shipping, focal points around Australian ports, and trade passing through the neighbourhood. There is a need to study these matters in more detail and to identify which routes and cargoes are most important and what alternatives are available to us. As a first step, the role of coastal shipping in contingencies in the north of Australia should be clarified.

11. The export share of Australia's GDP fell from 20 percent in 1953 to 13 percent in 1983. In 1953 Australia was the eighth largest exporter in the world, but by 1983 it had fallen to 23rd. According to a United States National Defense University study, even in the event of a 75-percent interdiction of Australia's trade in primary commodities with Japan the economic impact over the first year would be only a 3-percent reduction of our GDP.

CONCLUSION

This Part of the Review has found that there have been commendable advances in Australia's strategic thinking and defence planning over the last decade, which have focused increasingly on the problems of the defence of Australia. It observes, however, that there is still no agreed strategy for the defence of Australia. This problem is compounded by difficulties in applying generalised strategic priorities to the specifics of force structure development. A way forward in these areas is examined in the next Part of this Review.

Strategic guidance, military concepts, capabilities analysis, and financial guidance are not drawn together under present arrangements. This leads to inadequate advice being available to Government, and also makes it difficult to plan ahead with sufficient clarity. These problems would be ameliorated by a periodic review, along the lines of this Review, conducted by staff who are responsible to the Secretary and the CDF.

These planning difficulties are exacerbated by adversarial attitudes that exist in the Defence community. While differences of view are inevitable—and indeed healthy—in any large organisation, the levels of disagreement within the Defence organisation are excessive. They arise from different civilian and military views on how to interpret our strategic circumstances for the purposes of force development. Agreement on these fundamental issues is a prerequisite to the effective implementation of long-term force-development planning as proposed in later Parts of this Review. There is also a need to ensure more interaction and joint planning between civilian and military staffs and greater centralisation of military planning under the CDF.

Defence policy in this country should lend itself to forward planning and agreed concepts more than in most other areas of Government. Our vital interests are compact and easily identified, geography is an unchanging factor in our strategic calculations, and the nature of possible military threats can be well understood. Concepts of war based on the prospect of massive invasion and large-scale air and sea battles have no relevance to planning for the defence of Australia. The prospect of major invasion can be excluded as a possibility for the rest of this century at least. This leaves a range of contingencies from low-level harassment and raids through to more substantial lodgement on Australian territory.

Conflict at the lower end of this scale is possible with relatively little warning. Escalation to the higher level of conflict would depend upon the availability of significant numbers of more capable equipments than at present exist in regional inventories. A determined effort starting over the next few years—for which no motive or indication can yet be seen—would be required for any regional state to have the capacity to attempt such a lodgement on the Australian continent.

This judgement about warning time is a key concept for our defence planning and it requires regular review and testing. It allows our shorter-term preparation to be focused on the requirements of lower-level contingencies. But our planning and force structure development also needs to take account of the possibility that, at some future time, we may need to undertake specific preparation against the prospect of more substantial threat.

Within the revised approach to strategic planning documentation that this Review proposes, there are several areas where deeper analysis will allow strategic guidance to be more specific for the purposes of force structure development. We need to have a clearer understanding of the levels of threat that we could credibly face. Contingency studies will identify strengths and weaknesses in our own capabilities and lead to priorities for corrective development. Studies of the effects of geography on our

operational environment will give clearer focus to our operational needs. Studies of threats in our maritime environment, especially in credible northern contingencies, are also important so that the potential for threat to our shipping is better understood.

PART 2

A DEFENCE STRATEGY FOR AUSTRALIA

The preceding Part of this Review discussed the main concepts and issues in Australian strategic guidance and defence planning. On the basis of this analysis, some areas were identified where our thinking can be further developed to provide a better planning base for our defence capabilities. This Part of the Review will concentrate on the development of a more comprehensive defence strategy for Australia and more explicit force structure guidelines.

THE RATIONALE FOR A NATIONAL DEFENCE STRATEGY

We begin by examining those fundamental factors that should guide the development of our defence strategy. They include a range of issues, some of which are familiar considerations in our security thinking (such as our alliance with the United States and the importance to us of our regional environment).

Limits to defence capacity and influence

There are clear limits to our defence capacity and influence. We are a large country with a small population and industrial base. We are remote from traditional allies and from situations that are important to them. These are factors that, on balance, favour our security. But they also impose considerable constraints on our ability to influence events through our defence activity.

Even if Australia were prepared to spend many times our current three percent of Gross Domestic Product (GDP) on defence, we could not aspire to match the military power or influence of major powers. Our forces are always going to be limited by the available manpower resources. In any comparison between Australia and most other countries we will inevitably appear deficient in numbers of men under arms.

This does not mean that we are incapable of providing for our own defence. Through a strategy based on the fundamentals of our geographic location we can maximise the benefits of an essentially defensive posture in our neighbourhood. Through judicious selection of modern technology, and the ability to operate and support it, we have the capacity to defend ourselves from within our own resources. We have a larger economic base than any regional country (our GDP is as large as those of Indonesia, Malaysia, Singapore, and Thailand combined), and our combat sustainability is potentially greater.

In regional terms, we have formidable defence capabilities—especially in our capacity to project military power, which is greater than that of any South East Asian country. In the South Pacific we are perceived as being by far the largest military

power. We operate and support locally military equipment that is considerably more advanced than that in any other regional inventory.

We have some security interests outside our region, but these areas are beyond the exercise of effective military power by us. Our influence on developments in areas such as mainland Asia and the Persian Gulf must rest primarily with diplomatic efforts undertaken in association with others. Although our economic interests are world-wide we cannot expect to protect them by military means. The growing economic interdependence of nations gives most countries a common interest in the stability of international commerce. Nations that are much more dependent than we are on trade for their essential well-being (for example Japan) do not have the capacity to protect distant trade routes.

If considered necessary by Government, there would always be an option to make a modest military contribution in support of our more distant diplomatic interests and the military efforts of others. But this should be seen essentially as a gesture of support, not as a contribution that could materially affect the outcome. Such gestures should not be a significant detriment to preparations for our national defence. Nor should our forces be specifically structured or equipped to undertake such tasks.

Peacetime priorities

The foremost peacetime defence requirement is reliable and comprehensive intelligence about our own strategic environment, including up-to-date maps and charts and hydrographic knowledge. We also need to have an adequate surveillance capability in the sea and air approaches to the continent. These requirements are discussed further in Part 3 of this Review.

An associated requirement is for the Australian Defence Force (ADF) to have a sound appreciation of our area of direct military interest. This area should largely determine the priority for our day-to-day military activities. Operations, including joint exercises, and regular patrols and surveillance activities are needed for familiarisation purposes and to demonstrate commitment to our defence and the protection of our sovereignty.

The enduring geographical features of the continent substantially increase the difficulty of launching and sustaining significant attack on the mainland, even from the proximate archipelago to our north. A wide sea and air gap must be crossed and there are limited landing areas along the coastline. Routes inland are restricted and key points in the north, including military facilities and townships, are potentially vulnerable but dispersed. Our access to internal lines of communication and secure bases in the south of the continent provides us with much better potential sustainability. These features of our physical environment should be exploited in our peacetime exercises and planning.

Australia is one of the most consistent supporters of international peacekeeping. These activities, which have generally been in regions well beyond our area of primary strategic concern, are undertaken in support of our international political interests, and not in support of any direct strategic concern. They are not without costs and risks: for example, the presence of our helicopters in the Sinai seriously detracted from the ability of our defence forces to train and prepare for national defence tasks. The structure of the ADF is not and should not be determined by such tasks.

Similarly, we undertake naval visits to such areas as the North Pacific, East Africa, and the west coast of America. Such visits support our wider political interests, but they must not determine the development of our naval forces or dominate our peacetime naval operations.

Defence co-operation, training, visits, and exercises with neighbours are in a different category. They can contribute directly to our favourable strategic prospects and should be encouraged. While they should not influence the force structure, they should be given some priority in peacetime activities.

Peacetime civil commitments at home raise difficult resource issues. At present, perhaps the best equipped and most ready forces are those allocated to government-directed counter-terrorist tasks, civil coastal surveillance and fisheries protection. Such tasks can provide training relevant to low-level contingencies, but the extent to which they detract from primary defence activities should be understood. Over time these national needs have become more demanding of scarce resources to the detriment of other defence tasks. While these activities are nationally important, the extent of the commitment requires careful monitoring so that ADF capabilities and priorities are not distorted.

The basic features of our area of direct military interest have potential to absorb our defence effort, even in peacetime. Priorities must be rigorously applied and limits placed upon activities beyond the neighbourhood, or which are not strictly defence tasks.

Independence and self-reliance

Independence and self-reliance should be a central theme in our national defence effort. The security interests at stake in the range of more credible threats facing us are primarily Australian interests. We owe it to ourselves to have the independent capacity to defend those interests. Nor can we expect the respect or support of other states if we do not possess the appropriate military capacity and the will to use it if necessary. This is not to argue that we can be completely independent—very few nations can—but we can aim for a higher level of independence in our military capabilities.

Independence is not a new theme in Australian defence planning. It has been a central tenet of our strategic posture since the end of our Vietnam commitment. Considerable progress has been made in redirecting our defence effort along more independent lines, but much remains to be done. Part of the problem lies in the fact that some ADF equipment is the legacy of decisions made in a previous era. The ships, aircraft and tanks that we acquired as a result of those decisions can be fitted into a more independent posture—but sometimes with difficulty and limitations. Only now are we beginning to acquire major items of equipment that have been selected primarily for their contribution to a more independent defence effort.

A concept of defence independence also requires that the ADF think in terms of independent joint operations by forces composed of elements of the three Services, and supported from Australian resources. This is a major departure from earlier concepts of integrating with allied forces, and these new doctrines take time to implement. The implications of this for command and control arrangements are examined in Part 5 of this Review.

An independent Australian combat effort may have to be sustained over a number of years of conflict, which may be intermittent. The effectiveness of our military forces then will largely depend upon our ability to support our forces with fuel, ammunition and other supplies, and to repair and replace damaged equipment. At the same time we must recognise that industrial self-sufficiency is neither possible nor necessarily appropriate for the kinds of threat we may face.

Self-reliance involves significantly enhanced logistic capabilities. The resource implications of these capabilities can be reduced by greater integration with the civilian infrastructure—bearing in mind that our defence posture sees our forces operating predominantly within or from continental Australia. As a general principle resources existing within the civil infrastructure should be duplicated within the ADF only if the civil resources are not readily available in peacetime, or could not be developed to meet the particular requirements of a combat environment.

Similar considerations apply to the development of other national infrastructure elements such as ports, roads, railways, fuel depots and communications links—particularly in the north of the continent. Not only should their potential to contribute to the defence effort be considered, but measures to reduce their vulnerability to attack should be examined at the planning stage.

In accordance with my Terms of Reference, Part 6 of this Review develops guidelines for the development of infrastructure, support and defence industry as part of an overall national defence strategy.

Technology and capital equipment

The effectiveness of Australia's armed forces depends to a significant extent upon our maintaining a sufficiently high level of technology in critical capabilities. This includes our ability to absorb, operate and support advanced military equipment. No regional country is likely to make a quantum jump in defence technology by acquiring large quantities of highly-advanced arms and equipment, but a steady improvement in regional military capability through largely imported technology can be expected. It is fundamental for Australia to monitor these developments and to maintain our advantage in industrial, technical and scientific competence.

High-technology equipment offers potential for increased capabilities and reduced manpower requirements, albeit usually at increased acquisition costs. However, acquiring high-technology equipment is not an end in itself. Advanced equipment can offset Australia's small population base, but careful study of strategic and geographic factors suggests that selectivity in our technological aspirations is also a key principle.

We can procure important defence systems off the shelf from foreign suppliers, but there are also some important Australian defence technology requirements that are not readily available anywhere overseas. In these areas there is a need for indigenous Australian development, drawing on overseas developments where appropriate. Intelligence, surveillance and sensor equipment—together with associated command and control systems—should have priority for local technological development because they may need to be specifically tailored to the Australian environment. They are also important to allow us to exploit to our advantage the vast distances that any enemy would have to cross.

Local development of military platforms will generally be limited to lighter and simpler platforms specifically designed to suit local conditions. Indigenous development of weapons will be difficult to justify as weapons suitable to our needs are readily available from allied sources. High-endurance platforms and modern stand-off missiles can contribute most significantly to our security.

Australia's capacity in the selection, adaptation, operation and maintenance of advanced equipment is relevant to our regional military situation and our self-reliance. It is particularly important that our military equipment, including advanced technology, should be supportable from Australian resources. This capacity can be enhanced by local participation in the production of equipment acquired from overseas.

The need to maintain our relative position suggests that some technological superiority should be included in new equipments. But any concept of technology margins needs to be applied carefully on a case-by-case basis. The last few percent in the performance of advanced equipment is often disproportionately expensive. In Australia's current and prospective circumstances, our requirements for a technological margin can often be met by choosing our upper level of technology from a level below the most advanced developed by our military allies.

The real costs of many new defence equipments are rising, and this means that the numbers of platforms that can be afforded are generally falling. It has to be accepted that this numerical reduction—accompanied as it is by greatly improved combat performance—will affect Australia's long-term force structure. As overall numbers

decline, the number of different systems in our inventory should be reduced to allow ease of maintenance.

ANZUS and the United States

Our close relationship with the United States is significant for our security and the development of our defence capability, but for over a decade we have recognised that the United States is a global power with a variety of interests, none of them centred on Australia. There are potential situations where we would not expect the United States to commit combat forces on our behalf and where we need a demonstrably independent combat capability.

We have an obligation to provide for our own defence, and our defence forces would not be freely available for other situations that the United States might consider as in the general Western interest. Each situation would have to be considered on its merits at the time and in the light of our own defence priorities.

The ANZUS Treaty provides for consultation in the first instance. There are no guarantees inherent in it. It is realistic to assume that the parties will continue to approach each situation in accordance with their respective national interests. Yet ANZUS remains as a deterrent, particularly against higher-level threats. A potential aggressor must take into account possible United States involvement in the defence of Australia.

Of more direct importance are the practical benefits of the ANZUS relationship for our independent defence. We have access to United States intelligence resources which can provide technical military intelligence coverage beyond the comprehension of previous generations of military planners. These resources contribute not only to our capacity for strategic analysis, but also to the potential effectiveness of our forces in circumstances of combat. They could not be duplicated from our national resources.

Material acquisition and support from the United States continues to be considerable, reflecting our efforts to maintain a clear technological advantage. Notwithstanding our desire for increased self-reliance, we cannot hope to be able to meet all of our defence needs locally, and the technology transfer associated with these acquisitions benefits Australian industry. Also, through important defence science co-operative arrangements, we have access to the new technologies that can make a unique contribution to the defensibility of our continent.

We have logistic support arrangements with the United States that provide us with some assurance that in a time of conflict military supplies would continue to be available. Without the ANZUS relationship such arrangements would be less certain. No other country seems likely to be able to offer us similar assurances of priority for military supplies.

ANZUS is also an expression of our membership of the Western strategic community, and it supports our regional security role. This regional role is generally welcomed by neighbours and regional states. In the South Pacific, ANZUS is a source of security for small island states without the need for direct superpower involvement. In South East Asia, the ANZUS relationship ensures the security and stability of ASEAN's southern flank. An Australian withdrawal from ANZUS would be seen by the region as destabilising.

In return, the costs for Australia are not high. There is no standing ANZUS headquarters or joint planning machinery, and no earmarking of Australian forces to a United States defence effort. Some argue that the joint facilities are an unacceptable cost because of the risk of nuclear attack. But this risk is more than outweighed by the contribution made by the facilities to the avoidance of global nuclear conflict, and thus to our security.

United States warships visit this country, although they have no home-porting here, and unarmed B-52 bombers stage through Australia. The access that we provide in

this way, together with the presence of the joint facilities and political support, is a sufficient tangible contribution to the Alliance, from the perspective of both parties.

There is no requirement for Australia to become involved in ANZUS contingency planning for global war. Neither this possibility, nor other remote possibilities for calls of assistance under ANZUS, should influence the structure and equipment of the ADF—apart from the need to maintain a degree of interoperability in key areas such as common communications.

The Radford—Collins Agreement

Reference is often made to the Radford—Collins Agreement with the United States, which provides for Australian responsibility for the naval control of allied shipping in wide-ocean areas around our region. At the time when it was initiated, 34 years ago, a series of international crises were seen as indicators of impending global war. A situation was envisaged in which Australia and the United States would be operating against a common enemy (by implication, the Soviet Union).

Radford—Collins is possibly a useful peacetime planning measure to exercise procedural doctrine and command and control, but it has particular limitations in time of threat. Its convoying and escort connotations, which extend more than 2000 nautical miles west of Australia to the mid-Indian Ocean, suggest a disproportionate commitment of scarce resources to activities which may be only marginally related to our national interest and capabilities.

Under Australian treaty practice, the Agreement would not be categorised as a treaty. Therefore, it does not create binding rights and obligations. The document merely prescribes the manner in which the parties may conduct their operations by mutual agreement, should they find themselves operating against a common enemy. The Radford—Collins Agreement should not be a capability determinant, and the Chiefs of Staff have advised this Review that Navy does not base its force structure requirements on the possible implementation of the Agreement.

New Zealand

Our defence relationship with New Zealand is of particular importance because of proximity and shared strategic concerns. New Zealand lies on the flank of our trade and military supply routes across the Pacific. It provides them and the Tasman Sea with a measure of security by virtue of its location, military potential, and our joint activities in the South Pacific.

New Zealand has had close cultural, economic and military ties with us over many decades. Its new directions in defence planning are the subject of government review but a central theme will be New Zealand's role in the South Pacific. Access to New Zealand's ports and airfields and to those in the nearby islands which have close relationships with New Zealand could facilitate Australia's military reach into the South Pacific. New Zealand's association with some of the island states is more substantial than our own—it has a traditional affinity with them. In co-operating with New Zealand in pursuit of our desire to assist South Pacific states, we should not attempt to provide a rival focus of support.

The dispute between New Zealand and the United States over port access for vessels which are nuclear-powered or may be armed with nuclear weapons has raised questions about the future of ANZUS. Australia has expressed its desire to see this issue resolved amicably and full ANZUS co-operation restored. But if this is not possible, a United States suspension of its obligations to New Zealand under ANZUS will not mean the end of the ANZUS relationship between Australia and the United States, or prevent bilateral defence co-operation between Australia and New Zealand. For practical defence purposes we can substitute separate bilateral relationships for the previous trilateral relationship.

New Zealand itself seeks closer defence ties with Australia. It recognises that for purposes of defence planning we can be regarded as sharing a common strategic entity and that New Zealand's security is very much dependent on our own. Any serious threat to Australia would be regarded as a threat to New Zealand. These matters should be explored further with New Zealand. There is a particular need to ensure the maximum possible interoperability of equipment between the armed forces of the two countries and there is scope for joint military planning.

Regional considerations

A strong stable region free from external pressures is a fundamental security interest. We thus seek to co-operate with South East Asian and South Pacific friends in the development of their defence capabilities, and to exercise and train with them. The objective of this activity should be to promote a sense of shared strategic interests. This is not an easy task. We are a developed country of basically European descent. Our interest in the region is recent and we have continuing strong ties to the northern hemisphere. It is all too easy to fall back on cultural stereotypes.

Indonesia and the ASEAN states

A primary national objective must be to improve this state of affairs. Priority should be given to Indonesia, which is the most important of our neighbours. The Indonesian archipelago forms a protective barrier to Australia's northern approaches, and Australia is a stable and non-threatening country on Indonesia's southern flank. These shared strategic interests and our common concerns for regional security, free from interference by potentially hostile external powers, support a co-operative bilateral relationship. But we must also recognise that, because of its proximity, the archipelago to our north is the area from or through which a military threat to Australia could most easily be posed. This would require a fundamental change in present political circumstances, which are characterised by a stable government in Indonesia.

In defence terms, other ASEAN states do not have the geographical proximity to involve our military interests so closely. The Five Power Defence Arrangements, including our presence at Butterworth, reflect the concerns of a previous era. These Arrangements are still useful as a basis for practical co-operation, but their continued existence is a political rather than a military consideration. Any future military involvement that Australia might have in South East Asia will reflect an Australian judgement on the balance of our interests at the time.

The considerable political common purpose and economic strength that exist within ASEAN are matters for Australian defence interest because they underpin stability in the region. Without exception, the ASEAN countries are basically Western inclined, strongly suspicious of communism and wary of the ambitions of external large powers. These attitudes meet with Australia's strategic concerns and minimise the risk that a potentially hostile power might use an ASEAN country from which to threaten us militarily.

Our defence efforts in South East Asia should focus on the continuing development of military relationships and associations that foster a sense of shared concerns. We are well placed to assist with training and exercising and the transfer of skills and doctrine necessary for operating modern equipment, and we should continue actively to seek opportunities in these areas.

The South Pacific

Unlike the ASEAN countries, the South Pacific nations have limited economic viability and only minimal defence capabilities. They tend to regard Australia and New Zealand as large 'regional powers' with a primary stake in the South Pacific region. They seek from Australia and New Zealand a contribution towards both their economic survivability and their security.

We must be particularly mindful of the national sensitivities and aspirations of small South Pacific nations. Australia's support should be predominantly economic and political. Military co-operation should be directed at increasing the self-defence capability of those island states that possess defence forces. Where defence forces do not exist, defence assistance can be provided for other purposes such as surveillance and fisheries protection. Such activities, combined with a regular pattern of ship and aircraft visits, will encourage the inclination of South Pacific states to look to Australia and New Zealand for strategic support.

Current strategic guidance identifies no likelihood of adverse effects on Australia's security from developments in the South Pacific in the next decade. But it also notes that access by the Soviet Union, especially the establishment there of a presence ashore, would be cause for concern. This Review recommends that our foreign policy, aid programs, and defence policy should be co-ordinated carefully with other regional states, including New Zealand, so as to discourage Soviet naval visits, or other military access, to the South Pacific.

A STRATEGY OF DENIAL

The previous sections have outlined an approach for a national defence strategy for Australia, based on judgements about those factors that guide our basic security interests. It remains to suggest what defence concepts are appropriate as a basis and rationale for our future force structure.

Strategic options for Australia

Australia has a number of options. It can retain the core-force concept, which has been developed over the last 10 years but has been found difficult to apply in practice in force structure planning. We could rely more on a strategy of deterrence, as reflected in the concepts of influence and control favoured by military planners. Or we could opt for a different approach which nevertheless retains the useful elements of these philosophies.

A wide range of other possibilities exists. At one extreme, it is conceivable that Australia could move in the direction of armed neutrality or even non-alignment. This course of action has been rejected by successive governments. To be credible it would demand even higher defence spending; and it would deny us the tangible benefits of our traditional defence association with the United States. At the other end of the spectrum, it might be possible to reduce Australia's defence forces and rely more on our alliance with America. This course of action would not be acceptable to the United States, nor accord with the Government's policy of self-reliance. Even more extreme possibilities, such as manufacturing our own nuclear weapons or opting for a passive strategy of non-military defence, are not considered appropriate to Australia's strategic circumstances or the inclinations of the people.

My view is that although the core force does not sufficiently articulate Australia's defence priorities, its approach to expansion base planning needs to be retained. What is needed in addition, however, is a strategic concept focused rather more deliberately on our geographical circumstances, credible levels of conflict and what we need to defend.

The concept of denial

This Review proposes that a strategy of denial more closely suits our strategic conditions.¹ Such a strategy, underpinned by agreed priorities for varying levels of threat and combined with the force expansion base concept, would materially assist in settling our long-term force structure planning.

A strategy of denial would be essentially a defensive policy. The distant projection of military power would have low priority. Rather, such a strategy would seek to deny any putative enemy successful military operations in the sea and air gap surrounding Australia, and to prevent any successful landing of significant forces on Australian soil. To the extent that lesser enemy forces might land, it would aim to protect our vital population settlements and infrastructure and deny the enemy any prolonged operations on our territory.

An Australian concept of denial would rely on having in our force structure, or in the planned expansion base, sufficient surveillance assets, maritime strike forces, continental air defence and mobile land forces to ensure that any likely enemy would be denied success. Such a strategy would support a defence policy designed primarily to defend our vital interests: it allows our geography to impose long lines of communication on an adversary and forces him to consider the ultimate prospect of fighting on unfamiliar and generally inhospitable terrain. It should have the effect of deterring aggression against us, but it does not depend upon deterrence as a force planning concept.

The important thing about a capability to deny is that it defines what is necessary to prevent the aggressor from succeeding. In Australia's unique strategic circumstances a defensive posture of denial, based on superior technological assets and our secure home base in the south of the continent, should provide a sound strategy to meet all credible levels of threat. The mix of capabilities we should possess would be such that a potential enemy could not sensibly conclude that his own forces would succeed, either when in or crossing the sea and air gap or when attempting operations on Australian soil.

Denial ultimately rests on a capability to defeat an opponent in defined areas of our own vital national interest. To be able to do this, we need to identify and remedy weak spots in our force structure and, if necessary, shed or reduce those capabilities inherited from the era of 'forward defence' that are no longer relevant.

Three corollaries result from this line of reasoning. First, it is not possible to have in the peacetime ADF *all* the capabilities required to deny any aggressor victory at *all* conceivable levels of conflict. An expansion base, which plans on timely force expansion to meet higher levels of threat, is confirmed as an important defence planning concept.

Second, concepts such as 'force multipliers', 'disproportionate response', and 'pre-emptive strike' may all have a place in one or another element of a strategy of denial, but they are not to be applied unthinkingly.

Third, our priorities are to defend our own continent and the maritime and air approaches, including the Timor and Arafura Seas, the Coral and Tasman Seas, and our Indian Ocean approaches. The areas to the immediate north of Papua New Guinea and Indonesia are included within our area of direct military interest. The area thus involved measures more than 4000 nautical miles from the Cocos Islands in the west to New Zealand in the east, and more than 3000 nautical miles from the archipelagic chain and Papua New Guinea in the north to the Southern Ocean in the south.²

1. Denial is sometimes defined as defensive deterrence. But the inclusion of denial as deterrence is the result of stretching the concept of deterrence. To the extent that a potential aggressor is encouraged to believe that his objectives in attacking Australia cannot be achieved (that is, will be denied), he will have little incentive to attempt to gain them by force and he will thus be deterred.

2. See Map 1 at the end of this Report.

Defending such a large area, which amounts to some 10 percent of the earth's surface, is a formidable task for a nation of less than 16 million and it should not be taken lightly.

A layered defence

Within this area, a strategy of denial would present an enemy with a series of interlocking barriers to an attack on Australia, as follows:

- First, we require extremely high quality and comprehensive intelligence about military developments in our region, as well as surveillance capabilities to detect and track hostile intruders in the sea and air gap. Broad-area surveillance will give us a capacity to demonstrate that we know what is going on around us and that we can detect a threat. The possibility of a surprise attack will be denied the enemy. Ensuring the 'transparency' of the approaches to Australia enhances the effectiveness of our weapons systems.
- Second, Australia's air and naval forces must have the capacity to destroy enemy forces, at credible levels of threat, in the sea and air gap. This is a priority requirement. It means focusing on the north, which is our most vulnerable approach. For higher levels of conflict, it also means having forces capable of striking at an adversary's bases and interdicting his lines of supply.
- Third, closer to our shores, defensive capabilities are required to prevent enemy military operations in our focal areas or shipping lanes or on our territory. These might include surface ships, mine countermeasures capabilities, air defence assets, and mobile land forces capable of being deployed rapidly and pre-emptively.
- Fourth, if a landing on Australian soil should occur we would need ground forces capable of denying the enemy our vital population centres and military infrastructure. The Australian people must be protected from direct attack. Any enemy force should be prevented from being able to widen the conflict over greater areas of the north of the continent, which could extend our limited resources. Denial of enemy operations on our territory will require a demonstrable capability for highly mobile and dispersed ground force operations.

Main areas of operation

A concept of denial involves recognising that long-range power projection must be considered in a rather more circumscribed way than has been traditionally the Australian view. Capabilities have to be assessed on the basis of the contribution they can make to the unique problems involved in defending a large continent with extensive maritime surrounds and flanked by the archipelagic chain to the north and east. Our requirement is for forces that can operate jointly in Australia's area of direct military interest where we aim to apply independent military power. In this way, the range of prospective capability requirements can be narrowed.

This broad area encompasses some areas of particular strategic significance which require priority attention in our planning: the sea and air gap; coastal shipping routes and maritime focal points; key installations and population centres in the north of Australia; our island territories; and Papua New Guinea. The maritime approaches to the industrial and population heartland of the continent in the south-east and the west are also important, although less vulnerable. But the offshore oil installations in Bass Strait will require protection.

For operations within these areas our defence forces require mobility and range. Credible contingencies could call on the ADF to handle concurrent widely-spread situations 3000 kilometres or more away from our main military bases in the south of Australia.

Regional and alliance implications

A defensive strategy of denial that focused on our own interests would not threaten regional powers, unless they threatened us. Our neighbours would be reassured of our peaceful intent. But they would also be aware that we were developing formidable military capabilities against the eventuality of attack.

To our allies, and especially the United States, a strategy of denial may seem a more limited policy than traditional Australian defence policies. It focuses more on defending our national interests in a defined region. It gives less military attention to distant interests.

Such a strategy does, however, conform precisely to United States policy of demonstrating our ability to defend ourselves, and of supporting Western strategic interests in our own region. Relations with Australia's other allies and friends in the South Pacific and South East Asia would be strengthened. Australia is not moving towards an isolationist policy. Rather the opposite: we intend to focus our national resources and effort on the region where we live.

FORCE DEVELOPMENT GUIDELINES

If Australia's defences are to be better aligned with our strategic and geographic circumstances, more detailed force development guidelines should be established. It is easy to draw up a list of military capabilities which could be useful in some distant and improbable situation. The issue, however, is to determine which capabilities would be most important for our independent defence. A strict test of essentiality has to be applied in any assessment of capability requirements.

What are sought are the capabilities necessary to permit the ADF to fulfil its peacetime obligations, to satisfy our need for an independent military capability, and to provide a basis for expansion in the event of deterioration in our strategic circumstances. This approach should ensure that we always maintain an advantageous military position. Australia's alliance commitments, and other international policy objectives that may exist from time to time, would be met from a defence force designed to meet these objectives.

In this Review force structure priorities are derived from the requirements suggested by the layered approach to denying an enemy successful military operations either in the sea and air gap or on our territory. These priorities need to be qualified by consideration of the levels of conflict that are credible now and for the foreseeable future, and the time that would be available to develop our defences in response to possibilities for higher levels of conflict.

Levels of conflict

A central defence planning problem for Australia is to decide what possibilities for conflict should be given priority in peacetime preparation. This Review has earlier discussed and dismissed the prospect of invasion as a determinant of Australia's force structure needs. Three levels of conflict have been developed for analytical purposes. They are shown in summary form in Table 1 and are discussed further in Parts 3 and 4 of this Review.

Table 1: Levels of conflict

| | <i>General Characteristics</i> | <i>Possible Nature of Maritime Threat</i> | <i>Possible Nature of Continental Threat</i> |
|------------------------------|---|---|---|
| Low-level Conflict | <ul style="list-style-type: none"> Aimed at achieving political rather than military goals. Conflict deliberately contained at low level with objective of causing disproportionate Australian response and costs. Campaign could be protracted, with periods of inaction. | <ul style="list-style-type: none"> Incursions into sea and airspace Harassment of fishing vessels and coastal shipping. Terrorist-type raids on offshore oil and gas rigs. Covert mining. Direct threats to international shipping would be avoided. | <ul style="list-style-type: none"> Air harassment of northern settlements. Raids on isolated northern communities and offshore islands by dispersed forces; they may or may not be easily identifiable, but could be up to company strength. Sabotage of defence and civil installations. Direct military confrontation with Australian forces avoided. |
| Escalated Low-level Conflict | <ul style="list-style-type: none"> Emphasis would remain on achieving political goals, but force levels would increase and attacking forces would be more clearly identifiable. Limits of escalation would be the capabilities available to the regional aggressor. | <ul style="list-style-type: none"> Increased levels of air and sea harassment, with possibilities for engagements between major units. Attacks on coastal shipping and mining in northern waters. Direct attack on foreign shipping would be avoided, but discrimination between Australian and foreign vessels may be difficult. | <ul style="list-style-type: none"> Air attacks on northern settlements. More frequent and intensive raids or, less credibly, an attempted attack in the northern area by a substantial ground unit. Attacks on offshore territories. |

Table 1: Levels of conflict (continued)

| | <i>General Characteristics</i> | <i>Possible Nature of Maritime Threat</i> | <i>Possible Nature of Continental Threat</i> |
|---------------------------|--|--|--|
| More Substantial Conflict | <ul style="list-style-type: none"> Major improvements in regional military capabilities would be necessary before attacks at this level could be mounted and sustained against Australia. Objective would be to achieve significant military victories over Australian forces, but with the primary aim of achieving Australian concessions and a favourable political settlement. Invasion of the continent would be beyond the capacity of the aggressor. | <ul style="list-style-type: none"> Enemy sea and air forces deployed to attempt to gain control of the sea and air gap. Limited maritime capabilities, including submarines, deployed to attack Australian shipping and to deter international shipping from visiting Australian ports. Substantial mining campaign against Australian ports to disrupt shipping and resupply of Australian forces. | <ul style="list-style-type: none"> Attempt at lodgement on Australian territory, with sea and air units operating in support. Continued campaign of raids against northern centres and offshore territories, requiring dispersal of our ground forces. |

Note: It is emphasised that this table is illustrative of a range of possibilities developed and categorised for analytical purposes only. Neither the types of conflict nor the categories are in any way exhaustive, nor do they represent predictions of conflict.

The first two levels of conflict represent a range of low-level contingencies that are credible on the basis of current regional military capacity. They cover a scale from low-level harassment and raids through to more concentrated conflict, but well below the level of an attempt to lodge substantial forces in Australia.

The use of military force in these lower-level situations would be in support of political objectives, not an attempt to seize and hold territory or resources. The attacker would be using only limited forces, and targets would be selected on the basis of opportunity and political effect rather than military value. If maintained at low levels, the conflict could be quite protracted.

The more concentrated conflict would include escalation of the kinds of conflict conducted at the lower level. Escalation would also involve both the geographic extension of the conflict and supplementation of unconventional tactics and forces by military units prepared to confront our forces direct. The extent of such escalation would be limited by the military capacity of the aggressor, the expectation that escalation would allow Australia greater freedom in the use of its superior strike assets, and the possibility of increased allied assistance to Australia.

At the third level of conflict there are possibilities for more substantial conventional military action, were the necessary regional capabilities to be developed. Political goals would then be supported by defined military objectives. Specific targets of military value would be identified and there could be intense conflict of limited duration—in which a large proportion of our defence assets would be committed.

It is emphasised that no conflict at any level is seen as likely in the foreseeable future. Even at low levels, any conflict would involve a substantial deterioration in our strategic situation, for which there are no current indications. These assessments simply represent judgements of what might be possible, given potential military capacities, should conflict arise. The possibility of more substantial conflict would

depend upon improvements in regional military capabilities. Such improvement would be detected by our intelligence capabilities, and we would have the opportunity to develop further our defences. These judgements are in accordance with strategic guidance.

Military capability priorities

The unconventional nature of low-level conflict would require characteristics in our defence forces rather different from those required for conflict at the higher end of the scale. At lower levels of conflict international political considerations would be important. There would be constraints on the use of some of our military options. It may be difficult to find and confront the opposing forces, and this would place great demands on our intelligence, surveillance and communications capacities.

Higher levels of conflict would involve greater numbers of and intensity of operations. This would allow us to use conventional military doctrines more effectively and strike at enemy forces and bases. Moreover, our potential to conduct an effective defence at higher levels of conflict is a factor that could inhibit an aggressor from escalating the conflict to the limit of his military capacity.

Preparing our forces primarily to meet contingencies at the lower levels offers the advantage that it ensures that more credible, shorter-warning-time conflicts are accorded the right priority. Also, the nature of the potential threat can be more easily defined, which should make for easier force structure decisions. The difficulty lies in ensuring that such forces are capable of expanding and adapting to meet more remote but potentially very serious threats at more substantial levels of conflict.

Structuring our forces to meet more substantial conflict offers more insurance against the longer-term uncertainties. But it increases the difficulties of the force structuring process because of the speculative elements inherent in any judgements about the nature of higher-level threat. Such forces may also be deficient in their capacity to handle lesser kinds of conflict which could arise at short notice.

In this Review, this difficult planning issue has been considered in terms of organisational, equipment and manpower aspects of capability development. As a general principle, equipment and manpower priorities must ensure that the ADF will have available sufficient weapons, equipment and personnel to respond to credible military situations at the lower levels of conflict. Requirements can be identified on the basis of enduring geographic factors, studies of credible contingencies, and the need to maintain a regional military advantage.

In our longer-term development we must also take account of the possible demands of more substantial situations. This means that acquisition of important long-lead-time equipments can include a capability margin for more substantial levels of conflict. But there is not the same priority for their acquisition as there is for those capabilities that would be required in low-level situations, and where we are currently deficient.

Organisational aspects of capability development can encompass a wider dimension. A corporate knowledge of the skills required at higher levels of conflict would be essential for the effective development of our forces in a period of expansion. This knowledge cannot be acquired quickly. Forces structured only for low-level conflict might require fundamental reorganisation before they could begin the task of preparing for more substantial conflict. Some skills necessary for higher-level conflict should therefore be retained within the ADF. But any tendency to prepare for unrealistically high levels of threat, such as preparing to meet an invasion force, must be resisted, and training and exercising should give priority attention to more credible, lower-level contingencies.³

3. Low-level conflict could be very demanding of command and control, both as a consequence of close political direction and the dispersion of our forces (see Part 5).

Force readiness

The ADF should be able to demonstrate that Australia is serious and competent in defence matters, and capable of responding effectively to military pressure. But unnecessarily high levels of operational readiness would greatly increase the proportion of defence expenditure devoted to operating costs. This would largely be at the expense of investment in new capital equipment.

In current strategic circumstances there is no requirement for high levels of readiness across the range of military units. Rather, readiness levels can be determined on the basis of current tasks and credible contingencies which could arise with little warning. On this basis three main readiness requirements can be identified.

- First, there are those selected units with high-priority national tasks. At present the counter-terrorist forces, the maritime forces committed to peacetime surveillance, and search and rescue elements are in this category. These forces are currently the most ready of all our defence units.
- Second, there are the military forces that might be required to undertake military tasks either to pre-empt or respond to low-level situations arising with little warning. Forces in this category include surveillance aircraft, surface patrol and mine countermeasures vessels, some elements of the Army (particularly surveillance forces and air-mobile infantry) and supporting logistic units. We should overcome any equipment deficiencies in these areas, and provide a level of training sufficient to ensure that key military response forces are at a level of readiness to ensure the credibility of our defence posture with the Australian community, neighbours and allies.
- Third, there are units that can be held at lower levels of readiness. These are capabilities that would be more relevant after the initial stages of tension or conflict, or at higher levels of conflict. They include strike forces, ground forces oriented towards higher-intensity conflict, and anti-shipping capabilities. Their readiness and manning levels can be set by reference to minimum training and exercising requirements and warning-time judgements.

Some qualifications to this approach are required. A number of force units contain capabilities relevant to both lower and higher levels of conflict.⁴ Thus selectivity in levels of readiness within a capability or platform may be appropriate. Practical considerations are also relevant. Most Army and Air Force units can operate at reduced manning levels in peacetime, but Navy units need close to a full complement to go to sea. Safety standards dictate minimum flying hours for pilots, but there is less precision in determining minimum steaming times required for Navy vessels or minimum field training needed for ground forces to remain operational.

One option that deserves further consideration in this context is the more effective use of Reserves. Reserves are well suited to assume responsibility for some capabilities having low-readiness status. Such an approach would add purpose to the Reserve commitment. It would ensure the retention of the capability at appropriate readiness levels and allow Regular forces to concentrate on tasks of greater immediacy.

In this process care is required to ensure that combat effectiveness is not impaired. There are difficulties in the use of Reserve personnel in some technically complex areas, and their contribution to the development of doctrine must necessarily be limited. What is needed is for the ADF to develop a long-range strategy for the greater use of Reserves which can be considered and agreed by the Government. Specific areas that appear suitable for greater Reserve participation are discussed in Part 8 of this Review.

4. For example, maritime-patrol aircraft can perform both surveillance and strike tasks. Destroyers can perform surface-patrol and aircraft-detection tasks, as well as anti-submarine and anti-shipping strikes. Submarines are covert surveillance platforms as well as formidable interdiction assets.

Interoperability and standardisation with allies

In the post-war era our defence priorities were determined primarily by the needs of combined operations with allies, and we sought standardisation of our military equipment with them. This had significant advantages when we relied upon the logistic support systems of other nations. But standardisation with allies can lead us towards the acquisition of equipment better suited to NATO conditions than our own. Standardisation of weapons and equipment with our allies is not necessarily consistent with defence self-reliance. Account must be taken of local supportability, and compatibility with our civilian infrastructure where appropriate.

Various standardisation or co-operative programs with our allies have existed for many years. The recent trend in most of these activities has been away from materiel standardisation and towards greater interoperability. The important requirement for Australia is for operational procedures to be similar, so that we can communicate and exchange data with our allies if this is required.

Thus, while strategic considerations suggest a reduced emphasis on interoperability with allies, practical considerations favour the acquisition of some standardised or interoperable systems. Such systems can allow ready materiel and logistic support from overseas sources, and use of international standards can help facilitate interoperability between the Australian Services. The possession of identical equipment, however, is not necessary for effective combined operations with allies.

What is most fundamental to our concept of defence self-reliance is that our single Services are interoperable with one another. This has been neglected in the past, as evidenced by earlier limitations in communications between Air Force and Navy units.

CONCLUSION

Australia must have the military capacity to prevent any enemy from attacking us in our sea and air approaches, gaining a foothold on our soil, or extracting political concessions from us through the use of military force. To do this, we must develop our own solutions to our unique strategic circumstances. Strategic concepts based on the experience of other nations have little relevance to Australia.

An important and recurring theme of this Review is the need to concentrate force structure priorities on our area of direct military interest. This area stretches over 4000 nautical miles from the Cocos Islands in the west to New Zealand and the islands of the South West Pacific in the east and over 3000 nautical miles from the archipelago and island chain in the north to the Southern Ocean. Defending such a large area is a formidable task.

The focus of our attention must be on developing a self-reliant defence posture within our area of direct military interest. The security interests at stake in the range of more credible regional threats facing us are primarily Australian interests, and we must have the independent military capability to defend them.

This Review judges that the effectiveness of Australia's armed forces depends to a significant extent upon our maintaining a sufficiently high level of technology in critical capabilities. This includes our ability to absorb, operate and support advanced military equipment.

In defence terms, Indonesia is our most important neighbour. Our efforts should be directed towards promoting a sense of community with that country and avoiding conflict.

To prevent the successful use of military force against us, the Review proposes a layered strategy of defence. This is based on the concept of denying any enemy successful military operations in the sea and air gap surrounding Australia and preventing any successful landing of significant forces on Australian soil. To the extent that lesser enemy forces might land, it would aim to protect our vital military installations, population centres and infrastructure and deny the enemy any prolonged operations on our territory. In this Review force structure priorities are derived from the requirements of this layered approach to our defence.

These considerations need to be qualified by the levels of conflict that are credible now and for the foreseeable future, and the time that would be available to develop our defences in response to possibilities for higher levels of threat. The Review considers that priority should be given to more credible low-level conflict, which would be limited because of limited regional military capabilities. More substantial military action against us could only occur were regional countries to develop over time the necessary capacity.

Our defence priorities must ensure that the ADF has available sufficient weapons, equipment, logistic support and personnel to respond to these credible military situations. In our long-term development we must also take account of the possible demands of more substantial threats. A core of skills and equipment necessary for higher-level conflict should therefore be available, to be expanded within warning time. But training and exercising should give priority to lower-level contingencies.

Other elements in our current defence policy are confirmed by the Review. The practical benefits of the ANZUS relationship for our defence effort are recognised. We would not have the same access to intelligence information, logistic support arrangements, weapons acquisition programs, and defence science and technology transfer from any other country. In return, we provide the United States with access to important facilities, ports and airfields. But there is no requirement for, and this Review would not support, Australia's becoming involved in United States contingency planning.

Our defence relationship with New Zealand is of particular importance because we share the same strategic area. There is scope for joint military planning with New Zealand.

In South East Asia and the South Pacific, which is Australia's area of primary strategic interest, defence policy has an important role to play in support of our more substantial foreign policy and economic concerns. In this region our fundamental national security interest is to maintain the benign strategic environment that currently prevails, free from unwelcome external pressures. However, defence activities in this wider region should not determine our force structure, as they do in our area of direct military interest.

PART 3 CAPABILITY REQUIREMENTS: INTELLIGENCE AND SURVEILLANCE, STRIKE AND INTERDICTION, AND MARITIME DEFENCE

This Part of the Review is concerned with the future intelligence and surveillance, strike and interdiction, and maritime defence¹ requirements of the Defence Force. It draws on the force structure concepts discussed in Part 2. In particular, the following considerations are used as guidelines for force structure development:

- The relationship to the concept of denial, particularly the defined area of direct military interest and priorities within that area.
- Relevance to credible lower-level situations and to longer-term possibilities, including the needs of the expansion base.
- Retaining a comparative advantage, in terms of technology, expansion capacity, and deterrence of escalation with regard to critical capabilities.

