DEFENCE SELF-RELIANCE AND THE SUSTAINMENT
OF OPERATIONS

By

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About the Author

Squadron Leader Tramoundanis joined the RAAF as an Armaments Officer in 1981 after completing a degree in Chemical Engineering at Monash University. She has held appointments at 481 Squadron, 1 Central Ammunition Depot (Explosives Engineering Division) and HQLC. She holds an MSc in Explosives Engineering from the Cranfield Institute of Technology (UK), and in 1992 graduated from RAAF Command and Staff Course. Squadron Leader Tramoundanis is currently working in the Directorate of Armament Engineering – Navy.
INTRODUCTION

The policy information paper, *The Defence of Australia 1987 (DOA 87)*, set the course for a decade of development towards defence self-reliance while noting that, for Australia, self-reliance is achievable only when set within a framework of alliances and regional associations.\(^1\) The difficulty in this statement is that there is no clear guidance on what constitutes the correct balance between self-reliance and dependence on allies.

The pivotal role air power plays in the defence of Australia makes the ability to sustain air power operations in a self-reliant manner critical to Australia’s national security. Under the guidelines of DOA 87, and more recently ASP 90, the RAAF has developed a versatile fleet of combat and combat support aircraft that make important contributions to almost the entire range of ADF capabilities. Air power contributes to intelligence and surveillance, strike and interdiction, maritime warfare, air warfare, offensive air support for surface forces, and strategic and tactical air transport.\(^2\)

The contribution that air power is able to make to Australia’s defence depends, inter alia, on the ability to mount the full spectrum of operations falling within the scope of those capabilities. It also depends on the ability to sustain such operations for the duration of hostilities.

Yet despite the importance of air power to Australia’s security, nowhere are the limits of Australia’s self-reliance more evident than in the sustainment of air power operations. Air power weapons platforms are obtained overseas as are their technical spares, engineering specifications and technical data.

Similarly, all air deliverable ordnance employed by the RAAF relies in some measure on overseas supply sources. The AIM-7 Sparrow, AIM-9 Sidewinder and Harpoon missiles are procured from the US. Also obtained from the US are the GBU-12 and GBU-10 laser guidance kits fitted to the Mk 82 and Mk 84 bombs respectively. While Australia does have the capability to manufacture Mk 82 and Mk 84 High Explosive (HE) bombs, the tube stock used to produce the bomb casings has to date been purchased from overseas sources. Furthermore, the fuses fitted to these bombs are also obtained overseas.

The RAAF’s 2.75 inch (70 mm) rockets are foreign made as is the 20 mm HE ammunition fired by the F/A-18. Australia has the capability to assemble 20 mm ammunition in-country but at the present time would rely on overseas supplies of HE projectiles.

Air defence assets such as the Rapier and RBS-70 missile systems are also procured overseas. Rapier missiles are assembled in Australia using foreign components, with the exception of the rocket motors which are manufactured in-country.

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\(^2\) *ibid.*, Chap 4.
FACTORS LIMITING SELF-RELIANCE IN AIR POWER OPERATIONS

Self-reliance comprises the ability to mount and sustain operations from within Australia's own resources over a given period of hostilities and at a rate of effort consistent with the credible levels of contingency. DOA 87 is unequivocal on the practical interpretation of self-reliance:

‘defence self-reliance demands a defence force capable of independent operations’.  

Independent operations rely on the availability of war-fighting stocks from indigenous defence industries and, where such items are not produced locally, on the stockpiling of reserve stocks. Australia's self-reliance in the sustainment of air power operations is seriously limited on both these counts. Not only is the local manufacturing capability extremely limited, but the ADF also lacks a stockholding policy.

A statement made by former CAS Air Marshal J. W. Newham at the inaugural RAAF History Conference held in Canberra on 14 October 1992 highlighted the difficulties faced by the ADF in attempting to operate within an adequate stockholding policy. The Air Marshal explained that ‘… the only way we [RAAF fighter squadrons] could get any war stock weapons was to fudge on our training requirement of live rounds’. 

The situation was exacerbated by a lack of understanding of operational needs within the Department of Defence.

Despite attempts in 1981 to develop a policy for contingency reserve stockholding and the passage of six years since the release of DOA 87, the ADF has yet to develop such a policy. To date, only the principles around which a policy may be framed have been developed. However, even if such a policy were formulated tomorrow, the ADF is not committed to funding the acquisition of the calculated reserve stocks.