No comprehensive attention is given to the capabilities present in our current inventory, or planned for introduction. These are considered in Part 7 of the Review on the basis of priorities established here. Nor is attention specifically given to financial considerations, other than a general recognition that the need for realistic priorities is dictated by the limits of expected resources. Detailed resource implications are considered in Part 9.

Estimating capability requirements

In this Part of the Review, and the next, we begin to approach the classic question of 'How much is enough?'. To make progress in answering this we need to have clear ideas of what potentially threatening situations are credible. We need also to assess what would constitute an appropriate Australian response, and what could be achieved during any deteriorating situation. At a time when Australia is manifestly at peace, and expects its favourable strategic situation to continue, these are not easy matters to resolve.

My Terms of Reference require me to advise on future force capabilities and to indicate priorities for changes to particular defence force elements within various time-frames. This cannot be done without some quantitative estimate of the size of force elements we need for our particular strategic circumstances.

This problem is not amenable to mathematical precision, but some limits can be set. In general, the methodology used in this Review has been to concentrate on the requirements of credible contingencies and the need to retain skills in the expansion base.² We take into account the effects of the enduring features of geography on the forces of the attacker and on our own forces. There is the need to examine the likely level of military forces in our region. The effects of economic and technological factors on our expansion base and that of other countries also provide a basis for analysis.

¹ The word 'maritime' as used here includes the use of air power over the sea.

² For ease of presentation, individual force structure capabilities are considered separately in this Review and as the principal element of the combat system in which they perform their primary function. It is acknowledged that many weapons platforms are multi-role and that some have a high degree of interdependence with other combat capabilities in the ADF.

INTELLIGENCE AND SURVEILLANCE

Australia's strategic circumstances require that intelligence and surveillance capacities have a high priority in our defence planning. A thorough knowledge of trends in military capabilities in the region provides a basis for the judgements we make about our own military requirements, and the time-frames for their development. An understanding of the motives and intentions of regional nations may allow us to reinforce factors supporting continued stability, and to forestall the emergence of threat. Effective surveillance is necessary to allow us to demonstrate and protect our national sovereignty.

In all of these priority defence activities, the basic requirement is to master the vast distances involved in the defence of Australia. The factors of distance and remoteness have always provided a fundamental dilemma for our defence planning. We gain a large measure of security because the conquest of the distances involved in a major attack against Australia presents virtually insurmountable problems for all except the Superpowers. Yet these same factors have given us a sense of vulnerability, because it has seemed impossible for a small population with limited resources to ensure the security of a vast continent.

The balance between the strategic advantages and disadvantages of distance and remoteness is being transformed by new technologies. Systems now available or in prospect will enable us to maintain a better watch over the maritime approaches to our continent, and to know how and by what means we might be threatened with attack.

Yet the notion of a surprise attack by an enemy whose military capacity and intentions are unknown to us still has popular acceptance, reflecting fears of nuclear conflict and memories of the Second World War. It is important to an informed and rational defence debate in this country that such notions be comprehensively refuted. This requires an appreciation within the community of the capacity and potential of modern intelligence and surveillance systems. At the same time it should be recognised and accepted that the effectiveness of these systems depends on a high degree of secrecy about technical and operational details.

Strategic intelligence

The area of intelligence priority is the area of primary strategic interest to Australia, which takes in South East Asia, the South Pacific, and surrounding maritime areas. Our national intelligence assets and analytical effort should be primarily oriented to this region and we should seek a high level of intelligence self-reliance within this area. But there will continue to be a degree of interdependence with our allies in intelligence collection and processing. From them, we obtain assistance with intelligence within our region. In turn, we are expected to contribute to their wider needs.

We also need to be familiar with developments further afield in the strategic nuclear relationship between the Superpowers and developments in countries such as China, Japan, the Korean Peninsula and areas such as the Persian Gulf and India. Technological trends, including nuclear proliferation, are also a matter of defence intelligence interest. But our national intelligence capabilities are limited. We can undertake some collection activities where we can make a unique contribution, but such activities should not distort our national priorities. In this wider area we have access to the resources of others, especially the United States, through intelligence exchange arrangements.

We need a range of collection assets for intelligence purposes, together with the highly-skilled personnel to analyse and disseminate the products of advanced technical

systems. In some cases platforms will be dedicated to the intelligence collection task. In other cases, particularly ships and submarines, the intelligence sensors will be but one element of the platform's capabilities. It is important that some platforms and systems be able to operate at ranges of at least 1500 nautical miles from our coastline, and be able to utilise modern technologies to provide an all-weather day and night capability. A capacity to operate for extended periods is also important.

Our strategic intelligence planning should ensure that there is a surge capacity to meet the demands of a developing situation. In a crisis with the potential for conflict, there will be urgent demands for much greater quantities of intelligence. These can be met by increased rates of effort by collectors, and some reallocation of resources from less urgent tasks. But a reserve capacity should be provided in areas such as processing, communications and specialised skills to allow higher rates of effort to be sustained in a crisis. Such measures will ensure that the requirements of credible defence situations could be satisfied. The warning times associated with more remote higher-level threats would allow the expansion of our collection and analytical capacities from a skill base provided by capabilities developed to meet current requirements.

Other authorities such as the Department of Foreign Affairs make an important contribution to intelligence collection, and the Office of National Assessments is responsible for overall surveys of Australia's security prospects. But Defence must ensure that its specialised strategic intelligence and analytical requirements are satisfied independently.

The collection and analysis of strategic intelligence is a high-priority peacetime task. Our defence intelligence capacity is central to force planning judgements. Special care needs to be given to the allocation of intelligence assets between current intelligence reporting, and the more demanding longer-term task of alerting policy makers to possibilities for deterioration in our strategic circumstances. There is a constant demand from Government for intelligence on current events, and a desire by the intelligence community to at least match the news media. Collection time and analytical capacity need to be specifically dedicated to the longer-term tasks of strategic warning and the maintenance of an intelligence data base on the region.

Surveillance and early warning

There is a close relationship between intelligence and surveillance capabilities. Good intelligence allows the surveillance effort to be focused on priority areas, and surveillance and reconnaissance activities provide important intelligence information.

Our current and future surveillance and early-warning priorities can be broadly established by reference to our geography. A strategy based on the concept of denial requires a manifest ability to detect, identify, and track potentially hostile forces within the area of direct military interest to Australia (the archipelagos to our north and east and our surrounding maritime areas). This means a capacity to conduct effective surveillance up to about 1500 nautical miles from our northern coastline.

Within this area the primary military requirement—in peacetime and for all conceivable levels of threat—is for comprehensive broad-area surveillance.³ Some risk of failure of detection may be unavoidable, particularly where the aggressor is attempting covert low-level operations.

Our military surveillance needs can be narrowed down to the possession of a relatively small number of high-technology systems primarily oriented towards broad-area surveillance of the area to our north, with a potential for expansion and

³ The differences and similarities between civil and military surveillance requirements are considered in detail in the 1984 *Review of Australia's Peacetime Coastal Surveillance and Protection Arrangements*. There is some overlap between the two requirements in peacetime, although the civil requirement emphasises surface surveillance and monitoring of the coastal strip in areas that are of little defence interest. In time of tension or conflict the defence requirement becomes increasingly specialised, although civil assets could be used to supplement technologically advanced military assets.

supplementation should future circumstances require this. A degree of redundancy and overlap in surveillance capacities is desirable.

Broad-area surveillance has in the past been a formidable military problem. Ground or ship-based radars lack coverage beyond about 250 nautical miles for high-flying aircraft. For detection of low-flying aircraft and surface ships the range is considerably more limited. Yet our northern coastline extends over some 2000 nautical miles from west to east. Aircraft can provide a more extensive coverage, but are limited by range and endurance factors which effectively preclude continuous and comprehensive coverage except at great cost. Electronic warfare, particularly passive Electronic Support Measures (ESM) systems, can also assist but again, broad-area coverage is not always possible.

Recent technological developments, particularly in the field of over-the-horizon radar (OTHR), make comprehensive wide-area surveillance more feasible and practicable. While details of performance characteristics and operational procedures have yet to be established, there can be no doubt of OTHR's ability to provide valuable wide-area surveillance, although with some technical limitations. In the United States, there are programs to introduce extensive OTHR systems for the Air Force and Navy, which are expected to become operational progressively from the mid-1980s. Australia's own OTHR, developed under Project Jindalee, is planned to become operational in the later 1980s.

In Australia's circumstances, our long-range detection and tracking requirements seem likely to be met by OTHR, particularly if two or more systems are deployed. But we must recognise that OTHR provides wide-area coverage with low target definition. Small-area high-definition systems, such as airborne-early-warning aircraft, would add flexibility and redundancy. They could compensate for the technical limitations of OTHR and provide an additional response capacity to facilitate target engagement. They could also provide limited surveillance of areas not within the coverage of OTHR.

Around important northern installations, such as airfields, there is a requirement to provide conventional radar coverage for both surveillance and air traffic control purposes. Balloon-borne (aerostat) radars offer the prospect of greatly increasing the range of fixed radars against low-altitude targets.

OTHR detection of surface ships is less well developed and may be technically more difficult. This will leave us dependent on long-range maritime-patrol (LRMP) aircraft and surface patrol vessels, perhaps with helicopters, for the foreseeable future. But limitations on broad-area surveillance of ships are less significant because of the slow movement of ships, which makes them potentially more easily detected by air patrols and more at risk to reactive force when detected.

For submarine detection, LRMP aircraft are required, perhaps operating in conjunction with new-generation passive acoustic array systems to protect focal areas such as major ports. But our requirements for such systems should be established in the context of the limited regional potential to conduct submarine warfare. Acquisition of more advanced sub-surface surveillance systems is thus a longer-term rather than a shorter-term priority. However the long lead times involved in the adaptation of anti-submarine warfare (ASW) technology to the Australian environment and the acquisition of the necessary skills justify undertaking at least development and trials in Australian waters.

The general Australian military surveillance requirement can thus be summarised as a comprehensive system to provide broad-area coverage of our northern approaches, complemented by specialised assets for patrol and investigation and to provide more intensive coverage in specific areas. Range, endurance and flexibility in these specialised assets are generally desirable attributes to allow dispersed operations within our area of direct military interest.

Air surveillance requirements should be generally satisfied by OTHR, complemented by ground-based radars, and, possibly, airborne early warning and control (AEW&C) aircraft or other airborne systems, with a response capacity provided by interceptor aircraft. For surface surveillance in credible low-level contingencies, we would need to operate LRMP aircraft in conjunction with OTHR and in response to intelligence information. This may require at least one LRMP aircraft on patrol in each of the three distinctive sea gaps to our north and north-west. This in turn could require forward operation of up to four aircraft from Derby and Learmonth (for the Indian Ocean approaches), Darwin (the Timor Sea) and Weipa (the Arafura Sea and Torres Strait). Surface vessels with helicopters can also make a contribution, particularly because of their capacity for identification and sustained presence.

As with intelligence, surveillance capacity would be a priority requirement in a period of tension. The necessary capabilities must therefore be available in peacetime, and capable of expanded rates of efforts over a sustained period should this be required. This means that, in peacetime, military surveillance capacities will be substantially underemployed if reserved only for local military tasks. They can therefore be made available for selected operations beyond the area of direct military interest to Australia in association with friends and allies. Further, airborne surveillance is a primary means by which Australia can demonstrate a presence and interest in regional security, and make a useful contribution to the requirements of neighbouring states. But such tasks should not influence the structure of our surveillance forces, which should be determined by the military requirements of our neighbourhood.

Surveillance assets can also be used for civil tasks, but these will not employ the full range of skills required for military surveillance. Civil demands placed on defence surveillance assets should not impinge on the training required for discrete military tasks, and should carry less priority than surveillance in support of regional neighbours.

Combat intelligence

A detailed knowledge of the performance and characteristics of the forces, weapons systems and tactics of an opponent is essential background for the effective planning of military operations. Within a theatre, the ability to obtain and update information on opposition forces is important for combat effectiveness, as is the capacity to deny information to or confuse an opponent's systems.

The full range of electronic-warfare capabilities is more relevant to longer-term possibilities for more substantial conflict. Nevertheless, the ability to intercept, analyse and jam communications would be relevant in all contingencies.

At all levels of conflict the primary problem is to detect and identify the enemy through the use of intelligence, surveillance, electronic-warfare and reconnaissance systems. The extra elements required for operations are the processing and communications links for getting intelligence to field commanders, within the time-scales necessary for effective use in operations. In this area the kinds of centralised systems developed for strategic-intelligence purposes need to be supplemented by decentralised systems serving operational commanders, but co-ordinated at the central joint-command level. Commanders also need their own integral intelligence systems for the effective conduct of operations. Familiarity with such systems and their incorporation into command and control arrangements is a long-lead-time skill that needs to be developed and practised within our current force structure.

Mapping, charting and infrastructure knowledge

Comprehensive and up-to-date maps and charts are necessary for the effective conduct of military operations. The size of the area of direct military interest to Australia makes this a very large task, and priorities must be established for the more likely operational areas in the north of the continent and our maritime approaches. This has

been done within Defence by a Joint Mapping and Charting Group which prepared a comprehensive report in 1983. This report was endorsed by the Chiefs of Staff Committee in 1985 as the continuing basis for planning. Unfortunately the level of survey and charting resources available within the Defence Force is such that, at the current rate of progress, it will be more than 20 years before comprehensive up-to-date maps and charts of priority areas will be available.

To some extent these problems can be overcome through the use of modern technology. High-quality maps can now be produced quite rapidly from aerial data using computer-based systems, and new laser technologies offer the prospect of greatly accelerating the charting of shallow coastal waters. However, considerable resources are still needed to gather and verify basic data, and for the production of maps and charts. Because of the importance of this work for defence purposes, it is appropriate that these resources be provided from the Defence Force. Nevertheless, close co-ordination with civil authorities is highly desirable to avoid duplication and to ensure economy of effort.

The current state of charting and marine environmental knowledge of nearby maritime areas of strategic importance to Australia is less than satisfactory. Accurate inshore hydrographic-survey data, particularly in north and north-west coastal areas, is poor for other than port access and passage-making along fairly well defined routes. Hydrographic capability also has important applications in areas such as mine warfare, submarine operations, amphibious operations, civil and military surface surveillance, the employment of acoustic arrays, intelligence collection and defence co-operation in our region. Australian hydrographic and oceanographic knowledge of our maritime environment is crucial to military operations in our own defence. Appropriate facilities, including ships and manpower, must be allocated to this task if an adequate service is to be provided.

Also important for defence purposes is a knowledge of the infrastructure available in the more likely operational areas in Australia. Considerable work has been done in compiling infrastructure information in recent years, for which Defence is to be commended. It is important that adequate resources be provided to allow this effort to be sustained in the field and the information kept up-to-date. It is also important that the resulting infrastructure information is regularly tested in exercises to ensure its reliability, and to promote familiarity with potential operational areas within the ADF.

These requirements for mapping, charting and infrastructure information are high-priority defence tasks in peacetime and are relevant across the conceivable range of military threats. Some expansion of mapping and charting activity would be possible in a time of tension, and civil resources could be diverted to meet defence priorities. But the production of high-quality mapping and charting is a time-consuming task which is best undertaken in circumstances of peace. The aim should be to complete the priority mapping and charting tasks in a shorter time-frame than at present seems possible.

STRIKE AND INTERDICTION

Strategic guidance acknowledges that Australia's geography and the nature of warfare, other than by nuclear means, would cause any major attacker to use the sea and air approaches from the archipelago. Australia must have such forces to protect these approaches as credible contingencies indicate to be necessary. Australia's force structure should include, among other capabilities, naval and air strike components capable of effective action against maritime forces operating in the sea and air gap, and from nearby operational bases. The possession by Australia of strike and interdiction capabilities able to operate within our area of direct military interest from bases in Australia is one of the most evident means of demonstrating sovereignty and maintaining an advantageous military position.

Since the mid-1970s, strategic guidance has favoured the possession by the Defence Force of strike and interdiction capabilities. But, given the long warning times for contingencies that would call for the substantial use of strike capabilities, we need to exercise discrimination in determining the types and numbers of these forces.

Low-level contingencies

In credible low-level contingencies, targets could be small, dispersed, ill-defended and operating in or close to Australia. Strike and interdiction needs in such situations would be of low priority and predominantly maritime. The maritime interdiction capabilities provided by surface ships would be generally more appropriate and subject to fewer constraints than the more specialised capabilities provided by air strike or submarine forces. Surface ships can also exploit their ability to remain on station for extended periods.

Australia's response to a campaign of maritime harassment and lower-level acts would need to be highly selective and carefully controlled. Our forces would primarily be concerned with discouraging escalation to the limits of the opponent's capabilities. If the opponent knew that strike forces were on call, our specialised strike capabilities could deter greater escalation of the conflict, or local escalation in the form of attacks against our naval and commercial vessels or offshore resource installations.

Strike assets could be employed, with other less capable assets, in such operations as surveillance and patrol in our maritime approaches, reconnaissance of coastal areas, protection of offshore resources, fishing vessels and port facilities, and identification and interception of aircraft in Australian airspace. The demonstrable ability to operate strike assets in Australia's northern, north-western, and north-eastern maritime approaches could be expected to exercise substantial discouragement of an opponent's initiatives. Effective intelligence, surveillance and patrol activities would be a pre-requisite for this.

Escalated low-level contingencies

The ADF's strike potential would become more relevant if the intensity of conflict rose, within the limits of an opponent's capabilities. Our strike operations would be concentrated on the approaches to Australia in a campaign of forward interdiction. This could require a substantial commitment of maritime strike and interdiction capability across a large area of the northern approaches.

There would be fewer constraints on the Australian military response as the enemy used more of his limited capabilities. This may include the use of Australian submarine interdiction operations against the opponent's naval ships, and offensive mining. A manifest capacity to threaten bases from which an adversary's air and naval forces could attack Australia direct would be a disincentive to the use of those forces, and

an inhibition on their deployment. The threatened use of our strike forces could bring an end to a potentially protracted conflict.

Consideration of any retaliatory action against the opponent's territory would still need to give weight, however, to the short-term impact on relations with countries not directly involved in the dispute, and long-term consequences for relations with the opposing country. Priority targets would be in the sea and air gap, and tactical reconnaissance of the northern approaches would be important. If used, strategic strikes would be limited to carefully selected military targets. Interdiction of the adversary's commercial shipping, in circumstances where its association with military operations was not clear, would be improbable.

More substantial conflict

The widespread and intensive use of Australian strike and interdiction capabilities would be most relevant to a threat of major attack on Australia, a contingency judged at present as remote and improbable. An adversary capable of a major assault on Australia would have military forces larger and more capable than exist now, or could exist in the region in the foreseeable future.

Higher-level contingencies would be characterised by frequent or sustained employment of substantial conventional military force against Australia, including large-scale air and naval attacks. Our strike and interdiction capabilities would be heavily committed to operations with the most direct impact on the adversary's military capability. Our strategy would be likely to focus on interdiction of the enemy's forces concentrated for attacks on the approaches to Australia, or interdiction of supply lines to any forces that had successfully deployed against us. Priority military targets would be likely to be predominantly at distances out to about 1000 nautical miles from northern Australia.

Force structure implications

This Review does not envisage Australian strategic strike and interdiction forces playing a significant part in low-level contingencies, except perhaps for display and patrol purposes to inhibit escalation. Air Force itself acknowledges that the usefulness or value of strike capabilities is not such as to make them important to the force structure for low-level contingencies. In a less constrained military environment, involving the possibility of escalation to the limits of an opponent's capabilities, it would be important for Australia to have a superior strike and interdiction capability, particularly for maritime strike in the approaches to the continent. A maritime strike and interdiction capability is favoured because it is less offensive in character and likely to be subject to fewer constraints than attacks on the enemy's territory. The existence of such capabilities would make escalation by the adversary most unlikely.

An Australian force structure that maintained demonstrably capable weapons platforms equipped with modern sensors and stand-off missile systems would provide an advantageous military capability. Taking account of training needs in both the land and maritime modes, and the number of potential military targets, there is a need for up to two squadrons of strike aircraft, oriented primarily towards maritime strike but also capable of strike against military targets on land.

Australia's need for submarines is dictated primarily by expansion base considerations of the need to develop submarine skills in anti-shipping and anti-submarine operations appropriate to higher-level conflicts, and to train other units in ASW skills. Nevertheless, submarines can operate covertly at low risk in areas where an opponent has sea and air control. They are versatile and can contribute in a range of contingencies in such areas as intelligence collection, surveillance, mining and special operations. A modest force of about six submarines, able to operate concurrently from both our

west and east coasts, would be a major inhibition on an enemy's use of surface assets against us at all levels of contingency.

Acquisition of strike capabilities with ranges greatly in excess of 1000 nautical miles from our northern coast could not be justified. Air strike or naval interdiction capabilities that could contribute to our allies in more distant areas should not be a force determinant. There is no requirement for Australian submarines to be able to operate in distant waters, such as the western Indian Ocean or the northern Pacific.

If there were a serious prospect in the future of substantial military confrontation with an adversary with a level of military capability more comparable to Australia's than exists at present, strengthening of our strike and interdiction capabilities could be expected to receive priority. The warning times for more substantial conflict would be sufficient to allow considerable expansion of our strike potential, provided a base of skills and equipments were available within the force-in-being.

MARITIME DEFENCE

The maritime environment is peculiarly suited to the use of military force. Military actions in a maritime context are less confrontational and threatening than direct operations, however limited, on an opponent's territory. A military challenge in the maritime environment can be employed more flexibly, involving shadowing, feinting, harassment, advance into a (contested) resource zone and withdrawal, as well as the ultimate use of force by naval or air assets. Risks inherent in our maritime environment, where Australia claims an extensive resource and fishing zone and has important offshore installations and territories, could pose formidable problems for the nation's defence.

The focus on maritime contingencies is strengthened by the realisation that, except where they are aimed at some sort of clear public impact, the scope for inserting raids on Australian territory will be limited. The waters to be crossed are wide, the areas most susceptible to landing are generally inhospitable, and the population will be alien and hostile. These considerations reinforce the judgement favouring the maritime environment.

The waters to our north offer different kinds of potential for harassment. Our vast coastline, the proximity to it of the island chain, the location of our resource zones, the remoteness of our island territories, the patterns of our coastal and international shipping, and the distances to be covered in the defence of these interests, present formidable surveillance and operational response problems. These could be exploited by an adversary possessing only modest maritime capabilities.

Levels of maritime threat

It is necessary, therefore, to consider how our security, or that of our immediate environs, might be directly threatened by maritime power.

Military attacks against Australia or our international shipping by a major maritime power are assessed as improbable short of general war. Even in that remote contingency, Australian priorities for maritime operations would be defence of the nearer ocean surrounds and focal areas. Given the demanding nature of that task, it is

unlikely that major Australian maritime assets would be committed to more distant theatres or for defence of sea lanes outside our area of direct military interest.

In the light of present naval and air capabilities in our region, the scope for escalation of maritime situations is limited with regard both to intensity and sustainability. But it must be recognised that even relatively modest military pressure in our maritime environment could oblige Australia to respond with quite disproportionate effort.

The cost to Australia in terms of sustaining a posture of rapid response in low-level contingencies would be great. The generation of an atmosphere of risk and insecurity in the activities of Australian nationals engaged in coastal traffic, fishing, offshore resource exploitation, and traffic to and from our offshore territories could be exploited. Military pressure or force could be widely dispersed and random. Within the capacity of his available maritime forces, the attacker may hold the initiative in relation to escalation, and Australia's need to deter this and to provide against localised escalation would add significantly to the scale of our defensive effort.

Escalation beyond low-level contingencies would, without deliberate military preparations over a period, be likely to arise from a local error of judgement, particularly in naval or air operations where higher-capability weapons are more often involved in isolated incidents. If the adversary were prepared to risk his naval and air assets up to the limit of his capability, he may be tempted—but improbably—to make some dramatic challenge to gain a political advantage, which could conceivably be held were there an early end to the hostilities.

Beyond this level of threat, there is limited scope for any large-scale development of regional maritime capabilities and there would be considerable warning that would provide the basis for expanding our own capabilities. For the foreseeable future, regional ASW, maritime air defence—particularly against stand-off missiles—and maritime surveillance and reconnaissance capabilities will be limited. Any improvements to current regional forces are expected to be modest and incremental. They will be readily detectable.

Protection of shipping

Interference with or interdiction of Australia's coastal and overseas shipping might be seen as a practical option for an adversary, potentially less demanding in resources than would be substantial assault of the mainland. Our first concern would be to secure shipping carrying vital cargo, particularly in those areas where geography would make it most vulnerable to an adversary.

Most coastal shipping is Australian owned. An adversary could feel less constraint in attacking Australian-owned ships than in attacking international shipping. Operations against coastal shipping in northern waters would place least demands on an aggressor's maritime capabilities, although the presence of international shipping would increase an adversary's target-identification problem, particularly in focal areas. Aircraft, surface vessels and submarines could be employed to threaten shipping there, although submarine operations would be constrained by the shallow waters.

If the threat warranted, convoying might be used for critical civil or military cargoes. But Australian defence strategy should not rely on coastal shipping to support military operations in the north. Alternative means of transport, less susceptible to interdiction, including road and rail transport should be used to minimise the Defence Force being drawn into convoy and other defence-of-shipping operations at disproportionate cost, and to the detriment of other strategic options.

Any enemy attacks in waters other than in the north would probably be by submarine. Southern waters carry coastal traffic highly important to the national economy and our defence effort. Unless capable defensive systems were provided, shipping losses from any activity undertaken by modern, quiet diesel-electric subma-

rines could be considerable. There would therefore be a requirement to protect focal areas in southern waters, such as the approaches to Sydney, Newcastle and Wollongong, Bass Strait, and near Cape Leeuwin, where the traffic is most important to our national capacities and where submarines would be effective.

To protect shipping in focal areas, the preferred ASW systems would be towed acoustic arrays for surveillance, with long-range maritime aircraft to localise and prosecute detections. Outside focal areas and if the level of threat warranted it, ASW protection of important cargoes would be provided by LRMP aircraft and land-based or embarked ASW helicopters—which could also contribute importantly in focal areas.

However, in view of the limited potential submarine threat, focal area anti-submarine defence, together with evasive routing of coastal ships, would allow coastal traffic to continue, especially on southern routes and particularly in lower-level contingencies when the adversary would be less likely to hazard his high-value assets. There would be considerable restraints on offensive action against international shipping. These constraints would lessen progressively in higher levels of conflict, but would not cease to exist except at the highest levels, which are not now considered credible.

If the adversary were prepared to subject foreign shipping to military pressure, attacks would be most likely in focal areas. Assurances of protection by Australia may not persuade the owner-countries to persist in the face of significant, but uncertain, risk.⁴ Re-routing, which would involve some economic cost, would be the more likely reaction. A threat to Australia's trade routes would antagonise the international mercantile community, including the United States and Japan, and could lead to international measures against the aggressor.

A mid-ocean threat against our trade by a regional power is assessed as unlikely. Only a limited submarine threat could be posed away from coastal and focal areas unless surveillance and intelligence information from a superpower was provided. In the more likely situation, when superpower support was not provided, any mid-ocean submarine threat could be diminished still further by evasive routing of shipping across the breadth of the major Indian Ocean and Pacific Ocean approaches to Australia. Thus, the need for mid-ocean escort of shipping should not be given a priority in Australia's force structure.

Mining and countermining

In both lower and higher level contingencies, mining, or the threat of mining, could be employed against us. Many of our northern approaches are susceptible to mining, and their closure would have substantial political and economic effect. Ports such as Dampier, Port Hedland, Darwin, Gove and Weipa could be seen as particularly attractive for mining operations. Seabed conditions vary around the country, leading to differing priorities for minehunting and minesweeping. Advances in mine countermeasures (MCM) technology, together with the potential need for dispersed counter-mine operations, argue against the acquisition of high cost, multi-role minesweepers/hunters favoured by some European navies.

There are complex skills involved in minehunting and minesweeping.⁵ Were we not to have them now in some basic form, we might not be able to acquire such skills in time to match the emergence of a threat in a period of deteriorating security. Australia needs, as a matter of priority, a capability to clear mines in inshore areas. The level of training in this area should reflect the very short warning time within which an adversary could mount a mining threat.

4 Drawing parallels with the Iran-Iraq war, in which oil traffic continues despite missile attacks on oil tankers, may be misleading. There are a number of differences, including the world surplus of oil tankers and the fact that there are few alternative major oil sources to the Persian Gulf.

5 Minehunting is based on determining the positions of individual mines and concentrating countermeasures on those positions. Sweeping techniques are directed at the more extensive area suspected of containing mines.

The major ports of the south, essential for national survival, demand a priority for mine clearance. While these ports would be susceptible to minelaying before or at the outbreak of hostilities, their remoteness would probably make re-seeding of a minefield once cleared a difficult problem.⁶ The important commodity ports of the north, and Darwin, would be more susceptible to both initial mining and re-seeding, because aircraft would be used for minelaying.

These considerations suggest that the minimum capability we should seek is to be able to clear mines in three dispersed areas simultaneously, with the ability to move MCM vessels to different ports within each area, and between the different areas. A case could be made for more than three areas, depending on the extent to which we sought to avoid delays to important national and international shipping.

Our possession of some mining capabilities would be a complicating factor for an adversary contemplating the use of mines against us. But our requirements for defensive and offensive mining capabilities are not urgent. These are more relevant to longer-term possibilities for more substantial conflict. Nevertheless our familiarity with mining and the possession of a limited number of mines in our inventory are desirable to provide a skill base.

Maritime air defence and protection from surface attack

In credible contingencies Australian defensive and offensive maritime activity would be predominantly in our area of direct military interest. This judgement has significant force structure implications. It confirms the view that Australia's force development should proceed on the basis of there being no aircraft carrier, and that land-based aircraft would be expected to provide maritime air defence where necessary. This Review does not agree with the earlier Navy proposal, in the planning document *Navy Plan Blue* (November 1983), that 'Acquisition of an aircraft carrier and associated aircraft would be considered in the event of a significant improvement in economic circumstances together with a marked improvement in VSTOL aircraft performance'.

In low-level contingencies we are likely to want to operate maritime surface forces dispersed over broad areas of the northern and north-western approaches. Their most valuable characteristics would be endurance and good surveillance and communications capacities, rather than advanced or complex weapons systems. Intensified surveillance and patrol operations in any disputed areas, and around key offshore and coastal installations, would be generally within range of land-based fighter aircraft operating from Australia.

In higher-level contingencies the air threat against our surface vessels would be more serious than in lower-level contingencies. In northern waters our land-based aircraft and submarines would be preferred as the counter to threat from air and surface craft. Our maritime strategy should not depend on placing naval surface vessels at risk to attack by capable aircraft without access to defending land-based fighters. This is an important consideration because the provision of an area air defence capability is a powerful cost driver for major surface combatants.⁷

Air defence that extends in depth would be important in assisting a maritime-denial strategy during higher-level contingencies. Air defence requirements to protect any ASW forces that might be required would be limited, especially as the more likely need for ASW operations would be in southern waters.

⁶ Submarines could lay initial minefields in our southern ports or their approaches, but, without the use of sophisticated mobile mines, would be unlikely to venture back to re-seed the fields because of the risk of destruction by an unswept mine from the initial field.

⁷ There is a case for surface combatants to have a point air defence capability for local air defence and self-protection.

Force structure implications

Earlier in this Part of the Review our requirements were established for strike and surveillance assets, and mining and MCM forces. What remains is to consider in more detail our requirements for surface and air defence assets in the maritime environment.⁸

In a range of low-level contingencies, surface vessels can provide a visible and continuous presence for the protection and enforcement of sovereignty, including interception and arrest, which neither aircraft nor submarines can match. The surface naval combat vessel, through its ability to sustain presence and to provide comprehensive sensor and communication facilities, is relevant to peacetime sovereignty missions. It can also contribute directly to low-level contingencies when the threat from capable aircraft and naval platforms equipped with anti-ship missiles is minimal.

In such contingencies, a significant presence of surface patrol assets might be required at the following five offshore focal areas: Dampier, Timor Sea, Arafura Sea and Torres Strait, Christmas Island, and the Indian Ocean approaches. A surface presence could be sustained with two or three vessels in each area. These vessels could deter or counter harassment of fisheries activity, offshore installations or coastal shipping. They could also shadow and mark intruders, and provide targeting information for other surveillance or intercept assets. Taking account of the need for periodic maintenance, transit time from northern ports and some reserve capacity, a need is seen for between about 16 and 24 vessels.

Additional ships could be needed in higher-level contingencies, for example in support of ASW operations in the south of the continent. There would, however, be options for operating ASW helicopters from commercial ships and Navy is examining these. We would also be likely to minimise the number of surface units operating in the sea areas to our north in higher-level contingencies because of their vulnerability.

Other than for interception, surface naval strike is not given strong weight because of the rapid and flexible response available with aircraft and the quality of substantial immunity from detection of submarines. Modern surface vessels are expensive and their vulnerability to aircraft and submarines markedly limits their utility as an offensive force. With developments in modern anti-ship missiles and bombs using terminal guidance, a successful saturation attack could become possible from a handful of aircraft. The long-range guided torpedo is also a potent threat to the surface ship. Further, larger warships are becoming increasingly expensive in relation to the merchant ships and cargoes they may be defending.

ASW is an activity very demanding of defence resources. We can have complementary force elements—land-based ASW aircraft, acoustic arrays, destroyers and helicopters. Each offers unique characteristics, but also has individual limitations. A capability to detect, localise and destroy submarines in our focal areas and principal port approaches, and along our coastal shipping routes, is an important need of our maritime defence. But the capabilities of land-based ASW aircraft, and developments in acoustic arrays and sonobuoys, suggest that the acquisition of high-capability destroyers for ASW purposes has a low priority in present strategic circumstances.

In the Australian maritime environment, air defence will need to be provided primarily by demonstrably superior land-based fighters. These can be complemented by shipborne radar, weapons, and electronic-warfare systems. Maritime air defence is a role relating essentially to our northern approaches, because tactical aircraft are likely to be encountered only there. The consideration of our air superiority over these waters is imperative. If an enemy gained decisive superiority here, the risk to our surface ships would be great. It is only in these circumstances that significant ground force lodgement on our territory could be a prospect.

The characteristic most important to us in air defence is that our fighter force and its supporting airspace control system should be able to deploy and operate readily

⁸ Afloat support is considered separately in Part 6 of the Review.

across the northern maritime approaches and hinterland from bases able to cover effectively our areas of vulnerability. To meet the needs of maritime air defence, two squadrons of air defence fighters would be a minimum requirement for the force-in-being and as an expansion base noting that Australia faces limited offensive air power.

Our surface ship requirements can thus be narrowed down to a mix of general-purpose naval capabilities, including higher-capability warships and lesser-capability ships. Of the up to 24 platforms previously suggested, a minimum of six and a maximum of nine should be higher-capability destroyers. These ships would provide a skill base for further development for more substantial conflict, should this be required, in the areas of ASW, air defence, and the associated command and control. In low-level conflict, they would provide insurance against local escalation in the offshore focal areas listed earlier.

The lesser-capability ships should include patrol boats capable of operating in close-in relatively protected and shallow waters. Their principal characteristics would be speed and good communications.

An intermediate class of ship—an ocean patrol ship, perhaps to be known as a light patrol frigate—is required to provide an effective and sustained presence in our focal maritime areas, in more exposed or distant waters, including Bass Strait, and at the outer limits of our fishing and resource zones. An organic helicopter capacity, principally for reconnaissance, would provide a desirable element of flexibility. Provision can and should be made for the acquisition of more advanced helicopters, sensors and weapons should future circumstances require this. But such a vessel would not require the same comprehensive weapons and sensor capabilities as a destroyer.

Within our area of direct military interest, Australia has challenging maritime tasks, both in peacetime and in the event of conflict. This new class of warship can contribute importantly in these roles.

Up to 10 of each type of larger and smaller patrol vessels would seem to be appropriate. But this is a matter requiring more detailed analysis (see Part 7). The starting-point for this analysis should be the needs of more credible contingencies, rather than scenarios of high-level conflict. This follows from the judgement that our strategic circumstances do not require all larger surface vessels to have high levels of air defence, surface strike and ASW capabilities. It is these capabilities, rather than platform size, that are the major cost elements in surface ships.

CONCLUSION

Good intelligence and surveillance capabilities, together with a knowledge of the Australian and neighbourhood environment—including up-to-date maps and charts—are identified as high-priority requirements for our defence planning.

It is also important that we have a high level of confidence in our ability to meet credible contingencies at sea, and through the airspace to our north. These contingencies could be very demanding. Any confrontation or conflict involving the defence of Australia would be, initially at least, maritime in character and most likely in the northern and western approaches. Our most important defence planning consideration therefore is to ensure that an enemy would have substantial difficulty in crossing the sea and air gap.

This Review recognises, however, that we could not expect to establish, in all conceivable circumstances, an impenetrable barrier to sea and air intrusions. The breadth of the approaches to Australia, over a distance of more than 2000 nautical miles, would give an enemy opportunities for selective and diffuse operations at low levels of threat. An adversary would have much room to threaten and feint, to initiate combat or to avoid it, to inflict limited damage and to withdraw.

In credible maritime contingencies, Australian forces could be employed in operations involving maritime surveillance and patrol, reconnaissance of coastal areas, maritime interdiction in the contiguous and resource zones, identification and interception of aircraft in Australian airspace, and protection of offshore resources, fishing vessels and port facilities in the north, including from the threat of covert mining. These circumstances would be demanding of our maritime forces for surveillance, patrol and display, interception, and protection against mining. In such low-level situations, surface patrol capabilities have particular value. Their endurance, manifest military presence, and ability to intercept and arrest are attributes not available from air assets. This Review has identified the need for a range of higher and lesser capability naval vessels, which includes destroyers and patrol boats, and a new intermediate class of light patrol frigate.

Effective surveillance of our major northern sea and air approaches, coupled with demonstrable capability for maritime strike and interdiction, could be expected to exercise a significant limitation on an enemy's initiatives to escalate to higher-level operations. It is important in peacetime to carry out surveillance and patrolling in Australia's maritime approaches and northern coastal regions and to demonstrate our potential to meet escalated levels of threat, if the need should arise.

For more substantial contingencies, Australia's aim must be to possess the manifest ability to deny substantial exploitation of the sea and air gap between Australia and the archipelago to the north by military activity against us. Any serious attack on Australia would require sizable sea and air forces able to gain control over the intervening water for transport and resupply purposes. Such forces would be vulnerable to interdiction, as they crossed the sea and air gap, from potent strike forces based in Australia.

Land-based aircraft and submarines are the preferred force elements for strike and interdiction in Australia's area of direct military interest, and land-based aircraft for maritime air defence. This is because of the aircraft's qualities of rapid and flexible response over great distances, and the submarine's attribute of substantial immunity against detection. Surface ships equipped with missiles give a useful supplement to maritime-interdiction and air defence capabilities, but we should avoid policies that require naval surface vessels to be placed at risk to air attack without access to our own defending land-based aircraft.

In the development of our strike capabilities we also need to distinguish between requirements for strike against land targets and against maritime targets. We should give the latter higher priority because of the strategic importance of the sea and air gap. The threshold for strikes against land targets in or close to civilian populations is likely to be high. Land targets are likely to be military, even for higher-level contingencies, and directly related to the capacity of the opponent to sustain an attack against us.

PART 4

CAPABILITY REQUIREMENTS: AIR DEFENCE AND GROUND DEFENCE

The strategy of denial that this Review propounds envisages the concept of layered defence to provide our country with its necessary security. First we would exploit the natural obstacle of the sea and air gap surrounding Australia to intensify an enemy's difficulties in challenging the continent. Next, we would have forces available to counter any adversary that, having crossed the contested maritime barrier, attempted to conduct operations on our territory.

This Part of the Review focuses on the priorities for capabilities that would contribute to the continental component of the strategy of denial. It examines the force structure requirements for air defence and ground defence. The method used to estimate capability requirements has already been described in Part 3.

AIR DEFENCE

Low-level conflict

In low-level contingencies an enemy's objectives would be aimed at securing political concessions rather than military advantage. Activities, including those that could lead to an Australian need for air defence, would be more limited in scope than in more substantial military operations.

An opponent could use air assets to infringe Australian airspace, and might seek to discover and exploit weaknesses in our surveillance systems and our ability to respond in a timely way. Such infringements could be coupled with acts of harassment—for example, low-altitude high-speed flight over settlements by combat aircraft. The delivery of ordnance (bombs, rockets or gunfire) by enemy aircraft would be a significant act of escalation.

The degree of risk to an enemy conducting such acts would decrease as the distance from our main deployment bases increased—that is, from Darwin/Tindal but possibly also Learmonth and Derby. The more remote settlements would thus be at greater risk of such harassment, but the adversary's activities would still be confined primarily to the north.

Transport aircraft could be used to insert and extract small ground-force elements. Their purpose could include terrorism, sabotage, and attacks against a variety of civil and military targets over a broad area in the north. The longer range of fixed-wing transport aircraft would mean that the geographic area susceptible to this kind of operation would be generally greater than for harassment by fighter aircraft.

We in turn would seek to demonstrate our ability to respond to these challenges and activities. We would show that we could intercept the intruding aircraft, and that we had the capacity to destroy them at low risk to ourselves.

We would be particularly concerned at any attempts to insert ground forces by aircraft, because of the more serious consequences for us were the enemy's operations to be successful. In addition to interception, we would also seek to be able to force aircraft to land, or otherwise control their movements, in accordance with possibly quite demanding rules of engagement.

Judgements on the level of response that would be required need to take several factors into account. An air defence system that would allow a uniformly high probability of intercept over the vast expanse of our north is potentially very costly. Some areas of our north would be less important to us and to the enemy than others, especially the vast uninhabited or sparsely-inhabited tracts. Some of the enemy's actions would be designed at irritation rather than serious adverse military consequences to us.

The enemy would also have other options for the insertion or extraction of ground forces, so that our ability to intercept his aircraft would need to be comparable to our ability to intercept his ships (and perhaps submarines). Even a relatively low capture or loss rate of his limited aircraft assets might persuade the enemy to desist. The conclusion is that there would not be a high probability that we would necessarily close with all intruders into all of our airspace. The focus of our concern would be to know where the intruders were, and to have the capability to intercept them if we chose to, having regard for the protection of key areas.

The capabilities thus indicated as having priority for low-level contingencies comprise intelligence and surveillance, potentially over wide geographic areas in the north, fighter aircraft, and the ability to effect intercepts, but on a selective basis. Adequate command, control and communications systems would be needed. Requirements for surface-to-air missiles would be limited, reflecting the level of threat and the priority use of fighter aircraft for air defence. Nevertheless, while likely rules of engagement and the restricted coverage of such systems would limit their effectiveness in terms of shooting enemy aircraft down, even limited defence force holdings would encourage an enemy to be more circumspect in his operations.¹

Given geographic and other factors, our air defence system needs aircraft capable of operations and intercepts over large areas. Long range, durability, the possession of a highly-capable radar, and good communications are the main characteristics sought. There are very few such aircraft available, and almost all are produced in the United States. Suitable aircraft tend to incorporate very advanced technologies and to have some capabilities beyond our current and foreseeable needs. We thus need to consider carefully the extent to which systems or weapons available for the aircraft are necessary for our current strategic circumstances.

Part 3 has discussed our priorities for airspace surveillance and judged that these should generally be satisfied by over-the-horizon radar (OTHR), complemented by ground-based radars, and possibly, airborne early-warning and control (AEW&C) systems. There are at present uncertainties concerning the extent to which control information from OTHR would allow a modern fighter aircraft, with a high-capability air-intercept radar, to be vectored to intercept intruders. A final judgement should await more extensive practical trials and experience.

It remains to consider the number of fighter aircraft appropriate for air defence in low-level contingencies. Taking account of regional potential, and that we would be selective in our response, the demands on fighter numbers would not be high. Aircraft could be operated from a central location such as Tindal, or detachments could operate from other bases, such as Derby. It would be important that our airfields and

¹ Some classes of surface combatants could also contribute to continental air defence. Their integrated air defence systems could provide surveillance, fighter control, surface-to-air missiles and command, control and communications facilities. If appropriately stationed, they could provide depth to our defence. But they do not have a primary responsibility towards this capability.

the assets deployed to them be secure from ground attack, and perhaps from air attack in the event of escalation. Of the order of a squadron of 16 fighter aircraft deployed in the north would seem adequate.

Escalation of low-level conflict

We need to consider two forms of enemy escalation possible within low-level contingencies. The first is local or accidental escalation, in which confrontation between opposing forces or units could get out of hand, leading to the exchange of fire. This should be satisfied by the margin of superiority of high-technology fighters in our inventory, and because of the intrinsic advantages of endurance that base location gives a defender over an intruder.

The second is deliberate escalation, in which the enemy higher command could give explicit orders for actions of greater consequence, specifically bombing or the use of rockets or gunfire. The losses to us from such actions may not be great, because of limited regional aircraft numbers and the limited effect of conventional high-explosive munitions unless dropped in large numbers or with great precision. Nevertheless, such acts of deliberate escalation would have serious political implications, both domestically and internationally, and we would wish to counter them.

We would therefore seek to provide a greater measure of air defence to the more important and vulnerable targets, including fuel and weapon storage areas, and command facilities.² Our response would differ from the more expected form of reaction in lesser contingencies primarily in that we would seek a greater confidence of interception where high-value targets were at risk. This could be achieved by a higher probability of detection and might require the employment of higher-capability fighter-direction systems. We might also require more fighters, and the prospect of combat would be greater. We would need to defend military assets, particularly aircraft, through dispersion, revetments and covered shelters, and there would be a greater need for the contribution of surface-to-air missile systems to air defence.

The main force structure implication is that more fighter aircraft would be needed in inventory. While numbers could be refined through detailed calculations, this Review judges that a total of two fighter squadrons would be required for all aspects of continental air defence in lesser contingencies. This would allow, for example, four simultaneous deployments of six aircraft each to forward locations.

The other force structure implication follows from the need for greater assurance of interception, and for the control of interceptor aircraft in a more complex environment. This suggests a possible need to complement the coverage of OTHR and conventional ground-based radars in high-value areas such as Darwin/Tindal, especially at the low altitudes at which hostile aircraft could be expected to approach. Possible solutions include a modest number of AEW&C aircraft.³

There is, however, the possibility that further development of OTHR, particularly using multiple sites, may provide an adequate level of intercept control for such contingencies. Thus, until there is more experience with operations of OTHR and our new fighter force, there can be no confident judgements on the priority to be accorded to sensors to complement OTHR. Nevertheless, the potential value of AEW&C aircraft is such as to justify detailed examination of the options for their acquisition, in parallel with evaluation of operational experience with OTHR.

² The option of being able to reply in kind by selective retaliation has been discussed in Part 3, under Strike and Interdiction.

³ Without substantial early warning, such as provided by OTHR, the demands on numbers of AEW&C aircraft would be severe.

More substantial conflict

Were Australia to be faced, in the remote future, with a substantial threat more demanding of our air defence, it would most likely take the form of the more intensive use of conventional high-capability aircraft. For such situations, the air defence capabilities and skills developed for lesser contingencies would be a suitable basis from which to expand. Additional numbers of aircraft, similar to fighters in our current inventory, could be acquired within the warning time.

There would be a more compelling case for AEW&C systems, and this would need careful review as the enemy's capabilities increased and strategic circumstances deteriorated. The Defence Force would already possess many skills that would be a basis from which to develop expertise in future AEW&C operations, if required. There would also be a greater need for surface-to-air missile systems. Limited holdings, suitable for lesser contingencies and for the development of co-ordinated command and control procedures, would be a suitable expansion base.

Force structure implications

This Review has judged that a minimum of two operational fighter squadrons would be sufficient for continental air defence in low-level contingencies, for escalated low-level contingencies, and as a basis for expansion to meet deteriorating strategic circumstances.

In the development of the complementary need for early warning and control, priority should be given to OTHR. OTHR seems likely to prove generally sufficient for low-level contingencies, and will be of fundamental importance in all levels of contingency. As such, its operational development should be accorded the highest priority. There may be a requirement for two or more operational OTHR sites, subject to further operational experience (see Part 3).

There is some doubt as to whether OTHR would be sufficiently capable for the full range of credible contingencies. There is a case for the integration of OTHR with other sensors, such as conventional ground-based radars, aerostat radars, or a modest number of AEW&C aircraft to operate in conjunction with OTHR for the enhanced defence of a high-value area, such as Darwin/Tindal.

But with present strategic circumstances, there is no urgent priority to acquire AEW&C aircraft before we have gained appropriate experience to judge OTHR. Acquisition of a small number of such aircraft would facilitate later expansion—and have benefits for operations in contingencies more credible in the shorter term—but the aircraft are very expensive to acquire, operate and maintain. It may prove more sensible to invest in enhanced OTHR capability. This matter will require further review if OTHR proves to be a source of information of sufficient quality to allow intercepts with modern fighter aircraft.

Priority for surface-to-air missile systems, in limited quantities, rests primarily on the need to develop co-ordinated command and control procedures and their prospective use in contingencies of greater substance. But they could also contribute usefully in more credible contingencies.

GROUND DEFENCE

The characteristics that our ground forces should possess, and their relative priority in expansion, are a more complex matter for judgement than the organisational needs of our air and naval forces. In the past the capability planning of our ground forces, and its consistency with the nation's strategic priorities, has been given less attention than major air and naval capabilities. Moreover, until recently, there has been little systematic military contingency planning to help define the characteristics of ground forces most efficient in dealing with lower-level contingencies.

Key issues in considering our needs for ground forces are the nature of their likely involvement in various levels of contingency and the appropriate structure of the Army. The Defence Force Development Committee most recently reviewed the Army as a whole in 1973, when it considered the report by the then Vice-Chief of General Staff (Major General Hassett) and Chief Defence Scientist (Dr Farrands) on *Army Organisation and Manpower*. This central consideration was itself the first for many years, and was prompted by the need to review the Army following the end of conscription and the commitment to Vietnam.

For the most part, the scenarios that the Farrands-Hassett Report examined were based on strategic assumptions quite different from those which dominate today's Australian Defence analysis.⁴ There can therefore be no automatic assumption that the Report's findings are relevant to today's circumstances.

The last proposal of any structural substance was that put by the then Chief of Defence Force Staff to the Minister in 1979 and 1980, which provided for three task force groups. While retaining skills relevant to general infantry operations, each would specialise in areas of expertise to provide a core of skills for different types of operations relevant to the defence of Australia. One task force was to concentrate on light-scale air-mobile operations, the second was to devote its major effort to the development of conventional infantry operations, and the third was, subject to further study, to evolve as a 'heavy' armoured/mechanised formation. Conceptually, this proposal was consistent with strategic priorities seen at that time. It provided for a light, mobile force at a high level of readiness to deal with credible contingencies, and two other elements whose primary role was to establish and sustain skills likely to be relevant to more remote contingencies.

While Army's major equipment proposals have as a matter of course been subjected to the central committee process, only in the last two years or so has there been any significant consideration of proposals relating to structure and capability. These have been Army's proposals: to expand the parachute capability from a company to a parachute battalion; to mechanise 1 Brigade; to acquire land for an extensive manoeuvre area and to relocate the School of Artillery and Infantry Centre; and Army Reserve integration. These deliberations have served to illustrate that there are important issues relating to ground force objectives and priorities which require resolution.

Low-level conflict

Strategic guidance has recognised for many years that the most likely form of enemy ground force action in low-level contingencies would be small-scale raids, possibly aimed at a wide variety of targets (both civil and military) over a broad geographic area. The objectives would be largely political, designed to apply pressure on the Australian Government to concede in some issue, possibly not otherwise directly

⁴ The Farrands-Hassett Report considered the implications for the expansion base were there to be a need to expand to a million-man army for the defence of Australia against major attack.

related to the target of the raid. The capturing of mainland territory is not a credible low-level contingency.

A campaign of raids would be within the existing capacity of some regional nations. The campaign could be prolonged and varied in intensity. It might be difficult for us to counter, because of the potential need to spread limited resources over vast areas against an elusive and unpredictable threat. The activities could include terrorism and sabotage. Although conventional military engagements would be avoided, military assets, especially where of high value and inadequately protected, would be targets.

Several raids could be conducted simultaneously, in widely-separated areas. Raiding parties would be relatively small in size⁵, and could be inserted by a variety of means—parachute, air-landing, submarine, fishing and patrol boats. They would be lightly armed and have limited mobility.

Escalation of low-level conflict

As he escalated his campaign overall, an enemy could seek to intensify his raiding. Escalation could take several forms. The number of raids could be increased over a wider geographic area with the aim of stretching our limited manpower; or the intensity of raids might be increased within an area of strategic significance such as Darwin/Tindal. The raiding parties could be equipped with heavier fire-power, that is, man-portable missiles and mortars, and provided with greater mobility in the form of trail bikes and perhaps light four-wheel-drive vehicles. Overt hit-and-run raids could prove to be very damaging.

Beyond this, escalation of low-level raids and harassment to more conventional military operations would be very improbable. Any sizable military force, with the necessary supporting air and sea transport capabilities, moving through the archipelago towards northern Australia would be vulnerable to a counter-attack from the air and sea, and could not count on secure logistic support. An enterprise of this sort is not a realistic prospect against which to plan our defence development and activity now.

Several factors support the continuing relevance of this judgement. Regional countries are not developing the capabilities that would be relevant to conventional military operations against Australia. Our own policies are likely to sustain Australia's priorities for maritime surveillance and strike, and the enduring characteristics of the sea and air gap continue to pose formidable difficulties to any attacker.

There is also the key judgement that a continuing campaign of raids could cause us significantly more difficulties than would an attempted lodgement with inadequate forces. The assembled forces for a lodgement would present a vulnerable target, and it would be easier for an enemy, with the same quantity of assets, to mount concurrent raids with less risk of decisive defeat or substantial loss.

The counter to raids

Although strategic guidance has for many years identified raids as credible in the shorter term, there seems to have been insufficient progress for there to be a Defence-wide consensus on the capability priorities needed to counter raids. This Review seeks to outline some of the important factors that should be taken into account on these needs.

The derivation of the force structure needed to counter raids is possibly less amenable to the abstract application of doctrine than is, for example, that needed for more conventional ground warfare. On the other hand, there are some obvious

⁵ In this context, the size of raids is generally taken to be between a section (say 10 men) and a company group (say 120). These values are consistent with: the likely objectives; the constraints on transportation that follow from the priority need to achieve surprise and success by avoiding detection while in transit; and military experience elsewhere with regard to raids and special operations. Were an operation to be prolonged, the enemy force would require a level of support unlikely to be available at below company level; however, actual tasks would probably be undertaken in smaller groups.

advantages in relating the analysis to specific activities and locations. Strategic guidance makes it clear that our priority is to defend Australia. Key locations and areas, particularly in the north of the continent, can therefore be identified readily.

Some would caution against such an approach as being too 'scenario oriented', and that scenarios provide a means of testing force structure rather than a basis for structuring. But northern Australia's geography, and patterns of population, economic activity and infrastructure are not so fast-changing as to invalidate general conclusions from specific settings. Study of a range of credible situations can allow patterns of needs to be built up with some confidence. There is further the extensive history and experience of 'special operations' that can be drawn on for examples of the kind of enemy activity that might be expected in raids. In this way doctrine can be developed. The adequacy or otherwise of the force structure for such contingencies can then be tested, and the doctrine refined through exercise experience.

Protection of military assets

There would be a clear priority to protect important military assets, both those based or located in the north, and those deployed there. This need is widely recognised. There would also be a need to heighten security at bases and installations in the south.

Thus protection of the Darwin/Tindal area would be of high priority. There are many important military assets and elements of the civilian infrastructure in this region. They include: Darwin air base, Tindal air base (where an F/A-18 squadron will be based from September 1988); the Darwin Sector Air Defence System (including radars and command and control facilities); important communications, and fuel and weapons storage facilities; Darwin Patrol Boat Base (and naval facility generally); and other facilities within the Larrakeyah Barracks area.

Other military assets in the general northern area include: OTHR near Alice Springs (transmitter and receiver at separate sites); North West Cape Joint Communications Station; Learmonth air base; Derby air base; Cairns Patrol Boat Base; and such other facilities that might be used for military purposes (for example, Port Hedland, existing civilian airfields), or which might be developed (for example, a new air base on Cape York Peninsula—Weipa is often quoted as a representative location).

The forces required for these protection tasks would be extensive. Defence analysis indicates that to defend a major isolated airfield (such as Tindal) against raiding parties would require up to a battalion group.⁶ Indicatively, one company would be needed to deny immediate access to the airfield, while the remainder of the force would be needed to patrol the approaches out to some 20 kilometres, by day and night. To give a measure of protection to the Darwin area and its approaches (excluding Tindal airfield) would probably require at least a brigade group.

Illustrating the magnitude of the problem, the figures sketched above show that to protect the Darwin/Tindal area, and bases at Learmonth, Derby and Weipa, would alone require forces in excess of the present six battalions of today's Regular Army.

Protection of civilian areas

The Government would wish to extend protection to the civilian areas away from the immediate environs of the major military locations. These areas are many and extensive: the Pilbara (including Dampier and Port Hedland); the Kimberleys (including Broome, Wyndham, Kununurra); Arnhemland (Nhulunbuy, Groote Eylandt); and Cape York Peninsula (away from Weipa itself). This would place even further demands on our ground forces.

⁶ An Australian infantry battalion has a nominal (war) strength of about 700 men, but manning levels and the elements included in a battalion group can be adjusted according to the requirements of the situation.

Reaction forces

The political need to react quickly to incidents⁷ suggests that in addition to providing some security to key installations and the civil population, we would seek to confront raiding forces at their landing site or before they could achieve their objective. We would deploy highly-mobile forces to selected locations which would then serve as forward bases to patrol and react as required at short notice in response to intelligence or surveillance information. Such forces would be additional to those committed to security tasks and it could be expected that their assigned areas of operations would be quite large. We would be unlikely to have sufficient resources to maintain forces in every location that might be subject to raids, but some level of response, weighted towards the more important areas, could still be provided.

Thus, for example, it might be appropriate to deploy a battalion group to the Wyndham/Kununurra area, with responsibilities to patrol and react to incidents within a nominal range of, say, 200 kilometres. A similar or smaller force might be deployed to Nhulunbuy. In some cases, there would be an interaction with the forces protecting major bases; for example, Broome and Derby townships and the Derby air base, and in the Darwin/Tindal area.

A battalion group is nominated in this context because of its organisational capacity. It would have sub-units of sufficient strength to respond to smaller raids (of up to platoon size) and which could be deployed away from the main battalion area. It could detach elements for surveillance and patrol. It would be able to respond to the larger size of raid (of up to company strength) that is envisaged as possible in low-level contingencies. Depending on the location and expected or actual level of enemy activity, so the strength of the battalion group in any particular area could be increased or decreased.

Capability priorities

It is sometimes suggested that low-level contingencies would involve only terrorist-type activities, rather than organised military operations by formed units. Indeed, it would seem from comments made to this Review that the Department of Defence does not accept that credible contingencies could involve operations by enemy ground forces of up to company size. This kind of proposition has led to understandable concerns within the Defence Force that the role of our ground forces could be limited to little more than that of an armed police force.

This Review takes the view that the primary responsibility of our ground forces is to prepare to counter the potential threats posed by organised military forces. Deployed forces could assist in protective measures against concurrent terrorist-type incidents, but responsibility for their handling should rest primarily with civil police and security authorities. Underlying this view is the judgement that a sustained and dispersed campaign of raids could pose a formidable military problem. Containment would be a difficult and challenging task which could easily soak up our limited resources.

The priority capabilities needed by our forces would include good communications (especially for the passage of surveillance and intelligence information and command support systems), high mobility within an extended area of operations (suggesting the need for helicopters, light surface vehicles, and water transport in some instances), surveillance and reconnaissance (including night-vision devices and possibly remote sensors), and light but adequate fire-power (such as from capable small arms and mortars). In some cases, it could be appropriate to insert forces by parachute. Equipment selection would have to recognise the special difficulties posed by the

⁷ This is not to argue that every incident need be forced to a rapid military conclusion. In some cases, it may be appropriate to exploit the generally harsh and hostile nature of the northern environment to neutralise an enemy's forces over a period.

climate (especially the 'Wet') and the terrain in the area of operations. There would also be a need for some light armoured protection and heavier fire-power to be available.

There would be a priority for surveillance and reconnaissance elements, separate from and additional to those reconnaissance elements organic to any battalions that had been deployed forward. These would be particularly important for the timely identification of enemy activity during a period of heightened tension or in the early stages of hostilities.

There would also be an important need for logistic capabilities for the initial deployment and later support of deployed forces. The extent to which we needed the ability for rapid deployment into the area of operations, or redeployment between widely-separated regions of the area of operations, would depend on the extent to which we had not anticipated a raid in a particular area. There would nevertheless be heavy demands on air support, and all modes of transport would need to draw on both military and civilian assets.

The likely nature of the forces deployed in lesser contingencies, and their support needs, indicates the continuing relevance of the flexibility inherent in a 'divisional' approach—that is, for command and control, the distribution of resources, and administration.⁸ The size of the division and the detailed allocation of resources to its component parts (divisional forces, formations, units and sub-units) would, however, need to be considered in the light of further examination of needs and locations of deployed forces in the Australian environment. It should not be regarded as immutable, either in size or numbers, but it must provide for command and control of forces dispersed over wide areas. Neither should it be modelled on divisions found in military forces elsewhere in the world.

More substantial conflict

In the more substantial conflicts that are possible in the longer term, an enemy could attempt various levels of lodgement in Australia, beyond the raids discussed earlier.

Nations in our region could, over several years, acquire the strength to mount operations of a more conventional military character against facilities and centres of population in the northern hinterland. These attacks could inflict serious damage and even deny the Australian Government control over territory or small settlements for a time. Strategic guidance comments that we should have to consider the need to strengthen appropriate elements of our forces.

Beyond this, strategic guidance assesses that even after a decision to enlist massive external support, at least 10 years would be needed for any regional country to achieve a capability to sustain intensive joint operations against us. This would involve expansion to modern conventional defence forces, including acquisition of large quantities of high-technology weapons systems and the capacity to operate and support them effectively over the sea and air gap.

The arguments against the likely success of such conventional lodgements are substantial. The skills required for a major opposed amphibious landing are complex and difficult, and the equipment specialised and costly. Very few nations have this capability and there is no evidence that regional countries are developing or intend to develop their force structures in this way. The assets required to transport and resupply such a lodgement force would be large.⁹ They would be at risk to pre-emptive attack

⁸ This view makes no assumptions about wartime arrangements for command and control, as the Chief of the Defence Force would allocate units and formations to commanders, including joint force commanders, as circumstances required.

⁹ During the Second World War, 200 ships (each of 10 000 tons) were needed simply to put Australia's 7th Division ashore in Borneo. For resupply, a modern Australian infantry division in a defensive situation requires some 11 000 tonnes every four weeks.

as they assembled prior to transit, and vulnerable during transit and when coming ashore.

There would be other difficulties arising from the nature of the northern Australian coastline—high tidal variation and strong tidal currents, extensive shallow water, mud flats and mangrove swamps—and the limited number of ports and other infrastructure. Problems would be posed by the climate and the need for a reliable supply of drinking water.¹⁰

Even if sufficient forces survived the transit and were not met by Australian ground forces, they would face eventual and comprehensive destruction as we cut off lines of communication and mobilised for their defeat our considerable national assets in the largely invulnerable industrial heartland of the south and south-east. Without air superiority, they would be particularly vulnerable to Australian air strike.

Recognising the importance of maritime denial to our defence, we would have pursued policies that ensured that we would have sufficient maritime forces to make the failure of an attempted lodgement a very high probability. Only if our maritime forces had been neutralised would forces intent on lodgement be able to transit and land as a cohesive unit, and be able to sustain effective operations. Thus there is general agreement that a priority task for our ground forces would be to contribute to the protection of those assets, such as air bases, port facilities and communications installations, vital for the defence of the sea and air gap.¹¹

And yet, doubts remain, fuelled by concern at the serious consequences were an enemy's lodgement to be successful. There could, some say, be a failure of our intelligence, and of our maritime surveillance and strike; or the government of the day, through uncertainty or fearing adverse international political consequences, might not sanction pre-emptive or offensive action.

Others argue that, because escalation to confront Australia on its own territory in conventional military terms is to be excluded, we should maintain only minimal ground forces biased toward low-level contingencies. Such an argument would involve the judgement that we could expect to develop our land forces if we saw evidence of a relevant military strength growing in our region. To give great weight to this argument requires a high degree of confidence that our air and naval capabilities—as they might be developed in response to the enemy's build-up—would prevail in any major attack. Government would also need to be convinced that the risk involved in eliminating Australia's expansion base capabilities for higher-intensity land warfare was acceptable.

While this Review is persuaded by the priority demands of low-level contingencies in the shorter term, it does not accept that these are the only matters that should shape our ground force structure. Thus, despite the improbabilities, the Review takes the position that we need to make some precautions against more substantial conflict. This means in particular a need at some level for ground force capabilities for more conventional land battles. The difficult question is, at what level should these capabilities be represented in the expansion base, especially given the remoteness in time and probability of circumstances in which the higher levels of capability would be needed, but recognising also that some of the relevant skills might have long lead times.

This important issue has not received adequate attention within the Defence organisation, but, addressing these issues, Army Office has prepared the *Army Development Guide* as a basis for staff planning and force structure development. The *Army Development Guide* postulates conventional military threat to Australia at a number of levels up to invasion by a major power with balanced conventional capabilities. It

¹⁰ Army plans on the two-battalion brigade group of the Operational Deployment Force (including the Logistic Support Group) needing at least 240 tonnes of water a day.

¹¹ An enemy capable of neutralising competently protected maritime forces would also be capable of inflicting severe damage on ground force elements, including transport and logistic assets, held ready to contest the attempted lodgement.

argues that where an enemy had lodged essentially a four-brigade divisional group (including supporting troops), we would require an Australian field-force element of a corps of two infantry divisions and a mechanised division, and an independent armoured brigade group, all supported by corps and force troops. This field-force element would comprise some 135 000 personnel, and the whole Army some 270 000 personnel.¹²

In the elaboration of the force structure implications of the levels of conflict proposed in the *Army Development Guide*, Army has developed the concept of the Objective Force-in-Being with a strength of 94 000. This force would be completed prior to conflict and is designed to provide the firm base from which expansion for higher levels of conflict could occur while concurrently maintaining forces committed to low-level operations. Army recognises that it will not be possible to man the Objective Force-in-Being at its indicative strength in the foreseeable future even with full use of the Reserves. But it takes the view that the force structure and capabilities needed in the expansion base for this force would be suited also for countering shorter-term credible contingencies.

This Review has substantial reservations about the conceptual framework of the *Army Development Guide*. While containing a useful analysis of critical problems in the expansion process, and some important insights into the nature of low-level contingencies, it gives excessive weight to higher-level conflict. Even its treatment of conflict at lower levels postulates force and equipment levels that are not credible now or in the foreseeable future.

In further work on the *Army Development Guide*—which is a guide and not intended as an immutable blueprint for action—closer attention needs to be given to those aspects of strategic guidance covering the types and levels of conflict that are credible in Australian circumstances.

This Review has concluded that low-level conflict could be a formidable problem for our ground forces. The need to move quickly and effectively against raiding groups intent on surprise, rapid action and the minimum holding of ground, suggests that our forces would need a special combination of the classic force attributes of communications, mobility, fire-power and protection. Our emphasis would be on light but adequately armed forces, highly mobile, able to operate over vast distances, and needing the minimum of logistic support, with concentrated protective forces in key areas.

Capabilities relevant to insurance against more conventional warfare can be included in limited quantities within the structure of this basic force, having due regard to lead times for capability development and expansion, for both ourselves and other countries in the region. It would be prudent to retain within the force-in-being the potential to provide the key elements and skills necessary to conduct more conventional warfare. But emphasis on manning, equipping and training of the force must recognise the more likely demands of low-level conflict.

Force structure implications

What must be established now is the size, composition and equipment priorities for the force-in-being, so that it has the capacity to respond to credible contingencies and provide an adequate basis for expansion. We might begin by examining how our ground forces would react as circumstances deteriorated. Critical to this assessment is an appreciation of the likely roles of Reserve forces, given the modest size of the

¹² Essentially, these figures are derived from the 'worst case' in which the enemy has lodged his force without any serious opposition and has established a well-defended position. In deriving the field-force element needed for a successful counter-offensive, Army in part uses a force ratio of three-to-one for intensive conventional operations. Further calculations derive the strength of the associated support (non-field-force) elements.

Regular Army in peacetime, but recognising also that as a rule Reserves will take longer to become operationally ready.

The need for military action in low-level contingencies would not become suddenly apparent but would develop over time, in response to such indicators as international tension over an issue, and intelligence as to intent and military activity. We would initially intensify surveillance of our maritime approaches. Ground force surveillance of coastal regions by special and regional forces would increase from normal peacetime training and familiarisation levels. There would be an attendant need to protect the bases from which military operations were being conducted, and there might also be limited precautionary deployments to offshore installations and territories.

It is only reasonable to expect that the majority of the initial forces deployed should be Regular rather than Reserve. But in the particular case of regional surveillance forces, the Reserve element¹³, because of its specialist local knowledge, could be expected to play an early part.

As the contingency developed and intensified, so ground force deployments in the north would increase, giving enhanced protection to vital military and infrastructure assets and the surrounding areas and to the more significant civilian settlements away from these areas. Forces would also be needed to take more direct action against the enemy's incursions. There would be intense public and political pressures to provide a visibly adequate defence of the north. Our activities would need increasingly to call on the Reserves, while ensuring also an adequate training base.

The protection of key installations and population centres would thus initially be a priority task for Regular battalions.¹⁴ Protection of the vital Darwin/Tindal area would require at least a three-battalion brigade group, while Learmonth, Derby and Cape York airfields would each require a battalion group. Thus there is a priority need for some six battalions in the Regular Army.

A lesser number of Regular battalions could be faced with an impossible operational task, given the distances involved in defending key northern areas and the potential for dispersed offensive operations. Set-piece confrontations are unlikely and our forces must be prepared for intermittent operations over vast distances and with a low prospect of concentration of enemy forces.

This Review sees the Reserves as having a critical role in the early assumption of the protection of key areas, releasing Regular units to conduct more offensive operations against the enemy. Thus there is a priority need also for a minimum core of six battalions in the Reserves.

Other key centres in the north, such as the Pilbara, Broome, Wyndham/Kununurra and Arnhemland, could also call for forces of about battalion-group size. There is a need then for at least a further four Reserve battalions for security tasks alone. It may not be possible to protect every installation or population centre in the north, but it would be important to attempt to provide at least a measure of defence.

A particular consequence of the use of the Reserves to provide area security to key assets as outlined above, in conjunction with Regular units, is that specific regional wartime tasks should be identified and allocated to particular Reserve units for their peacetime training. This would greatly facilitate their effective use in time of war, and, as an important bonus, the ensuing sense of purpose would do much for the fostering of morale. Some of their training should be conducted on location in the north. Although security of key assets would be the main role of the Reserves, once having secured their area they would be free to pursue the enemy actively within their area of operations.

¹³ At present, these regional surveillance forces, such as the North West Mobile Force (NORFORCE), are Reserve units: that is, they consist of a cadre of Regulars, and a large majority of Reserves.

¹⁴ Continuing the approach earlier in this Part, the Review discusses ground force needs in terms of deployed battalions. In practice, these units would be organised as part of a larger command structure, including possibly into brigades, but the details of this would depend on circumstances at the time.

After they had been relieved of protection tasks by the Reserves, the Regular Army would have prime responsibility for providing the offensive response to territorial incursions. Acting on intelligence and surveillance information, they would confront enemy forces at or near to their landing areas—either to defeat them or to compel them to withdraw.

In the early stages of a conflict, this could involve battalion-level deployments to two or more widely-dispersed areas. As the conflict intensified, the possible number of separate areas to be covered would increase. There would additionally be a need for operational reserves, and perhaps forces to assist in any expansion process. Thus the six Regular battalions that could be needed for the initial security of vital military installations and assets prior to deployment of Reserve units can be justified also against the needs of these more offensive operations.

The Review notes that this is an imprecise derivation of ground force needs because of the speculation in its assumptions. It is an attempt to recognise that there would be practical constraints on the response to a seemingly limitless problem. But its conclusion is comparable to the Defence Department's separate derivation of a need to deploy about 28 company-sized units, including Reserves, and to Army's position that there is a need for three brigade-sized formations.

Were there less than six Regular battalions, then the Reserves would have to be used earlier or more extensively, or a lesser level of protection or offensive operations accepted. But the issue of the balance between Regulars and Reserves, and the degree of integration, deserves more detailed and longer-term attention. The Review takes the position that it is necessary first to have a clear overall view of our ground-force needs before taking this further step, and this should be studied within Defence as a matter of some priority. The Reserves are discussed further in Part 8.

Capability and equipment priorities

It is necessary to venture some views on the capability and equipment priorities for an infantry battalion deployed to anticipate, or react to, credible contingencies. For tactical mobility, there would be a need for utility helicopters, basic ground vehicles (such as trucks), light armoured personnel carriers (APC), and specialised mobility equipment such as versatile amphibious vehicles. Beyond the use of small arms, heavier fire-power could be provided by fire-support vehicles, man-portable precision direct-fire weapons, artillery, mortars, and helicopter gunships. Aircraft would contribute to surveillance and reconnaissance. These needs are addressed in more detail in Part 7.

The nature of the threat, the need for mobility, and the difficulties of logistic support indicate little priority for the heavier equipments or heavier fire-power more readily associated with the conventional battlefield, such as tanks, specialist anti-armour helicopters, and heavier artillery. Army itself acknowledges that low-level contingencies would not of themselves justify the tank, and that the primary functions of tanks and surface-to-surface artillery and other indirect-fire weapons will be limited in such conflicts. Nevertheless, where equipment with heavier fire-power and protection can be justified for the expansion base, there is a need to examine their potential contribution to situations where the defence would be more static, and where logistic support would be easier—in particular the key Darwin/Tindal region.

Similarly, there would be little priority for conventional close air support, although fighter aircraft acquired for other priority tasks could usefully contribute. There could be circumstances in which the fastest or most convenient way in which to bring heavier fire-power to bear would be to call on fighter aircraft to deliver, for example, a small quantity of laser-guided bombs. In such operations, the aircraft would be able to fly at altitudes outside the range of man-portable air defence missiles, and thus be at little risk.

There is room for development and experimentation, with both the equipment and manpower (for example, the size of a battalion or company), through a program of contingency studies and exercises specifically devoted to the problem of countering credible threats in our northern areas. This work should build on Army's existing efforts on these matters.

Exercising in the north is widely recognised as valuable, although its scale is inhibited at present by costs and perceptions of priorities for the allocation of funds. As Army has said, the environment itself is neutral and those forces which are best trained and equipped to operate and be supported in it will have the greatest chance of success. To facilitate exercising in the north, to gain greater familiarity with the area, and in general recognition of its priority in credible contingencies, consideration should be given to the basing there of elements of the Regular Army. Proposals could be developed around a Regular infantry battalion, and perhaps a brigade headquarters with some elements of other supporting arms and services.

As insurance against more substantial conventional warfare, this Review has earlier made the judgement that the associated capabilities should be developed within a force manned and equipped primarily against the needs of credible contingencies. The Review is not in a position to draw detailed conclusions on the levels of organisation that would be adequate to retain the appropriate skills against the somewhat remote possibility of their use as an expansion base, but the overriding principle should be that the allocation of resources remain constrained. Strategic considerations do not support more than a limited allocation of defence resources to the development of ground force skills related principally to more substantial land conflict in the defence of Australia.

This implies integration of Regular and Reserve elements; a small number of Regular personnel would be used as the principal training element, and the Reserves used as a significant—but not sole—repository of some skills. In some cases the skill base within the Regular Army need only be small. Integration of Reserve and Regular units would, however, assist in maintaining viable skills at reduced levels of Regular manpower and operating costs.

There is little priority now for extensive skills in fixed-wing close air support, beyond the level needed for basic abilities in, and understanding of, operations (including air-ground co-ordination) and technical support. In present circumstances therefore, there is no need for specialised ground-attack aircraft. But aircraft capable of undertaking ground attack, and skills in their use, are desirable as an expansion base element.

Specific capabilities in the expansion base will need to be considered case by case. In general, however, this Review sees a need for a critical examination of the core skill needs for heavy armoured and mechanised formations. There is no real requirement for tanks in the Australian environment, other than as part of the expansion base. Armour will be used only in a supporting role. Standard infantry operations also require review to ensure that they conform to the priority needs of air mobility in widely-dispersed areas in the north. They should have a direct-fire capability, such as is provided by light anti-armour weapons, for use primarily against soft-skinned vehicles and rudimentary fortifications and where there is a need to avoid collateral damage. Field artillery (105 mm) should be available in limited numbers to provide fire support to ground forces but opportunities for the traditional use of artillery against concentrated targets will be infrequent. Medium artillery (155 mm) is an asset more appropriate to the expansion base.

In Australia's current and foreseeable strategic circumstances, we can afford to examine a range of possible solutions to Army's force structure. Clearly, we must retain a minimal expansion base in a range of skills against the uncertainties of the future, but the focus of our ground force preparations should now favour more credible contingencies. This suggests that our ground forces will be predominantly

infantry, lightly armed and air mobile. The Regular Army should continue to plan on being small and highly trained. Army's first avenue of expansion in credible contingencies is through call-up of the Reserves.

CONCLUSION

Given Australia's extensive northern approaches, it is important to provide a credible level of air defence. But against the assessment of regional military potential and the key assets we need to protect, our needs now for air defence can be met by modest numbers of fighter aircraft capable of operations and intercepts over large areas. A minimum of two fighter squadrons is sufficient in credible contingencies, and as a basis for expansion in the event of deteriorating strategic circumstances.

Because of its unique contribution to very wide area surveillance, the operational development of OTHR should be given the highest priority. In the event of continued success with trials and evaluation, there would be a very strong case for more OTHR sites. Future experience with OTHR and our fighter force might indicate a need to acquire complementary sensors, such as additional ground-based radars, aerostat radars or AEW&C aircraft. The potential value of AEW&C aircraft is such as to justify detailed evaluation of their contribution to our air defence needs, and examination of options for acquisition of a small number of aircraft.

There is a requirement for surface-to-air missiles, in limited quantities, primarily to develop co-ordinated command and control procedures for their prospective use in contingencies of greater military substance.

Australia's needs for ground forces are strongly influenced by our being an island nation, sharing no land border with any other country. The sea and air gap to our north would present a formidable obstacle to any aggressor. Exploiting this barrier, we would pursue policies to deny to an enemy its substantial use. This suggests that there is an important discontinuity in the progression of land-force threats between low-level raids and the incredible prospect of major assault on Australian territory.

Important judgements follow from this. A priority task for our ground forces would be to protect military installations and assets being used for crucial maritime operations in the sea and air gap to our north. We could not expect in all conceivable circumstances to set up an impermeable barrier, and a regional adversary could expect some success in inserting small-scale ground forces. But any attempt by an enemy to assemble, transport, and resupply the larger forces needed for more conventional ground force operations could not escape detection, and the exercise of maritime power would make its failure highly likely.

If our ground forces had to protect military and infrastructure assets and the civilian population from a protracted campaign of dispersed raids in the north of Australia, the resulting demands would be formidable. But the role of the Army is not to be seen as static defence alone. Our forces must also provide an offensive capability to contain incursions and defeat enemy forces close to their landing areas. There would be an emphasis on lightly but adequately armed ground forces, tactically mobile and with good communications and good surveillance and reconnaissance capabilities. The logistic support for these forces would be demanding.

After careful consideration of the vast areas of likely operations in the north and the need to be seen to be providing a visibly adequate defence, this Review is of the opinion that the minimum number of Regular battalions that we require is six. A lesser number of Regular battalions could be faced with an impossible operational task. A similar number of Reserve battalions would also be required, to be available for early deployment from a Reserve Force of at least 10 battalions. These forces would be equipped with utility, reconnaissance and gunship helicopters, trucks, light APCs, small arms, mortars and light field artillery. There would be little priority for heavier equipments or fire-power, such as tanks, anti-armour helicopters, heavier artillery, or fixed-wing close air support.

Army's main avenue of expansion will be through call-up of the Reserves. There is a clear need to plan now for the effective use of the Army Reserve in northern contingencies. This should involve the identification and allocation of tasks and responsibilities to specific Reserve elements.

There is also a clear need for increased and sustained exercising in the north, for both Regular and Reserve elements, to test operational and logistic concepts. The important gaining of experience of the special demands of operations in the north would be facilitated by the basing there of elements of the Regular Army (preferably a Regular infantry battalion), and consideration should be given to this.

The possibility of fighting a conventional land battle in Australia is not so entirely improbable that we should not make some limited precautions against such an event. A sensible planning consideration would be to retain sufficient flexibility and skills to facilitate timely expansion of our ground forces to meet a more substantial conventional lodgement. The appropriate forces should be developed within the framework of a force giving priority of manning and equipment to the needs of credible contingencies. Training for more substantial conventional warfare must be restrained. This Review does not support more than a limited allocation of defence resources to the development of ground skills related principally to the somewhat remote prospect of large-scale land conflict in the defence of Australia.

PART 5 COMMAND AND CONTROL, PLANNING FOR CONFLICT, AND CIVIL DEFENCE

It is perhaps in the areas of command and control, planning for conflict, and civil defence that community perceptions are most influenced by the Australian experience in the Second World War. Yet it is in these areas that our new strategic priorities require quite different approaches to some traditional notions.

COMMAND AND CONTROL

The Terms of Reference for this Review require that consideration be given to 'the appropriateness of existing military command arrangements'. This is a complex issue because Australia's large land mass, small forces, and the relative isolation of potential areas of operations present special challenges for the command and control of Australian Defence Force (ADF) operations. The ADF has a long tradition of a separate Navy, Army and Air Force. There are management advantages in this separation, but there is also an increasing overlap between some of the functions of these forces, and a recognition that in most conceivable circumstances of conflict, Australian forces would be operating on a joint force rather than a single-Service basis.

This recognition has led to the development of Joint Service doctrine which has been subject to validation and testing in exercises. It has also led recently to the development of embryonic functional command arrangements based on the maritime, land and air environments. One of the important questions that needs to be addressed is whether we should seek further changes or whether, in the absence of identifiable threat, present arrangements provide a sufficiently flexible structure which could be developed to meet the requirements of a particular military situation.

Current arrangements

At present, the Chiefs of Staff command their respective Services under the overall command of the Chief of the Defence Force (CDF). Operational commitments are generally handled on a single-Service basis when there is either one Service only involved, or one predominating. Where a joint force is required, it is raised separately and assets are assigned to it by the Services. The Joint Force Commander is appointed by the CDF and reports direct to him.

Single-Service command arrangements are quite appropriate to peacetime training and support needs. But there are doubts about the adequacy of current command and control arrangements to respond to credible contingencies. Experience over the Kangaroo series of exercises has highlighted some weaknesses in the *ad hoc* approach to the establishment of joint force headquarters. Such headquarters can take several months to raise and work up to a standard sufficient to control joint operations

effectively. They take longer to become proficient, and to resolve the many problems which arise when doctrine is first put into practice.

Lower-level situations, which could arise with little warning, may require rather greater responsiveness than current arrangements could provide. Recognition of this has led to the creation of a Maritime Headquarters, collocated with Fleet Headquarters in Sydney, and more recently, the designation of functional air and land force commands.

Organisational considerations

As a first step, we might examine the advantages and limitations of the Maritime Command approach. This Command is based on the existing Fleet Headquarters. While it has a small number of Naval and Air Force officers assigned to it, most of its staff are 'shadow posted' from elsewhere in Navy and Air Force. The headquarters is permanently activated, but is assigned assets only for specific exercises or operations at the direction of CDF.

What has been possible, at minimal cost, is to develop further procedures and operational concepts relevant to the maritime environment, and to practise them using assets from both Navy and Air Force. Officers are being made more familiar with joint operational requirements. We are reducing the lead time for a fully manned headquarters to become operational should this be required.

There is scope for further development of the Maritime Command and its employment in a greater range of activities. Contingencies in which the maritime environment would play an important, even dominant, part could arise at short notice. The objective should be to move towards a situation where Maritime Command is responsible for day-to-day defence operations in the maritime environment other than training, trials and work-up activities specific to individual Services. This should include co-ordination of Defence participation in the civil coastal-surveillance system.¹

In this process there should be a corresponding reduction in the role of the Fleet Headquarters, but Navy would need to maintain a form of single-Service command arrangement. The alternative of designating the Fleet Headquarters as the Maritime Headquarters would move a large element of the Chief of Naval Staff's current command responsibility direct to the CDF and create problems in the peacetime use of Navy assets. The option of having the Maritime Commander reporting through the Chief of Naval Staff rather than direct to the CDF would be cumbersome, and ignores the joint nature of the command.

Command options

Given the uniqueness of Australia's geographic situation and its defence requirements, it is necessary to be cautious about invoking comparisons with other national forces and their command arrangements. But two examples may illustrate some options for Australia.

The Canadian Forces demonstrate the more extreme limit of the functional-command concept. Unification of the Services in Canada was a drastic step about which there are now some strong reservations. But the functional commands formed are able to concentrate on their designated environments (sea, air and land).²

In the United States, while the Chiefs of Staff assist in the corporate decision-making process, none of the individual Service Chiefs commands any forces. They are

¹ Peacetime coastal-surveillance requirements were reviewed by Government in 1978 and 1984. On both occasions the option of Defence assuming overall responsibility for coastal-surveillance activities in peacetime was considered inappropriate and uneconomic, but Defence makes a large contribution to the civil surveillance effort.

² Canada's Maritime Command, for example, came into existence in 1966 and incorporated the Royal Canadian Navy's Atlantic and Pacific Commands and the Royal Canadian Air Force's Maritime Air Command.

responsible for recruiting, training, equipping and supporting units for duty with the 'specified and unified' commands. These commands are the operational elements of the United States forces, reporting appropriately through the Joint Chiefs of Staff to the Secretary of Defense and the President. There are, however, problems of division of authority in the unified commands. The unified commander more or less controls his joint staff but the individual services control the component commands. In this elaborate command structure, the component commander has two command lines—one to the unified commander and one to his Service Chief.³

With our current strategic prospects there is no urgent need to finalise an ADF structure for circumstances of combat which cannot now be foreseen. We have the opportunity for experimentation and can adopt an evolutionary approach. The objective should be to provide a basis for functional command in time of conflict, but to retain the benefits of traditional single-Service management of most existing assets and personnel. An extension of the Maritime Command concept is appropriate. This Review supports the designation of Headquarters Field Force Command as the basis of a Joint Force Headquarters for land operations, and Headquarters Operational Command to be prepared to operate as an Air Command.

This should allow development of a structure better suited to possible operational needs of the Defence Force. Procedures and doctrine can be developed, and staff inculcated with a Joint Service outlook. Recognition should be given to the need for regular exercises with assigned assets. We should then have in place a structure which could respond readily to any likely contingency at short notice. It should enhance the development of a unified and cohesive strategic doctrine, joint administrative systems, and training policies. There are minimal manpower and resource implications.

In the longer term, the ADF may need to consider moving to a more comprehensive functional-command arrangement. There would be clear benefits for force structuring decisions from a more highly developed Joint Service approach, by reducing the scope for inter-Service conflict over priorities. However, full functional-command arrangements would entail a corresponding assessment of logistic support arrangements. There is also some doubt as to whether the structure remaining under the Chiefs of Staff to prepare and train the units allotted to the functional commands would be viable.

A northern command

The importance of the sea and air gap and the defence of northern Australia lead to a need to consider regional command and control arrangements. In credible contingencies, considerable forces would be deployed to, or would operate from, northern bases, and over wide areas. These would include naval and maritime air assets, air defence aircraft, ground forces operating in the area and logistic forces. As circumstances deteriorated there would be a need for close liaison with local civil authorities and, because of the probable requirement for close political control, with ADF Headquarters in Canberra.

It is quite probable that in an extended contingency in the north there would be a need to establish a local joint force headquarters. This would have the responsibility for operations in accordance with a directive issued by the CDF and would have command and control of its assigned assets.

In the Darwin area, there are already modest naval assets, the North West Mobile Force (NORFORCE), and a fighter squadron. This Review has earlier suggested the basing in the north of elements of the Regular Army, and expanded facilities and training there. Although such forces do not necessarily represent the assets that would be assigned to a joint force headquarters, there may be merit in suggesting that at

³ A bill to reform the Joint Chiefs of Staff is likely to be enacted during 1986. The reforms being considered would strengthen the position of the Chairman of the Joint Chiefs of Staff and 'joint' functions within the United States military would also be strengthened.

least an embryonic joint force headquarters (Northern Command, or 'NORCOM') be established in peacetime. The headquarters might be on an experimental basis at first, and developed further as experience indicated. Its establishment would recognise the importance of credible northern contingencies, and could allow a smoother and more effective transition from peace to hostilities.

As a first step, the Review recommends a thorough examination of this proposal. Such a study would establish the peacetime and potential wartime roles for the headquarters. It would take account of the relationship between a joint force headquarters in the north and the three functional commands now being established. The study would also consider the need for permanently assigned assets, and the relationship, in peacetime, between the three Service commanders currently in Darwin and their respective Chiefs of Staff.

Asset allocation

A number of critical comments to this Review have focused on situations which arise where one Service provides assets that are primarily used by another Service. Problems of priorities for asset allocation are almost inevitable where resources are limited and there are competing demands.

The further development of joint command arrangements should reduce the scope for inter-Service friction. There is, however, a need to consider whether some adjustment of the permanent distribution of assets between the Services is required in the interests of combat effectiveness and efficiency.

Redistribution of assets is not new to the ADF. For example, in the 1970s, Navy assumed from Army the responsibility for operating ocean-going and coastal landing craft. The criteria for asset ownership need to balance factors for combat efficiency—such as the integration of doctrine and affinity between operators and those being supported—with practical considerations such as economy in maintenance and logistic support and personnel needs for training and career development. This balance can alter over time and existing distinctions between Service roles should not be regarded as immutable.