While the ADF does hold reserve stocks of selected munitions and warlike stores, for the RARAF, these stocks are calculated using a ‘rule of thumb … (which) … does not directly address usage rates for credible … contingencies’. Current practice is that reserve stock procurement is placed in competition for funds with the development of

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3 ibid., p 74.
4 For a fuller statement of Air Marshal Newham’s comments see Australia’s Air Chiefs, the Proceedings of the RAAF History Conference, APSC, Canberra, 14 October 1992, p 67.
5 ibid., p 67.
other defence capabilities. Hence, the framing of a reserve stockholding policy would constitute only a marginal improvement over the present situation by identifying what is needed even though these supplies may not necessarily be procured.

THE CONCEPT OF WARNING TIME

The rationale for the present arrangements is underpinned by the expectation (and hope) that national intelligence agencies will provide adequate forewarning of a threat to Australia. The warning time is expected to be sufficient to allow contingency stocks to be boosted in time to meet the threat.

The concept of warning time has the inherent difficulty that the actual period of warning given by our intelligence services may fall drastically short of what is needed. In a low level contingency scenario, a threat to Australia may arise insidiously rather than as a series of dramatic events and the capacity to accurately assess the implications may be limited. Alternatively, in the extremely fluid security environment prevailing in the Asia-Pacific region following the end of the Cold War, a security threat may arise over an extremely short period of time giving very little time for the ADF and the Australian government to react. There are several recent examples of intelligence services’ failure to give warning of impending security crises. These include the 1979 Iranian revolution, the first coup in Fiji in 1987, and the 1990 invasion of Kuwait by Iraq.

Also undermining the concept of warning time is the ability of nations to acquire dramatic increases in military capability at short notice. The likelihood of doing so is heightened by the enhanced buying power of developing nations, the state of flux in the global and regional security environments, and the ready access to advanced weapons systems on the world arms markets.

The ability to rapidly acquire new capabilities was demonstrated when in 1988 Saudi Arabia obtained Chinese CSS-2 Intermediate Range Ballistic Missiles with a range of 3000 km. This acquisition remained undetected until after the missiles’ arrival in Saudi Arabia. Acquisitions of this nature are difficult to detect because unlike capabilities developed in-country, they are not preceded by R&D activity nor evaluation testing which are relatively easy to monitor.

In our own region of the Asia-Pacific, China, North Korea and the financially straitened former Soviet republics are major arms exporters. Table 1 puts in perspective the arms export activities of these countries. As can be seen, over the period 1986-89, the USSR arms export market was more than twice that of the US, while the arms exports of China and North Korea rivalled those of the UK and Germany respectively.

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10 ibid., p 7, para 28.
12 Stephens, A. (ed.), Defending the Air/Sea Gap
Given the need China, North Korea and the former Soviet Union have for foreign capital to finance their national development programs, efforts to maintain and, if possible, increase their share of the arms export market may be expected. The former Soviet Union is known to be particularly active in this regard, with Russia offering technologically advanced weapons platforms such as MIG-29 aircraft for sale at ‘bargain basement’ prices.

Australia’s ability to keep pace with the evolving balance of power in the Asia-Pacific region is subject to the ability to maintain her status as a regional military power. Equally important is our ability to react quickly to any threat that may arise, and this in turn is dependent on our ability to mount and sustain self-reliant operations. Any limits to our self-reliance would seriously constrain the Government’s response options.

Table 1 - The Seven Top Arms Exporting Nations (1986-89)

<table>
<thead>
<tr>
<th>RANK</th>
<th>NATION</th>
<th>ARMS AGREEMENTS ($US Billion)#1</th>
<th>ARMS DELIVERIES ($US Billion)#1</th>
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<tbody>
<tr>
<td>1</td>
<td>USSR</td>
<td>65.5</td>
<td>71.6</td>
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<tr>
<td>2</td>
<td>US</td>
<td>29.9</td>
<td>21.5</td>
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<tr>
<td>3</td>
<td>China</td>
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<tr>
<td>4</td>
<td>UK</td>
<td>9.5</td>
<td>9.1</td>
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<tr>
<td>5</td>
<td>France</td>
<td>7.7</td>
<td>9.9</td>
</tr>
<tr>
<td>6</td>
<td>Germany</td>
<td>2.6</td>
<td>1.3</td>
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<tr>
<td>7</td>
<td>North Korea</td>
<td>2.2</td>
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Note #1: Figures are in Constant US$

AUSTRALIA’S DEPENDENCE ON THE US AND OTHER FOREIGN SOURCES

Another factor affecting our self-reliance is that Australia’s ability to sustain air power operations is heavily dependent on the US. The Australia-US alliance is of long standing and has been mutually beneficial to both sides. Therefore, the degree of our dependence on the US is not generally considered to be problematic for Australia’s self-reliant stance. However, there have been past instances where US interests have run contrary to those of its closest allies.