In Australia, Orion surveillance aircraft are operated by Air Force but they are employed almost exclusively in the maritime environment. In the United States and several other countries, Orion aircraft are operated by Navy. The option of transferring the Orion force to Navy to promote integration with Fleet assets has been carefully considered in the course of this Review. The conclusion, on balance, is that efficiency will best be served by Air Force retaining responsibility for these fixed-wing aircraft. The problems of integration and interoperability should be tackled in the context of developing the Maritime Command to which Orion aircraft should be assigned for most operational activities. Air Force and Navy must get used to the idea of operating together and any problems that arise with regard to the allocation of assets should be decided by the CDF.

The use of helicopters in ground force operations presents a somewhat different situation. In tactical operations helicopters are as much an integral part of ground force mobility as trucks and armoured personnel carriers—in the same way that naval helicopters are an integral part of surface-ship operations. Combat efficiency may be enhanced if ground force tactical helicopters and their crews were operationally part of Army, and this option is now under consideration within the ADF. This Review believes that its recommendations to provide an enhanced helicopter lift capability for the Army⁴, as part of measures to improve ground force mobility, would also provide a suitable opportunity to integrate the helicopter element into the Army structure.

⁴ See Part 7 of this Review.

PLANNING FOR CONFLICT

Following the Second World War, Defence maintained a War Book as the basis for planning wartime administration and national mobilisation. The War Book has not been updated since 1956.

The War Book approach has no relevance to contemporary circumstances. Planning for national mobilisation following a declaration of war is not appropriate for contingencies where war may never be declared, and where the level and type of conflict may not require total commitment of our national resources.

Planning for wartime administration

While preliminary work has been done in developing new concepts for wartime administration, this subject has been accorded only a low priority within Defence and progress has been slow.

Part of the problem is that this is a national responsibility going beyond Defence, encompassing a wide range of Federal, State and local government authorities. This consideration led the Utz Committee of Enquiry in 1982 to propose that the Department of Prime Minister and Cabinet assume responsibility for co-ordinating the development of planning for national administration in the event of a defence emergency or conflict. This proposal has not been taken up by that Department, and has not been pursued by Defence.

This Review does not consider high-level co-ordination and planning for wartime administration to be an urgent requirement. No specific threat is imminent or obvious that would justify undertaking detailed planning in this area. The kinds of credible contingencies which could arise in short time-scales would not require major adjustment to our machinery of government. Rather, what we need now are some broad guidelines, principally so that relevant authorities are aware of potential defence requirements, and to provide a basis for military planning and exercising.

Some key assumptions that might underpin these guidelines are as follows:

- Military forces would be used within Australia only in a clear situation of external military threat.⁵
- Responsibility for government and civil administration would remain with Federal and State authorities in accordance with constitutional arrangements.
- Every effort would be made to maintain normal administrative procedures and systems, while recognising the need for some streamlined procedures to ensure defence needs were met.
- Internal security and law and order would remain a civil responsibility.

This Review is aware that a study is currently in progress within Defence into the problems likely to arise with civil and military relationships during low-level contingencies. The need for such a study was highlighted during Exercise Kangaroo 83. The study examines the legislative implications for military operations in Australia, and it considers the potential requirement for special military powers to prosecute operations successfully while maintaining normal civilian activity. Of necessity, the problems of Commonwealth and State jurisdictions are addressed.

The study is expected to be completed by late 1986, and its findings subjected to evaluation in subsequent major ADF exercises. The Review supports this as an important element of our planning base.

This study, together with others undertaken within Defence, should provide a basis for the development of the guidelines proposed above. When this work is sufficiently

⁵ One qualification to this is that Government may direct the Defence Force to maintain a capability to assist civil authorities in counter-terrorist operations.

advanced it would be appropriate for Defence to initiate consultation with other Federal authorities to ensure that they are aware of their potential responsibilities in time of conflict, and as part of the process of educating other authorities in the nature of credible contingencies. Beyond that, when guidelines are better developed at the Federal level it would be desirable to draw State authorities into the planning process. It is emphasised that this exercise should be related firmly to the potential requirements of credible contingencies, not concepts of national mobilisation to defeat an invasion force.

Factors affecting expansion

Strategic guidance recognises that a primary determinant of the force-in-being relates to the requirements of the expansion base. Despite the absence of threat, some guidelines for expansion planning can be established.

We might begin by recognising that the need for any large-scale expansion will be preceded by deteriorating strategic circumstances. The concept of warning time does not envisage waiting until a threat has materialised before Australia's military capabilities are expanded. Rather, our force structure planning should be responsive to developments in the regional security environment.

There would be some warning even for low-level conflict. But the force-in-being must contain those capabilities necessary to respond to such contingencies. We might expect that expansion will initially take the form of a surge to higher levels of activity within the existing capabilities of both the Regular and Reserve Forces. Lower-priority peacetime tasks would be forgone. There is considerable latent capacity within our current defence structure to meet shorter-term situations. Most equipments are operated in peacetime below their full capacity.

While we have some understanding from exercises of small-scale expansion under peacetime constraints, our practical understanding of expansion for the defence of Australia is lacking. Continuing study and planning is required, especially of the implications for levels of manning, spares and ammunition, and for the possibility of concurrent operations in our area of direct military interest.

It should also be possible to supplement Service assets and skills from the civil sector. To assist in the process of exploiting our civil infrastructure in a period of expansion, a Military Movement and Support Study is being conducted within Defence. This study is developing a comprehensive data base of our infrastructure and assets, including communication routes, terminal capacities and fleet holdings, so that the most efficient and effective transport means can be selected to meet a wide range of possible logistic requirements. The study is expected to be completed in 1987, but frequent update of its data base will be required.

Separate but equally relevant investigations are in progress into the co-ordination of civil maritime and air resources during hostilities. These cover such issues as chartering, including compensation, ship registration and control, and they provide a useful framework for rapid acquisition of additional logistic capabilities if this is required.

These studies are consistent with the need for some peacetime planning for force expansion, and they can provide guidance on the use of civil assets during exercises.

There are other possibilities for force expansion. At any one time in the ADF new equipment is being introduced and old equipment phased out—for example, fighters, reconnaissance aircraft, destroyers and submarines. If deteriorating strategic circumstances require, it may be a matter of deciding not to dispose of this equipment, and accepting cost and maintenance penalties. Complementary sensors and additional weapons fits for existing equipment could be introduced. More missiles, torpedoes, ammunition and spares would be required.

It would also be possible to acquire from overseas more equipment—such as aircraft, warships, armour and guns—in a defence emergency. These may not necessarily be

the same type as in our current inventory. But in many cases, appropriate equipment could be acquired within the warning time available for Australian contingencies.

Significantly higher rates of effort needed for higher-level contingencies might be achievable in a fairly short period if the Government adopted extraordinary emergency measures. But some categories of manpower skills might still be difficult to expand. Technical manpower is likely to be a significant bottle-neck in some areas, and solutions to this problem should be planned.

Greater peacetime use of the Reserve Forces is one means of easing the lead time for the acquisition of military and technical skills in any future expansion. Apart from the formal Reserves there is a large pool of recently-retired personnel (some 7600 servicemen leave each year), many of whom could return to active duty in a defence emergency. Reserve Forces are discussed further in Part 8.

As with wartime administration, the requirement is for general rather than detailed planning for force expansion that would mobilise the wider resources of the nation for defence purposes. We need a conceptual framework rather than detailed planning of the kind contained in the War Book. This is consistent with the judgement that contingencies requiring large-scale expansion of military forces will have substantial warning time.

Although some work is in hand, our present expansion planning is piecemeal, and has not been considered or endorsed in any comprehensive way by the higher Defence machinery. This matter deserves more attention than it has received in recent years. In 1975 the Defence Force Development Committee established a senior-level standing group to supervise work in this area. It never met, and no alternative arrangements have been established, although planning deficiencies in this area have been criticised by both the Utz Committee in 1982 and the Report of the Joint Committee on Foreign Affairs and Defence in 1984.

War reserves and stocks

An important force structure consideration is the need to establish criteria for stockholding levels, covering war reserves and any need for stockpiling critical materials. Stocks of defence equipment, spares, ammunition and consumables provide the immediate means of replenishment in military operations and in peacetime activities. They are important to our surge capacity.

In principle, war reserves should cover likely usage requirements in the period before resupply—whether imported or from local sources—can be obtained. Strategic guidance observes that stockholding policy should be related carefully to those high-usage items likely to be needed in the more credible contingencies where the risk of restriction of supply for political reasons is greatest.

Holding war reserve stocks over and above peacetime needs is a costly process which, in our strategic circumstances, needs to be approached with considerable discrimination. (Current war reserve stocks of ammunition alone are valued at in excess of \$500 million.)

The importance of stocks to the capability of the Defence Force, and the necessity for such requirements to compete for available defence resources, directs the need for an agreed defence stockholding policy. Considerable work has been done in recent years in specific areas such as fuels and lubricants and stocks for the Army's Operational Deployment Force (ODF). But efforts since as long ago as 1973 to develop an agreed stockholding policy have failed, in spite of the concern expressed in *Defence Force Capabilities 1981* that this was an urgent need, and even when limited to the fairly straightforward area of ammunition. No policy recommendations on war reserves have been put to Ministers since 'interim' proposals were considered by the Government in 1963.

This institutional stalemate reflects the differences between the policies of the individual Services, and a lack of agreement over the appropriate contingencies against which stocks should be held. There is also no agreement on the formulae to be applied across the range of consumable items. Piecemeal policies reflecting differing single-Service philosophies seem to have been the result.

It is by no means obvious that our current stocks would be inadequate for the more credible kinds of contingencies. Current ammunition stocks, for example, include large quantities of the more basic kinds of ammunition. Stocks for the more advanced missile and torpedo systems acquired in recent years are more limited, but these would not be in high demand in low-level situations. They are also very expensive (Harpoon costs \$1 million per missile) and require frequent maintenance.

A more precise and comprehensive approach to the planning of war reserves is required, based upon concepts of credible lower-level conflict and the unique characteristics of the Australian environment. It is unsatisfactory for a situation to arise where Departmental advice provided to this Review acknowledges that 'evidently due to deficiencies in our data base we are not well able to quantify the Defence Force's sustainability'.

An appropriate starting-point might be to determine the adequacy or otherwise of existing stocks to sustain military operations for periods of three months and six months in circumstances of intermittent low-level conflict in the north of the continent. Given the nature of such conflict, rates of effort and demands for key supply items may be quite different than for higher-level contingencies. We might begin by determining the requirements for ammunition, spares and consumables of maritime-patrol aircraft, patrol boats, regional surveillance forces and the Special Air Service Regiment. The destroyer force, ODF, strategic transport, and utility helicopters might then be included and the need for increased readiness training of assets such as the fighter force and strike forces assessed. Remoteness and dispersion in the operating environments would be very demanding on fuels, lubricants and spare parts. Yet the general avoidance of military confrontation by the aggressor would probably limit the requirements for ammunition, particularly of the more advanced missiles.

The objective should be to establish realistic rates of effort and stock usage, over and above current activity levels, as a basis for decisions about contingency stock requirements. We must be selective in our approach to providing complete weapon outfits for ships and aircraft. This is particularly true where we acquire advanced platforms from overseas with a design capacity for missiles based upon concepts of high-intensity northern-hemisphere conflict. The limited number of military targets in credible contingencies must be an important factor in calculating how many missiles we should hold.

Stockholding policy can be developed forward from this more modest basis and priorities established for remedying deficiencies. Once the methodology is established regular review of contingency stock requirements should be relatively straightforward, and there is scope for the concepts to be tested in exercises.

For higher levels of threat, realistic guidelines should be established having due regard to the effect of warning time on stockpiling preparations and the prospect of uninterrupted supply from overseas. There is a 1980 Memorandum of Understanding on logistic support in which the United States acknowledges the importance to Australia of uninterrupted supply. Other less extensive undertakings exist with some European countries. It is reasonable to expect the United States to provide military supplies in the event of threat to our security in regional contingencies. But our planning needs to acknowledge the possibility that this may not always be in the quantities and time-scales we would seek.

Creating large war reserves (as distinct from training and operational stocks) against remote and improbable contingencies is not a sound policy. Australia's strategic

situation does not justify large-scale stockpiling or a substantial diversion of resources to expensive spares and missiles that are needed only for higher levels of conflict. Precautionary stocks are in order, but not in numbers required to meet sustained high-level conflict.

CIVIL DEFENCE

As a consequence of discussions at a 1966 Ministerial meeting, civil defence⁶ is primarily a State government responsibility, with support and policy guidance provided by the Commonwealth. The latter is provided through the Natural Disasters Organisation, which is a part of the Defence Department.

Low-level conflict

The civil defence requirements of low-level contingencies are limited. In such circumstances an objective of government policy would be to maintain civilian day-to-day life as unaltered as possible. In so far as civilians were affected, the kinds of relief measures would be much the same as those needed for handling accidents and natural disasters.

The capacities of State emergency, hospital and ambulance services would provide the basis for this civil defence effort.⁷ However, some degree of more specialised training for key personnel is appropriate to ensure that they are aware of the special risks of military situations, and so that there is a basis for effective co-operation between civil and military authorities. Such training and planning is particularly important for personnel with responsibility for emergency and medical services in the north of the continent.

More substantial conflict

Higher levels of conflict would be more demanding of civil defence capacities. Nevertheless the overlap with the capacities required for natural disasters would be considerable, and the lead times associated with higher-level conflict would allow the further development of specialised civil defence skills. Planning for the evacuation of non-essential personnel in the north may be an important means of reducing the risk to the civil population. Australia's capacity in this respect was amply demonstrated in the aftermath of the destruction of Darwin by Cyclone Tracy. Only in the event of serious deterioration in our strategic circumstances should consideration be given to involving the civil community in home-guard-type duties.

Nuclear war

Nuclear war is a very remote possibility, and Australia would not be a major theatre in the event of nuclear conflict. The level of risk is not sufficient to justify substantial

⁶ The term 'civil defence' as used here covers the range of activities necessary to protect and support the civilian population during time of conflict, but not activities undertaken in support of the war effort.

⁷ The areas of greatest potential for civil defence in Australia are in the more remote regions where the greatest peacetime threats of bushfires, tropical cyclones and floods exist. It is in these areas that State Emergency Services and other volunteer organisations are in greatest strength.

investment in protective measures for the Australian population. However, an awareness of the requirements for protection against nuclear effects should continue to be maintained in State Emergency Service organisations through training courses conducted by the Natural Disasters Organisation.

Policy implications

The requirements outlined above are broadly in accordance with existing civil defence doctrine developed by the Commonwealth and promulgated to State governments. There is, however, one point regarding the risks of nuclear attack which needs consideration. In recent years Government has acknowledged—more explicitly than in the past—that in the event of superpower conflict there would be a specific risk of attack on the joint facilities at North West Cape, Nurrungar and Pine Gap. This raises the issue of whether protective measures for nearby population centres are necessary. While accepting the general unlikelihood of nuclear conflict, this Review judges that a comprehensive survey of the towns of Exmouth, Woomera and Alice Springs should be undertaken with a view to developing contingency civil defence plans for these centres.

The Commonwealth should take the initiative in this planning, although relevant State authorities should be fully involved. While the principle that civil defence should be a State responsibility is generally sound, that principle was accepted before the joint facilities became operational. The Commonwealth is responsible for their establishment in Australia, and it has direct access to the intelligence expertise necessary for judgements about measures such as evacuation. A Commonwealth lead in this matter would be an appropriate response to the special nature of the risks associated with the presence of the joint facilities, and would provide a training model for State authorities should future circumstances require a greater civil defence effort.

CONCLUSION

No urgent or radical changes are required in ADF command and control arrangements, but a framework of functional commands should be developed so that peacetime arrangements more closely reflect the Joint Service requirements of credible contingencies. The Review recommends a detailed examination of the need for a regional joint force command in northern Australia, which might be established on an experimental basis in the first instance. The Review favours Army having control of an integral utility helicopter force.

In the longer term we should perhaps recognise that the trend is for the joint command structure under the CDF to gain authority at the expense of the single Services. This is not an argument for the eventual abolition of the single Services, but rather to recognise that over time the single Services are becoming less concerned with the conduct of combat operations. Their functions will be increasingly limited to the training and management of personnel, and the acquisition and maintenance of the equipment and stores to be provided as combat assets to functional commanders.

Planning for wartime administration and expansion of our defence effort has been neglected for many years and needs to be taken forward, but on a restrained basis related to credible levels of conflict. Similar considerations apply to our policy on war

reserves and stockholding, where there has been no agreement since as long ago as 1973. We need to ensure that our forces could be properly sustained in credible contingencies arising in limited time-scales. Owing to a lack of data, however, the ADF's sustainability in combat cannot be easily assessed. The Review recommends that a start might be made by determining the adequacy of existing stocks to sustain military operations for periods of three months and six months in circumstances of intermittent low-level conflict in the north of the continent. There is scope for these concepts to be assessed in exercises.

Appropriate civil defence skills and capabilities relevant to more credible contingencies are readily available within the civil community. The Defence role can be properly limited to training and planning. There is, however, a need to test our civil defence capacities in the north of Australia in exercises.

Except for the towns located near the joint facilities, civil defence measures against the remote prospect of global nuclear war do not require priority in our planning.

PART 6 LOGISTIC SUPPORT AND INDUSTRY FOR DEFENCE

It is perhaps inevitable that reviews of defence policy tend to concentrate on combat capabilities. Yet, the support requirements of our defence forces are of central importance. In the past we were able to ignore large areas of our logistic requirements because we expected to draw on the resources of allies in theatres distant from Australia. Now, however, an essential aspect of self-reliance is our capability to support independently protracted deployments in our own defence.

While considerable progress has been made in this regard, we are still in the process of identifying our logistic support and defence industry priorities. The difficulties of deriving force structure requirements from the generalised priorities in strategic guidance are compounded when support issues are considered. And yet decisions concerning the provision of infrastructure, logistic and industry support have direct and major significance for military operations, affecting the manner in which they could be conducted and even the strategy practicable at the time. The aim of this Part of the Review is to provide a clearer national focus for those organisations whose assistance the Australian Defence Force (ADF) needs in order to be an effective fighting force.

SUPPORT REQUIREMENTS

The support requirements of the ADF are very complex and demanding, both of manpower and financial resources. At the lowest level, they start with the individual in a combat area who requires clothing, rations, individual weapons and ammunition, and medical facilities. At higher levels, they include transport and the repair and maintenance of equipment. More remote from combat, but no less important, are technical and scientific support.

Excluding manpower costs, support activities account for over one-quarter of defence outlays in any given year. Defence manages inventories worth several billion dollars, and employs more than 30000 military and civilian personnel in support functions. There are over 1.6 million line items stocked in defence warehouses and stores, and about 15 million transactions occur annually in supply computer systems alone.

While this large and costly system supports the ADF in peacetime, its justification must rest in its potential to support military operations. There are less costly ways of providing peacetime support with lower inventories, more centralised services and minimal redundancies. Such characteristics would, however, severely limit sustained deployment and combat effectiveness in some circumstances.

Our primary objective then is to develop a logistic system to support the ADF which can respond to the needs of deployed forces in credible contingencies as well as in peacetime. To respond to contingent needs, it should be flexible, survivable and

sustainable. Present and future resource limitations also demand maximum efficiency, elimination of unnecessary duplication, and common use of logistic systems, facilities, inventories and services whenever this is practicable.

Facilities policy

Facilities are required to support the force-in-being in peacetime and in contingent situations that could arise at relatively short notice. The location and planning of operational and support facilities to meet these needs should, however, also have regard for strategic requirements which could arise in the longer term.

Strategic considerations suggest that some operational bases should be located in forward areas in the north and west of the continent. However, the abiding constraints of geography, population and industrial development patterns support the continuing need to locate major bases and support facilities in the south-east. This separation confers a defensive advantage, but it requires adequate transport and logistic supply lines in between. There is no justification for dispersing our major support bases or industries in the south-east on grounds of vulnerability. Social, economic and industrial imperatives can properly determine their location.

In recent years there has been significant development of defence facilities relevant to operations in the north and west. These developments, together with proposals in this Review, have wide ramifications for the present disposition of military establishments in Australia. As social factors, such as urban growth and environmental considerations, also appear to be influencing the disposition of defence establishments to an increasing extent, a review of the present location of establishments in Australia and possible changes is recommended. The last comprehensive overview was in 1973.

No specific facilities that are required solely for expansion to meet higher-level contingencies need to be provided now. Construction resources in the civil community are extensive. We could assume that, in a period of deteriorating strategic circumstances, construction lead times would be relatively short compared with the times needed to train personnel or acquire equipment for installation. Expansion facilities could be more rudimentary than those usually available to the peacetime forces.

In peacetime, lead times for the provision of defence facilities are lengthy because of procedural steps required by Government. There is a need to consider whether more streamlined procedures should be planned for use in a national emergency.

Northern facilities

Developments in the north, including mining and gas exploration, have increased its potential vulnerability, but have also provided a more extensive civil infrastructure on which Defence might draw and build. The port facilities at Dampier, the heavy engineering repair and maintenance facilities at mining towns, such as Mount Newman, and the availability of services such as telephones and retail distribution, are examples of facilities that could be of use in emergencies.

There is scope for a greater ADF presence in the north. While there are modest naval facilities at Cairns and Darwin, there are none between Darwin and Cockburn Sound in Western Australia. This deficiency requires attention, particularly as the North-West Shelf area becomes more important economically. What is needed is a facility in the north-west which can provide assured access, fuel, and a limited repair capacity for patrol boats and other naval ships operating off the north-west of the continent.

The Army's only substantial forward base in the north is at Townsville, where elements of the Operational Deployment Force are based. This formation, which is air mobile and designed to be able to move to any part of Australia, is nevertheless conveniently located only with regard to the Cape York area. As indicated in Part 4, consideration needs to be given to the possibility of another Regular Army unit being

permanently based in the north, probably in the Darwin/Tindal area. This would ensure an understanding of the peculiar conditions of the north and the long-term effects on personnel and equipment of climate and other factors. It could also be a central logistic point for ground force operations in the north-west.

Air operations in the north would be conducted from a number of locations varying from fully-serviced airfields (such as Tindal), and bare bases (such as Learmonth or Derby) to temporary strips for tactical transport operations. Cape York Peninsula is a gap in our chain of northern air bases, and a bare base there would be most useful to the support of air operations to the north-east of the continent.

The planning of operational facilities in the north should give attention to questions of vulnerability, given the sparseness of defence installations there and the tendency for newly constructed facilities to become the nucleus for further civilian development.

Our planning should ensure that logistic resources would be available to allow increased rates of effort from these forward operating bases. Civil resources in the area of operations could be used, where available, for the supply of some commercial goods and services. But specialised maintenance facilities and demands beyond the civil capacity in remote areas will largely need to be provided from Service resources.

Fleet support

A need exists for logistic support for ships at sea. Such capabilities can increase time on station and avoid excessive transit times to northern operational areas, or in our maritime approaches. A minimum capability is an underway-replenishment ship to cover peacetime needs and provide a basic capability in time of threat. This would allow at-sea support of several ships by the provision of fuel, ammunition and other stores. This ship could be augmented in a developing situation through the use of appropriate civil tanker vessels. No requirement is seen at present to provide full afloat support operations simultaneously in both eastern and western ocean areas. But as our naval presence in the west of the continent builds up, the purchase of a low-cost tanker to support two-ocean deployments should be considered.

There is also a case for a tender to allow forward repairs and maintenance for deployed surface ships, and perhaps submarines. The long-term priority to be given to this capability depends in part on the further development of naval infrastructure in the north and north-west, which would provide alternative repair and maintenance capacities. But an afloat capacity can provide a useful element of flexibility and reduce transit time.

Ground force transport

Army needs to be highly mobile. This is achieved primarily by organic surface vehicles (light, medium and heavy trucks and armoured personnel carriers) and by air and sea transport support from Air Force and Navy.¹ The distances involved in our physical environment, and the likely dispersed nature of operations, indicate that Army will place substantial reliance on air transport support, with heavier items and replenishment stores being moved by road, rail or sea transport. Strategic air transport requirements would be met by aircraft capable of lifting troops and lighter vehicles into airfields in the area of operations, although civil aircraft could be used for transportation of personnel to forward bases (such as Tindal). Within the area of operations, fixed and rotary wing military aircraft needing limited ground support and landing site preparation would be required.

There are advantages in using coastal shipping for moving bulk tonnages. But the requirement for dedicated sea transport or amphibious lift is limited. Furthermore, at escalated levels of threat, when coastal shipping may be threatened, it would be safer

¹ Surface vehicle and helicopter requirements for tactical mobility have been addressed in Part 4 of this Review.

to rely on internal lines of communication, both air and surface. Improvements to the road system are gradually reducing reliance on coastal shipping for military movement and support, except in some particularly remote localities where there are in any case few attractive targets for an attacker. One amphibious heavy lift ship and perhaps a small number of landing craft are a sufficient force for training, responding to any low-level situation requiring amphibious operations, and providing an expansion base. Additional sea transport of a conventional kind (that is, requiring port facilities) would be by civil vessels on charter.

Support for air operations

Air operations in the north present a more predictable logistic support problem. Deployed aircraft will operate from the forward bases existing or being established across northern Australia. Such bases may need to sustain operations for protracted periods. The principal requirements will therefore be appropriate fuel storage capacities and facilities to undertake servicing and repair. Significant tonnages of fuel and stores would be required, calling for good access to surface transport routes.

Civil infrastructure

Much work remains before we have a comprehensive infrastructure capable of supporting a self-reliant defence posture. Although there has been commendable progress in the last decade in developing specific military facilities in the more remote areas of Australia, increased attention must be given to influencing developments in the civil infrastructure that may be relevant.

A more organised system is needed for bringing Defence interests to the notice of State and local authorities. The objective is to bring the location and capabilities of facilities such as roads, railways, ports, airfields, communications, water storage and power sources more clearly into line with the strategic requirements for the defence of Australia. This requirement was noted in the *Defence White Paper* of November 1976, but little seems to have been done where it matters—in the north and north-west of the continent and in transit areas such as the centre. Proposals need to be brought forward on additional means by which Defence may be represented in the planning processes for long-lead-time civil infrastructure.

There should be no need for defence resources to subsidise these developments, other than in exceptional situations where it is clear that the potential benefit to Defence of limited additional works justifies some investment of defence funds.² In most cases, what is required is for Defence to influence infrastructure planning being undertaken for commercial and other interests. In this context, a National Defence Infrastructure Directory has been begun which, on completion, should be readily available to planning and exercise staffs. Its data base should be updated regularly so that the existing or planned civil infrastructure is not duplicated unnecessarily.

Civil support

In the ADF support network there are opportunities for the use of private contractors or the civilian work-force. Some defence facilities, particularly dockyards, already employ large specialist civilian work-forces. The Air Force, however, provides most of its own base logistic support. The scope for introducing private contractors needs to be examined, thus releasing Service manpower for other activities. The ADF acknowledges that there is scope for employment of civilian manpower in aircraft depots and in maintenance squadrons, particularly in some specialised work areas such as micro-miniature electronics repair shops.

² In the case of the Darwin to Alice Springs railway there is no urgent defence requirement, given the nature of credible contingencies and the warning time of more substantial conflict. The railway would be useful for defence purposes but it should not be subsidised from the Defence Budget.

One area where the Services may use industry capacity is in the provision of integrated logistic support after manufacture. Where defence equipment is manufactured in Australia, wholly or in part, local industry will be well placed to provide through-life support. It will have the facilities, special tools, test equipment and trained manpower.

If the workload can be sustained, local industry can often be competitive. This is particularly the case where transport costs to and from an overseas source and the resulting reduced availability of the equipment, which can lead to higher initial numbers, are included. Rationalisation along the lines of greater industry involvement in through-life support should help relieve technical manpower pressures in the Services, which are subject to wastage rates greater than other manpower areas.

Under Australian law, it is difficult to call up or otherwise ensure that the skills so developed in industry would be available in the field in times of emergency. It is essential that there be technical expertise in the Services for this purpose. This can be provided only if the Services retain a representative share of repair and maintenance work in their own establishments, and perhaps by training Service personnel alongside civilians in industry.

Other areas where large-scale use of civil assets could be expected in contingent circumstances include:

- *Telecommunications*, where emergency rerouting, extension of existing routes or provision of new routes may be possible.
- *Construction and civil engineering*, which could take over work outside the area of operations.
- *Rail, air and sea transport*, where redirection from civil tasks might be planned and occasionally exercised in peacetime.³

In all of these, and in some areas of manufacturing, such as food, clothing and footwear, a high level of support to the Defence Force could be achieved at some limited expense to normal commercial operations. In credible contingencies such demands are unlikely to be high and could be accommodated by adequate planning. This planning and organisational framework should be set in place now and tested or at least simulated during exercises.

Force structure implications

The logistic support requirements for air and naval forces can be established by reference to the types and numbers of equipments to be supported, the likely operational areas and rates of effort. A need to consider additional naval and air bases in the north has been identified.

The logistic support needs of land forces involve rather more complex calculations based upon the nature of the threat, the forces to be deployed and the available transport options. The most demanding transport requirement will be the initial movement of the ground force and its equipment to the area of operations. Civil assets are suitable for troop movement and some heavier equipment can travel by road, rail or sea.⁴ But there will still be a requirement for the military airlift of basic items of equipment and initial stores. (There is only a limited civil air-cargo capacity in Australia, particularly for larger items.)

Examination of the medium-range air transport requirements for deployment of the Operational Deployment Force in a timely manner indicates that a fleet of up to 20 aircraft would be needed. There would also be concurrent demands for airlift capacity

³ Civil operations in the field of transport dwarf the peacetime defence requirements and the Australian transport industry has a capacity to move personnel and equipment at a much higher level than Defence Force transport resources could hope to achieve.

⁴ There are some specialised functions available in military ships that are not available in commercial vessels. The Australian merchant fleet has been reducing in recent years.

for other purposes, including the movement of Air Force elements and base support units which would absorb additional aircraft.

Within an area of operations, other military transport aircraft are required to support deployed units, and to redeploy forces. These include fixed-wing aircraft of the Caribou type and rotary-wing aircraft such as Chinooks. Military ground transport assets are also needed ranging from lightweight high-mobility vehicles through to specialist bulk-haulage vehicles. While these forces can contribute in a limited way to the initial transport task, they should be reserved primarily for tasks in theatre. Recommendations concerning these air and ground transport assets are made in Part 7 of this Review.

Logistic support concepts have been developed within the individual Services, and organisational principles set out for logistic support in joint force operations. But these concepts and principles have not been subject to the same extent of testing in exercises as have joint force combat operations and command and control. Too often in our exercises it appears that the logistic problem has been side-stepped because of resource constraints and the limitations of the tactical scenario. Current exercises are typically preceded by a considerable effort to accumulate extra support resources to ensure that logistic problems do not constrain operational activities. It would be most useful to conduct a program of sustained exercises in the north, supported from bases in the south, to test and identify weaknesses in the logistic train. This program might be preceded by some computer modelling of selected logistic problems.

The vast distances to be crossed between our main support bases in the south of the continent, and likely operational areas in the north, are a key logistic constraint that requires careful forward planning and practical evaluation in peacetime. In the process of testing further our logistic support requirements, the priority to be given to preparations for responding to various levels of threat requires particular attention. We do not need to create a logistic system that is more appropriate to higher levels of conflict, or give undue emphasis to supporting essentially expansion base elements. We do, however, need to ensure that the logistic system is capable of timely expansion.

But there ought to be no automatic assumption that a focus on more credible conflict requirements will substantially reduce our logistic support needs. The large distances involved, the likely dispersal of forces across a number of areas, and the limited northern infrastructure, will place heavy demands on our logistic capacities. Planning to use civil-sector assets can help relieve the logistic burden, but the ADF may be required to operate from austere locations with a minimum of local support.

INDUSTRY FOR DEFENCE

Despite numerous reviews, studies and policy pronouncements, there is still considerable confusion about the issues involved in industry for defence⁵—both inside and outside the Defence community. Part of the confusion stems from a continuing preoccupation with the historical experience of the Second World War when Australia found itself isolated from traditional sources of supply. At that time we followed a policy of all-out national mobilisation with some 40 percent of our national expenditure allocated

⁵ The term 'industry for defence' is preferred to the misleading concept of 'defence industry'.

to the war effort. Much of the current industrial capacity devoted to defence purposes is a legacy of that era.

Confusion also arises from a misunderstanding of the term 'self-reliance'. 'Self-reliance' is no more than a slogan until it is related to credible and practicable situations. In Australia's current and future strategic circumstances self-reliance refers primarily to our need for combat forces capable of independent operations in our neighbourhood, and the capacities for their direct support, discussed in the preceding section. Its applicability to industry is limited to the extent to which indigenous industrial capacity is necessary for the effectiveness and sustainability in combat of our forces.

'Self-reliance' is not a prescription for Australia to have the full range of defence industrial capacities. Even in those areas where we judge that indigenous industrial capacity is necessary for defence purposes, there will almost inevitably be some dependence on overseas sources for components.

There is confusion also from a tendency to introduce broader social and economic dimensions into the debate about defence industry issues. While general government policy objectives must of course apply to defence activity, we need at the outset to acknowledge that defence expenditure cannot provide a remedy for the perceived failings of the Australian economy or industrial capacity. Defence expenditure within Australian industry represents only one-half of one percent of Gross Domestic Product. The first priority for defence expenditure must be effective combat support, and Defence involvement in industry must be continually related to that objective.

It is not within the scope of this Review to propose remedies for the full range of ills that afflict industry. This section of the Review is limited to outlining some strategic factors relevant to consideration of the issues, and the development of some policy guidelines to assist further work in this area. In addition, the long-term force structure guidance contained in this Review should help to overcome one of the main industry complaints—that defence procurement programs are excessively subject to unexplained changes, delays or cancellations at short notice. It cannot, however, overcome the vagaries that seem an inevitable consequence of annual Budgets in the short term and technological change in the long term.

Industry policy and defence

Much of Australian industry policy in areas relevant to Defence had its origins in the Second World War and the immediate post-war years. We developed a substantial industrial capacity to support the war effort and to substitute for goods not then available from overseas. After the war this process continued, supported by government policies of import replacement and the availability of productive capacity no longer required for war production.

By the 1970s, circumstances had changed to the point where the economic costs of these policies became apparent. Developing countries had moved into many traditional industries. Wage rates and the standard of living in Australia had increased substantially. Many industries had become uncompetitive, opportunities for new technologies and markets were missed, and much of Australian industry found itself in crisis.

Since then Australian industry, like its counterparts in much of the advanced Western world, has been engaged in the process of restructuring, as a consequence of economic pressures and deliberate government policies. It is now recognised that Australian industry cannot and should not seek to be competitive in all sectors and for all products. Rather, the emphasis should be on exploiting industrial sectors where Australia has unique requirements, or comparative advantages over competitors.

Defence policy for industry cannot be immune from these changes. Defence procurement offers no general panacea for the relative decline in the industrial capacities necessary for activities such as shipbuilding and heavy engineering. Even if all defence

capital equipment expenditure could be directed to Australian industry, this would represent a very small increment to our industrial sector.

The problem for defence policy is to identify those industrial capacities that are important for credible levels of defence effort, and to judge which could be expected to be available from normal commercial sources and which require special fostering. Where Australian industry is broadly competitive with overseas procurement, there is no issue. Industrial capacities that are viable by commercial criteria are able to compete freely for defence orders in accordance with broader policies of preference for Australian industry in government purchasing.⁶ But in other cases, the issue is the level of premium that is acceptable to secure the involvement of Australian industry.

There is a need for discipline in the pursuit of Australian industry involvement. The ADF uses a wide range of weapons and equipment, much of it in limited numbers and often exploiting advanced technologies. Local production of such items can impose penalties of cost and time, which need to be weighed against the requirement for greater independence on the one hand and the alternatives of stockpiling or seeking greater assurances of overseas supply on the other.

In approaching this problem the key principle is selectivity. We need to be selective in those industrial capacities judged to require support on strategic grounds because the premiums paid require other defence capabilities to be forgone. In effect, this requires us to judge the level of premium against the costs of alternatives such as stockpiling and the risks inherent in dependence on overseas sources. In this process there is no alternative to careful case-by-case examination in reaching particular procurement decisions. But clear guidelines can avoid unrealistic expectations and allow industry to undertake its own planning with a better understanding of government policy.

Current government policy

Defence Policy for Industry was considered by Cabinet in 1984 following extensive Defence Committee discussion. Principles on the Defence Policy for Australian Industry were announced on 3 June 1984. In accordance with my Terms of Reference, those principles form the basis of judgements made in this Review on the ways in which defence industry capacities should be enhanced. The June 1984 policy statement is a rather complex document, but it contains a number of important elements from which priorities can be developed for this Review.

The statement emphasises, *inter alia*, that defence industry policy cannot be separated from defence policy generally. The role of defence industry is to contribute to national defence capacity. Any contributions from the Defence Vote over and above that required by general government industry policies must be justified on the basis of a strategic requirement, not any broader social and economic goals.

The statement also notes that options for improved self-reliance include assured overseas supply and stockholding policies, as well as local industrial capacity. The statement proposes that priority should be given to the industrial capacity for the overhaul, repair and adaptation of equipment required in more credible contingencies, and the provision of munitions and consumables for which we could least rely on overseas supply.

⁶ In assessing what can be supplied competitively from within Australia, it must be recognised that international production and trade in military materiel is characterised by very high non-tariff barriers, government-subsidised domestic sales and exports, dumping, international collaborative ventures, and counter-trade. Most arms sales have sensitive political and diplomatic overtones. Thus, the price at which we might buy a defence item will depend on a range of circumstances at the time and will have little if any relation to the price we would get in export markets should we establish a local capability of our own.

These broad policy approaches are endorsed by this Review. They are consistent with the strategic priorities established in the preceding Parts.

Defence industry and levels of conflict

Isolation from virtually all sources of overseas supply is credible only in circumstances of nuclear conflict or prolonged conventional war between the Superpowers. Neither possibility provides a realistic basis for the development of our defence capabilities. As in other areas of defence planning, considered extensively in this Review, we focus on a range of lesser contingencies which are credible in the shorter term, through to longer-term and more remote possibilities for more substantial conflict.

In this range of possibilities, strategic guidance and government policy have for many years acknowledged that the threshold for direct *combat* assistance from our United States ally could be quite high. This judgement has led to the emphasis on greater self-reliance in combat elements and their direct support. Resupply and logistic support from overseas is a different matter. In the range of low-level conflicts that are possible there is a considerable likelihood that overseas resupply will continue to be available to Australia. Action to deny Australia overseas sources of important defence supplies is well beyond the capacity of regional states.

Resupply would be in doubt only in circumstances where overseas suppliers were attempting to put pressure on both combatants, or where other priorities in supplying countries meant that deliveries would not be available in either the time-scales or the quantities we required.

The continued vitality of our defence relationship with the United States is an important element in these judgements. The United States is the major source for much of our advanced defence technology and equipment. The alliance relationship, supported by specific bilateral supply and support arrangements, thus makes a substantial contribution to our combat effectiveness. While it is possible to conceive of circumstances in which the United States would be unwilling or unable to supply materiel in the quantities and time-frames we required, the international arms market is very competitive, and other overseas sources would be available.

Diversification of our overseas supply sources in recent years is an added element of insurance. We have also put in place government-to-government agreements with most of our supplying countries to enhance the prospects for continuing supply and support.

Nevertheless, the possibilities for restriction of overseas supply and support suggest that a measure of protection against such circumstances is appropriate. And several practical factors encourage the notion that our industrial capacity to support a defence effort in time of conflict would be important to our combat effectiveness. Our regional military advantage depends as much on our ability to maintain and adapt defence equipment as it does on the level of technological superiority in our equipment.

For credible contingencies, the industrial capacity to maintain, repair, modify and adapt defence equipment to the Australian environment would be of fundamental importance for our combat effectiveness. Comprehensive local capabilities in this category are thus of high strategic priority and, in many instances, of greater economic and technological practicability. It is in this more limited sense that local industry capability may largely determine the sustained operational effectiveness of our forces in combat.

In low-level situations, equipment would be used more intensively than in peacetime, especially for surveillance and response tasks. Harsh operating conditions would be demanding of maintenance capacity and spare parts. Although combat losses may be light, there would be an increased attrition rate. Requirements for other consumable items such as ammunition would be relatively modest. Nevertheless there would be a need to build up stocks, and to ensure that adequate supplies of items little used in

peacetime were available to our combat forces. Some local industrial capacity for these items can help to ensure the availability of critical items.⁷

While we could expect to be reasonably self-reliant in the more common ammunition types (for example, small arms and mortar, and artillery high-explosive rounds) and repairs and maintenance, we are generally dependent on overseas supply for our more advanced weapons such as missiles and torpedoes. This is acceptable given the very high cost of local production and our limited requirements for anti-ship, anti-aircraft and anti-tank weapons for more credible contingencies. But a local repair and maintenance capacity is desirable.

Consideration of possible longer-term requirements for industrial capacity for more substantial conflict involves rather speculative judgements. Contingencies requiring substantial expansion are improbable. Emphasis should therefore be on supporting and obtaining high utilisation from the equipment available at the time. The establishment and maintenance of large-scale production facilities appropriate only to a major expansion of the ADF takes a low priority because of the absence of an identified requirement, their high cost, and the lack of a continuing peacetime workload to maintain skills once a capability is established.

In general terms, the industrial capacity to support a defence effort in higher-level contingencies will be based on the general level of industrial capacity available in the Australian economy at the time. This is largely beyond influence by defence policy or investment. Moreover, the time-scales associated with the possible emergence of a more substantial threat would allow development of some additional industrial capacity and establishment of some new capabilities specifically designed to support an increased defence effort.

Nevertheless, some specialist industrial capacities would be important to an expanded defence effort and may be lost without defence investment in maintaining a local capacity. Products with applications only in defence, such as military high explosives and ammunition and specialised areas of aerospace, communications and electronics, are areas where selective investment in technological capacity for the longer term may be justified. Also relevant are the technological and engineering skills which are maintained in the laboratories operated by the Defence Science and Technology Organisation.

Too much of the debate about industry for defence is concerned with the desirability of designing and producing platforms and weapons in Australia.⁸ From a consideration of strategic factors there is justification in paying a substantial premium for indigenous design and production only in the few cases where there is a unique Australian requirement, or where local participation contributes to an important overhaul and refurbishment capacity. Leaving aside financial considerations, the lead times for indigenous production of most major equipments would limit the expansion of our major defence assets from local sources in a deteriorating situation. In such circumstances, overseas acquisitions would be the main source for additional major platforms and weapons.

Industry priorities

In the public sector, the dockyards, the eight munitions factories, and the clothing and aircraft factories continue to do much the same kinds of defence work as during the

⁷ Australia is favourably placed for such an effort by its general self-sufficiency in important raw materials. Studies by the Defence Industry Committee have shown that we either produce now, or could do so if required, the materials and basic products necessary for important defence production. Those few areas of dependence, such as small quantities of special chemicals for explosives and some special alloys, could be readily stockpiled if strategic circumstances required this. We are less dependent on overseas sources than any comparable country, and have no need for large strategic stockpiles of raw materials.

⁸ As indicated earlier, this issue does not arise if Australian industry is broadly competitive with overseas procurement.

Second World War, although the particular products and technologies have changed somewhat over the last 40 years. The June 1984 Government Statement acknowledged that 'despite significant past expenditure the capabilities and capacities of the Government's defence factories and dockyards . . . are ill-matched to our strategic needs and in need of reform'.

This situation does not reflect any lack of studies of the public-sector defence industries. The most recent and comprehensive review was produced in 1981 by Mr Eltringham, then Special Adviser Defence Production in the Department of Industry and Commerce. It is a thorough coverage of the subject with some substantial recommendations for the reorganisation and rationalisation of the defence factories.

Mr Eltringham recommended that some essential defence production in the munitions area needed to be retained in the public sector, but consolidated into a small number of factories with investment in new technologies and product processes. Other work would be attractive to private industry which would maintain the capabilities as an adjunct to their commercial capabilities at less cost. While some limited progress has been made in rationalising government production there is still much to be done.

Central to this exercise is the need to understand more accurately the costs of government production. The broad figures indicate a substantial subsidy of over 100 percent on sales. This amounts to an annual subsidy of some \$20 000 per person employed. But these figures take no account of the effective subsidies involved in public-sector exemptions, that is, from land rates, or the lack of provision for depreciation on buildings and equipment. Nor is it possible to ascertain from current accounting methods the effective premium involved in particular products or production processes. The consequence is that there is no real basis on which judgements can be made as to whether or not the subsidy paid for production capacity in the public sector is justified in relation to the same work in the private sector, let alone by the strategic or operational benefits in relation to overseas sourcing and stockpiling.

What is needed is the introduction of commercial cost accounting in the public sector. A start has been made at the Williamstown Naval Dockyard and on some major projects including aircraft, small arms, artillery and some ammunition. Extension across the range of factories and dockyards is being pilot tested. Full-scale implementation should proceed as quickly as possible. We would then have a firm basis on which to make case-by-case decisions on the acceptability of the premium that might be involved in maintaining particular elements of public-sector production, or options that might maintain the production potential at lower cost.