In the dispute over West PNG/Irian the US obeyed its own wider interests by supporting the Indonesian position and not that of Australia. More recently, despite making sympathetic pronouncements, the US has adopted agricultural trade practices which run directly against Australia’s interests.

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New Zealand has also felt the effects of a cooling of relations with the US (over the nuclear ships visits issue). While the US maintains support for US-sourced weapons currently in New Zealand’s inventory, there continues to be an embargo on further arms sales to New Zealand. These examples of the US behaving contrary to its close allies’ interests bring into question the total reliance Australia places on the availability of supplies from the US in every circumstance.

Countries with whose governments Australia has less secure alliances may be less reliable supply sources than the US. The arms embargo is a well known technique for applying political leverage and Australia has not been unaffected by it. For example, during the Vietnam War Sweden refused to supply Carl Gustav 84 mm anti-tank rounds to the Australian Army and there were concerns that the French would have refused to support Mirage operations in Vietnam had they been conducted.\(^\text{14}\) This experience highlights the fact that we are subject to the political whim of foreign powers from whom we acquire weapons and ordnance.

Even if the availability of supplies were assured, Australia is but one of many customers drawing upon those supplies. With stocks obtained from the US, a major weapons supplier to the ADF, satisfaction of the ADF’s needs would be secondary if that country was itself engaged in conflict. The payment of premiums to arrange preferential treatment ahead of third parties may have some effect, although Australia’s resupply lead-time requirements may not necessarily be met. Though the RAAF did not note a general degradation of supply support from the US during the Gulf conflict, delivery times for some items did increase.\(^\text{15}\) Interestingly, the US sought a range of items from the RAAF inventory, some of which were supplied.\(^\text{16}\)

Given the US’s position as one of the two largest arms suppliers in the world, it is not inconceivable that Australia might engage in conflict with a country that also got its weapons from the US. That situation could lay Australia open to unwelcome political pressure seeking to influence our response options.

The limited benefits to Australia’s self-reliance of bilateral government-to-government agreements were clearly delineated by the Defence Sub-Committee of the joint parliamentary committee on Foreign Affairs, Defence and Trade in a recent inquiry into stockholding and sustainability: ‘The Committee believes that too much reliance is placed on government-to-government agreements which provide no guarantees but are used to justify reduced ADF stockholding levels. The agreements do not record that support will be provided at times of high level threat or continue when Australia’s political position is in conflict with that of the supplier nation. The

\(^\text{14}\) This information was provided by C. Coulthard-Clark of the Air Power Studies Centre and will be documented in his forthcoming volume of official history dealing with RAAF operations in Vietnam. Source documents used by Dr Coulthard-Clark were Air Board Submissions 57/67, 63/67 and 9/68.

\(^\text{15}\) Department of Defence Submission made to the Defence Sub-Committee of the Joint Parliamentary Committee on Foreign Affairs, Defence and Trade in response to the Australia Defence Association Submission (ADAS) and matters arising from hearings of 26 June 1992. See Defence response to ADAS para 31. (Under cover of ACDEV 538/92 dated 3 July 1992).

\(^\text{16}\) ibid., para 31.
bilateral agreements provide for support for exercises, deployments and operations but not specifically for countering major threats to Australia or within its region’.\(^{17}\)

**DISTURBING DEVELOPMENTS IN AUSTRALIA’S ARMS INDUSTRY**

Given the difficulties of relying on foreign supply sources, the contribution of Australia’s arms industry to our defence self-reliance becomes crucial. The primary local arms manufacturer is Australian Defence Industries Pty Ltd (ADI); a government owned company formed in 1988 by the corporatisation of several government defence industries. The creation of ADI allowed government defence industries to be put on a commercial footing thereby facilitating extensive structural reforms. These reforms resulted in significant productivity and profitability improvements.