Those areas of Australian industry offering the most scope for further development and a contribution to self-reliance are generally in the private sector. The more selective approach that has been developed in recent years has facilitated greater private sector involvement in major defence purchases. There are, however, some arrangements with the private sector which involve a high degree of Defence intervention and subsidy. The Government has directed that Defence's method of doing business be revised as quickly as possible to eliminate these distortions to normal commercial decision-making. Considerable progress has been made in the aircraft industry. Shipbuilding and repair is the other major sector in which such arrangements apply and is the next priority for reform. Concurrently, it would be appropriate to review the methods of providing equipment and other support to industry (for example, the electronics sector) to reduce the unintended constraints on commercial activities.

Electronics is now an important area with considerable potential for local involvement.⁹ Advanced electronics, formerly confined to military applications, are now in widespread use in industry and in consumer products. There are at present significant,

⁹ It is worth noting, for example, that electronic systems account for 60 percent of the fly-away cost of the P3 Orion aircraft, 40 percent of the cost of the F/A-18 and 25 percent of the submarine.

although not extensive, Australian capabilities in the design and manufacture of advanced electronic systems. The Australian electronics industry has also established a substantial capacity to maintain defence electronic equipment throughout its service life. This is not only within the communications area but in software support for some computer-based combat systems.

This Review has identified repair, overhaul and maintenance capacities as a priority area for industry participation, and we have earlier referred to the desirability of increasing private-industry involvement in Service repair and maintenance activities. This will require some adjustment of working practices in both industry and the Services. Contractor access to military bases and use of ADF equipment will be necessary, and civilian workers will in some cases find themselves working alongside military personnel.¹⁰ Additionally, management and unions will need to accept the presence of ADF personnel in industry so that military personnel can maintain the range of skills necessary for maintenance of equipment in forward operational areas.

Policy directions

The June 1984 Government Statement refers to a need to translate 'longer-term strategic defence planning into precise industry objectives . . . to produce an authoritative and detailed paper on longer term defence requirements and on measures to encourage the maximum participation by Australian industry'. Interpretation of this requirement must recognise the changing nature of defence equipment, technology and relative costs, the cost of installing a reserve production capacity for contingencies, and the likelihood of obsolescence of unused industrial facilities should contingencies not arise. The paper has not yet been produced although relevant work is being done in the ongoing program of industry studies by the Defence Industry Committee and by a review of its capabilities by the Office of Defence Production.

As a guide to that work the following principles are suggested on the basis of the strategic concepts developed in this Review:

- Every effort should be made to limit our dependence on overseas sources of repair and maintenance support. A critical area is electronics, particularly the software needed to support modern weapons systems. Australian private industry is increasingly developing high-grade and competitive expertise in this advanced-technology area.
- High-usage spares and ammunition items should be produced within Australia where the cost penalty is not excessively above alternatives such as stockpiling. For security reasons—and because of the need to subsidise margins of reserve capacity over current production—ammunition manufacture should continue to be concentrated in the government factories, but with private industry subcontracting to minimise costs and to exercise the relationships that would be essential for expansion. Funding of reserve capacities for contingencies should be done separately to ensure a proper basis for cost comparison. In some cases it will be sufficient to retain a production potential with reduced lead time rather than actual manufacturing capacity. This can be in the form of stored tooling or design information.¹¹
- Our requirements for design capacities are limited to those areas where we have unique Australian needs, but a skill base in the design area can be useful for the selection and adaptation of the most suitable overseas equipment. Much of our design skill base will, for this reason, need to be maintained within the Defence Science and Technology Organisation and Defence engineering staffs. But where unique Australian requirements exist, for example mine countermeasures forces,

¹⁰ There are overseas precedents for this, and at least one in Australia—at the Rapier facility in South Australia.

¹¹ This has been done most recently in the case of the Karinga cluster bomb.

every effort should be made to involve local industry at the design stage so that innovation is fostered and design requirements maximise local production opportunities.

- Manufacturing capacity should be focused on those areas where Australian industry is broadly competitive, where there are unique Australian requirements, for example Jindalee over-the-horizon radar, or where the manufacturing and assembly processes provide the equipment and skill base for subsequent maintenance, repair and refurbishment at acceptable cost.

The overall objective in developing Australian industry for defence is broadly comparable to the objectives in the general restructuring of Australian industry—to exploit relative efficiency, to meet unique Australian requirements at a reasonable cost, and to reduce the burden on the public purse of subsidising inefficient and outdated local production capacities.

By doing so we can support a more self-reliant defence posture, but neither we nor any other medium-sized country can aspire to full self-sufficiency in defence production. Pursuit of even substantial defence independence of overseas sources of supply is not feasible and is in conflict with world-wide commercial trends. Australia's ability to supply defence equipment at the requisite level of technology, with acceptable lead times, and at an acceptable cost is, and will remain, very limited. Nor is there any urgent strategic requirement for us to divert scarce resources from other national priorities to change this situation.

CONCLUSION

To support our forces in operations, we need forward bases. While there has been significant base development in recent years, we need now to proceed with a bare-base airfield on Cape York Peninsula, a naval facility on the north-west coast of Western Australia, and the basing of a Regular Army unit in the Darwin/Tindal area. Because our forces would also draw on civil assets, it is important that defence interests have an influence, where appropriate, on civil infrastructure developments, and for Defence to have a comprehensive awareness of the potential for civil support through the maintenance of a National Defence Infrastructure Directory.

Logistic aspects must be addressed in our contingency planning and weapon-system procurement.¹² Our logistic planning should ensure that we could support deployed forces at increased rates of effort. There is a need to conduct a program of sustained exercises in the north, supported from bases in the south, to test and identify weaknesses in our logistic train. In credible contingencies, we can use both civil and military assets to carry materiel to forward northern bases from major support areas in the south-east, but we need integral ADF logistic capacities within operational areas in the north.

The industrial capacity to maintain, repair, modify and adapt defence equipment to the Australian environment is of fundamental importance for our combat effectiveness in credible contingencies. Every effort should be made to limit our dependence on overseas sources of repair and maintenance support. Civil industry should contribute to the maintenance, adaptation, and through-life support of defence equipment. This

¹² Over the life cycle of an average military capability, some 70 percent of total cost will be attributable to operation and maintenance support.

is especially appropriate where a system is designed or manufactured in Australia, and where it has a priority use in credible contingencies.

If the ADF is to become more dependent on the civil sector in these crucial areas, it will need to be reassured about the co-operation of the trade union movement and the dependability of the work-force in the event of a national emergency. This is a matter for government policy and the development of better relations between the ADF and the union movement.

Our priorities for manufacturing should focus on those areas where Australian industry is broadly competitive, where Australian requirements are unique (this will apply mainly to sensors and other electronics), or where manufacturing and assembly provides equipment and skills for through-life support at acceptable cost.

Defence industry, including government owned and operated facilities, should be subject to the same restructuring policies and pressures that apply to Australian industry as a whole. The Government's defence factories and dockyards are highly subsidised and in urgent need of further rationalisation and the introduction of rigorous commercial cost-accounting practices across the full range of their functions.

Australia's ability to supply defence equipment at the requisite level of technology, with acceptable lead times, and at an acceptable cost is, and will remain, very limited. Pursuit of any substantial defence independence of overseas sources of supply is not feasible and would be counter to world-wide commercial trends. Nor does it have priority in our strategic circumstances. Australian industry should not plan on a repeat of its experience in the Second World War when a broad range of defence equipment was locally manufactured. Finally, and noting the limited effect that defence expenditure has on our overall economy, defence industry should be used to support defence, and not as a convenient prop for ailing industrial sectors.

PART 7 FORCE STRUCTURE RECOMMENDATIONS

This Part of the Review contains force structure recommendations in the light of priorities established in the preceding Parts. It is not a comprehensive survey of all force elements, nor is it concerned to recommend procurement of particular brands of equipment. These matters are beyond the scope of this Review, requiring detailed scrutiny and judgement by the Government's Departmental and Service advisers.

The concern here is to identify central force elements, and to recommend changes where these seem required. In this process, we seek to establish not only where capabilities of higher priority should be developed but also where lower-priority activities should be reduced or acquisition deferred. In a few cases it has not proved possible to offer definitive advice because technical and cost considerations remained unresolved or are quite complex. In these cases the principal options are identified and advice provided to guide Government decisions.

Financial and other resource considerations are introduced in this Part of the Review. Our cost estimates are based on Department of Defence figures for the 1985-86 Financial Year (FY) and 1986-91 Five Year Defence Program (FYDP). Cost estimates are expressed in constant 'Budget 1985-86' terms. The financial planning and programming implications of the recommendations made here are drawn together in Part 9 of the Review.

INTELLIGENCE AND SURVEILLANCE

Intelligence and surveillance capabilities have been given a generally high priority in defence planning over the past decade, and in the current FYDP. This is consistent with the judgements made in Part 3 of this Review. The recommendations made in this section relate primarily to the implications of technological trends and developments, and the possibilities they offer for enhancement of our intelligence and surveillance capacity.

This section is restricted to systems designed primarily for intelligence and surveillance purposes, but it is acknowledged that many platforms and systems can make an intelligence and surveillance contribution.

Defence intelligence capabilities

Defence intelligence assessment and analytical capabilities rest primarily in the Joint Intelligence Organisation (JIO). JIO was most recently reviewed by Mr Justice Hope in his 1984 Royal Commission Report. He found JIO to be 'a competent and

professional agency', but expressed a few concerns related to organisational and managerial aspects. His recommendations in this regard have been accepted by the Government and steps are being taken to rectify the problems he identified.¹

This Review considers that the level of resources currently available to JIO, just over 300 staff and a budget of about \$10 million per annum, for expenditures directly attributable to intelligence functions, provides the basis for effective defence analytical and assessment capabilities through the 1990s.² Some modest enhancement will be necessary to benefit from and keep up with technological developments. The processes of collection and analysis are becoming increasingly dependent upon advanced technologies. Further investment will be necessary to process and utilise the raw data collected by national agencies and available through allied arrangements.

To exploit more fully available data and the potential of computerised data bases, to allow for periodic upgrading of computer facilities, and to accommodate the gradually increasing operating costs, additional funds in the order of \$10 million will be required over the next five years. Provision has been made for this in the Defence Program and priority for this investment is endorsed by this Review.

JIO draws upon a number of sources of raw data, including Foreign Affairs and Defence Attache reporting. A principal technical source is the Defence Signals Directorate (DSD). Mr Justice Hope found DSD to be 'impressive'. It is the judgement of this Review that DSD represents a most important national defence asset in both peace and war. In time of tension or conflict the capability that is represented by DSD could readily be of critical importance. Continuing investment in new technology will be required to maintain the effectiveness of DSD in its important national defence role.

Intelligence for defence operations

In Part 3 this Review drew attention to the need to meet the intelligence requirements of operational commanders. Mr Justice Hope has also drawn attention to the need for planning and policy decisions to give guidance and definition for the 'wartime roles' of the defence intelligence components.

This is primarily an organisational matter, but also a matter of recognising realistically the types and levels of threat facing Australia. There is no foreseeable requirement to plan on a total wartime footing. Incremental development is all that is required. Consistent with its conclusions on command and control arrangements, this Review judges that the co-ordination of intelligence for operations should be concentrated in the Headquarters Australian Defence Force (ADF) as part of the development of functional command arrangements. A start has been made with the appointment of a Joint Staff Director of Intelligence. As ADF command arrangements are developed, this area may need some additional staff to fulfil properly the co-ordinating function, although care must be taken that it does not grow into a competing assessment agency.

Similarly, good communications arrangements are necessary for the effective dissemination of intelligence data between collection systems, JIO, Headquarters ADF and functional commanders. These should be developed as an integral part of command support systems.

1 The generally satisfactory performance of JIO, and these minor deficiencies, were fully discussed in Mr Justice Hope's *Royal Commission on Australia's Security and Intelligence Agencies: Report on the Office of National Assessments and the Joint Intelligence Organization* (December 1984).

2 This Review notes that much important raw data is provided through allied arrangements. Some of these sources could not be duplicated from our own resources. Were they not available, we would need considerably to increase our intelligence investment, and yet still not match some of the capacities currently available to us.

Electronic warfare

Australia has traditionally had substantial electronic-warfare (EW) capabilities by regional standards. We should aim to maintain effective capabilities in this important area. Significant Australian EW programs are in hand or programmed for early decision, for example, new electronic support measures (ESM) for guided missile destroyers at a cost of \$13 million, and modern ESM equipment for the P3C Orion aircraft at a cost of \$84 million.

Experience has indicated that it would be prudent for future procurement planning to ensure that the EW systems we acquire can be adapted to our operational environment, and that we have access to the technology to enable us to do this for ourselves, especially where the capability is directly relevant to credible contingencies. Similarly, we need to give some priority to the development of an appropriate EW library. This Review supports the allocation of sufficient manpower—in the order of 10 specialist positions—for the Defence EW Data Base (DEWDAB) to enable this to get under way.

Over-the-horizon radar

The Australian-developed version of over-the-horizon radar (OTHR), Project Jindalee, gives strong indications that it may meet much of the requirement for broad-area real-time surveillance coverage of the northern approaches, particularly in respect of air incursions, by the 1990s. It holds promise that further development and the improvement in operator skills through experience will see reliable detection of surface vessels, and perhaps a contribution to the tactical control of fighters during intercept.

The measurement and performance definition program (Jindalee Stage B) will be completed by mid-1986, and conversion of the experimental radar to an operational system (Stage C) is planned to begin in July 1986 at an expected cost of \$46 million. The conversion will be undertaken while maintaining a surveillance capability in OTHR. It should be completed by 1989.

Advice to this Review has suggested that technical and specialised manpower limitations would largely preclude any significant hastening of an operational OTHR entering service, irrespective of funding considerations. But there would seem to be scope for some additional development work during the conversion process.

Two areas appear to warrant priority attention. The first is the further development of the surface detection mode which has not been advanced to the same level as the air detection capability.³ This is essentially a matter of applying additional defence science resources to this element of OTHR.

The second matter is the parallel planning for additional radars. These are needed to provide comprehensive coverage, to help overcome some technical limitations and to explore the scope for utilising linked systems for enhanced tracking accuracy. This Review judges that three radars could be justified in locations across the continent.⁴ This is a priority matter, and detailed attention should be given to this development with the objective of a decision in FY 1987-88 to allow two additional radars to enter service by the early 1990s. The design of these radars should allow for later modification to take advantage of technological development as it occurs, but these possibilities should not be used to delay their early introduction into service. A Departmental examination of OTHR capabilities, presently being conducted, will allow the Review's judgements on OTHR to be refined.

3 Project Jindalee was developed in response to the air surveillance requirement. The technically more complex surface detection capacity has been a secondary priority.

4 A second radar could cover the north-east approaches to the continent while a third could overlap with the existing system to provide better detection and tracking capabilities.

The indicative project cost per radar would be \$105 million with \$2 million in annual direct operating costs. Present estimates are that the air surveillance mode would need about 40 Service personnel for routine 8-hour operation and 75 Service personnel for 24-hour operation. Civilian contractors would be extra, and additional Service personnel would be needed for surface mode operation.

Ultimately, perhaps some five radars could be justified to provide more comprehensive coverage of our maritime approaches, and to exploit fully the benefits of using more than one radar within a particular target area. Subject to the results of further Departmental studies, planning provision could therefore usefully be made for an additional two radars at similar cost for introduction by the mid-1990s.

In establishing command and control arrangements for operational radars, it must be recognised that there could be concurrent demands for operation in both the surface and air detection modes. Further, target acquisition and tracking information may be available from sources additional to OTHR. These considerations suggest that OTHR might best be managed on a Joint Service basis, and that there would be a need to integrate OTHR into the ADF command support system.

Long-range maritime-patrol aircraft

The Air Force will be operating a fleet of 20 P3C Orion aircraft from 1986 for at least the next 20 years. The Orion has long range and good endurance. It is equipped with sophisticated surface and sub-surface sensors for anti-submarine-warfare (ASW) and surveillance missions.

The initial detection of modern, quiet submarines is a difficult problem. The Orion aircraft, as necessary operating in conjunction with other assets such as helicopters, surface ships and towed arrays, is a cost-effective ASW platform.⁵ It is the preferred force element for ASW operations under most conditions.

The Orion is also equipped to attack surface targets with the Harpoon anti-shiping missile, and it can lay mines. These capabilities are an important addition to the specialised maritime strike and interdiction capabilities provided by our submarines and F-111 aircraft, in areas remote from effective enemy air defences.

In Part 3 we identified a possible requirement for about 12 long-range maritime-patrol (LRMP) aircraft to operate from northern bases in credible contingencies. There would be an associated need for maintenance support aircraft, giving a total need of about 20 aircraft. Our existing LRMP aircraft assets thus seem adequate for present requirements, especially given the current limited number of submarines in the region. In the longer term, the eventual clarification of the full potential of OTHR for surface surveillance will affect force structure priorities for other methods of maritime surveillance.

Towed acoustic arrays

Defence analysis has identified the important contribution that surface-towed acoustic arrays could make to the protection of shipping in focal areas from attack by submarine. They would be of particular value for the protection of our coastal shipping, a great proportion of which operates in southern waters from Fremantle to Sydney, and they could operate in other areas where water conditions and the tactical situation are favourable. They can detect modern submarines and surface ships at long ranges in suitable oceanographic conditions.

⁵ Even so, the costs are substantial with 900 personnel required to support 20 aircraft, and direct annual operating costs of \$35 million.

Part 3 has identified the need for at least development and trials of towed array systems in Australian waters, because of their likely contribution to our ability to detect submarines in some nationally important sea areas. Australian defence scientists are developing a towed array primarily for operation by our new submarines, but which could also be suitable for the surface application, although alternatives are being investigated which could allow earlier trials and introduction into service.

This Review notes that the Defence Program has provision for a decision in FY 1986-87 to evaluate and develop an initial surface-towed array capability, at a cost of \$56 million, and for a further decision on acquisition in FY 1989-90 at a cost of \$23 million. The Review supports the priority of this program.

Mapping and charting

In Part 3 of the Review attention was drawn to the need to complete priority mapping and charting tasks in a shorter time-frame than at present seems possible.

For an improved rate of topographical mapping AUTOMAP III equipment is programmed for decision in FY 1986-87 at a cost of \$13 million, with introduction in FY 1987-88. A manpower increase of up to 50 personnel may be required, but there are possible alternatives such as greater use of civil resources under contract⁶. The priority of the AUTOMAP project is endorsed by this Review.

A related issue is the provision of basic survey data. Up to 1982 this was done by Canberra aircraft modified for the photo-survey task. Air Force has for some years proposed the acquisition of specialist aircraft for the photo-survey tasks, and for aerial reconnaissance. The present Defence Program includes provision for a decision in 1986-87 on the acquisition of two commercial aircraft at a cost of \$67 million.

For the mapping function alone, cost considerations favour the use of civil contracts by a considerable margin. The acquisition of specialist aircraft can therefore be justified only by the strategic reconnaissance role that specialist aircraft could also have. This Review is inclined to the view that adequate reconnaissance resources are available through our access to allied systems, the F-111 aircraft and the package being developed for the F/A-18.

The Review believes that a more substantial case needs to be developed before the acquisition of specialist photo-survey reconnaissance aircraft could be justified. It considers that this project should be deleted from the Defence Program. The cost of contracting the primary photo-survey task to civil industry is expected to be in the order of \$0.7 million per year.

Using the currently available hydrographic survey resources of HMAS Moresby and HMAS Flinders⁷, defence priority surveys are expected to take about 45 years to complete. Additional survey assets—four survey motor launches (SML) (at a cost of \$15 million) and a laser airborne depth sounder (LADS) aircraft (at a cost of \$26 million) are expected to enter service beginning in FY 1987-88. The Defence Program also has provision for a decision in 1986-87 for an additional coastal survey vessel of the Flinders type (at a cost of \$48 million) to enter service in 1990-91. These additional assets would allow defence priority hydrographic surveying to be completed in about 15 years.

⁶ A Review of Commonwealth Topographic Services is being undertaken by Professor J. E. Richardson. His recommendations on the division of responsibility between the Royal Australian Survey Corps and the Department of Resources and Energy should be available to the Government at the time this Review is being considered. While recognising the need for effective co-ordination with civil authorities, this Review believes that where a mapping effort is undertaken to meet a defence requirement (that is, large-scale maps of the north and north-west) it should be funded and managed by Defence. Australia has a defence need for maps and military mapping skills that is in many ways unique. Unlike countries such as the United States, Great Britain and Canada, we must contemplate seriously the conduct of ground force operations on our own territory.

⁷ In addition, two landing craft heavy (LCH) are currently being used as interim survey vessels.

The introduction of the LADS aircraft and the four SMLs will need 50 uniformed personnel. The coastal survey vessel would require another 30 uniformed personnel, with perhaps 20 civilian personnel required for the Hydrographer's office. While recognising that the availability of trained hydrographic staff could be a limiting factor, this Review considers that the charting requirement is of sufficient priority to justify retaining the present timings for these proposals.

STRIKE AND INTERDICTION

Part 3 of the Review established a continuing requirement for strike and interdiction capabilities within our force structure, while acknowledging limitations on their utility in low-level conflict. It was noted that in escalated conflict it would be important for Australia to have a demonstrably superior strike and interdiction capability, particularly for maritime strike. Two force elements have a primary strike function—the F-111 force and the submarine force. Current force elements with secondary strike roles—Orion and F/A-18 aircraft and destroyers—are considered elsewhere.

Strike aircraft

Our 23 F-111 aircraft represent a unique capability in regional terms.⁸ They have an unsurpassed capacity for long-range strike at land targets with substantial immunity.

Nevertheless, there are issues concerning the long-term future of the F-111 in our force structure. The F-111 is demanding of fuel, spares and specialised maintenance personnel. Some 1800 personnel are required to support 23 F-111s, and the direct annual operating cost (including manpower costs) of these aircraft is approximately \$72 million. Over the last decade operation of this aircraft was justified by its unique capabilities in a period in which the Mirage interceptor offered virtually no strike capability. But the introduction of the multi-role F/A-18 raises the issue of whether the strike potential of the F/A-18 could meet our needs more economically, and provide a better expansion base for the future.

The decision to acquire the F-111 aircraft was made in the 1960s when Australia had rather different strategic priorities and aspirations. If the aircraft were not in our inventory, this Review considers that in current circumstances we would decide that a specialised strike aircraft of the F-111 type was not justified by the extra capability margin it provides. Rather we would seek to maximise the strike potential of multi-role aircraft such as the F/A-18.

The issue of the future of the F-111 force has prominence now because of the need to update the aircraft with modern avionics, weapons and support systems. The combined costs of these proposals in the Defence Program is in the order of

⁸ Four of the 23 aircraft are equipped with a reconnaissance pallet and are designated RF-111.

\$470 million.⁹ Without at least some of this updating, in particular the replacement of older analogue systems with modern digital avionics, support may become difficult by 1990.

Within Defence three options are under consideration. The first is a full update and upgrade of the F-111 fleet at the cost of about \$470 million. The second is to undertake a limited updating to maintain the aircraft in service, but with no enhancement of their strike capacity. The third option is to dispose of the F-111s and procure additional F/A-18 aircraft, preferably a two-seater version oriented to the strike role which may become available in the early 1990s.

It is the judgement of this Review that our strategic circumstances do not justify improvement of F-111 strike capacity. The update might therefore be limited to the minimum needed to maintain the aircraft in service. Except in so much as it affects the failure rate of the aircraft's systems, and hence its operational availability, loss of commonality with USAF aircraft should not be a major consideration. The option of fully updating and upgrading the F-111s should therefore be ruled out because it provides a capability well beyond our current and foreseeable requirements.

Accordingly, and on the basis of more recent cost estimates, the Review recommends an update package costing up to about \$225 million. This would comprise reduced spending on: the Avionics Test Equipment (\$60 million); the Simulator update (\$14 million); and the Avionics update (\$150 million). These figures would be subject to more detailed examination in the course of the review of options for our strike capability presently being undertaken for the Force Structure Committee. The proposals for precision guided munitions and an updated electronic-countermeasure system would be dropped, on the grounds of insufficient priority in our strategic circumstances, short lead times for their acquisition, and noting also the reduced priority that the Review sees for strike against land targets.

The option of replacing the F-111 by additional F/A-18s has some attractions.¹⁰ Given its expected fitting with the Harpoon anti-ship missile, and if supported by in-flight refuelling, the F/A-18 will have substantial capabilities in the priority maritime-strike role. It has a lesser but still significant capability against land targets, especially if modern stand-off weapons are used. This marginal deficiency needs to be set against the limited requirement seen for particularly land strike, and the inherent disadvantage and high costs in continuing to operate a small number of highly specialised F-111 aircraft. Also, an internally fitted reconnaissance system is being developed for the F/A-18. While it will have fewer sensors than the RF-111, it will be able to do many of the tasks now performed by the RF-111, and to a comparable standard.

There might also be advantages in terms of expansion potential. The F-111 is out of production and ageing. Additional aircraft would be difficult to acquire, and no equivalent replacement aircraft is in prospect. There is a rather better prospect that

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| 9 | The proposals and their programmed costs are: | \$ 91 m. |
| | Avionics Test Equipment Update | \$ 41 m. |
| | F-111 Simulator Update | \$219 m. |
| | F-111 Avionics Update | \$ 62 m. |
| | Precision Guided Munitions for F-111 | \$ 60 m. |
| | Electronic Countermeasures for F-111 | |
| | A further \$152 m is proposed for reserves of precision guided missiles for the F-111, held beyond the FYDP. | |
| 10 | The unrefuelled range of the F-111 is slightly greater than that of a single refuelled F/A-18. The F/A-18 has about half the weapons carrying capacity of the F-111 and only has a terrain avoidance system versus the terrain following system of the F-111. These considerations are more significant for land strike than for maritime strike. | |

additional F/A-18s or similar aircraft would be available should our future strategic circumstances require enhancement of the strike force. But against this are some doubts about the service life of the F/A-18, arising from current structural problems. However there is an expectation that these will be resolved eventually, as they were for the F-111.

The number of F/A-18 aircraft required in a replacement strike force for the F-111 is the subject of some debate within Defence. Air Force has argued that some 30 to 45 aircraft might be required. Part 3 of this Review identified a requirement for up to two squadrons of strike aircraft oriented towards maritime strike, but also capable of strike against land targets. The Review judges that this requirement could be met by the acquisition of about 25 additional F/A-18 aircraft with some adjustment of the squadron and training arrangements for the currently planned 75 Tactical Fighter Force aircraft. While the individual F/A-18 would be less capable than the F-111 it replaced, two squadrons of F/A-18s specialising in the strike role, together with the strike potential of the other 75 F/A-18 aircraft and our 20 Orion maritime aircraft, would provide a substantial margin of strike capability by regional standards.

Financial comparisons would need to set the cost of the F-111 update against the cost of the F/A-18 options. These latter costs would include the cost to acquire the additional F/A-18 aircraft and in-flight refuelling, and perhaps a specialist aerial reconnaissance aircraft for the longer-range reconnaissance now provided by the RF-111. But offsetting costs would include the possible resale of the F-111 to the USAF and the longer-term savings in operating and personnel costs by settling on a single multi-role aircraft type.

A detailed examination of the cost implications of F-111 and F/A-18 options is at present being undertaken for the Force Structure Committee. While the unique capabilities of the F-111 over the F/A-18 are not of sufficient strategic priority to justify a substantial financial premium, over 10 years of operating experience with these aircraft has given us a potent strike force which has been adapted for reconnaissance and maritime strike roles. And we have a substantial investment in training and support facilities specifically for the F-111 force.

On the basis of available information, this Review is inclined to support retention of the F-111 fleet with a minimum update program designed to sustain rather than enhance the aircraft in service until around the mid-1990s. Decisions could be made towards the end of this decade on the long-term future of the strike force in the light of experience with the F/A-18, the availability of a specialised strike version, and more informed projections on fatigue and attrition rates for the F-111 which will then be almost 20 years old.

Submarines

Australia operates six Oberon class submarines, which were commissioned into the RAN from 1967 onwards. With updating of their sensors and weapons they have developed into the most formidable sub-surface strike force in our region. The potential of submarines derives from their ability to conduct covert operations at low risk in areas where an adversary may have a degree of sea and air control. They can contribute to covert intelligence collection and surveillance, the transport of special forces, blockade, mining, ASW and strike missions.

The Oberon submarines are expected to be paid off during the 1990s, and the Government is planning to build new submarines in Australia. The first stage of this procurement involves funding two European shipbuilders to develop detailed proposals within guidelines endorsed by the Government.

Improvements in new submarine performance, together with improvements expected in boat availability, mean that six of the new type of submarine will be broadly equivalent in overall capability to nine or ten submarines of the Oberon type. The

estimated project cost for six new submarines is currently about \$2.6 billion, or six percent of the anticipated capital procurement program over the next 15 years.

This Review considers that this level of sub-surface warfare capability can be justified by the long-term strategic value of a capable submarine force. Nevertheless our minimum submarine requirement is generally met by the current Oberon fleet, and the increased capability of a fleet of six new submarines represents a desirable rather than an essential increment. Should cost pressures require re-examination of the project, this extra margin of capability could be subject to scrutiny on the basis of comparison with higher-priority capability requirements, particularly those relevant to more credible contingencies, for example mine countermeasures forces and ground force mobility.

In May 1985 the Defence Force Development Committee (DFDC) proposed the establishment of a financial ceiling for the submarine project. This Review considers that a ceiling should be established as a matter of some priority. Should there be predictions of a substantial cost escalation in the submarine project due to local construction problems, then options involving some lesser capabilities could be considered.

These could include a reduction in submarine numbers, the fitting of less capable and less costly equipment, the fitting for but not with certain equipments or sensors or a reduction in the extent of Australian industry involvement, particularly in areas involving high cost premiums. With regard to possible reductions in numbers, even in low-level contingencies, Australia might wish to have the option of maintaining submarines on station in more than one operational area—if only to ensure that an opponent, having detected the presence of one of our submarines in one area, could not count on the absence of a submarine threat in another area. Six new submarines of the capability proposed should be able to provide a sustained presence in three separate areas simultaneously, a major improvement over that available from the existing Oberons.

A related issue is the desirable basing arrangements for our submarine fleet. The need for proximity to priority operational areas suggests that the effectiveness of our submarine fleet would be enhanced by basing the fleet at Cockburn Sound in Western Australia, with secondary basing on the east coast to provide a Pacific Ocean presence and for ASW training purposes. Cockburn Sound already has well established submarine base facilities, which, following a Ministerial statement in 1985, will be used for the home-porting of some of the Oberons. The introduction of new submarines, together with the move of RAN facilities out of Sydney Harbour, provides a suitable opportunity to make the change to west-coast basing of our submarine fleet. The estimated cost of this move is \$112 million.

MARITIME DEFENCE

In Part 3 we observed that in a wide range of credible contingencies there would be an important requirement for maritime defence forces. It was also noted that surface naval forces have particular value because of their flexibility, endurance and sustained military presence, but that the requirement for high-capability destroyers is limited.

The focus of our concern here is the need for surface naval forces and naval helicopters. Requirements for submarines, maritime air defence and strike aircraft, maritime surveillance and reconnaissance aircraft, and afloat support are addressed elsewhere in this Part of the Review.

Size of the force

At present our surface naval fleet consists of 12 destroyers (three guided missile destroyers (DDG), four guided missile frigates (FFG) and five destroyer escorts (DE)) and 20 patrol boats (15 Fremantle class and five Attack class).¹¹ In addition there are seven amphibious ships (one landing ship heavy and six landing craft heavy)¹², one mine countermeasures vessel, two afloat support ships (one destroyer tender and one underway-replenishment ship), three marine science vessels (one oceanographic research vessel and two survey ships), as well as sea training ships and a large number of small support craft. There are 37 naval helicopters—comprising 8 Sea King ASW helicopters, 16 Wessex utility helicopters of which 10 are kept operational for counter-terrorist tasks, and 13 smaller helicopters. The latter are used for interim FFG support flights, training, survey and utility tasks. Eight helicopters are normally in extended maintenance or storage.

In recent years, there has been no overall strategic review of the desirable size of Australia's naval forces, and specifically no review of destroyer numbers. The number of destroyer-type ships has been sustained more because no clear argument has emerged for variation in the size of the fleet than because of any positive force structure judgements based on strategic guidance or enduring geographic factors. The Government's decision in 1983 not to replace the aircraft carrier HMAS Melbourne, which marked a fundamental change in the composition of the fleet, has not yet led to any reconsideration of destroyer numbers, although Departmental studies are now in hand to address this matter. Thus the number of destroyers and frigates in the fleet is much the same as it was 15 years ago. Similarly, Navy now has about the same number of patrol boats as it had in 1970, although the requirement for patrol activities has greatly increased.

In the same period, there has been a marked fall in mine countermeasures forces (from three vessels in 1970 to one ship today), despite the high strategic priority consistently accorded to this capability. By contrast there has been a growth in the Navy's amphibious transport capability. In 1970 we had no ship capable of operational beaching, whereas now we have a heavy amphibious transport ship and six LCHs. These trends in mine countermeasures and amphibious capabilities are contrary to priorities for the defence of Australia.

Naval aviation forces in recent times have been determined by perceived needs for air defence of task groups at sea, organic maritime strike and ASW. These forces centred on the Navy's aircraft carrier capability. With the disposal of Skyhawk and Tracker aircraft, Navy's aviation activities now largely reside in ASW helicopters and the helicopter support of offshore counter-terrorist operations. The latter is a task imposed on the Defence Force by government decision. The requirement for ASW helicopters has been extensively analysed, including possible uses for the Sea King helicopters, in the context of the disposal of HMAS Melbourne and the purchase of Seahawk helicopters that will be with the fleet by the late 1980s.

Until recently, Navy had planned to introduce six new surface combatants, beginning in 1996, at a cost of some \$4000 million to replace the DDGs and later DEs. Navy also proposed a \$315 million program to replace the Fremantle class patrol boats, beginning in the mid-1990s. These proposals are being reassessed.

11 Two more frigates are being built at Williamstown Naval Dockyard to replace two of the destroyer escorts.

12 Three of these landing craft are laid up in storage.

Mine countermeasures

The most important deficiency in the naval force structure is the absence of an operational mine countermeasures capability. Navy acknowledges that at present Australia has only a token mine countermeasures vessel. This is an unacceptable deficiency in our force structure. There are risks of our port entries and coastal focal points being mined, especially in northern waters, even in low-level contingencies.

Australia has a potentially difficult mine-warfare problem in terms of the large extent of minable waters and the extensive areas of relatively shallow water around some important Australian ports. Modern mine technology is such that the specialised mine countermeasures ships and aircraft used in many Western navies are very expensive (a minesweeper/hunter vessel can cost up to \$150 million and a minesweeping helicopter \$70 million).

As a result of poor planning and procrastination, the development of mine countermeasures forces has been under consideration in the Defence community for over 15 years. Initially, Navy proposed the acquisition of the Royal Navy Hunt class, with a combined hunting/sweeping capability. The cost of this ship increased significantly and the production program slipped. In 1972, the DFDC directed Navy to seek alternative solutions. This resulted in a proposal that a future mine countermeasures force should comprise the French Circe class minehunters, minesweeping boats and ocean minesweepers. In 1975, the DFDC accepted an alternative lower-cost but higher-risk option, comprising an Australian-developed catamaran for inshore minehunting (MHI), and agreed that the minesweeping capability should be developed as a separate but parallel project.¹³

The 1976 *Defence White Paper* stated that it was planned to have new operational minehunting craft enter service 'during the first half of the 1980s'. In fact, the first prototype Australian designed and built minehunter catamaran is not expected to be delivered until July 1986, with trials to be completed by December 1987.

The minesweeping requirement remained without significant progress until 1977. Since that time, a number of minesweeping options have been considered, including in 1981 the resurrection of the Hunt class proposal. This was due to an 'opportunity buy' arising from British defence reductions. The DFDC noted, in *Defence Force Capabilities 1981*, that progress in developing mine countermeasures systems had been extremely slow and much greater attention was required to overcome existing deficiencies. The Committee stated that it was proposed 'to acquire shortly' the two Hunt class mine countermeasures vessels. Government approved in principle the acquisition of two mine countermeasures vessels, based on the Hunt class, but support was withdrawn in 1982 partly because other proposals—including further ASW helicopters—were seen to have priority. Navy was then directed to seek simpler single-role minesweeper alternatives to the Hunts.

Navy's present position on the need for an Australian mine countermeasures force is as follows. For inshore minehunting, it is intended that Navy acquire two prototype MHIs and four follow-on craft. This would give a fleet of four for the east coast, which is more suitable for minehunting, and two for the west coast. This size force would allow two MHIs on the east coast and one MHI on the west coast to be maintained on task continuously.

Navy proposes to have a minesweeping capability based on leasing suitable commercial vessels ('craft of opportunity'). Technological breakthroughs by the RAN Research

13 Minehunting is based on determining the positions of individual mines and concentrating countermeasures on those positions. Sweeping techniques are directed at the more extensive area suspected of containing mines. Minesweeping is slow and hazardous and requires a range of specialised sweeps if the precise nature of the mine is not known. Minehunting is generally preferred, but cannot be undertaken in areas where the nature of the bottom can obscure the mine. In these areas (typically to the north and north-west of Australia), minesweeping is required to complement the hunter.

Laboratory (RANRL) are claimed to have achieved a radically different concept in minesweeping. These involve Australian-developed towed magnetic and acoustic sweeps, which do not require electrical power down the towing cable. A new degaussing system has also been developed which it is hoped will solve the magnetic influence problem for the towing vessel. The significance of not having to construct purpose-built magnetically and acoustically clean minesweeping hulls is that it may be possible to adapt suitable commercial craft (such as fishing trawlers) for minesweeping with great cost savings and the potential for rapid force expansion. Navy envisages 10 craft of opportunity for this task (five on each coast).¹⁴ Precursor sweeping would be required, however, to counter mines designed to sink mine countermeasures vessels. For this important task, Navy proposes the use of 'helicopters of opportunity'.

The force planned by Navy is small and will enable only the highest-priority ports (two ports simultaneously, one on the east coast and one on the west coast) to be cleared and kept open. Other mined or suspected mined ports would remain closed for a period, although the force expansion facilitated by the craft-of-opportunity approach, if properly developed, could be expected to contribute significantly. This is acceptable as a shorter-term objective, but in the longer term we should increase this capability to allow simultaneous operations in three dispersed areas.

There are, however, substantial technical risks and other uncertainties in Navy's proposed program. The acceptability of the minehunters is subject to the success of the two prototypes, which are built of glass reinforced plastic that introduces new concepts and technology into the RAN. They can be used only for inshore work because of their limited sea-keeping abilities. The minesweeping program is a long-term project and depends on the success of RANRL technological and scientific breakthroughs. This program is also heavily dependent on gaining access to suitable craft of opportunity and helicopters of opportunity. Although the problem of the magnetic signature of the towing vessel seems likely to be solved, there remains risk as regards its acoustic signature. Furthermore, the construction of production minehunters is expected to absorb skilled project and technical manpower in Navy until the early 1990s. This may disadvantage the minesweeper project until that time.

This is not a satisfactory situation and the Review recommends that additional resources should be allocated to Australia's mine countermeasures requirements, until this capability gap is redressed. No avoidable factor should be allowed to delay still further the completion, and testing and evaluation, of the two prototype MHIs.¹⁵ As soon as it seems reasonably prudent, approval should be given for the construction of the four additional craft. The Defence Program has provision for these four additional MHIs in FY 1987-88 at a cost of \$211 million. The need for further MHIs should then be reviewed.

The proposed Mine Warfare Systems Centre, which will provide a training and support facility for the mine-warfare force, should receive high priority. The Defence Program has provision for a decision in FY 1987-88, at an estimated cost of \$46 million.

The minesweeping program also needs greater attention. Mine countermeasures cannot be effective without minesweeping. The development and trial of the Australian-designed influence and mechanical sweeps requires early resolution. If the project proves successful, provision should be made for the acquisition of at least four suitable commercially-based vessels using this technology at a cost of \$37 million. They would be manned mainly by the Permanent Naval Force, and two vessels would be based on

¹⁴ These would comprise four larger vessels and four smaller vessels as minesweepers of opportunity, and two vessels with side-scan sonar to complement the MHIs in mine surveillance.

¹⁵ This includes the proposed move of Navy facilities from Sydney Harbour. There are strong reasons for retaining the base for mine-warfare assets in one of our most important ports.

the east coast and two on the west coast. They would be in addition to the lease of craft of opportunity that Navy already proposes.

This would provide some essential Permanent Navy skills, which could then be used as a training base for Reserve personnel with local knowledge of their port areas. The Reserves will thus have an important role to play in Australia's future minesweeping force, based on the experience of local fishermen, tug operators and the like. The central element would, however, be Permanent Navy and accordingly additional manpower of 180 will be required to build up this force over a period of four years.

Navy's programmed spending for minesweeping is about \$100 million and is dependent on the technological breakthroughs mentioned earlier. The concept of craft of opportunity is an attractive one, but it must be proved quickly and to the satisfaction of the Government. If these techniques do not prove satisfactory an urgent decision will need to be taken on purchasing a minimum of three minesweepers from overseas at an estimated cost of some \$300 million.

This Review has some serious doubts about Navy's expectations of using helicopters of opportunity for precursor sweeping. An alternative, which Navy has also proposed, is to use Sea Kings in this role. If successful, all capable in-service helicopters would gain the additional role of precursor minesweeping. But helicopters of opportunity would still be required on force expansion. It will be important also to explore other methods for precursor sweeping.

Destroyers and patrol vessels

Over the years, the high unit cost of destroyer-type vessels has been a major concern and has drawn attention to the somewhat arbitrary basis on which the '12-destroyer' fleet has been founded.¹⁶ Navy studied concepts for wartime destroyer strength in detail in 1971 and 1980. These RANRL reports, using widely disparate scenarios, identified the need for about 17 destroyers to fill wartime requirements. They did not address the numbers required in the force in the absence of a threat and they have not been endorsed by the central Defence committee system.

The 1976 *Defence White Paper* made provision for 12 destroyers, but it did not articulate the reasons for this size force other than to suggest that it allowed for eight to nine destroyers to be available at any one time. In 1977, in the context of the proposal to acquire the third FFG, Navy advised that in its judgement 'a minimum of 12 ships is required in the minimum destroyer force, and any future requirement to deploy destroyers permanently in the north or west of Australia would tend to indicate a greater number in inventory . . .'. This point of view has not been adopted as a Departmental position, although Navy argues in its Naval Medium Range Plan (*Plan Green*) that a destroyer force of 12 has been accepted by higher Defence committees as an appropriate number.

The most recent centrally considered study of destroyer force characteristics was the *Report of the Defence Naval Destroyer Group* in June 1980. It did not address the total destroyer force, but discussed the need for greater or fewer numbers depending on the threat level. The study envisaged destroyers operating singly or in small numbers for surveillance and patrol, in groups of three or four as a 'surface action group' or as a convoy area air defence escort, or in lesser numbers for anti-submarine protection alone. Other studies, in the context of Navy's proposal for new surface combatants, are now under way, but are not sufficiently advanced to offer an agreed position to this Review.

Of the roles for which groups of destroyers may be employed, surface strike, area air defence and ASW are not given strong weight by this Review. Navy acknowledges that maritime operations by RAN forces in a hostile air environment will be inhibited

¹⁶ The direct operating and manpower costs of the 12-destroyer force are \$170 m per year. (This excludes indirect costs of support and allowances.)

where RAAF land-based aircraft and/or allied carrier aircraft are unable to contribute to air defence. It also observes, and this Review agrees, that in the absence of fixed-wing organic air support the preferred force elements for strategic maritime surveillance and strike are submarines and land-based aircraft.

Navy advice provided earlier to this Review envisaged up to a maximum of 20 destroyers being required for low-level contingencies, as well as up to 36 other surface units. This was based on assumptions about concurrent maritime operations all around Australia's coast, including southern ports, that are clearly not relevant to credible contingencies. Navy's calculations that 6 to 10 destroyers (and 12 to 20 other ships—including patrol boats) might be required for operations in northern focal areas are more in accordance with the views of this Review.

During the early 1990s, Navy's destroyer force is planned to comprise three DDGs, six FFGs and three DEs. Of these 12 ships the first to be retired will be the DEs, by the mid-1990s, and the DDGs by the late 1990s. The essential needs for ASW, area air defence and maritime strike, so much as destroyers will contribute, seem likely to be met by the FFGs which could provide a minimum protective capability, especially in northern focal areas. The availability of underway replenishment can increase the time on station of destroyers (and other ships) being used for operations in these areas, and hence in some cases could decrease the numbers needed. The FFGs are capable ships by regional standards and will be made even more capable by the provision of the Seahawk helicopter. They will be in the fleet until at least the year 2010.

The DDGs are in a somewhat different category. They are 20 years old and are expensive to run (their crew is almost double that of an FFG). In some areas they are more capable than the FFGs (such as better command and control, two 5-inch (127 mm) guns rather than a single 76 mm gun, a three-dimension as well as a two-dimension radar, and a twin rather than a single fire-control channel for the area air defence missile system). To the extent that destroyers are expected to operate in less complex battle environments than those for which they were designed, and in smaller numbers, their command requirements would not be the same as for a 'task group'. This consideration, and the high operating cost and age of the DDGs, leads this Review to have some concerns about their continuing relevance to the fleet.

However, an expensive modernisation program, costing \$308 million, is already under way and is planned to be complete for all three ships between 1987 and 1990. It is too late now to change this program, with the possible exception of cancelling the modernisation of the third ship (HMAS Hobart) and paying it off. The ship could be paid off early, but it might be more appropriate to keep it in service until the early 1990s when the fifth or sixth FFG is commissioned. The savings would be about \$32 million in capital costs and \$8 million in average annual operating costs, and 330 crew would be available for higher-priority tasks.¹⁷

If the Government decides—as an alternative to paying off HMAS Hobart—to keep all three DDGs in the fleet, the destroyer force of nine ships would be operational to about the end of this century. The main implications of this for the Review's recommendations would be to increase the pressures for more personnel in the Navy (see Part 9).

Taking all these factors into account, the Review considers that the number of destroyers needed in the fleet, as an essential core force, is eight to nine. The Review therefore supports Navy's proposal to reassess the direction of its New Surface Combatant Project, which had previously sought retention of the 12-destroyer fleet.

¹⁷ There could also be savings resulting from the transfer of HMAS Hobart's warshot air defence missiles to the fifth FFG (\$33 m is programmed for the latter's missile outfit), although this would depend on decisions yet to be taken on missile updates. The estimated saving of \$32 m in capital costs is net of expected cancellation penalties of some \$100 m, and other work would have to be rescheduled back into Garden Island Dockyard to maintain a constant annual workload of 1.4 m man-hours.

On the basis of 10 years of operations after modernisation, the DDGs will start to pay off from about 1998. A final decision on whether to replace them is not needed until the early 1990s. But preliminary studies should continue now, with a view to funded studies being placed with industry in the later 1980s to refine procurement options. A government decision on source selection would probably be sought in the early 1990s.

Fundamental considerations in the final decision on whether and how to replace the DDGs will be trends in the survivability of destroyer-type vessels against stand-off missile attack, as well as further progress in the development of capability priorities for our maritime strategy. The latter will be influenced by the direction of military capabilities in our region.

Other decisions are required, however, about the need for lesser-capability warships in the fleet. A requirement is seen for a ship that is less capable than a destroyer, but considerably more capable than the Fremantle class patrol boats. To fulfil the kinds of maritime tasks envisaged in Part 3, there is a need for an intermediate class of ship that is capable of sustained patrols in our key maritime areas and focal points in all sea states.

For peacetime tasks, there is a need to be seen to be demonstrating sovereignty over our extensive resource and fishing zones, important offshore installations and territories, coastal areas and focal points.¹⁸ Larger ocean patrol ships, perhaps to be known as light patrol frigates, are required to provide an effective presence in more exposed or distant waters. They will have the sea-keeping, endurance and reconnaissance capabilities that patrol boats do not have and yet they will not be as expensive to acquire or maintain as destroyers.

In low-level contingencies, we would want to operate naval forces dispersed over broad areas of our northern and north-western approaches and to take protective measures in other maritime areas. In conjunction with the operations of other assets, such as maritime-patrol aircraft, intensified reconnaissance and patrol operations could be undertaken by the new class of warship in disputed or threatened areas, but within range of our land-based fighter aircraft. Their most valuable characteristics would be endurance and good reconnaissance and communications capabilities and their ability for intercept and arrest.

Against the threat of escalation, the light patrol frigates would be joined by destroyers with their more capable weapons and sensor systems. The new class of ship could also undertake important national tasks in more southerly waters protecting our shipping and focal areas. In summary, these warships would primarily be for ocean patrol and sovereignty tasks, but with the ability also in some circumstances to relieve more capable destroyer-type vessels for more demanding duties in higher-level contingencies.

It is not the purpose of this Review to suggest a particular design, but it would be considerably larger (about 2000 tonnes standard displacement) than the missile-equipped fast attack craft in many other navies. The most valuable characteristics would be range, sea-keeping, endurance, good surveillance and local command, control and communications capabilities, rather than advanced or complex weapons and high speed. It would have a helicopter deck and a hangar for a reconnaissance helicopter, but desirably would also be able to operate the Seahawk ASW helicopter being acquired for the FFGs. It would be equipped with a gun and an air defence system for self-protection. Weight and space should be reserved for other capabilities such as

¹⁸ Australia has one of the longest coastlines in the world; our fishing zone makes us responsible for seven million square kilometres of ocean; and our Exclusive Economic Zone, when it is proclaimed, will be the fourth largest in the world. Our sovereign rights at sea are extended further by Australia's continental shelf, which in some areas extends beyond the 350 nautical miles which is the geographic limit allowed by the 1982 UN Convention on the Law of the Sea.

surface-to-surface missiles and, if shown to be technically feasible, the ability to operate towed acoustic surveillance arrays.

It is recommended that consideration be given to building these ships in Australia. Local modification of an existing design would appear practicable. They could be introduced during the early-to-mid-1990s as we phase out the first five of the Fremantle class and the three remaining DEs. The cost of eight such vessels might be in the order of \$2000 million. Reducing the destroyer force from 12 to 8 or 9 and the patrol boat force from 15 to 10 would release some 1000 personnel to crew the new class of ship and to reduce the manpower pressures in other areas such as the mine counter-measures force. Construction should be subject to open tender, possibly in more than one yard. Consideration could be given to constructing additional units, depending on the cost-effectiveness of the initial eight ships.

On this basis, the Navy's major surface units would eventually comprise 10 patrol boats, of Fremantle or equivalent size, at least 8 light patrol frigates and 8 to 9 capable destroyers (depending on decisions to be taken later on whether to replace the DDGs).¹⁹

Navy helicopters

Navy helicopters specially designed for ASW work have come under close scrutiny. The DFDC and the Chiefs of Staff Committee (COSC) have several times in recent years reaffirmed these as being an essential force element. Following the aircraft carrier decision, the DFDC has favoured the use of 'dispersed small platforms' (that is, destroyers and the like) rather than a helicopter carrier as a basis for ASW helicopter operations at sea. The recent government decision to acquire eight capable Seahawk ASW/anti-surface surveillance targeting (ASST) helicopters at a cost of \$424 million for the FFGs is consistent with that judgement.²⁰

At present, Navy aims to provide at short notice four Sea King ASW helicopters for shore-based focal area operations on the east coast of Australia and to increase the aircraft committed to six within 30 days, for operations from more general locations on the Australian mainland. At up to six months' notice, Navy plans to deploy six Sea Kings to sea on a chartered merchant ship, but planning for this has not proceeded beyond the feasibility study stage. This is acceptable in current strategic circumstances.

The six FFGs are capable of carrying two Seahawk helicopters each. There is little priority for further ASW capability beyond the eight Seahawk helicopters already on order, given the low submarine threat and that we have capable LRMP aircraft and are developing towed arrays. Further, this Review does not give much weight to the role of escort vessels equipped with ASW helicopters for anti-submarine protection of shipping in wider ocean areas, where evasive routing can be undertaken.

Nevertheless, there is a need for additional helicopters to enter service with the two new FFGs, and for a peacetime attrition reserve. The timing of this acquisition should take account of any benefits of production continuity with the initial helicopters. The Defence Program makes provision for a total of eight additional helicopters, including four for attrition, at a cost of \$193 million. There would then be 12 Seahawk

¹⁹ On 3 March 1986, the Chief of Naval Staff issued a revised Force Structuring Policy relating to surface combatants. The Policy advises that Navy is to plan on there being three tiers within the surface fleet: high-capability vessels for ocean operations; vessels with lesser capabilities suitable for operations in the Exclusive Economic Zone and proximate waters and for dealing with contingencies credible in the shorter term; and vessels suitable for coastal operations with primarily defensive capabilities. The Policy states that the New Surface Combatant Project is to be directed at the second level of the tiered force. This revised policy is generally consistent with the approach recommended by this Review.

²⁰ The helicopters will be fitted with sonobuoys, magnetic anomaly detection, radar, data link, communications, and a navigation system.

helicopters available to the fleet—for embarked operations on the six FFGs, shore-based training, and maintenance support.

An ASW helicopter specifically to replace the Sea King helicopter is not required in view of the capabilities and potential of the Seahawk. The Review earlier recommended that, as Navy intends, at least some of the Sea Kings be used for precursor minesweeping, instead of planning just for extensive use of helicopters of opportunity. The Sea King's life of type is currently 1995. The need for dedicated precursor minesweeping helicopters will need to be reviewed before then so that, if necessary, steps can be taken to continue the capability. The time-scale is such that no financial provision need be made in the present Defence Program. These helicopters would need to be capable of towing only light precursor sweeps, and they should not be a high-cost military minesweeping helicopter designed for more extensive sweeping.

If helicopters are required for offshore counter-terrorist operations after the Wessex helicopters are withdrawn from service in 1989, it is suggested that the Government purchase utility helicopters from funds other than the Defence Vote. These operations already account for an unreasonable proportion (over one-third) of Navy's limited helicopter flying hours. Only if the Sea King is found to be unsuitable for precursor minesweeping or other defence tasks should it be considered for offshore counter-terrorist operations.

Consideration will need to be given to the purchase of appropriate reconnaissance helicopters for the new light patrol frigates. It is estimated that an initial purchase of 12 such helicopters (one for each of the eight light patrol frigates plus four attrition and maintenance support helicopters) might cost in the region of \$200 million. This would be a less capable helicopter than the Seahawk.

Navy also proposes the phased acquisition of 15 utility helicopters (including four attrition aircraft) for decision in FY 1989-90 at a cost of \$340 million. The Review does not support the scope or timing of this proposal. The 6 Squirrel light helicopters, the 8 Sea King helicopters, the 16 Seahawks and the 12 reconnaissance helicopters should provide an adequate level of capability through to at least the mid-1990s.

AIR DEFENCE

Australia's air defence system should include means of detecting, tracking and identifying potential intruders, intercepting them with fighter aircraft, and protecting key points against enemy aircraft which may evade interception. A specific task is the land-based air defence of shipping.

This section addresses these components, together with command and control requirements.

Target acquisition and identification

This Review has earlier recommended that OTHR command a very high priority. The successful operational performance of this radar would dramatically enhance our air defence alert and early warning capabilities by the end of this decade. Currently, our capability is minimal against aircraft which set out to approach at low level even a single defined target such as Darwin, let alone a more random penetration of our airspace.

Where we wish to intercept potentially hostile aircraft detected by OTHR with a high degree of confidence, tracking and targeting information is likely to be required. Ground-based microwave radars could provide this in some circumstances but their range is limited, particularly against low-altitude targets.

The air intercept microwave radar system on the F/A-18 fighter may prove to be capable of exploiting targeting information direct from OTHR with reasonable probability of success. However, the full expectations of OTHR may not be realised, and there will then be a need for some form of additional sensors. Options to be considered include airborne early-warning and control (AEW&C) aircraft systems and radars mounted on aerostats. The latter alternatives could have only limited utility along our northern coastline because they may be affected by the adverse weather conditions prevailing for much of the year.

This Review takes the position that while investigation of AEW&C options should go ahead, there should be no acquisition of these systems until OTHR is further developed and its ability or otherwise to provide adequate targeting information to the F/A-18 is determined. Current circumstances do not demand AEW&C aircraft, and should the strategic situation change in the near future, acquisition could proceed.²¹ The position should be reviewed after data on the operational performance of OTHR is assessed.

Irrespective of the final position adopted on AEW&C aircraft, ground-based radars will still be required to provide air traffic control and high-definition targeting close to airfields, major installations, and concentrations of deployed forces.

The current capability is one radar in Darwin, one at Williamstown, and a mobile unit held at Amberley. A radar is also being installed at Tindal. Air Force proposes a fixed radar at Mount Goodwin south-west of Darwin, at a cost of \$16 million, to enhance the control and coverage of the approaches to Darwin/Tindal. It would also extend the radar coverage of airspace intended for use by F/A-18 aircraft during training.

Beyond these radars, this Review considers that the priority for subsequent systems should go to providing mobile radars, possibly combined tactical air defence and air traffic control radars, sufficient to serve at least a further two fighter bases elsewhere in northern Australia, or in the offshore territories if required. Acquisition in the time-frame 1989-95 would be appropriate. The estimated cost for two such systems is \$40 million. Approximately 45 additional personnel would be required to operate the total of three mobile radar systems at peacetime rates of effort.

Tactical fighter force

Parts 3 and 4 of this Review identified a requirement for up to two squadrons of fighters to meet the continental air defence task in low-level conflict situations and as a basis for expansion, and a minimum of two squadrons to provide air cover for naval assets in northern waters. These tasks overlap, and would be performed by land-based fighters deployed in the north as threats developed.

In reaching a judgement on the actual number of aircraft which we should have now, this Review sought advice on the basis for acquiring 75 F/A-18s for the Tactical Fighter Force. However, the justification of this number appears to rest largely on a statement to Parliament by the then Minister for Defence in April 1978 that the three-squadron structure then in the Mirage force should be retained. A more definitive analysis does not appear to be available.

Air Force advice is that deployment requirements for air intercept operations are a minimum of six aircraft in any one location. This is based on RAAF judgements on

²¹ The estimated cost to acquire four AEW&C aircraft is \$726 m. The additional manpower would be 205, assuming that they would be supported from RAAF Edinburgh. Even this number of aircraft would provide only a very limited coverage unless alerted by OTHR.

the need for a response force on stand-by, tactical employment principles, training requirements, and both scheduled and unscheduled maintenance commitments. A squadron of 16 aircraft could provide 12 on line. Concurrent deployment of a squadron to two locations would therefore be possible, although concentration in one location may be preferred.

Deployment areas in our north could be widespread. Consequently, F/A-18 aircraft may be required in each of the designated air defence sectors: at Learmonth-Derby, Darwin-Tindal, and Cape York. Up to one squadron, deployed to each area, would be capable of meeting air defence tasks expected at lower conflict levels, with some inherent reserve capacity.

The retention of three fighter squadrons is therefore considered appropriate. However, in view of the need to ensure that adequate levels of skill are maintained in the relevant aircraft roles, it is suggested that two of these squadrons specialise in the air-to-air role while the third specialises in the air-to-surface role including maritime strike. It is noted that both F-111 squadrons and up to two P3C Orion squadrons could also be made available for maritime strike operations.

Our acquisition of 75 F/A-18 aircraft provides for the progressive re-equipping over the next five years of the existing three squadrons (48), the Operational Conversion Unit (12), the Air Research and Development Unit (2) and an attrition reserve covering the first 10 years of life (13). The current plans for the introduction of the F/A-18 are consistent with objectives identified in this Review. No regional power seems to plan on having more than very limited numbers of advanced aircraft. No value is seen in retaining the Mirage, once replaced, because of the increasing difficulty of support.

Air-to-air refuelling

Air-to-air refuelling would increase the range and endurance of the F/A-18. The aircraft would then be able to operate practically anywhere within our area of direct military interest. We currently have four B707 aircraft suitable for modification to the tanker role. Limited skills in air-to-air refuelling are maintained at present in the F-111 squadrons through exercising with the United States Air Force.

There is program provision for a decision in FY 1986-87 on the conversion of the four B707 aircraft to the tanker role for F/A-18s at a cost of \$45 million.²² Sixteen additional Service positions would also be required. Judgements that support acquiring this capability now rest largely on the benefits of extending the capability of the F/A-18 in maritime air defence exercises and contingencies, and of developing an expansion base for more significant military operations.

There is some room to question the priority for B707 conversion. Only when the F-111 force is being phased out, or should our strategic circumstances deteriorate, will the priority for in-flight refuelling for the F/A-18 become less equivocal. Air Force advice to this Review is that the long range and high speed of the F-111 permit its use as an interceptor against enemy aircraft shadowing our naval units at ranges of about 1000 nautical miles from our air bases. The RAAF states that the F-111 is fitted with a gun and four Sidewinder air-to-air missiles and can be used in any of the conventional interceptor tasks.

While the F-111 can perform the role of a long-range maritime interceptor, the provision of aerial refuelling for the F/A-18 would allow greater assurance for the Navy that air cover would be available. The Review recognises that this is an important consideration and it supports the conversion of the four B707 aircraft to the tanker role. However, this is not a high priority in current strategic circumstances and, should programming pressures arise, the proposal could be deferred.

²² Conversion to the tanker support of the F-111 would cost a further \$64 million.

Ground-based surface-to-air missiles

The existing Rapier low-level air defence weapon system, and the RBS-70 very low-level air defence weapon system being introduced in 1987 to replace Redeye, provide close-in protection of vulnerable points. The effectiveness of Rapier is maximised when protecting airfields or installations covering several square kilometres. But as with the RBS-70, each battery can also protect up to three separate vulnerable points. These weapons have relatively short engagement ranges.

The current capability is one battery of each system. The Rapier battery has 12 fire units, four of which may be fitted with a blind fire radar for all-weather operation. The Redeye/RBS-70 battery comprises 12 firing posts. Accepting that our primary air defence capability resides in the Tactical Fighter Force, this is a minimum but adequate structure to establish command and control procedures appropriate to more substantial conflict, and to meet any low-level conflict needs.

Higher-altitude surface-to-air missile systems command only low priority at this stage, given their relative inflexibility of deployment compared with aircraft and their very high cost. They could be absorbed relatively quickly into the force structure if the need arose.

Command and control for air defence

Speed of response is critical to an effective air defence system. Data relevant to airspace control must be transmitted rapidly from the sensor sources to the agency best able to co-ordinate an appropriate response. In most cases, this will be the Sector Air Defence Operations Centres, generally collocated with the fighter assets. There is a particular need to ensure that data can be transferred between the Navy Combat Data System and the Air Defence System to co-ordinate the use of assets and the sharing of information so that effective use is made of all available ADF capabilities.

Possibilities exist to acquire suitable links for transmission of digital radar and other data between radar sites and operations centres, through Project Parakeet. Acquisition of special-purpose tropospheric scatter systems to carry out this task, currently programmed for decision in FY 1990-91 at a cost of \$41 million, would appear to have low priority.

GROUND DEFENCE

Part 4 of the Review concluded that to counter a protracted campaign of dispersed raids, we would need lightly armed ground forces, tactically mobile and with good communications and good surveillance and reconnaissance capabilities. Logistic support would be demanding. The Review identifies a priority need for six battalions in the Regular Army. A minimum core of six Reserve battalions, and desirably at least a further four, would also be required for priority tasks in the north of Australia, and against the need—if required—to concentrate larger forces, and as part of the expansion base.

The equipment of these forces would include utility, reconnaissance and gunship helicopters, light armoured personnel carriers (APC), small arms and field artillery. There would be little priority for heavier equipments or fire-power, and there is in particular a need for a critical examination of the requirement for heavy armour and

mechanised formations. We should make only a limited allocation of defence resources to skills related principally to the remote prospect of large-scale land conflict in the defence of Australia.

The size of the Army

In response to changing post-war strategic perceptions and government policies, the Australian Regular Army has grown—with fluctuations—from about 20 000 in 1948 (when the rundown from the Second World War was basically complete) to a present target of 32 000, to be achieved by the end of FY 1986-87. The Army's more recent growth from some 29 000 volunteers since National Service ended in 1972 was strongly influenced by the Farrands-Hassett Report's belief that a force of 38 000 Regulars would be needed for external contingencies and to provide the expansion base for mobilisation to a million-man Army.

The Army Reserve in 1948 comprised some 13 000 personnel of the then Citizen Military Forces (CMF). Its strength has fluctuated markedly: up to 84 000 in the 1950s, 36 000 in the late 1960s, about 20 000 in the mid-1970s, and over 30 000 by the early 1980s. It has a target of 26 250 for FY 1985-86, rising to 30 000 by FY 1988-89.

In the shorter term, there are unlikely to be any marked changes in the size of the Regular Army consequent upon this Review. Although there should be marginal adjustments arising from specific recommendations, the Review proposes no changes to the present number of six Regular battalions. In the longer term however, once experience has been gained from exercising in the north and from the greater and specific responsibilities that the Review puts forward for the Reserves, it will be appropriate to review again both the size of the Regular Army and the balance between Regulars and the Reserves. The desirable size of the Army Reserves is addressed elsewhere in this Review.

The structure of the Army

The Army now has a framework of one Regular infantry division and two Reserve divisions, together with combat and logistic support forces. The 1st Division has three Regular brigades located at each of Sydney, Brisbane and Townsville, and the Reserve 7th Brigade based in Queensland, together with supporting arms and services. Each Regular brigade has two of its three infantry battalions raised. The two Reserve brigades in New South Wales form the 2nd Division. The 3rd Division is based mainly in Victoria. Combat support elements (armour, artillery, engineers, aviation) are allocated to divisions as required.

The 3rd Brigade (1 RAR and 2/4 RAR, in Townsville) specialises in light-scale air mobile operations and jungle warfare. It is kept at a relatively high degree of readiness as the main component of the Operational Deployment Force (ODF).²³ This is designed to provide the initial reaction to those contingencies that might require an early military response. Both battalions of the 3rd Brigade are raised to their full four rifle companies.

The 6th Brigade (6 RAR and 8/9 RAR, in Brisbane) specialises in conventional infantry operations, and maintains skills in amphibious operations. It is at a lower state of readiness than the 3rd Brigade, but is able to deploy elements to reinforce the ODF. Both battalions are raised to three rifle companies.

The 1st Brigade (3 RAR and 5/7 RAR, in Sydney) develops the techniques for parachute and mechanised operations. Both battalions are raised to three rifle companies.

The establishment of the ODF was an important initiative as Army evolved in response to developments in strategic guidance. The Review feels that it is now timely for the concept to be re-examined and developed further. Army's continuing review

²³ The other main component of the ODF is the Logistic Support Group, assembled as required from elements of the Field Force.

process should ensure that ODF development is consistent with the judgements on priorities made in Part 4 of the Review, especially as regards the likely nature and demands of dispersed operations in credible contingencies, mobility once deployed, and independent logistic support.

In a similar way, there is a need to review the priorities for the development of the 6th Brigade. The Review understands that Army is already taking initiatives to examine whether the training, structure and equipment of the 6th Brigade should be closer to those of the ODF, and supports this in principle.

As regards the 1st Brigade, the Review agrees that the ADF should have some level of parachute capability, and supports Army's intention that there be a closer association between 3 RAR and the ODF. There are however some marked divergences between the Review's judgements and the extent of mechanisation currently centred on 5/7 RAR. These are addressed below in some detail. The arguments for the degree of mechanisation that is appropriate are complex, because the issue is as much about organisation, training and doctrine as about equipment.

Light armoured fighting vehicles

The issues to be addressed concerning light armoured fighting vehicles fall broadly into those affecting our ground force needs for credible contingencies, and those for the expansion base. Neither of these sets of issues is straightforward. Experience, or other analysis, to guide the quantities of vehicles needed for credible contingencies is basically lacking, and the fundamental discontinuity between these contingencies and the remote prospect of major assault make confident judgements on our needs for the expansion base difficult.

For light armour in credible contingencies, a minimum planning base would seem to be that each battalion should have, or have access to, a company group lift, some fire support, and a surveillance or reconnaissance element. The need for fire-support vehicles would not be great; Army has expressed the view that the .50-inch machine gun, that all of the present M113 APCs can carry, would be adequate for lesser contingencies. An allocation of between 20 and 25 vehicles thus seems appropriate for each of the six Regular battalions, and a similar case can probably be made for the high-priority core of six Reserve battalions that the Review has earlier discussed. We are therefore looking at a minimum of between 240 and 300 vehicles for this purpose.

The Review does not take a strong position on whether these vehicles should be allocated as required by higher command, or be organic to the battalion. The latter is more consistent with the Review's view on how they would mostly be used, because each battalion could then have more rapid access to light armour in dispersed operations than might otherwise be the case. Nevertheless, the vehicles could instead be centrally organised—which is Army's preference—with some battalions having more companies mounted, and others none.

Similarly the surveillance and reconnaissance elements could be concentrated, possibly along the lines of the present 2nd Cavalry Regiment. Because of the importance of surveillance in credible contingencies, and the need, discussed later, to consider increasing the Regular component of the Reserve regional force surveillance units, there is probably a case for additional surveillance and reconnaissance elements.

The general question arises as to whether these allocations of light armoured fighting vehicles would be sufficient. While there are always arguments for 'more', this cannot adequately be answered until there is experience in relevant training in the north.

The Armoured Regiment (see below) would also need some light armoured fighting vehicles for the two tank squadrons that the Review recommends. There are other requirements for Training Command, and for Logistic Command's repair pool. This makes an overall total of between 450 and 500 light armoured vehicles required for

credible contingencies and the expansion base. Army advises that, when compared with present practice (approximately 690 M113 vehicles on issue), this suggests some \$1.3 million reduction in annual operating costs²⁴ and that up to 35 Regular positions would be available for reallocation to higher-priority areas. These figures would need to be refined through further study, including for the special case of mechanisation discussed below.

Mechanisation

At its most fundamental, mechanisation means that light armoured fighting vehicles must be integral to infantry units—infantry mounted in APCs operated by separate units do not constitute mechanised infantry. What is variable is the extent to which tanks and light armour should be integrated to train and fight together, and the extent to which supporting arms and services are needed and should also be mechanised. The benefits of this integration and support increase as the conflict being envisaged becomes more conventional and intensive.

It is necessary to outline Army's specific proposal for mechanisation. Army's formal objective is to have a core of a mechanised capability with the characteristics of fire-power, command and control and communications, mobility, protection and flexibility in a single identifiable formation. This would incorporate the basic elements of: tanks and mechanised infantry; reconnaissance; artillery; engineers; logistic support; and headquarters and communications for command and control.

Army's view is that the smallest grouping in which all of these elements can be combined to provide a viable and balanced structure is the restricted brigade group. Army contends that a brigade group of one restricted tank regiment and one restricted mechanised infantry battalion plus supporting arms and services is the minimum capability for the development of doctrine, procedures and techniques. The components of the supporting arms and services within the mechanised brigade group would desirably possess similar characteristics of command and control and communications, mobility, protection and flexibility to those of the primary elements of the brigade group (tanks and mechanised infantry).

Army's plans have three phases. The first phase was the mechanisation of 5/7 RAR to enable training at unit level. This was completed in FY 1984-85.

The second phase, planned for completion in FY 1985-86, comprises mechanisation of some elements of HQ 1st Brigade and some supporting arms elements. This will give a trained mechanised battalion group based on 5/7 RAR and 1 Armoured Regiment, supported by artillery and engineer combat support elements.²⁵ The mechanisation of HQ 1st Brigade will be sufficient to support training by mechanised battle groups in a formation (that is, brigade) setting.

In the longer term, and not presently contemplated in the FYDP, is the mechanisation of the remainder of 1st Brigade, excluding 3 RAR.²⁶

Army's justification for its mechanisation plans rests principally on its use as an expansion base for conventional ground force operations on the Australian continent. It believes that a substantial part of the combat power of Australia's ground forces 'in future serious conventional operations in defence of Australia would be armoured and mechanised forces'. Army argues also that a mechanised battalion (as opposed to the

24 This reduction is for the second and subsequent years. In the first year, the cost of preparing vehicles for storage and other overheads result in savings of only \$0.3 m.

25 The principal combat elements would be 5/7 RAR, two of the three tank squadrons of 1st Armoured Regiment (38 tanks), and two batteries of towed 155 mm guns (12 guns). This battalion group would have a total of 123 M113 light armoured fighting vehicles.

26 Additional mechanised combat elements would comprise self-propelled 155 mm guns (to replace the towed guns), APC-mounted air defence weapons, and additional allocation of tanks and light armoured fighting vehicles to give a total of up to 50 tanks and 240 light armoured fighting vehicles.

whole mechanised capability) would have much utility in credible low-level contingencies, where its characteristics of mobility, communication and protection would be suited to many of the operations involved.

The Review, however, regards Army's case as resting on premises that are at variance with Australia's strategic circumstances. Army's views do not take sufficient account of our strategic and geographic situation—specifically the natural protection afforded by the sea and air gap to our north, the lack of significant regional capability to effect an opposed transit and landing of large conventional forces and to sustain them in battle, and the priority policy for Australia to maintain maritime forces sufficient to deny an adversary substantial use of our northern sea and air approaches.

Army's position is that the present level of mechanisation of 5/7 RAR is the minimum practicable to allow 'combined arms battle groups' to be formed with the Armoured Regiment and for the development of the relevant doctrine, techniques and procedures. It is required now because warning time would be too short to allow mechanised skills to be generated from the basis of skills which might otherwise reside in tank and light armour operations.²⁷

The Review's position is that our warning time for large-scale conventional operations on the Australian continent, to which mechanisation is principally relevant, would be very long indeed. Were there to be the need in the remote future, mechanised skills could again be developed from a lower skill and equipment base. The Review therefore does not see priority for the mechanisation of 5/7 RAR and elements of HQ 1st Brigade and supporting arms even to the extent already achieved.

There may however be other options for mechanisation, at a level more consistent with our strategic needs in credible situations. The HQ ADF and the Department should be asked to develop these in more detail for later decision. Options could include mechanisation of one or more of the companies discussed earlier as the minimum planning base for the infantry battalions, or having modest additional numbers of light armoured fighting vehicles specifically for the purpose. But it remains the Review's position that a persuasive case has yet to be made for the current level of mechanisation.

The integration of tanks with the mechanised infantry, and the support of medium guns, is not a priority. While there will remain a need in the Australian Army for limited infantry training with the tank (for as long as it is kept in service), the principle should be that the emphasis of 5/7 RAR's training and development, as for the other Regular battalions, should be towards the priority needs of dispersed operations in credible northern contingencies.

Present and future light armoured fighting vehicles

The Army's present light armoured fighting vehicle is the M113-A1. The fleet comprises a family of vehicle types, such as the APC, light reconnaissance vehicle, fire support vehicle, armoured command vehicle, and tracked load carrier. Of the 788 in inventory, 500 are on issue to Field Force Command²⁸, 31 to Training Command, and 257 to Logistic Command, of which 101 are in storage. The majority of these vehicles were purchased 15 to 20 years ago, in different strategic circumstances. This Review has seen no centrally-agreed arguments for the number of light armoured fighting

27 Army's mechanisation development has broadly built on the skills and equipments which it already possessed with the tanks of 1st Armoured Regiment and with light armoured fighting vehicles (some of the M113s used in mechanisation were transferred from 3/4 Cavalry Regiment, others were taken from storage). A trial of mechanisation was held in 1977-78. This led to an interim arrangement of the mechanisation of one company of 5/7 RAR, followed by the beginning in 1983 of the development of the present capability.

28 Of these 500, 383 are with the Regular Army and 117 with the Reserves. Of the Regular Army's 383, 66 are with 1 Armoured Regiment, 288 with cavalry or infantry units and 29 with other units such as signals, field workshops, and artillery.

vehicles we need for credible contingencies in the defence of Australia, or for the expansion base.

It is likely that the M113 can be retained economically in service beyond the year 2000. (Some 50,000 M113 vehicles—not all the A1 model—are in service around the world, and the vehicle is still in production.) While the M113 may not be ideal for operations in our north, it is clearly suited for training and operations in the shorter term, with perhaps some modification. Army is now investigating a range of options for the M113. These include making no modifications, upgrading the suspension and/or engine, increasing the protection against small-arms fire, and replacing the present low-reliability .50-inch machine gun. The present program provision of \$100 million is likely to be sufficient for a suitable modification program if required.

There is therefore considerable time and scope to experiment and to gain further experience in the varied physical and climatic conditions of the north with different vehicle types. These should include the M113 and perhaps other vehicles—tracked or wheeled—such as specialised mobility vehicles and versatile amphibious vehicles. This will provide information essential for sound judgements on the characteristics to be sought for an eventual new design of vehicle, and the numbers to be acquired.

Nevertheless, it is possible to state now that any new vehicle should be able to be easily transported to the area of operations, including by whatever strategic transport aircraft would then be in operation, and that its basic attributes would be a high degree of tactical mobility, modest but adequate fire-power, and protection against small arms, mortars and mines.²⁹

Tanks

The Army's present heavy armour is the Leopard 1A4 main battle tank. Of the 103 tanks in inventory, 54 are on issue to Field Force Command, 21 to Training Command and 28 to Logistic Command (of which 27 are in storage).

This Review has earlier suggested that the allocation of resources to this capability be further constrained. A suitable basis could be for 1 Armoured Regiment to be an integrated unit of two squadrons, having a Regular Regimental HQ element and one Regular squadron with the remainder of the Unit being Reserve.³⁰ This would reduce the number of tanks required in Field Force and Training Commands to a total of about 50, leaving the balance to be stored.³¹ (In practice, Army would rotate vehicles between storage and units.) The proposal outlined above would need further detailed development.

The Leopard will be able to be maintained in service until at least the end of this century. Beyond the Leopards, it is difficult to see that our strategic circumstances would justify their replacement by vehicles of comparable capability. But this is not for decision now, and perspectives on ground force priorities as they might have developed following this Review will provide at that time an appropriate background for consideration of any need for heavier armour.

The proposal to develop 1 Armoured Regiment as an integrated unit should result in up to 180 Regular Army positions being made available for reallocation, and a

29 Army has advised the Review that the concept for a light armoured fighting vehicle pursued under Project Waler met these basic criteria. Other military and civilian advice provided to the Review argued that Project Waler diverged from the criteria in certain respects, including transportability by air.

30 Army has made representations to the Review suggesting an alternative of two Regular squadrons and one Reserve squadron. This is based on the judgement that the Reserve squadron is unlikely to attain proficiency at squadron level and that much of the effort of the Regular squadron will be needed to foster the Reserve.

31 This is calculated on the basis of two squadrons each of 14 tanks, with a regimental HQ element of eight, and 14 in Training Command. (Each squadron, as now, would comprise four troops each of three tanks, plus two for the squadron headquarters.)

decrease of some 14 000 tank kilometres annually, at an annual saving of some \$0.5 million. However, these reductions would be offset in part by the additional overheads incurred in maintaining equipment in storage, including technical manpower, facilities, test equipment and spare parts.

Tactical helicopters

Part 4 identified a particular need for helicopters for tactical mobility. In December 1985, the Government approved in principle the acquisition of 14 new helicopters which, in conjunction with the current fleet of 30 UH-1H, will provide the simultaneous lift of a company group. These will enter service by December 1987. Further decisions are programmed in FY 1987-88 for 22 more helicopters to replace the remaining UH-1H and to provide an element for aircrew training³², and in FY 1989-90 for 20 helicopters as a peacetime attrition reserve over life-of-type of the fleet.

The Review recommends that, as a step in improving tactical mobility, we acquire more helicopters. This should be based notionally on another 36 for a second company group lift, but with these numbers to be subject to more detailed consideration in the light of the needs of credible contingencies. Force structure priorities support an early decision on these additional helicopters. In conjunction with the purchases already approved and programmed, these aircraft could lead to enhanced industry opportunities. The timing should take into account the need to train additional aircrew and maintenance personnel.

The indicative project cost of 36 helicopters is \$580 million, and the associated 20 attrition reserve helicopters would be another \$230 million. An estimated 375 additional personnel would be required, at an annual cost of \$13.5 million, and the annual operating cost would be \$11.5 million.

Dispersed operations in the north would not necessarily always need the extensive capability represented by a full company group lift of 23 helicopters on line at once. In many cases, it could be appropriate to have a lesser lift in more locations, but with the ability to regroup should circumstances demand. This issue has been the centre of a somewhat inconclusive debate within Defence for several years.

The case for a third company lift capability is less urgent. The 72 helicopters (plus 40 attrition reserve) already approved, programmed or recommended will give considerable tactical flexibility, and it will take time to absorb them into service and to gain experience in exercising in the north. A later decision in the 1991-96 time-frame could allow opportunities to exploit the emerging technology of the tilt-rotor or other advanced concepts for tactical air mobility.

Surveillance and reconnaissance aircraft for the ground forces

The Defence Force has a total of 48 Kiowa light observation helicopters, of which 44 are currently operated by the Army.³³ They are expected to remain in service until 1992, when new aircraft would enter service. Although these helicopters have no surveillance equipment to enhance the human eye, they would seem to be adequate in the shorter term for basic surveillance and reconnaissance in credible contingencies. Short-term expedients to improve their surveillance potential could include stabilised

³² Planning is thus proceeding on the basis of 36 new helicopters (excluding attrition aircraft), comprising 6 helicopters for aircrew training, and 30 helicopters to give the 23 needed on line to carry the company group. These 23 are required as follows: 9 for rifle platoons, 3 for Company HQ, 2 for mortar section, 2 for sustained fire machine gun section, 2 for engineer section, 1 for command and control, 3 gunships, and 1 medevac. These numbers are derived on the basis of infantry section integrity, with each helicopter also having 2 pilots and 2 side-gunners.

³³ Of the other four, Air Force has one, and the Navy three. Navy's are used in connection with the survey ship HMAS Moresby, and are planned to transfer to Army in 1988, when the delivery of Seahawk helicopters will allow some of Navy's Squirrel helicopters to be used for survey work.

binoculars and low-light vision devices. Experience from training in the north will be important to inform judgements on how this capability should eventually be developed.

The Army also operates 14 Porter and 11 Nomad³⁴ fixed-wing aircraft, both expected to remain in service until at least 1995. These aircraft can make a contribution to surveillance and reconnaissance, and this may provide a further avenue for the development of these capabilities.

Ground surveillance forces

Part 4 highlighted the need for specialist surveillance and reconnaissance forces, especially in the early stages of a campaign before other forces would have deployed. The Army's capabilities in this regard are vested in the Special Air Service Regiment (SASR) and the largely Reserve regional surveillance forces of the Pilbara Regiment, North West Mobile Force (NORFORCE), and the Far North Queensland Regiment. There is also 2nd Cavalry Regiment, currently designated a reconnaissance unit but which could be used for surveillance, and there are other units in the Reserve.

The SASR's counter-terrorist responsibilities, important though these are, should not be developed at the further expense of its military responsibilities for surveillance and reconnaissance.

The establishing of the regional surveillance forces was an important initiative, and the Review encourages their further development, including the acquisition of specialised equipment for mobility and surveillance. These units—largely Reserve manned—could be expected to play an early part in a deteriorating situation. Special legislative or other measures may be needed to ensure this. Alternatively, or in addition, the Regular component of such forces could be increased. In this regard, the Review later mentions the contribution that 2nd Cavalry Regiment could make, if based in the north.

Field artillery

The Review has earlier stated that field artillery (105 mm) should be available in limited numbers to provide fire support to ground forces. A program is already in train to replace Army's present ageing M2A2 and L5 field guns by the modern, higher-capability Light Gun.³⁵ Government has approved the acquisition of 65 guns for the Regular Army, being 36 guns for Field Force Command and 29 guns for Training Command and other purposes. The 36 for Field Force Command is equivalent to a battery of six guns per Regular battalion—a scale which the Review considers reasonable. The first of these guns will be delivered in 1988.

The present Defence Program has provision for a decision in FY 1986-87 for the acquisition of 83 guns for the Reserves, at a cost of \$53 million. Sixty-six of these guns would be for Reserve elements of Field Force Command, and 17 for support purposes.

The six battalions that the Review has put forward as the irreducible core of the Reserves would require only 36 guns in the Field Force, leading to a minimum total for the Reserves of about 46. This would reduce programmed acquisition costs by about \$24 million. Were further analysis to show the need, any additional field guns for the Reserves could be acquired as a later production phase.

³⁴ Army operates another two Nomad aircraft for the training of pilots through the Defence Co-operation Program.

³⁵ Under Project Hamel, Army is acquiring the L118/L119 Light Gun. Using the L118 barrel and Abbot ammunition, the Light Gun can achieve a maximum range of 17.2 km, compared with 11 km for the M2A2 and 10 km for the L5 using the old M1 ammunition.

Medium artillery

Another asset that the Review has judged should be allocated only constrained resources is the medium (155 mm) gun. Army acquired the M198 medium gun in the early 1980s. Of the total of 36, Field Force Command has 18, Training Command 4, and Logistic Command 14 (of which 8 are in storage). Field Force Command's guns are allocated: 12 to 8/12 Medium Regiment³⁶ (a Regular unit in Sydney) and 6 to 10 Medium Regiment (a Reserve unit in Geelong). As can be seen, Army has already constrained the allocation of resources to this capability. However, consideration should now be given to the transfer of one of the medium batteries of 8/12 Medium Regiment from the Regulars to the Reserves. This follows, not from consideration of the magnitude of resources saved, but from the Review's position on how to retain skills in capability areas that do not have high priority.

Close air support

The Review has judged that for credible contingencies, helicopter gunships could provide heavier fire-power beyond the use of small arms. But there would be little priority for specialist anti-armour helicopters, or for conventional close air support, although fighter aircraft acquired for other priorities could usefully contribute. The prospect of fighting a conventional land battle in Australia is sufficiently remote for there to be no priority now for extensive skills in fixed-wing close air support, beyond the level needed for basic abilities and to provide an expansion base.

The Review notes that each helicopter being acquired for the company group lift will have two side-gunners, and that a small number of dedicated helicopter gunships are also included in the proposal. This level of capability seems broadly appropriate.

In choosing the F/A-18, the then Government sought an aircraft versatile in several roles, against both air and surface targets, in all weather conditions. As was proposed earlier in this Review, the practice with the Mirage fighter aircraft of having one of the three squadrons concentrate more on ground attack and less on air defence could be continued with the F/A-18. Skills associated with the delivery of air-to-ground ordnance will also reside in the F-111 force.

Other equipment

A program is already in progress for the acquisition of modern small arms. The new rifle and light machine gun will fire the new NATO standard SS109 5.56 mm round. Both of these weapons and the SS109 round will be manufactured in Australia. They are lighter than the weapons and ammunition they are replacing—an important advantage for infantry operations in the north. The new general-support machine gun will continue to use the 7.62 mm round. Over 70 000 new weapons are being acquired. The total project cost, including the cost of the facility to make the SS109 round in Australia and to acquire initial stocks, is some \$170 million.

New communications projects—in particular Raven for tactical communications, Parakeet for field trunk communications and DISCON for strategic communications—are likely eventually to meet the needs of ground-force operations in the north of Australia. There may, however, be a need to review the quantities of equipment planned for acquisition, to ensure there will be sufficient to support dispersed operations.

Equipment to enhance Army's surveillance capabilities would clearly be of advantage; Part 4 of the Review has mentioned, as examples, night observation devices and remote sensors, and other types of equipment could also be considered. Some of this equipment would be particularly important for the vital task of protection of key military assets. Army already has in train a program to evaluate and acquire limited

³⁶ A regiment would usually comprise three batteries each of six guns. 8/12 Medium Regiment is a 'composite', in that its third battery comprises 105 mm field guns. This is because it has a role in supporting the School of Artillery.

familiarisation stocks of thermal imagers, ground surveillance radars, and unattended ground sensors. This familiarisation program should be encouraged and, after successful experience, expanded. About \$25 million would seem an appropriate funding level for this.

INFRASTRUCTURE AND SUPPORT

The move from a policy of forward defence in association with allies to the concept of self-reliance in the defence of Australia has had some of its most important effects in the support area. Infrastructure in the north of the continent has been developed, communications systems installed and maintenance capacities enhanced. While considerable progress has been made there are some areas requiring attention. These are discussed below.

Northern infrastructure

Major developments have been the Learmonth and Derby airfields and the Darwin and Cairns patrol boat bases. Darwin has also been developed as a communications centre and as an air base for the Mirage fighter. Tindal is being developed as a major base for the F/A-18.

Planning for an airfield on Cape York Peninsula is under way to complete the air base coverage of northern Australia. This should be given priority.³⁷ The estimated cost for Stage 1 is \$30 million and with an early government decision could be completed by FY 1992-93. This is already programmed.

A modest naval facility on the north-west coast is also recommended. Initially, this would be a limited facility for patrol boat and mine countermeasures operations but it could be developed to provide some limited forward support for the new ocean patrol ships/light patrol frigates. Navy has plans to establish a base at or near Port Hedland, but accords this only a low priority. There is no need to duplicate the extensive civil infrastructure at ports on the north-west coast, but a suitable facility might include a dedicated wharf, fuel supplies, and a maintenance area. The estimated cost is of the order of \$15 million and it could be completed by FY 1991-92. This is already programmed.

Army basing in the north

A further issue identified in this Review is to consider the basing in the north of elements of the Regular Army. Darwin/Tindal would be the preferred location. The Review's preference is for at least a Regular infantry battalion, and perhaps a brigade headquarters with some elements of other supporting arms and services. The Regular battalion's training would concentrate on skills required for credible contingencies in the locations most at risk to such activities.

³⁷ Selection of the preferred site will depend on such factors as topography and fuel resupply. Should Weipa be supplied in future by an upgraded road from the south-east, then a suitable location for the airfield would be along this road and some 40 kilometres east of Weipa. In any event, it will be important that there be no dependence on resupply of fuel by sea through Weipa.

HQ ADF has advised this Review that it sees disadvantages in this approach, based largely on the requirement for a battalion to train with other units, the ensuing disruption to the present brigade structure, and because of increased costs. HQ ADF has suggested that a preferred alternative is a reconnaissance unit, based on 2nd Cavalry Regiment³⁸, with a general intention in the longer term of establishing a brigade group.

While the Review believes the objections to a single battalion being deployed in the north are overstated, it agrees that the other options have attractions. For example, a Regular reconnaissance unit is capable of operating independently and could contribute significantly in credible contingencies. There would be advantages also in terms of its interaction with NORFORCE.

The basing of Army in the north probably calls for a phased approach over several years. While the Review's priorities would see first the basing of Regular infantry there, practical considerations may suggest initially a Regular reconnaissance unit, followed by a Regular battalion and other arms and services, building later to a Regular brigade. These are matters for more detailed examination.

There are as yet no assessments of total increases in operating costs that would follow from northern basing, but some early estimates of the numbers of personnel that would be involved, and the associated cost increments, are outlined below.³⁹

Options for Northern Basing

| | 2 Cav Regt | Inf Battalion Group ⁴⁰ | | Brigade |
|--|------------|-----------------------------------|---------|--------------------|
| | | Case 1 | Case 2 | |
| Personnel | 450 | 890 | 1690 | at least 3000 |
| Associated Cost Increments ⁴¹ | \$5 m | \$9 m | \$18 m | \$30 m to \$35m |
| Capital Facilities | \$100 m | \$170 m | \$260 m | \$700 m to \$800 m |

There is a parallel between this recommendation and the decision to base a fighter squadron in the Northern Territory (first in Darwin and later in Tindal). The strategic arguments, together with estimates of capital facilities costs, were the main determinants, as they should be also for the case of Army basing.

For planning purposes, it is assumed that at least a reconnaissance unit, such as 2nd Cavalry Regiment, could be based permanently in the Darwin/Tindal area by the early 1990s. This should be followed by further development for the infantry.

Afloat support

Navy's afloat support consists of a destroyer tender (HMAS Stalwart), and an underway-replenishment ship (HMAS Success). These vessels, together with the development of Cockburn Sound on the west coast, the naval bases at Cairns and Darwin and the proposed development of a limited naval facility on the north-west coast, should provide the Fleet with a good level of forward support in likely

38 2nd Cavalry Regiment has at present an allocation of 74 M113 light armoured fighting vehicles. With a move to a northern base there may be a need to review the equipment and organisation of the Regiment to ensure that it is appropriately structured for northern operations.

39 This Review would wish to draw attention to the need in the north for adequate housing of a standard equivalent to that available to the community at large. If Defence Force personnel are to be expected to spend significant proportions of their careers in remote and inhospitable areas every effort must be made to provide offsetting amenities to promote morale and retain personnel. Conditions such as air-conditioning for houses and annual leave flights to southern centres should be regarded as reasonable entitlements.

40 Case 1 is for a representative infantry battalion group with logistic support elements at peace establishment levels. Case 2 introduces a land force headquarters, with the infantry battalion group at war establishment and additional logistic support elements.

41 Covers allowances, travel (visits and courses), and removals. The Review has assumed that these are allocated to the Personnel and Operating Cost components of the Defence Vote in the ratio 1:2.

operational areas. In a developing situation, the basic capability represented by the destroyer tender and the underway-replenishment ship could be augmented if necessary by the use of appropriate civil vessels. The use of Australian-flag tankers for replenishment is already practised periodically.

Whether the destroyer tender should eventually be replaced will depend in part on the continued development of naval infrastructure in the north and north-west. However, some consideration might be given to the purchase of a low-cost tanker (of 6000 to 7000 tonnes) to allow the support of naval operations in more than one ocean area. The Defence Program has provision for a decision in FY 1990-91 on such a ship, at a cost of \$20 million, and this seems appropriate. The Review does not support a second ship of the same class as HMAS Success, at a cost of \$266 million.

Ground force transport support

Our requirement for amphibious lift is limited and the Navy's amphibious capabilities are being run down.⁴² HMAS Tobruk, together with HMAS Jervis Bay, would be sufficient to support any modest deployments of ground forces or their equipment that could not be handled by aircraft or land transport. Any additional sea transport required could be by civil vessel on charter.

The six LCHs have an expected life of type of FY 1996-97. In the meantime, they can continue to be used for coastal hydrographic work or maintained in the operational reserve. There is no requirement to plan now for their replacement, nor is there any need for additional LCHs of the Tobruk class.

Army operates a truck fleet to provide transport support in combat areas. In peacetime these assets are used for unit training and general transport tasks.⁴³ A study of transport needs for northern deployments is at present being undertaken within Defence, but this will not be available until late 1986. Subject to further consideration of the results of that study, present surface-transport assets seem generally adequate for the needs of credible contingencies. Their expansion is a relatively short-term task, and supplementation of service assets is readily available from the civil sector if required.

Air Force operates a fleet of four B707 aircraft, 24 Hercules aircraft, 22 Caribou aircraft and 12 Chinook helicopters as an airlift capability, and to support Army operations and the forward deployment of air and naval assets. (These can be readily supplemented by civil assets, mainly for the movement of troops.) While this fleet is considered generally adequate in current circumstances some enhancement may be desirable as part of the program to improve ground force mobility. The Caribou is due for replacement by 1990 and the twelve older E-model Hercules may need replacement in the early 1990s. Present plans provide for some \$590 million to replace the Caribou and the older Hercules, but a decision is not required until the early 1990s.

At this time there is no obvious replacement for the Caribou that would meet Army requirements. Operating in conjunction with helicopters, the larger Hercules can perform most Caribou tasks. Settling on a single aircraft type has economies which could offset the requirement to provide more engineering support in airfield construction and maintenance for the larger aircraft.

Aircraft options will be further developed over the next few years. This Review considers that this planning should take account of the likely general requirement to increase our airlift capacity. It is suggested that planning proceed on the basis that 20

42 The Headquarters for the Commander Australian Amphibious Squadron will be disbanded by mid-1986. Three LCH are in dry lay-up state in the operational reserve, two are being used as interim survey vessels, and the sixth is operated by the Naval Reserve.

43 The Army fleet currently comprises 2979 light general service vehicles, 1295 four-tonne and 906 eight-tonne trucks, and 128 prime-movers for towing semi-trailers, tank loaders, and engineer plant.

Hercules-type aircraft be acquired in the 1990-95 time-frame, at a cost of \$700 million (giving a total of 32 Hercules). At that time, it would be appropriate to explore further the potential of new technologies such as the tilt-rotor.

Logistic support

Defence is to be commended for the progress made in the development of supply systems and transport and fuel policies for the Defence Force. Nevertheless, as noted earlier in this Review, our inability to assess the overall sustainability of our forces even in low-level combat remains a significant deficiency. This problem should be tackled through contingency studies, exercise experience and the development of logistic concepts incorporating stockholding, fuel and industrial support policies. This effort will be assisted by the computer-based Supply Systems Redevelopment Project, and the critical examination of the need to integrate the three single-Service supply and support systems, to allow better judgements to be made on readiness and sustainability levels.

Until this is done this Review can offer no authoritative advice on specific measures needed to improve force readiness and sustainability for credible contingencies. The material available to this Review suggests that the adjustments required will be marginal, demanding more of organisational measures than large resource inputs. Specifically, no need is seen for large defence stocks to be held as a contingency against the absence of overseas supply in wartime. There may, however, be justification for procuring reserve stocks of selected spare parts as insurance against non-availability in an emergency or against a short-term surge in activities before additional stocks can be acquired. Nor is there a need for a general financial provision for support to Australian industry, other than on a case-by-case examination of the needs of particular defence equipment programs as at present.⁴⁴ Part 9 of the Review discusses the programming implication of any increases in sustainability stocks that further analysis might justify.

Naval support facilities

The Government's decision to relocate a Navy armament depot from Sydney to the Jervis Bay area, and to examine the relocation of other facilities (Fleet Base, Submarine Base and Mine Warfare Base) from Sydney, has important implications for our future Defence program. There are some potential operational benefits for Navy in the use of Jervis Bay and other sites, but the substantial expenditures and dislocation involved in an accelerated move out of Sydney Harbour would not be justified by any pressing strategic imperative. The major benefits relate to civil access to the land to be vacated in Sydney Harbour. Thus, the move out of Sydney should be designed as far as possible to meet the needs of Navy and be phased to minimise the burden on the Defence Vote.

Relocation options are now under detailed study, but it is nevertheless appropriate to sketch out some possibilities. Earlier, the Review proposed that the main base for the submarine fleet should move to the west coast and that the mine warfare base should continue in Sydney Harbour. While major surface fleet elements and the Fleet Headquarters are probably best relocated to Jervis Bay, other locations are appropriate for some naval elements. The main patrol boat base could be in Cairns with forward bases in Darwin and on the north-west coast.

The new class of ocean patrol ships/light patrol frigates will have some roles overlapping with those at present undertaken by destroyers and patrol boats. Proximity to priority operating areas would favour Cockburn Sound for part of the new fleet,

⁴⁴ The rationalisation of the defence factories and dockyards proposed in this Review can be expected to yield financial savings over the longer term. However, these benefits cannot usefully be predicted. Thus for the purposes of financial planning in Part 9 of the Review no savings have been assumed.

perhaps supported by a higher-capability destroyer. But some of the new class of vessels should also be based in the east and the south to patrol difficult waters such as Bass Strait.

Army training areas

A primary conclusion of this Review has been that the emphasis in our ground forces should be on light mobile operations in the north rather than forces involving armoured and mechanised operations and heavier artillery. This conclusion suggests that some re-examination may be required of the proposal to acquire a large field firing and manoeuvre area in western New South Wales.

This Review is not in a position to comment with any finality on this subject. There are a number of complex considerations involved, including environmental factors, constraints on existing training areas, and the continuing manoeuvre and live-firing training needs of Regular and Reserve forces based in the south-east. Nevertheless, a reduced emphasis on mechanisation and armoured operations, together with the need for more training in the north in accordance with the priority given by this Review, may affect the basis of the proposal for a new training area in New South Wales. Where the manoeuvre area proposal is driven by the needs of large-scale mechanised training, the selection criteria may need to be modified.⁴⁵

The proposal to relocate the School of Artillery and Infantry Centre to central New South Wales is a separate issue. North Head, currently occupied by the School of Artillery, is being released to the New South Wales Government, and the Infantry Centre would require redevelopment if it remained at Singleton. While this Review has given reduced emphasis to the need for heavier and longer-range artillery, there will still be a need to train in live firing and ranges are required.

Expenditure on these projects will depend on the extent of land acquired, the status of acquisition, works required and the extent of environmental protection necessary. The Program currently contains an indicative \$180 million for these proposals.

Communications

There has been considerable progress over the past decade in the development of secure communications relevant to the defence of Australia. DISCON will provide a secure strategic network across the continent with considerable growth potential. Single-Service tactical systems are being upgraded and integrated with one another and the strategic network. Current programs such as Raven and Parakeet should overcome most of the remaining equipment deficiencies, particularly for the ground forces.

An area of increasing importance is that of satellite communications, which, within the Australian environment, offer a unique way of providing reliable long-range communications to remote areas. Initially AUSSAT should be used for strategic links, including to mobile terminals used by deployed forces. Later, and requiring specific technical equipment in the second generation of satellites, AUSSAT could be utilised for tactical communications. Planning for using AUSSAT is proceeding and should continue to be given appropriate priority in financial programs.

⁴⁵ Army's 'User Requirement' in 1984 was based primarily on the needs of the 1st Brigade to exercise in a Divisional setting. It specified a *desirable* land size for the manoeuvre area of 1 000 000 hectares, comprising 570 000 hectares for armoured manoeuvre in an area 30 km wide by 190 km long, two artillery field firing ranges each of 160 000 hectares, and a tank/APC battle run of 100 000 hectares. The *essential* area identified was in the order of 570 000 hectares. ADF advice to this Review, in February 1986, is that the underlying requirement is to have an area representative of future mobility requirements for training in the dispersed operations likely in credible contingencies; conventional operations would be occasionally conducted, not as a priority but to meet expansion base requirements.

Use of communications satellites will reduce some of the present dependency on high-frequency (HF) communications, particularly for strategic links. However HF would still be needed as a flexible back-up providing an important element of redundancy. This Review notes and supports the current efforts to seek sites at which Navy and Air Force might collocate their main HF facilities which are subject to urban encroachment in Canberra and Sydney.

Command support systems

Command support systems provide information, displays, and communication links for command and control. Current systems are basically manual and labour intensive. ADF requirements for new-generation computer-based systems have recently been studied by a Joint Working Party which recommended parallel development of a Headquarters ADF system and interoperable systems to support the single-Service Chiefs of Staff.

This Review supports the development of a Headquarters ADF Command Support System as an important element in providing the Chief of the Defence Force (CDF) with the means to carry out his command responsibilities. This centrally managed ADF system should be designed to interact with the functional and regional command systems as these are developed.

Systems to meet single-Service needs should be developed as accessories to the functionally oriented central system. They should be limited to the data flows necessary to enable subordinate single-Service commanders to meet their responsibilities to functional and regional operational commanders, and to enable the single-Service Chiefs to carry out their roles as advisers to the CDF.

The indicative cost of current ADF and single-Service command support system proposals is in the order of \$200 million. Adjustment of these proposals along the lines suggested above should not cause a significant cost variation.

CONCLUSION

The force structure changes proposed in this Review are designed to remedy some important deficiencies and to effect some changes of emphasis so that future capabilities will more closely reflect our strategic priorities. In its survey of current and future defence capabilities this Review has not found major equipment decisions of recent years to be fundamentally misconceived or in need of reversal, and there is much in current planning for which the Defence Force and the Department of Defence are to be commended. But there are some important changes to be made if Australia is to sustain a more self-reliant defence posture.

A number of important capabilities given a high priority in this Review are also accorded a similar priority in current programs and plans. This Review endorses and supports the priority given to intelligence, surface-towed arrays, LRMP aircraft, the Tactical Fighter Force, submarines, communications and the construction of defence facilities in the north of Australia.

In other high-priority areas we have suggested that there is scope to enhance or accelerate current programs. Surveillance is a very high priority for Australia, and modern technology offers the prospect of long-range monitoring of our air and sea

approaches. We have thus proposed that additional resources be applied to the Jindalee OTHR program which holds out the prospect of real-time coverage of our air and sea approaches out to 1500 nautical miles and beyond.

We have also proposed that additional manpower and funds be applied to our mine countermeasures effort to remedy this serious deficiency in a shorter time-frame than presently planned. Similarly, we suggest that more resources be applied to priority mapping and charting tasks.

An important recommendation of this Review is the need to upgrade substantially the tactical mobility of our ground forces, principally by significant expansion of the utility helicopter force. This is the most expensive equipment addition to the current program that the Review recommends. This enhanced capability will provide greater deployment flexibility for units operating over wide areas in our inhospitable northern regions.

We have recommended that some important programs be maintained, but with adjustments. The F-111 force should be maintained in service into the 1990s at a minimum cost and without further major investment in its strike capacity. Proposals for AEW&C systems can be developed, but acquisition should await the outcome of operational experience with OTHR over the next few years. The provision of in-flight refuelling for F/A-18 aircraft will provide benefits in training for the support of naval units, although this is not an urgent priority in current strategic circumstances and while we have the F-111 force.

We have identified some capabilities where a reduced emphasis is appropriate. Beyond the important need to introduce towed acoustic arrays, and the completion of the program to provide helicopters for the FFGs, there is no need to enhance our already considerable ASW forces.

We also see a reduced need for armour and mechanisation of our ground forces, and artillery resources should be constrained. The Review considers that in some areas—for instance the long-term program for the replacement of the M113 armoured fighting vehicle—there is time and scope for practical experimentation with different vehicle types. The important aim will be to improve Army's tactical mobility in all climatic and physical conditions encountered in the north. There may also be a place for specialised mobility vehicles, such as all-terrain and amphibious vehicles.

A major proposal of this Review is to move away from Navy's earlier plans for the acquisition of new destroyers. This Review recommends that we build in Australia a new class of ocean patrol ship/light patrol frigate to complement our guided missile frigates and destroyers and our Fremantle class patrol boats. The new vessels would perform patrol, sovereignty and protection tasks for which smaller patrol boats are unsuitable, but which do not require the full range of capabilities of a destroyer-type ship. There is no need to consider now the case for replacing the DDGs, although appropriate studies should go ahead with a view to replacement in the late 1990s.

Finally, this Review notes that there is a need for further work on developing operational and logistic concepts for northern deployments. An additional airfield is recommended on Cape York Peninsula and a modest naval facility on the north-west coast as well as a Regular Army unit to be based in Darwin/Tindal. If we are to project credible military power in the most vulnerable part of the continent, we require a larger permanent presence in the north of Australia.

PART 8 RESERVE FORCES

Earlier parts of this Review have identified specific areas where Reserve Forces could make a greater contribution to our defence capability. In peacetime, Reserves allow us to increase effective Defence Force manpower at a lower cost—but at lower states of readiness—than for an equivalent number of Permanent or Regular Forces. Reserve manpower represents only about two percent of the total manpower bill. The contribution of Reserve Forces to Navy and Air Force manning is limited (seven percent and six percent respectively), but in Army the Reserves provide almost 44 percent of the total force.¹

The Terms of Reference require the Review to advise on 'the significance of the Reserves as a component of the force structure'. The following pages summarise my conclusions.

GENERAL CONSIDERATIONS

Reserve Forces can contribute to our defence capability in some important ways:

- They provide the surge capacity to allow the Defence Force to increase its rate of effort in a timely manner should strategic circumstances deteriorate.
- They can take a principal—but not sole—responsibility for maintaining expansion base skills not having immediate application to lower-level conflict.
- Reserves can be used in credible contingencies to protect key points and installations and settlements, especially in the north.
- Regional units can provide valuable local knowledge in support of military operations in their areas.

The approach to Reserve Forces differs with each Service, but some aspects are common to all. It must be recognised that they are not available at the short degrees of notice which generally apply to Regular units. Moreover, Reservists are localised in their area of recruitment, which is predominantly in the south-east of the continent. Unless called up for full-time duty, they cannot be posted or redeployed away from their area of residence. Exercises can be used, however, to give them familiarity with areas other than their home base.

Training levels

Training time available to Reservists will always be limited. Therefore, in peacetime, they cannot normally reach the same levels of proficiency in military skills as Regular servicemen. It follows that they should concentrate on becoming competent in those

¹ These comparisons are not to ignore the substantial Regular Force manpower committed to conducting or supporting Reserve activities, nor the associated operating costs and fixed overheads such as equipment and facilities.

specific tasks most relevant to their defence role in time of threat. It should not be necessary for them to master the full range of responsibilities of Regular servicemen. Except for some expansion base skills, training effort might be directed to those military tasks not demanding extensive training to reach and maintain proficiency levels. Also, it would be imprudent to use the Reserves as the sole repository of any particular military skills, even those skills required only in more unlikely contingencies.

Training commitments can be reduced by encouraging suitable former Regular servicemen to transfer to the Reserve. On average, 7600 officers and other ranks leave the Permanent Forces annually. These people are a valuable defence resource representing a substantial national investment. There has been a change in attitude within the Reserves on this subject. Where previously former Regular servicemen were seen as a threat to the career progression of Reservists, they are now actively sought. But even so, the number continuing their service with the Reserves is quite small, due in part to the same reasons as those for which they left the Regular Forces—age, loss of interest, or family commitments.

It would be highly desirable for Reservists with civilian skills appropriate to the Defence Force to serve in Reserve appointments utilising those same skills—for example cooks, vehicle mechanics, and communications specialists. Indeed, those with technical and professional skills should be actively recruited for such positions. They provide the surge capacity for our forces to achieve higher rates of effort. Further, we must ensure that those skills are given the recognition they deserve, and that their military applications are developed further. But it is recognised that one of the motives in joining the Reserve Forces is that they offer the chance of working in a completely different environment. Some freedom of choice must be available, but Reservists should not be trained in civilian skills to trade or professional standards during their Reserve commitment because this would be contrary to the purposes and philosophy of the Reserves.

Local knowledge

This Review has argued earlier for the Regular Forces to acquire a better understanding of possible operational areas in the north of Australia. Within many such areas, we already have serving Reservists. It is useful to have those Reservists performing roles in which their considerable local knowledge would be of benefit. Army's regional forces and Navy's port divisions are based on this principle. This is a sound and effective approach and should be encouraged further. Army's regional force surveillance units, such as the North West Mobile Force (NORFORCE), for example, are providing highly useful information and skills for the defence of the north. Few people live in the north, but there is a case for developing a special program, and financial incentives, to increase recruitment to Reserve Forces in this key geographical area.

The expansion base

If we are properly to recognise the contribution which the Reserves can make to the expansion base, we should look particularly at those capabilities which may not be required in the early phases of a conflict. While a small element of Regular Forces is necessary to maintain skills at an appropriate level and set standards, Reserves can augment such units. Within anticipated warning time for more substantial conflict, the Reserves can be equipped and brought to the required level of readiness.

A benefit of such an approach is that it might be possible to reduce the number of Regular servicemen employed in areas where low levels of readiness leading to reduced allocation of resources can result in morale problems during peacetime. The allocation of significant expansion base responsibilities to the Reserves will also encourage the Regulars to focus more on credible contingencies rather than on training for more remote and unlikely situations.

NAVAL RESERVES

The active component of the Naval Reserve is currently about 1100 against an authorised strength of 1380.² The current Five Year Defence Program (FYDP) authorises an increase of 42 a year, but 28 is estimated as the achievable figure for Financial Year (FY) 1985-86 and FY 1986-87. Navy's longer-term objective is a strength of 2700.

The Reservists are largely organised into seven port divisions around Australia. The Naval Reserve has a role, and provides the largest manpower element, in two areas—Naval Control of Shipping and Naval Intelligence. These activities are undertaken within a framework of Permanent Naval Force supervision and seem to be appropriate tasks for the Naval Reserves.

In other areas, currently patrol boat and landing craft operations, and clearance diving, Reserve elements augment the activities of the Permanent Forces. They can undertake the less complex tasks within the limits of their training, thus releasing Permanent Naval Forces for more demanding tasks. Individual specialists, such as doctors and supply officers, can also augment ships' companies for limited periods.

Mine countermeasures

Navy is examining how its Reserves can be used in mine countermeasures (MCM) operations. Additional numbers may be drawn from occupational groups such as fishermen and tug operators, and their probable training commitment will be one two-week period each year in their local port area. Navy's proposal is that this force be established over a period of 10 to 12 years and the Reserve strength be raised to cater for this task.

The Review supports this proposal in principle. Local knowledge of seabed conditions, tidal variations and currents is highly desirable for effective MCM operations, and practical training can be conducted in the areas concerned. But it would be inappropriate to place the full onus of MCM operations on a basically Reserve Force over such a long period. MCM is an important task given high priority by this Review. As Part 7 has indicated, it demands a core of Permanent Naval manpower, using Reservists as an essential supplement to this force.

The role of the Naval Reserve, including in MCM operations, is currently being reviewed by Navy. That review should take account of the principles set out above.

² Figures as at 30 September 1985. 'Active' Reservists are those who have annual training obligations and meet them. These figures exclude the RAN Emergency List of Officers and the Royal Australian Fleet Reserve, none of which has training obligations. It is also pertinent to note that 'Emergency Reserves', which comprise former Permanent Force members, are employed as part of the Permanent Forces. They are therefore not constrained by the current legislative limits on Reserve Force call-out addressed later in this Part of the Review.

ARMY RESERVES

The Army Reserve has been the subject of considerable study over the years—the last public review being conducted in 1974 by a committee chaired by Dr T.B. Millar.³ It has taken 10 years for many of the recommendations of the Millar Report to be implemented.

Following the Soviet invasion of Afghanistan, the Government directed that the Army Reserve would expand from 22 000 to 30 000 over a period of 12 months. But while this target was exceeded, reaching 33 523 in August 1983, it was not sustained. The current⁴ Reserve manning level is 23 413, although it has been estimated that only 70 percent of this number have met their training obligations.⁵ The current FYDP provides for a manpower ceiling of 30 000 to be reached in 1987-88.

Variations such as these indicate that growth can be achieved when the Reserve is presented with a national task and is given a sense of purpose. It is capable of winning a good response from the community. Yet when recruiting advertising ceases, training time is cut and resources are constrained, Reservists rightly feel that they are no longer wanted. High wastage rates follow.

The Army Reserve has suffered over the years from a lack of purpose. The 'total force' concept advocated by Dr Millar could have remedied this situation but it has been implemented only recently. Moves to integrate the Reserves with Regular units and formations, and the establishment of regional surveillance units in the north, have now begun to provide the much needed focus for Reserve training and employment.

Integration and affiliation

Integrated units⁶ assist in providing an effective expansion base. Warning time for more substantial conflict would be sufficient to bring the Reserve component of such units to operational readiness. The complete unit could then be deployed. For example, in Part 7 it was proposed that the Reserve assume responsibility for manning all but one tank squadron and headquarters elements of 1 Armoured Regiment and for another battery of medium guns. In peacetime, their available training time generally would not permit them to master more than one of the appropriate crew skills—they could not be 'cross-trained'. Nevertheless, taking on these important expansion base skills will help to provide a sense of purpose for the Army Reserves.

Reserve units integrated with Regular formations could provide some element of flexibility and reserve capacity, or could be used for lesser-priority tasks. Such is the case with 49 Battalion Royal Queensland Regiment which is now integrated as the third battalion of 6 Brigade in Brisbane.

³ Some significant recommendations of the Millar Committee were:

- to strengthen the role of the Reserve and give it more immediate relevance by making the Reserve directly responsible with the Regular Army for the ground defence of Australia;
- for the Army Reserve and Regular Army to work together within the concept of a single 'total force', providing the maximum amount of mutual assistance and combined activity; and
- that if the Regular Army is committed to operations, the Army Reserve should be activated as the force next to be employed. This would require Reserve units to be kept at or near full strength.

⁴ As at 30 September 1985. This figure is for the Army Active Reserve only. It excludes the Inactive Reserve and Regular Army Emergency Reserve.

⁵ Training obligations for Army range from 16 to 26 days per annum.

⁶ Integrated units are those having both Regular and Reserve elements. The Regular component of an integrated unit is larger than what would normally be required as a training cadre. For example, a unit may have a Regular commander, headquarters and one sub-unit with the remaining sub-units being Reserve.

Integration has been greeted with cautious optimism within the Reserve Forces. It is suitable for only a limited number of units. Where integration is not practicable, affiliation should be considered. Affiliation allows for Regular units to provide training and administrative support to proximate Reserve units, to the mutual benefit of both. The majority of affiliated units should prepare themselves for low-level conflict in the north of Australia. They should be trained to take over area security tasks from Regular units initially deployed in response to a threat, or to contribute to the expansion process.

Defence tasks

A specific Army Reserve role should be the security of vital installations, particularly in northern Australia. This is a demanding task but one within the capabilities of Reserve infantry units, even though they are predominantly located in the south. For example, a unit could be allocated an area or installation—say the Weipa township. Over time, it could conduct exercises in the area, using several possible threat scenarios. In its training program, the unit could concentrate on those skills and equipments most relevant to its defence task. Such an approach would ensure that in the event of a threat occurring, Regular Army manpower would not be tied down with static security duties. It would also give a sense of purpose to the Reserve unit, and direct its training needs.

Part 4 of this Review suggested that a minimum core of six and at least a further four Reserve infantry battalions would be required for commitment to essential tasks in low-level conflict situations. In addition to security tasks at vital installations, they could be deployed to areas of secondary military priority or to relieve Regular units. But while it may be assumed that Reserve units are unlikely to be ready for operational deployment with less than six months' notice—and this is an acceptable constraint—at least these infantry battalions and other units having roles and tasks directly applicable to lower-level conflict in the north of the continent should be given some priority for manning and training. Adequate equipment must be readily available for likely tasks. This equipment may vary according to the particular geographical and climatic conditions in the areas to which the Reserves are assigned.

A need for additional Reserve battalions is foreseen as part of the expansion base, to enable other key points and population centres in the north to be protected, and to facilitate the concentration of ground forces should they be required in a particular contingency.

Logistic support

The Review is encouraged by Army's proposals to use a larger number of Reservists in logistic support activities—employing civilian skills where possible. This will reduce the current pressures on Regular Army logistic units, some of which devote considerable time to supporting Reserve training activities. Appropriate areas of Reserve involvement include supply, repair and maintenance, transport and catering. Expanding the logistic support of both the Regular and Reserve elements of the Army is an important priority in view of the demanding requirement to support distant operations in remote locations. To deploy the Operational Deployment Force, for example, numbers of logistic specialists and medical officers would have to come from the Reserves, as would necessary supporting activities such as movement, construction and communications.

AIR FORCE RESERVES

Air Force currently uses its Reserve Forces to supplement support staff so that increased rates of effort can be achieved with the existing assets. In addition to some 230 specialists, such as doctors, dentists and chaplains, Air Force has 1219 Active Reservists⁷ employed mainly on depot-level maintenance tasks, ground-crew duties and in supply positions. The manpower ceiling for Active Reservists over the FYDP is set at 1350.

There are, however, other areas where employment of Reservists could also be effective.

Aircrew

Qualified commercial pilots could be encouraged to augment the air transport force, particularly the B707 and C130 fleets. Junior pilots who get only limited flying opportunities with commercial airlines may regard such prospects very favourably.⁸ Reserve training time should be sufficient at least to maintain currency on specialist military transport aircraft. This may require that total flying hours available be increased so that the readiness levels of Permanent Air Force crews are not reduced.

Former maritime aircrew should be encouraged to retain currency. They would be of particular value if the need arose to expand our surveillance effort.

Maintenance crews

A relatively small increase in RAAF aircrew, and flying at higher rates of effort, would create a strong demand for additional maintenance personnel. Many ex-RAAF technicians are employed in industry and may provide a useful source of Reserve maintenance crews. Some already belong to the Reserve, but there is scope for expansion in this area.

Airfield defence

Airfield security is another area in which it would be appropriate to rely on the Air Force Reserve to provide additional resources in time of threat. Permanent Air Force elements could develop and maintain the basic skills and sensor systems required. But the need during peacetime is insufficient to justify the retention of a ground-defence force much larger than the current unit of some 100 men. There is of course no reason why some Reservists could not be recruited within the area in which they may be employed—such as Tindal and Learmonth—allowing them to train in location and to meet possible commitments at very short notice.

An extensive examination into Airfield Defence Guards was undertaken in 1985 by Headquarters ADF. That study concluded that while Army may need to provide units for outer-zone defence (beyond the airfield perimeter)—and this is one of the installation security tasks discussed earlier in this Part of the Review—inner-zone security should remain an RAAF responsibility. It is a basic tenet of ADF doctrine that each installation or unit should be responsible for its own local security and defence. A properly organised and trained RAAF Defence and Security Force could provide both peacetime security and a basis for expansion in time of threat.

⁷ Figure as at 30 September 1985. The RAAF General Reserve (ex-Permanent Air Force members with no training obligations) is not included.

⁸ It is worth noting that early in 1986, a large number of pilots volunteered from both the RAAF and commercial airlines to fly the C130A aircraft made available by the Australian Government for famine relief work in Africa.

THE FUTURE SIZE OF THE RESERVES

Recent experience is that the actual strength of the Reserve Forces has nearly always been well short of the 'authorised strength' targets. But some of these targets have appeared to be quite arbitrary and without firm policy justification. The Government's decision to tax Reservists' pay undoubtedly has contributed to the current shortfall, and, notwithstanding the provision of an offsetting Reserve Allowance, may continue to have an adverse effect on recruitment and retention. Given the new and important focus that this Review places on the role of the Reserves in the defence of Australia, it is recommended that the decision be rescinded. Failing that, the Defence Force Remuneration Tribunal should re-examine the level of take-home pay and allowances.

What might be the optimum size of the Reserve Forces is determined by both the perceived strategic need and what is actually achievable under prevailing socio-economic conditions. The Review's judgement is that it is better to have a small but competent Reserve than a larger force of questionable effectiveness. The maintenance of any preferred level of Reserve Forces will be facilitated by having clearly defined roles for the defence of Australia, leading to a sense of national purpose, and the necessary support and resources from Government.

The Review takes the position that modest expansion of some elements of the Reserve Forces would be appropriate, driven both by the need for the Reserves to assume increased responsibilities for expansion base skills such as armour, artillery and transport aircraft operations, and to take on a significant role with reintroduced capabilities, such as MCM.

For Navy, a Reserve of the order of 3000 is a reasonable longer-term objective. This will allow present activities to continue with some scope for planned expansion, and includes specific provision of some 400 for Reserve involvement in MCM operations.

Army has greater diversity in its Reserve employment. While six infantry battalions has been judged to be the minimum essential requirement for early commitment in lesser contingencies, others will be required elsewhere to undertake security duties at other key points and vital installations. At least a further four battalions would be necessary for such tasks, and others required to contribute to expansion base skills. However, this Review would argue that the upper limit would probably be less than the present 16 Reserve infantry battalions. There is also a need for greater integration with Regular units, particularly in the combat arms, and to follow through on proposals to expand the regional force concept and accept additional logistic responsibilities.

A Reserve Force with an upper limit of some 26 000 would seem appropriate and achievable. The infantry element of the force, including integrated battalions and regional forces, would account for up to about 10 000 of this number, combat support elements about 8000, including those charged with maintaining expansion base skills, and the remaining 8000 or so would be involved with logistic support and training functions. These figures are indicative only. They reflect the changing emphasis in Reserve employment proposed in this Review, and are broadly consistent with current Army intentions. They should be refined through organisational studies.

The proposed broadening of employment avenues within the Air Force Reserve, particularly in transport aircraft operations, maintenance support and ground-defence duties, would indicate that some 2000 positions may need to be filled. But like Navy, such an increase could be absorbed only over a period of several years.

To achieve even this limited expansion, some changes in approach to Reserve recruitment and training will be necessary. Such measures include acquainting potential

recruits with the specific role which they as individuals or their preferred units will have in support of Australia's defence effort. And in the same way that Regular units should exercise in and become more familiar with their potential operating environment, predominantly in the north, so must this opportunity be available to Reservists.

Some flexibility in service conditions may be necessary to accommodate the demands of civil employment.⁹ As a general rule, periods of continuous training are far more productive than half-day or evening parades.

Advice to this Review is that if training time allocations to the Reserves were increased, then many Reservists would be able to take advantage of this. The greatest benefit from increased training time would be in areas of more specialised military skills and in allowing for more frequent exercising in the north. There is, of course, an additional cost for this which the Review has been unable to estimate.

There must also be some reduction in the administrative burdens placed upon Reserve units, so that their limited training time can be fully exploited in combat related roles. This is not to suggest that this workload be transferred to the Permanent Forces. Some administrative tasks are specific to the Reserves. But peacetime administration is a time-consuming process across the whole Defence Force. It is expected that the Reserves would benefit from any overall reduction in administrative demands.

CALL-OUT OF RESERVE FORCES

As a result of legislation enacted in 1964, Section 50A of the Defence Act 1903 provides for the call-out of any element of the Reserves for continuous service, by proclamation 'in time of war or in time of defence emergency'.

For the last 22 years, there has been concern with this provision, which was developed in the context of the need to commit troops to a limited war in South East Asia. In low-level contingencies, governments would be understandably reluctant to take the seemingly escalatory if not reactive step of declaring a defence emergency. Yet it is precisely during a period of tension potentially leading to low-level conflict that some elements of the Reserve Forces would be most likely required.

Strategic guidance suggests that as strategic circumstances deteriorate, surveillance activity should be increased, logistic infrastructure to support deployments upgraded, and some pre-emptive deployments could occur. Security operations over the north and north-west of Australia may be required. Naval Reservists would fill restricted billets in ships and establishments. Naval control of shipping, port defence and MCM forces would need enhancement. The Army Reserve's regional surveillance forces, medical, engineer, movements and communications units all play a vital role in the preparatory stages of force deployment. And Air Force activities could require Reservists to support increased rates of effort in strategic air lift, maritime surveillance, air defence and base security.

In line with the philosophy of a 'total force' advanced for the Army Reserve by Dr Millar in 1974, defence planning for both lower-level conflict and more substantial situations in the longer term has become increasingly dependent on the ready availability and capacity provided by the Reserves.

⁹ The Committee for Employer Support of Reserve Forces (CESRF) has an important role here in developing mutually satisfactory provisions.

CONCLUSION

The Millar Report acknowledged that the development of such a role would inject into the Reserves a new sense of purpose. But he went on to stress that the Reservists and their families and employers should understand precisely what this obligation means.¹⁰ Millar did propose an amendment to the Defence Act to provide for call-out of the Army Reserves without the declaration of a defence emergency. However, this proposal was not carried through as a principal recommendation of the Report.

There are several explanations of why successive governments have been reluctant to amend the Defence Act. There could be uncertainty in the minds of employers and employees as to the circumstances under which Reservists may be called up. It would be difficult to assess the number of Reservists required and the likely duration of their commitment. Parliament, and indeed the Australian public, may be reluctant to delegate such a far-reaching decision to the Executive.

The Defence Committee canvassed these issues when it last considered the matter in November 1985. The Committee agreed that the Minister for Defence be advised that it is important for defence preparedness that elements of the Reserve Forces be available prior to the formal declaration of a defence emergency and that the Government should consider legislative provision to achieve this for the Reserve Forces.

This Review agrees that it may not be politically practicable in a low-level contingency to declare a defence emergency. If the value of the Reserve Forces is to be exploited fully in providing an effective defence capability for Australia, then the issue of legislative provision for *limited* call-out short of the declaration of a defence emergency needs to be resolved. It is not possible to predict with precision the total numbers of Reservists that may be required in the wide range of possible contingencies. But there is no military requirement to provide for the call-out of the whole Reserve before a defence emergency is proclaimed. The call-out proclamation itself could identify the numbers required over a specific period. Moreover, there is no longer the need for overseas service to be voluntary for the Reserves, as the whole emphasis of our defence policy is now on the defence of Australia.¹¹

A call-out provision along these lines would be seen by Reservists as relating directly to their national role and be more likely to provide the sense of purpose, a lack of which has been a factor in the lowering of morale in the Reserve and which has led to many problems of organisation, recruitment and training. If the concept of a 'total force' is to have any meaning, and if integration is to be effective, the Defence Force must be able to plan on the employment of any component of the force, including the Reserves, in situations which may fall short of a declared emergency.

The Review recommends that appropriate legislation for a *limited* call-out be prepared for consideration by Government. Constitutional powers would allow the Defence Act to be amended to enable the peacetime call-out of the Reserves. But community opinion needs to be reassured, and the wording of the legislation should make it plain, that there would be no Executive Power to use military force against Australian citizens.¹²

10 In this context, the concept of 'reserved occupations' is often raised: Reservists holding key positions in certain authorities or organisations could not be released for military service because of the wartime commitments of that organisation. The Review takes the position that this concept is only appropriate to national mobilisation—a situation remote in time and probability.

11 Before the Second World War the Reserves were considered essentially for home defence.

12 Mr Justice Hope in the Protective Security Review discussed this issue at length and proposed measures such as explicit limits on the duration of call-out and the recall of Parliament to sanction extension.

Properly organised, trained and equipped, our Reserve Forces can greatly enhance our overall defence capability. But to do so, they also need a sense of purpose and direction, and some positive recognition that their contribution is valued.

Our force structure is now based firmly on the concept that a requirement for expansion or surge capacity would be met by the Reserves. Some additional roles for the Reserves have been identified by the Review. These include the support of military operations—such as surveillance, pre-emptive deployment and the protection of key installations and settlements in the north—in credible contingencies and the maintenance of specific expansion base skills in such areas as armour, artillery, transport aircraft and MCM. These roles recognise the limitations on training time which is available yet exploit the unique contributions which Reservists can make. There is a particular role for Reserve Forces in the defence of the north of Australia, and there is a requirement both for enhanced local recruitment programs and the provision of training in the north of Reserve Forces that are located in the south of the continent. The Army Reserves in particular are seen as key elements of our expansion base planning for the defence of Australia and the integration of Regular and Reserve components of the Army is needed to a greater degree than in the past.

The Review argues for a modest overall increase in some elements of Reserve Force strength to achieve these objectives, while acknowledging that a smaller number of well trained forces is more important than a large number of predominantly 'nominal' Reservists. In this context, the Review recommends that the Army Reserves be limited to 26000. It also proposes that the conditions of service and the training time available to the Reserves should be improved.

Planning on the use of Reserves in contingencies likely to arise in the shorter term will remain dependent on some assurance that they can be called upon in a timely manner. Legislation to permit restricted call-out of Reservists in circumstances short of the declaration of a defence emergency is required. The legislation will require careful wording to ensure that community interests are safeguarded.

PART 9 RESOURCE IMPLICATIONS

Thus far, the Review has been concerned to establish our defence priorities and needs with only a general reference to affordability and resource constraints. Our strategic circumstances should determine the level of defence funding, but there will always be competing national demands for ultimately limited capital and manpower. The Review recognises that Defence cannot be expected to be immune from the inevitable pressures on public funds. Hence we have been at pains to establish a firm basis for our recommendations and to avoid more speculative judgements that could lead to unclear financial implications.

The Review has not been conducted as, nor was it intended to be, a cost-cutting exercise. It does not provide a basis for marginal variations in defence funding in the shorter term. Any longer-term variations resulting from implementation of the Review's recommendations will need to be developed in detail through the Department's normal processes of establishing long-term financial programs.

There are areas in Government which seem to look upon defence spending as a suitable target for reductions at a time of general fiscal restraint. There is often the perception that the large amounts of money and numbers of personnel involved in Defence could, if otherwise directed, contribute more to economic growth or standards of living. The lack of an identifiable threat only adds to a view held by some of a lack of urgency or priority to defence spending. These attitudes must be resisted if Australia is to provide adequately for its own defence, as recommended by this Review.

This Part of the Review now addresses the overall resource issues. It looks at the costs and affordability of the Review's recommendations in the light of the financial planning guidance endorsed by Government. There is also comment on the present and future balance between the major resource elements—capital equipment, capital facilities, personnel, and operating costs. The Terms of Reference require these matters to be addressed. It has not been an aim of this Review, nor would it have been practicable, to examine the entire Defence Program in detail.

FINANCIAL PLANNING

The need for financial planning

It is necessary first to outline the role of the Five Year Defence Program (FYDP)¹ and the financial guidance that Government provides. The purchase of new equipment, the development of new bases, and the training of personnel, take years to prepare for and to implement. For example, the last of the F/A-18 fighter aircraft is planned to be delivered in 1990 from a government decision made in 1981, which was itself

¹ There is also a three-year planning extension for major capital equipment beyond the five years of the FYDP itself.

the culmination of many years of planning. The FYDP is used as the principal and essential management tool that allows planning for the efficient and effective matching of financial and manpower resources over time to defence priorities, across all areas of defence expenditure.

This process requires Government to provide financial guidance for the forward five years. This guidance is not a commitment and is only for planning purposes. The actual amount allocated to Defence is determined annually in the context of the Budget.

The efficiency of the FYDP process depends critically on the extent to which the expectations of financial guidance are met by eventual Budget allocations. All too often, these have been wildly apart. Over the last decade, financial guidance has provided for an average annual real growth in outlays of 5.3 percent, yet actual real growth has averaged about 2.5 percent; the figures range from guidance of more than 7 percent to negative real growth in actual outlay. Such disparities are disruptive to defence planning, wasteful of managerial effort and resources, and a major source of misunderstanding and consequent tension between civilian and Service elements within the Department of Defence.

There is only limited room for short-term flexibility in annual defence expenditures. The great bulk of defence outlays is for personnel and other costs which cannot easily or quickly be reduced without significant disruption and cost penalties. Expenditures for equipment and facilities, such as new aircraft, airfields and submarines, are contracted for on the basis of long-term financial guidance. These contracts effectively commit most of the funds available for capital expenditure several years ahead.

Thus short-term changes of a few percent in the growth of defence outlays have a disproportionate effect. There are few areas of defence expenditure that are sufficiently flexible or discretionary in the shorter term to accommodate them.² They are also significant in their own right. A one-percent difference in real growth over the present five-year period would be an effective difference of some \$1000 million—equivalent to, for example, the present cost of constructing in Australia two FFG-7 class guided missile frigates.

The consequence is that, to meet Budget levels that are below financial guidance, new projects are deferred or rescheduled, operating costs and stockholding are restrained, and personnel levels lowered. This contributes to a community perception, fostered by predictable media over-reaction, that our Defence Force is lacking critical items of equipment and is ill-prepared. Over time, these measures accumulate. Priorities become distorted and inefficiencies in the use of public funds become more likely.

Not only is there managerial waste in developing programs that are later forced to be repeatedly deferred or abandoned, but there is a resulting preoccupation with the details of marginal adjustments and variations hastily put forward. This can be only at the expense of the time and effort that is required to keep longer-term developments and needs in a proper perspective.

A firm basis for financial planning is critical to this long-term perspective. It follows that financial guidance should be as realistic as possible about likely future outlays. Governments acting responsibly should not succumb to short-term attractions of making over-optimistic financial predictions.

In more recent years, there has been a welcome narrowing of the difference between financial guidance and Budget allocations. This should be applauded and further encouraged. This is not to deny that in some years Budget exigencies will force governments to adjust funding levels, but good planning should ensure that this is not routine and that the ensuing disruption is held to a minimum.

² In practice, this applies most when financial guidance decreases, but is also true when it increases unexpectedly, such as when the then Government responded to the Soviet invasion of Afghanistan. It is often the case that proposals rapidly brought forward to soak up windfall funding opportunities have little real or enduring priority.

Defence spending

Some comment is appropriate here on the myth that Australia is niggardly in its defence spending. There are only 17 countries in the world that spend more on defence in absolute terms than Australia, and most of them have a much larger economic or population base, or face a palpable military threat.

In per capita terms, we spend more than Canada, Belgium, Denmark, Italy, the Netherlands, Switzerland or Sweden, over twice as much as New Zealand, and three times more than Japan. When expressed as a percentage of Gross Domestic Product (GDP), our defence spending in recent years of a little under three percent is in the middle range of expenditures by NATO countries.

Unless our strategic circumstances deteriorate, the prospects for long-term growth in defence spending will clearly be linked to growth in our GDP. We should recognise that our foreseeable strategic and economic circumstances are such that defence spending is likely to remain at about its present percentage of GDP, with growth no more than overall economic growth.

This has important implications for our force structure planning. The real cost of major defence equipment has continued to increase over the last three decades at a rate greater than GDP growth, and this trend is likely to continue. The average real cost growth of capital equipment has been at least five percent a year, but significantly higher in some cases—for example, up to 15 percent for combat aircraft, although the new aircraft are much more capable than their predecessors. This means that in future years we shall have to be more searching in the analysis of our needs, and more selective about the range of capabilities we sustain and develop.

THE FYDP 1986-91 AND THE REVIEW'S RECOMMENDED CHANGES

Financial guidance

For the FYDP 1986-91, the Department of Defence is developing programs at annual real growths of 3.75 percent, 3.1 percent and 2.5 percent. The 3.1 percent program is being developed in detail, with the other two levels as variations to this, from a Budget base of \$6415.2 million for Financial Year (FY) 1985-86.³

The path followed also by the Review is to take the 3.1-percent case and to make variations to the Departmental program based on the Review's recommendations. The Review's position for beyond the FYDP 1986-91 is necessarily more general.

Broad resource allocations

For broad management purposes, the Defence Program plans on the allocation of resources to several main areas of expenditure. These are: capital equipment; capital facilities; personnel; defence co-operation; and operating costs. This planned allocation of funds for the FYDP 1986-91 for the 3.1-percent growth case is shown in the following table, together with the associated percentage shares of defence expenditure.

³ Prices are given in constant 'Budget 1985-86' terms, based on end-April 1985 prices and end-July 1985 exchange rates. When making comparisons with other published figures on Defence Appropriations and costs, allowance should be made for differing price and exchange bases. The actual Defence Budget Appropriation for 1985-86 was \$6535.4 m, but this included certain items to be excluded when making future projections.

FYDP 1986-91 : 3.1-percent Program* (\$ million)

| | 86-87 | 87-88 | 88-89 | 89-90 | 90-91 | Total 86-91 |
|--|----------------|----------------|----------------|----------------|----------------|-----------------|
| Capital Equipment | 1 960.8 | 2 077.8 | 2 166.9 | 2 285.0 | 2 421.8 | 10 912.3 |
| Capital Facilities | 346.3 | 376.4 | 425.1 | 467.0 | 499.4 | 2 114.2 |
| Personnel | 2 812.2 | 2 821.8 | 2 819.7 | 2 818.6 | 2 821.4 | 14 093.7 |
| Defence Co-operation | 52.8 | 53.9 | 55.0 | 56.1 | 57.2 | 275.0 |
| Operating Costs | 1 728.1 | 1 781.2 | 1 853.7 | 1 907.6 | 1 954.8 | 9 225.3 |
| Total Expenditure | 6 900.2 | 7 111.1 | 7 320.5 | 7 534.2 | 7 754.5 | 36 620.6 |
| Revenue | -286.1 | -292.0 | -290.0 | -285.8 | -281.4 | -1 435.4 |
| Total Defence Function Outlay | 6 614.1 | 6 819.1 | 7 030.5 | 7 248.4 | 7 473.1 | 35 185.2 |

Shares as Percentage of Expenditure

| | 86-87 | 87-88 | 88-89 | 89-90 | 90-91 | Average 86-91 |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|------------------|
| Capital Equipment | 28.4 | 29.2 | 29.6 | 30.3 | 31.2 | 29.8 |
| Capital Facilities | 5.0 | 5.3 | 5.8 | 6.2 | 6.4 | 5.8 |
| Personnel | 40.8 | 39.7 | 38.5 | 37.4 | 36.4 | 38.5 |
| Defence Co-operation | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.8 |
| Operating Costs | 25.0 | 25.0 | 25.3 | 25.3 | 25.2 | 25.2 |
| Total Expenditure | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

In recent years, the Department of Defence has taken the basic approach in this broad allocation of resources of containing personnel and operating costs and emphasising investment in capital equipment and facilities. This recognised the need to plan for the replacement of much of the equipment contributing to fundamental capabilities, acquired in the 1960s, and to develop new facilities directly relevant to the defence of Australia. It reflected also that our favourable strategic circumstances did not require high states of readiness for all elements of the Australian Defence Force (ADF), with the ensuing high operating and personnel costs.

The Department's 3.1-percent program for FYDP 1986-91 basically continues this approach, but with some modest relaxation of the constraints on operating costs and personnel. In percentage terms, expenditure on capital equipment and facilities continues to rise, operating costs remain about constant, and personnel costs continue to fall.

These next sections discuss in more detail the 3.1-percent annual growth program and the changes that follow from the Review's recommendations. The discussion concentrates on the major changes, and does not seek to analyse or justify areas of expenditure not directly affected by the changes. It would have been quite impracticable to have attended to these other areas, involving as they do many billions of dollars, in the detail required to make confident judgements. Except where indicated otherwise, the Review has accepted that the Department's extensive internal processes will have established appropriate priorities.

Capital equipment

Spending on capital equipment has risen from 6 percent of defence expenditure in 1974-75 to 27 percent planned for Budget Year 1985-86. It is planned to rise still further, to 31 percent by 1990-91, in the 3.1-percent growth program.

⁴ While the Review has endeavoured to ensure the accuracy of this and subsequent tables describing the 1986-91 FYDP, it cannot take into account any later changes that may have been made. Also, some tables may not add precisely because of 'rounding error'.

There are two main components of capital equipment: programs, or phases of programs, which the Government has approved (which means as a rule that a stage of implementation, such as construction, will be in progress), and programs or phases which have yet to be submitted to Government for approval—often known as 'new capital equipment'. The latter, together with the equivalent area in capital facilities, is the major area of program flexibility when adjusting the FYDP to reductions in financial guidance.

Of the \$11 000 million in the program for capital equipment, about \$6000 million is for projects already approved, while some \$5000 million is programmed for new capital equipment. This is elaborated below.⁵

FYDP 1986-91 : 3.1-percent Program, Capital Equipment (\$ million)

| | 86-87 | 87-88 | 88-89 | 89-90 | 90-91 | Total 86-91 |
|----------------------------|----------------|----------------|----------------|----------------|----------------|-----------------|
| Approved Capital Equipment | 1 940.4 | 1 609.9 | 1 107.1 | 764.2 | 518.4 | 5 940.0 |
| New Capital Equipment | 20.4 | 467.9 | 1 059.8 | 1 520.8 | 1 903.4 | 4 972.3 |
| Total | 1 960.8 | 2 077.8 | 2 166.9 | 2 285.0 | 2 421.8 | 10 912.3 |

We now summarise the effects of the Review's recommendations on the new capital equipment component of the FYDP. The Review does not develop a detailed program of yearly expenditures for these recommendations, but, as an aid to judging affordability over the next five years in particular, makes estimates of aggregated changes to expenditures within this period and beyond it, as well as of total changes. The table that follows includes only the major changes, and omits the cases where the Review supports existing programmed priorities.⁶ Because only net changes are shown, not every entry shows the total project cost.

Recommended Changes to Capital Equipment Program

| Recommendation | Change to | Change | Total |
|---|-----------|---------|--------|
| | FYDP | beyond | |
| | 1986-91 | 1986-91 | Change |
| | (\$m) | (\$m) | (\$m) |
| Over-the-horizon Radar (OTHR) | | | |
| Make program provision for two radars for decision in about 1987-88. | 80 | 130 | 210 |
| Make program provision for possibly a further two radars for decision in about 1990-91. | 0 | 210 | 210 |
| Photo-survey Aircraft | | | |
| Delete from program. | -67 | 0 | -67 |
| F-111 Update⁷ | | | |
| Reduce or defer some elements, delete others. | -274 | 25 | -249 |

5 To simplify the presentation, the distinction between 'major' and 'minor' capital equipment (roughly above and below a \$10 m project cost) has been omitted, and all minor capital equipment included with the approved majors. Those proposals which the Department intends to recommend to Government for decision before the end of the present Budget Year (1985-86) are also included with the approved majors, in the expectation that they will in fact become approved.

6 For example, the Review supports the FYDP's priority for conversion of the four B707 aircraft for the in-flight refuelling of the F/A-18, programmed for decision in 1986-87. Hence this is omitted from the table.

7 The proposals that are deleted are precision guided munitions and new electronic countermeasures. The updates of the avionics test equipment and the simulator are reduced, and the avionics update is reduced and deferred by one year.

Recommended Changes to Capital Equipment Program

| Recommendation | Change to | Change | Total |
|---|------------|-------------|-------------|
| | FYDP | beyond | |
| | 1986-91 | 1986-91 | Change |
| | (\$m) | (\$m) | (\$m) |
| Minesweepers | | | |
| Make program provision for four sweepers for decision in about 1988-89. | 30 | 7 | 37 |
| DDG⁸ | | | |
| Cancel modernisation of, and pay off, HMAS Hobart. | -10 | -22 | -32 |
| Ocean Patrol Vessel/Light Patrol Frigate | | | |
| Make program provision for eight ships, with a decision on construction in about 1988-89. | 150 | 1850 | 2000 |
| Decrease program for new patrol boats by five. | 0 | -100 | -100 |
| Decrease earlier program for new surface combatants by three. | -210 | -1690 | -1900 |
| DDG Replacement | | | |
| Make program provision for funded studies in industry in about 1988-89 to support a decision in the early 1990s on DDG replacement. | 10 | 10 | 20 |
| Helicopters for Light Patrol Frigates | | | |
| Make program provision for 12 helicopters for decision in about 1988-89. | 100 | 100 | 200 |
| Naval Utility Helicopters | | | |
| Defer beyond FYDP. | -42 | 42 | 0 |
| Airborne Surveillance and Control Capability | | | |
| Defer acquisition by one year to 1989-90. | -222 | 222 | 0 |
| Mobile Tactical Air Defence Radars | | | |
| Make program provision for two radars for decision in the 1989-95 time-frame. | 20 | 20 | 40 |
| Tropospheric Scatter System (Air Defence Communications) | | | |
| Delete from program. | 0 | -41 | -41 |
| Tactical Utility Helicopters | | | |
| Make program provision for a notional 36 additional aircraft (decision in about 1988-89) and an attrition reserve of 20 (decision beyond the FYDP). | 390 | 420 | 810 |
| Field Artillery | | | |
| Reduce program provision for Army Reserve guns. | -20 | -4 | -24 |
| Ground Force Surveillance | | | |
| Increase program provision, for decision progressively from 1987-88. | 20 | 5 | 25 |
| Fixed-wing Transport Aircraft | | | |
| Increase planned expenditure beyond FYDP. | 0 | 120 | 120 |
| Total (rounded) | -40 | 1300 | 1260 |

The net result of the Review's recommendations for capital equipment is to decrease expenditure within the FYDP 1986-91 by some \$40 million, and to increase it beyond the FYDP by \$1300 million.

In context, this underspend is not significant. It is less than one percent of the program provision for new capital equipment in the 3.1-percent growth program. And

8 This is the only recommendation that proposes significant change to a major capital equipment project which Government has already approved. This assessment of savings allows for cancellation penalties. If Government decides not to go ahead with this recommendation, the figures in this table and the manpower table should be adjusted accordingly.

it is often the case that proposals for new capital equipment are first put forward for an early year of decision, so that there is frequently considerable 'underbidding' in the later years of the program. The expanded role for, in particular, the Army Reserve that the Review recommends could well require increased allocations of equipment, which the Review has not attempted to cost. And there is also considerable scope to adjust the timing and expenditures of the Review's proposals.

Should the need arise, there would also be scope for adjustments to proposals already in the program. There are, for example, several of these whose low overall priority has caused them to be deferred over many years, and there are others which could be reviewed in light of the Review's general position on our defence priorities. Examples (and their programmed costs) include: Air-to-surface Missiles for Naval Helicopters (\$123 million); Leopard Tank Modifications (Phase 1, \$27 million); Armoured Fighting Vehicle Weapon Effect Simulator (\$18 million); Electronic Warfare Simulator (\$63 million); and Runway Denial Weapon (\$22 million). The total cost of this illustrative set is \$253 million (\$104 million within the FYDP, \$149 million beyond).

Similarly, there would be few problems in accommodating the proposed expenditure of \$1300 million beyond the FYDP. This figure represents only some 10 percent of the funds that would be available for capital equipment for a further five years beyond FYDP 1986-91. If necessary, some of the proposals already put forward for decision in the three-year extension (1991-92 to 1993-94) could be deferred or deleted, where these have lesser priority than the Review's recommendations, or where there is no clear strategic justification. Examples could include: Submarines 07 and 08 (\$670 million); Cruise Missiles for Submarines (\$98 million); Fire Support Helicopters (\$210 million);⁹ Bridging (\$97 million); Area Surface-to-air Missile System (\$150 million); and Close Support Helicopters (\$193 million).⁹ The total cost of these examples is some \$1420 million.

In summary, the Review's recommendations for new capital equipment can readily be accommodated within the framework of the financial provision already allocated to capital equipment in the 3.1-percent growth program. There is probably some flexibility for other areas of defence spending to grow at the expense of capital equipment, were this required. The position would be eased even further within a 3.75-percent program.

Capital facilities

Spending on defence capital facilities fell from seven percent of defence expenditure in 1974-75 to three percent in 1979-80. Somewhat under five percent is planned for Budget Year 1985-86, rising to over six percent before the end of the 1986-91 FYDP in the 3.1-percent growth program.

The program provision of \$2114 million for the FYDP 1986-91 covers new facilities developments as well as modernisation of existing facilities. Some \$450 million of this is allocated to housing, in accordance with the Government's announced plans to improve substantially the provision of housing for Defence personnel. It includes also an as yet unallocated provision of \$128 million for what are termed 'strategic initiatives' such as developments in the north and north-west of Australia that might be a consequence of this Review.

⁹ These are, in effect, separate Army and Air Force proposals for the same type of capability. They are different from the gunships proposed for acquisition with the tactical utility helicopters.

The corresponding figures are as follows.

FYDP 1986-91 : 3.1-percent Program, Capital Facilities (\$ million)

| | 86-87 | 87-88 | 88-89 | 89-90 | 90-91 | Total 86-91 |
|---|--------------|--------------|--------------|--------------|--------------|----------------|
| Programmed Capital Facilities | 346.3 | 376.4 | 403.8 | 424.5 | 435.6 | 1986.6 |
| Initiatives | 0 | 0 | 21.3 | 42.5 | 63.8 | 127.6 |
| Total Capital Facilities | 346.3 | 376.4 | 425.1 | 467.0 | 499.4 | 2 114.2 |

The capital facilities program already makes provision for decisions on some of the facilities developments that the Review recommends, although not necessarily to the same extent or with the same timing priority. These developments, with their estimated project costs, are: North West Australia Naval Support Facility (\$15 million); and Cape York Airfield (\$30 million). Other facilities developments in the program, directly relevant to the overall operational priorities of the Review, include: further development of the Stirling Naval Base (\$21 million); and further development at Tindal, Derby and Learmonth airfields (\$166 million).

Planning for capital facilities funding and development is, however, greatly overshadowed by uncertainties concerning the cost and timing of the relocation of the Fleet Base from Sydney, and the opportunities that this will give for the basing of Fleet units in locations more strategically relevant than the south-east of Australia. Present estimates are of the order of \$1000 million, with completion probably not until next century. This uncertainty naturally flows on to affect facilities proposals in the Sydney and Jervis Bay areas already programmed, such as the Redevelopment of HMAS Waterhen (\$30 million), and the Jervis Bay Armament Depot (\$105 million).

Those capital facilities initiatives that the Review recommends and which are not specifically programmed are the relocation of the major submarine base to HMAS Stirling, and Army basing and training in northern Australia. The relocation of the submarine base could be seen as part of the overall Fleet Base Relocation, and therefore in a general sense would be covered by funds made available for the latter. An early estimate of its cost is some \$110 million, but the effective total cost would need to take account of the effect of the decision in 1985 to base some of the present Oberon class submarines in the west, and the cost of the Review's recommendation to have a secondary submarine base in the east.

There is no program provision or planning for the facilities needed for the Review's preference to base an infantry battalion of the Regular Army in the Darwin/Tindal area, or for any of the alternatives. Early estimates of these facilities costs lie between \$100 million and \$800 million, depending on the option. In practice, as explained in Part 7, there would probably be a phased approach to the development, over several years. This recommendation would be well placed to take advantage of the \$128 million programmed for strategic initiatives.

The Review has not commented on the great bulk of the \$2 000 million programmed for capital facilities in FYDP 1986-91 in the 3.1-percent growth program. But it would be surprising if some proposals of lesser priority funded here could not be displaced to accommodate the Review's recommendations, if these were to progress sufficiently quickly to require it.

In summary, the uncertainties concerning the nature, timing and cost of the relocation of the Fleet Base from Sydney make possible only general statements about the affordability of the Review's recommendations on capital facilities. There is the further complication that major capital facilities proposals generally take many years to develop, and much of the expenditure on the Review's major facilities proposals would probably not be until beyond the present FYDP.

Provided that present facilities funding levels are sustained beyond the FYDP, the Review is generally confident that its recommendations could be accommodated. Within the FYDP, and especially bearing in mind the \$128 million included within the 3.1-percent growth program for strategic initiatives, there would similarly seem to be no significant problem. Any pressures would be relaxed still further in a program based on 3.75-percent real annual growth.

There are perhaps two issues that should be highlighted, both concerned with timing. The first is whether the preparation of facilities proposals can be sufficiently rapid to use the funds already programmed. The second is one of the time-scale in which resources allocated to facilities can be reduced. Beyond the facilities initiatives proposed by the Review, and the relocation of the Fleet Base, there will be little need for further new strategic facilities, so that after the mid-1990s, it should be possible to reduce expenditure in this area, although modernisation and replacement of existing facilities will continue to be costly.

Personnel

The percentage of defence expenditure on personnel has been decreasing more or less steadily since 1974-75, when it was 58 percent. It is planned to be about 42 percent in Budget Year 1985-86, and to reduce further to 36 percent by 1990-91 in the 3.1-percent growth program. With these policies of constraining personnel costs, the 3.1-percent growth program holds personnel numbers broadly constant¹⁰, but with some growth programmed, as discussed shortly.

The Authorised Terminal Strengths (ATS) for the Permanent Forces are planned to remain constant from Budget Year 1985-86 through to the end of the FYDP in 1990-91. These strengths are¹¹: Navy 15 536; Army 32 000; and Air Force 22 797—total 70 333. Civilian strength (Average Operating Staffing Level) is planned to reduce from 39 784 in the Budget Year to 39 096 (a reduction of 688) in 1990-91. The bulk of the reductions is in connection with the government factories and the return of the RAAF from Butterworth, and there is an associated redistribution of about 550 other positions.

Beyond the strengths mentioned above, there is an as yet unallocated programmed growth of 500 Service and civilian personnel. This comprises: the inclusion for planning purposes of an increase in Defence personnel linked strictly to new capabilities based on equipment planned for introduction in the FYDP 1986-91; and increases to cover the need for additional staff to manage new capital programs. This allowance for personnel growth is at this stage empirical, and not tied to specific new capabilities or projects. The additions and the associated costs are shown below.

FYDP 1986-91 : 3.1-percent Program, Personnel Additions

| | 86-87 | 87-88 | 88-89 | 89-90 | 90-91 | Total 86-91 |
|-------------------------------|-------|-------|-------|-------|-------|----------------|
| Growth in personnel | 0 | +100 | +200 | +100 | +100 | 500 |
| Cost (\$m) | 0 | 0.6 | 2.7 | 6.1 | 9.6 | 19.0 |

These programmed increases give considerable flexibility to accommodate the Review's recommendations. In particular, changes in manpower demands resulting from the Review's adjustments to the capital equipment program would be accommodated, in a general sense, by the personnel increases shown above as already programmed.

¹⁰ However, some adjustment in personnel costs is a consequence of changes in average per capita rates, themselves a consequence of changing rank and age profiles.

¹¹ This is an effective ATS for Navy, held at this level because of higher per capita rates than planned for. The real ATS of 15 732 (a difference of 196) is achieved in the 3.75-percent growth program.

The Review supports continuation of the constrained approach to personnel resources. It considers that, in current strategic circumstances, personnel numbers can continue to be held relatively steady in favour of other areas of defence spending. Additionally, demographic, social and financial factors will continue to constrain the size of the ADF, which is unlikely a decade hence to be significantly larger than it is today. This suggests that manpower will have to be used more effectively, in both Service and civilian areas.

The Review has some important attitudes on the effective use of this costly asset, and the principles bear summarising. In some cases, these are already followed, but there is scope to go further.

- The requirement for military training or background for the effective performance of tasks needs to be carefully established.¹² Use of civilians, either directly or by contract, can allow cost savings and free Service personnel for military tasks. But there has to be confidence in arrangements to avoid industrial disputation, especially in critical areas. Where these civilians are employed directly, Government will have to accept greater numbers within the Public Service.
- Some logistic, catering, repair and other support tasks currently performed in-house can be contracted out. There is a potential for cost savings and the benefit of exercising civil assets in peacetime.
- Continuous effort is required to ensure that the absence of identifiable threat does not lead to imbalances between headquarters and operational elements. Almost one-quarter of the active officer corps in the Defence Force serves in Canberra. At levels equivalent to Major and above, the proportion rises to almost one-half in some areas.
- There should be greater flexibility in the use of Reserve Forces by all three Services. These offer the possibility of contributing to capability elements requiring a lower level of training than Regular or Permanent forces, or those relevant to more remote contingencies, at much lower cost.
- Technology offering manpower reductions should be exploited, as demonstrated in the trend towards smaller crews for naval vessels (although there is invariably an offsetting increase in shore-based support personnel).
- The scope for significant reductions in some civilian areas must be examined rigorously. At present, there are some 14 900 full-time civilian employees directly supporting the three single Services, 15 100 in Defence Production, 4 400 in the Defence Science and Technology Organisation, and 5 000 in the rest of Defence. There may be a need to drop, curtail or contract out functions that are not appropriate to a force of our limited size. We can encourage greater involvement of the private sector including in such areas as the defence factories and dockyards where large numbers of civilians are employed in environments characterised by low productivity, inflexible work practices and industrial disputation.

Follow-up action in areas covered by these principles will help to relieve pressures on personnel strength within the Defence function. But it is worth noting that civilian strength has already been decreasing—this is now some 2000 less than it was 10 years ago. Service numbers, excluding Reserves, have grown by less than 2000 over the same period. In all areas, personnel costs have been constrained in favour of equipment and facilities.

The more significant of the Review's recommendations (either supporting existing program priorities, or making changes) as they affect manpower needs are indicated below. These figures address only the direct needs for Permanent or Regular uniformed

¹² A complicating factor in Navy's manpower planning is the need to maintain an equitable 'sea-to-shore' ratio, so that personnel can be rotated between postings at sea and ashore and spend a reasonable amount of time with their families.

personnel and Defence civilians; they exclude Reserves and contractor support and do not distinguish between changes within the FYDP period and those beyond it.

Indicative Manpower Changes

| Recommendation | Approximate Manpower Change |
|--|-----------------------------------|
| OTHR (Jindalee conversion) | 40 |
| At least two further OTHRs at least | 80 |
| Towed Acoustic Arrays | 50 |
| Mapping up to | 50 |
| Second Flinders class Survey Ship | 30 |
| Hydrographer's Office | 20 |
| Laser Airborne Depth Sounder and Survey Launches | 50 |
| Mine Countermeasures (Hunters, Sweepers, and Mine Warfare Systems Centre) | 180 |
| Pay off HMAS Hobart. | -330 |
| Eight Light Patrol Frigates plus helicopters to replace three Destroyer Escorts (DE) and five patrol boats Assessed to balance out | |
| Three tactical air defence radars (one already programmed, and two more) | 45 |
| Additional tactical utility helicopters | 375 |
| Reduce tanks and M113s on issue up to | -215 |

It is notoriously difficult to assess real manpower needs without careful and detailed analysis. The figures shown above are indicative and do not address every major proposal in the capital equipment program. But they serve to show that the Review's recommendations will not significantly increase overall pressures, especially when put in the context of the bulk of the 140 000 personnel (110 000 Permanent Forces and civilians, 30 000 Reserves) already in the Defence function and the programmed growth of 500 new personnel. Manpower planning would of course need to take account of specific skill requirements and training times, not just numbers.¹³

The Review's recommendations on manpower contain some counterbalancing changes. It is tempting to see the increase required for the additional helicopters as a counter-part to the reduction in personnel allocated to armour, especially if, as the Review recommends, Army takes over the operation of these helicopters. Similarly, the manpower cover (but probably not all the individuals) made available by paying off HMAS Hobart would be available for the higher-priority tasks of mine countermeasures (MCM) and hydrography.

Some additional personnel costs (as opposed to personnel numbers) might be incurred through Army basing in the north, because of increased allowances. Estimates of these lie in the range of \$2 million to \$12 million annually, depending on the option pursued.

In summary, the Review's broad principles on how to reduce personnel pressures, together with the programmed growth of 500 new positions and the redistribution of 550 other positions, seem likely to allow the new capabilities to be accommodated. Continued broad constraint on the numbers of civilian and Service personnel within the Defence function is justified.

¹³ HQ ADF has made particular representations to the Review about the constraints on Navy's manpower, commenting that an increase to the ATS of 15 732 had been recommended—but not accepted—in the course of Defence deliberations on the FYDP. Detailed attention has been given to naval manpower in recent years in the context of reductions from the aircraft carrier and fixed-wing aviation, but there has been no comparable review of the manpower needs of Army or Air Force. The Review is not in a position to judge on this matter, but would comment that there is scope for HQ ADF itself to recommend manpower adjustments between the three single Services (for example, the increase of 196 that Navy seeks is somewhat less than the reduction of 677 in Army's ATS decided in the context of the 1985-86 Budget).

Operating costs

Between 1974-75 and 1983-84, operating costs as a percentage of defence expenditure have remained between 27 percent and 31 percent. The steady decline from 31 percent since 1980-81 is planned to be held at about 25 percent from Budget Year 1985-86 to the end of the FYDP in 1990-91.

The FYDP 1986-91 allows operating costs to rise at an average rate of about three percent per year. Of this, two percent is in recognition that in general it costs more to operate modern defence equipment than it did equipment of earlier design, and is a general allowance for the introduction of new capabilities. It continues the policy in recent years of constraining growth in operating costs. The remaining one percent is a provision for augmentation of stocks to correct shortcomings that studies now under way might identify in surge capacity and sustainability for operations in credible contingencies. These provisions represent flexibility for increases in operating costs that could be a consequence of this Review. The associated figures are as follows.

FYDP 1986-91 : 3.1-percent Program, Operating Costs (\$ million)

| | 86-87 | 87-88 | 88-89 | 89-90 | 90-91 | Total 86-91 |
|---------------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Allocated | 1728.1 | 1762.7 | 1815.3 | 1848.3 | 1873.4 | 9027.7 |
| (Increase over 85-86) | (18.9) | (53.5) | (106.1) | (139.1) | (164.2) | (481.8) |
| Not Yet Allocated | 0 | 18.5 | 38.4 | 59.3 | 81.4 | 197.6 |
| Total | 1728.1 | 1781.2 | 1853.7 | 1907.6 | 1954.8 | 9225.3 |

The Review's recommendations affect operating costs in three basic ways: the introduction of new or expanded capabilities (such as additional OTHRs and additional new helicopters); lower utilisation of assets already in the force structure (such as tanks, M113 light armoured fighting vehicles and HMAS Hobart); and increased training in remote locations (in particular Army basing and training in northern Australia). Additionally, the recommendation to increase the use of Australian industry for support of the Defence Force will transfer some expenditure from the manpower component to the operating cost component of defence expenditure.

There will be pressures on operating costs also from new capabilities already programmed. These include the first OTHR, the initial expansion of the helicopter fleet, ships to operate towed acoustic arrays, and the reintroduced MCM capability. None of these has a specific allowance for operating costs, although the programmed two-percent component of the growth in operating costs would contribute substantially (this growth amounts to some \$480 million over the FYDP 1986-91). It follows that the changes made by the Review to the capital equipment program will also be able to be accommodated, in a general sense, by this programmed growth.

It has not proved possible to get reliable or comprehensive estimates of the changes in annual operating costs that would follow from the Review's recommendations. Nevertheless, some early and indicative estimates are: \$2 million for each OTHR; \$12 million for additional helicopters; -\$1.8 million for reduced tank and M113 operation; and -\$8 million from paying off HMAS Hobart.

Nor has it proved possible to estimate reliably at this stage the additional costs of Army basing and exercising in the north compared with the equivalent costs for the south. Depending on the basing option followed, annual operating costs for travel and removals would increase by between \$3 million and \$25 million, and there would be other cost increases associated with resupply.

As regards exercising, the difficulties lie not so much in the data or one-time costs directly attributable to an exercise (such as fuel, allowances and ammunition) but in deciding how to cost the use of Service assets, especially transport assets. For example, should there be an allowance for the depreciation of the wheeled vehicle fleet, or for

the use of C130 aircraft or HMAS Tobruk, given that these have an annual allocation of flying hours and steaming time?

Nevertheless some indicative comparative costs are shown below. The estimates assume the use of ADF assets (road, air, and sea—RAN and RAAF transport costs are included) and civil rail. They cover a 14-day exercise by standard infantry groupings, notionally based at Holsworthy, New South Wales.

Estimated Comparative Exercise Costs (\$ million)

| | <i>Shoalwater</i> | | <i>Tindal</i> <i>NT</i> | <i>Pilbara</i> <i>WA</i> |
|----------------------------------|----------------------------|--------------------------|----------------------------|-----------------------------|
| | <i>Cobar</i> <i>NSW</i> | <i>Bay</i> <i>Qld</i> | | |
| Infantry Company Group | 0.3 | 0.6 | 1.5 | 2.2 |
| Battalion Group | 0.9 | 1.2 | 3.2 | 4.5 |
| Brigade Group | 1.8 | 2.3 | 5.1 | 6.9 |

The Review supports the need to identify shortfalls in stocks for operations in credible contingencies, and the allocation of funds in the program for this (there is provision of close to \$200 million). The primary call on these funds will probably be spares, rather than ammunition stocks.

There would be extra operating costs for the Army Reserve, but at least some of this would be offset by the Review's recommendation to contain numbers to an upper limit of 26 000, rather than the 30 000 that are programmed for 1988-89 and beyond.

In summary, the Review's position is that there may be a case for relaxing operating costs a little further in the priority areas discussed above, by up to another one percent per year, until an increased level of some \$60 million a year is reached. This should not be regarded as inevitable and would need first to be justified by more detailed analysis of the costs of the Review's initiatives. It is unlikely that there would be any significant call on this increase in program provision until about FY 1988-89.

CONCLUSION

The introduction in the early 1970s of the FYDP system has greatly improved the processes of defence financial and force structure planning. But some of the potential benefits have been lost because of the lack of consistent financial allocations by governments. For most of the last decade, defence planning has been caught between elevated planning guidance and depressed budgetary growth, leading to a pattern of deferrals of major projects.

The Review recommends most strongly that more realistic financial guidance should become the norm. This would do much to reduce waste of managerial and executive effort and would allow longer-term force structure needs to be kept in a clearer perspective.

Total defence outlays of around three percent of GDP seem broadly appropriate for Australia. We are unlikely to justify expending more than this figure in present strategic circumstances, but neither should it be seen as an inevitable upper target for the Defence function.

This Review was not a cost-cutting exercise, but the preceding discussion has shown that its recommendations are feasible and responsible from a financial point of view.

With some modest adjustments, the Review's recommendations can be accommodated within the Department's 3.1-percent real growth program for FYDP 1986-91, and there is no indication of difficulties beyond that period.

Within the FYDP period, the Review's recommendations on new capital equipment more or less balance out; beyond it, the Review identifies a specific need for some \$1300 million, but this is a modest fraction of the funds that present policies would make available and that have not yet been allocated to particular proposals. In either case, there are proposals programmed or planned that, being of lesser priority, could be displaced to make program provision available for the Review's recommendations if required.

Capital facilities planning is overshadowed by uncertainty concerning the relocation of the Fleet Base from Sydney. Nevertheless, the Review judges that the major recommendation not already planned—namely Army basing in Darwin/Tindal—could be accommodated if funds for capital facilities were sustained for a few years beyond the FYDP broadly at the levels now programmed within the FYDP. But with an eventual reduction in the need to develop any further new strategic facilities, the funds allocated to this part of the Defence Vote could reduce, perhaps by the mid-1990s.

Manpower changes are difficult to assess accurately, but in numerical terms the net result of the Review's recommendations appears small, especially in comparison with the 140 000 people already employed in the Defence function. The Review has put forward some general principles to reduce personnel pressures. These, together with the growth of 500 new positions and redistribution of 550 existing positions already programmed, seem likely to allow the Review's changes to be accommodated. The Review supports continuation of the policy of constraining Service and civilian manpower growth.

The Review's recommendations are likely to require a modest increase in operating costs beyond the three-percent average growth already programmed. The main initiative here is the recommended basing of Regular Army elements in Darwin/Tindal and increased training in the north generally. Also, some transfer of expenditures from the personnel component of the Defence Vote to operating costs could come from the greater use of Australian industry to support the Defence Force. While these costs should be subject to detailed analysis, it seems that up to about \$60 million a year could be appropriate. The Review supports the allocation of a funding wedge for stocks to sustain operations in credible contingencies—but primarily for spares rather than ammunition.

The overall position is that, should the need arise, there is scope to plan for some modest further growth in operating costs (subject to further detailed justification) at the expense of some of the programmed growth in capital equipment and, perhaps later, in capital facilities.

CONCLUSION

AUSTRALIA'S DEFENCE IN THE 1990s

The Government's defence policy provides for defence against both invasion and raids. As raids are the most probable form of attack, the completion of the defence against this contingency is the immediate objective of policy. The new defence programme will provide adequate defence against raids and, at the same time, will afford a deterrent to and a substantial measure of defence against invasion.

H.V.C. Thorby, acting Minister
for Defence, 1938

A secure country

Australia is one of the most secure countries in the world. It is distant from the main centres of global military confrontation, and it is surrounded by large expanses of water which make it difficult to attack. Australia shares no land borders with any other nation, it does not stand astride any vital international sea lanes, nor does it control crucial maritime choke points. Our neighbours possess only limited capabilities to project military power against us. Only once in its 200-year history has this nation experienced the prospect of invasion. Even then, the Japanese had already decided in 1942 that the conquest of Australia was beyond their military capacity.

Australia's area of primary strategic concern—South East Asia and the South West Pacific—is one of the most stable regions in the world. Although not without problems, nation-building in this region is proving successful, and economic prospects are more promising than in many other parts of the Third World.

Regional co-operation, among both the ASEAN countries and the members of the South Pacific Forum, is proving to be a considerable force for stability and for mediating local conflicts. These nations are also basically Western inclined, suspicious of the Soviet Union, and friendly towards the United States. They receive most of their trade, investment and economic assistance from the West, as well as their military equipment.

We have no traditional enmities or territorial disputes with neighbouring countries. These states are favourably disposed towards us, and they recognise that Australia does not threaten them.

Some future uncertainties

Like any other nation, Australia faces some uncertainties. Nuclear war between the Soviet Union and the United States is most unlikely. Were it to occur, we—along with most other countries in the world—could not escape its consequences. But this possibility provides no basis for planning our force structure.

Several developments in the region require close attention. The Soviet Union is seeking opportunities and is building up its military presence at Cam Ranh Bay. Vietnam is placing pressure on Thailand, and there are important questions about the Philippines in the post-Marcos era. There are border tensions between Papua New Guinea and Indonesia, and possibilities for violence over Kanak demands for the independence of New Caledonia. Regional countries are steadily improving their military capabilities, although development in this regard will continue to be restricted by fundamental economic and social constraints. New Zealand's refusal to allow port visits by nuclear-armed or nuclear-powered warships has led to the effective termination of United States military co-operation with New Zealand.

Whilst introducing uncertainties in our strategic prospects, none of these matters suggests military threat to Australia. But it would not be prudent to assume that Australia will always be able to conduct its affairs without challenge, especially if we were to have little or no visible means of defence.

Our defence planning must contemplate the possibility that at some time in the future relations between Australia and some regional countries might change and be less favourable than today. Below the level of major assault, there is a range of lesser contingencies that are credible in the shorter term. This Review has given detailed attention to these possibilities, even though there are few issues in our regional relations now that could lead to difficulties of sufficient weight to increase the possibility of conflict.

In the more distant future, developments could conceivably lead one day to more substantial military pressure or attack upon Australia, either from a regional power or from a capable, unfriendly external power that had acquired a strategic lodgement in the region. In the latter circumstances United States interests would be directly affected in respect of both its own supremacy in the region and its obligations under the ANZUS Treaty. The regional security situation would have changed dramatically and the interests of nations other than Australia would be threatened by the arrival of an external power substantial enough to gain a strategic lodgement.

With respect to regional powers, no country in our neighbourhood has the capabilities to threaten substantial conventional military assault against us. And, even if political relations were to deteriorate gravely, no country could undertake a large conventional attack on Australia—even with substantial foreign assistance—in less than 10 years.

It should be Australian policy to maintain an advantageous position in technology and operational skills in critical capabilities. This demands a close monitoring, at all times, of developments in foreign military capabilities and expansion potential.

Beyond the turn of the century, there are other uncertainties. We are the only country on earth to defend an entire continent, when many countries face the prospect of mounting population pressures. We are rich in resources and food in a world where these commodities may become increasingly scarce. We are a member of the Western strategic community distant from our main associates and flanked by Third World countries, some of which have values different from ours.

The military power and intentions of large Asian countries, such as China, Japan, Vietnam, Indonesia and India, are imponderable over such a long time-scale. No useful purpose, in defence planning terms, is served by speculating on these matters. Threatening trends are not evident, relevant military capacities have not been built, and political tension has not arisen. They are subjects for assessment by our intelligence community, not a basis for defence planning.

Defence policy for the 1990s

It must be a primary national policy objective in the 1990s to ensure that Australia's favourable regional security situation endures. This is a matter mainly for our foreign and economic policies, although defence activities can contribute. Compared with the 1950s and 1960s, when the situation in Asia was very unstable, with insurgencies in Malaya and Borneo and full-scale wars in Indochina and Korea, Australia's regional environment is now much more benign.

Despite these favourable strategic circumstances, Australians have generally felt threatened from one direction or another. In the period between the two world wars, a great debate raged over whether we were faced with the threat of invasion or only of raids. This debate is still with us, even though Australia itself has only ever experienced raids. In the post-war period, China, Vietnam, the Soviet Union and Indonesia have variously been seen in opinion polls as the most likely source of threat.

AUSTRALIA'S REGIONAL SECURITY INTERESTS

The very volatility with which threat perceptions can change in Australia—for example, regarding China—is an indication of public insouciance and the lack of a real consensus in this country on what the Defence Force is defending us against.

In the prolonged era of 'forward defence' Australia was able to avoid the central question of what forces were needed for the defence of Australia and its vital interests. Operating at distance overseas, in Europe, the Middle East, the North Pacific, South East Asia or in Indochina, meant that difficult questions about defending Australia need not be addressed.

Although Australia has been moving towards a concept of increasing self-reliance in the defence of its own national interests for over a decade now, there have developed a number of competing force structure philosophies which have not been reconciled in advice given to Government. When Government has given guidance, it has been subject to the need for political gestures—both domestic and international¹—and constrained by annual Budget review.

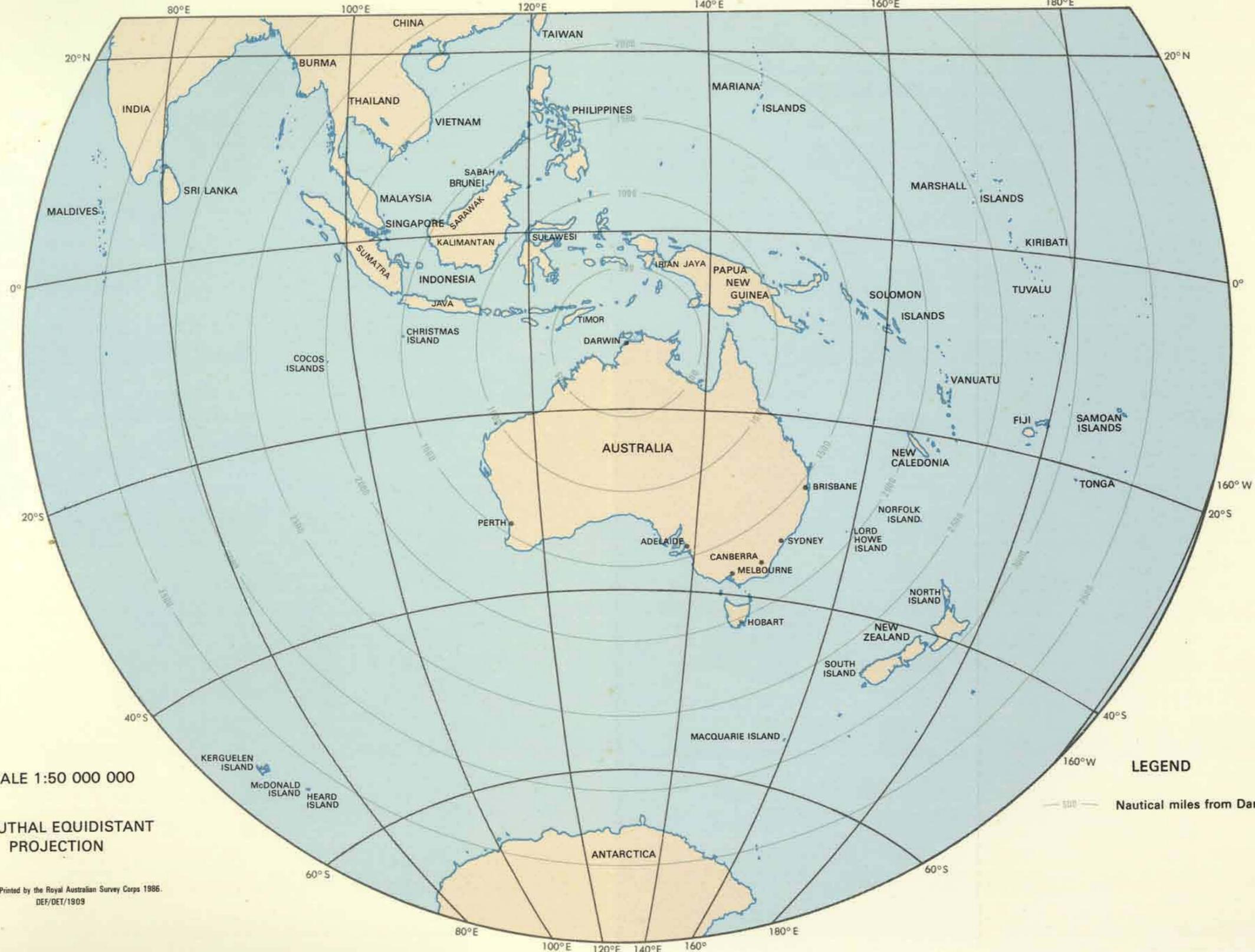
Financial realities are, of course, a central element in any process of government. This Review has recognised that, in the absence of severe deterioration in Australia's strategic circumstances, no government is likely to spend more than about three percent of Gross Domestic Product on Defence. Even within that limit, annual defence spending in Australia now exceeds \$6500 million—as much as the Commonwealth Government spends on health and more than it spends on education.²

It is essential that the Australian people be convinced that this large amount is being spent wisely and that Australia's defence forces are indeed capable of defending the nation. That this is not the case can be attributed to a lack of informed public debate on defence issues in this country. Unlike many other Western countries, Australian governments have not published regular reviews about our defence policies. (The last *Defence White Paper* was published almost a decade ago.)

The main question facing defence planning is how Australia should direct its spending priorities over the next decade so that the force structure more demonstrably reflects our unique requirements. These requirements—that is, what is to be defended and how—need to be defined more clearly than they have been in the past. This the Review has attempted to do, recognising that there are important policy decisions concerning the appropriate level of threat against which we should develop the ADF and the priorities that should be allocated to particular force structure elements.

To provide an appropriate defence force for a country in Australia's unique strategic circumstances is exceedingly complex. The questions of what sort of defence capabilities are most appropriate and how much we need are never amenable to mathematical precision. This Review is necessarily a set of judgements about where our future force structure priorities should lie. Its recommendations seek to build on the useful work that has been done in our defence planning over the last decade and to suggest a progressively sounder basis and rationale for our force structure. Its central theme is that Australia is a defensible continent and that, with some reordering of force structure priorities in the years ahead, we shall have the forces to carry out this vital national task in the 1990s.

¹ The abrupt increase in our defence spending and preparedness because of the Soviet Union's invasion of Afghanistan is a good example.
² Expenditure on defence is, however, only about one-third of what Australia spends on social security.



SCALE 1:50 000 000

AZIMUTHAL EQUIDISTANT PROJECTION

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LEGEND

— 500 — Nautical miles from Darwin