ADI’s pursuit of commercial success places certain imperatives on the company’s management, as pointed out by Ken Harris, ADI Managing Director. While ADI wishes to provide a wide range of products and services to the ADF and to be responsive to the ADF’s evolving needs, company management is unlikely to authorise large scale, long term investments in infrastructure and professional expertise if the commercial risk is excessive.\(^ {18}\) The risk would be unacceptable if the scale of the ADF and national civil markets and the potential for exports were inadequate or uncertain.

During the first five years of its existence, ADI was given preferential treatment. In this period, ADI was guaranteed the award of contracts for the supply of products and services traditionally provided to the ADF by its predecessor government factories. The ADF and ADI have now made contractual arrangements for a further five years. There is little doubt that the ADF’s search for efficiencies, in the present financially strained environment, will mean that ADI’s privileged position may be lost or gradually weakened.

Exacerbating the problems faced by ADI is the change in Australian government policy which effectively ceased the direct investment by Defence in industry capabilities. Since this change came into effect in the mid-1980s, Defence suppliers are required to provide all facilities, plant and equipment from their own resources, except in exceptional circumstances. This policy change and ADI’s commercial outlook may cause the company to review its product lines and services with a view to opting out of those which it deems unprofitable and pursuing others which provide a higher, more assured return. Indeed this trend is already evident in ADI’s efforts to diversify into non-defence work. A continuation of this trend may result not only in a loss of defence production capability but also in an erosion of specialist manufacturing expertise.


Any inability by ADI and other local defence industries to match or better competitors’ bids for the provision of products and services to the ADF may, in the future, cause the ADF to select other (usually foreign) suppliers. Overseas suppliers have a distinct advantage over local industries in being able to take advantage of economies of scale given their much larger production base. This is particularly true in the case of munitions.

The present financial environment leaves the ADF little option but to pursue cost-effective solutions. Moreover, the ADF like all government instrumentalities is required to follow broader government policy which stipulates the use of competitive tendering as the usual method of procurement and the selection of successful tenderers on the basis of value for money.

However, under the same policy guidelines, Defence is obliged to show preference for Australian and New Zealand sources of supply. Consequently, Defence does pay premiums for the maintenance of local industries. Even so, ‘these payments are administered by separate programs … often without appropriate departmental coordination or overall guidance’. Further, the total premiums have not always been justified against strategic requirements or the contribution to defence self-reliance of supported industry capabilities.

A particular problem exists for the local arms industry where highly specialised manufacture and, therefore, considerable investment is required. Local firms cannot afford to be constantly entering and exiting markets in the process of competing for work. The ultimate outcome of such a situation may be that ADI and the remainder of the local industry is priced out of a range of defence products and services. The situation is further complicated because the ADF demand for products and services provided in support of air power is low and the pattern of demand is irregular. As a result, local providers carry a higher commercial risk.

The risk may be acceptable if Defence guidance on which manufacturing capabilities are needed to be retained was such as to provide a basis for investment decisions. Such guidance is not forthcoming from the current inconsistent, case-by-case approach adopted by Defence in the Major capital Equipment Investment Program.

In the coming years the interests of Australian industry and the ADF may continue to diverge to the extent that the indigenous defence industry may become dangerously eroded. A recent report on the Industry Involvement Sub-Program recognised the trend of diverging interests between industry and Defence. The same report also acknowledged the reluctance of Australian industry to make long term investments if an appropriate return is not assured. To overcome this impasse, the report identified a need for better linkages between the development and implementation of Defence policy for industry and higher level strategic guidance, ADF force structure and preparedness. The effect of forming these linkages would be to provide better

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20 ibid., p 4-5.
21 ibid., p 4-11.
22 ibid., p 4-12.
guidance to industry on the support needed by the ADF and, therefore, to provide industry with a basis on which to make longer term plans and investments.

**DSTO: AN UNDER-UTILISED ASSET**

As well as emphasising the importance of the Australian defence industry in promoting defence self-reliance, DOA 87 explicitly recognised the value to Australia of the Defence Science and Technology Organisation (DSTO).\(^{23}\) Indeed, DSTO has been of invaluable assistance to the ADF in the past. Recent changes in direction will further enhance DSTO’s contribution to national defence. Of particular benefit will be DSTO’s move to improve links with industry and other national research centres, and the efforts to increase the commercial return of DSTO work.

Regrettably, though, DSTO remains an under-utilised resource in enhancing air power self-reliance. A review of DSTO’s current research and development (R&D) in support of air power shows that of 102 separate areas of study, only six relate to the development of ordnance.\(^{24}\) Of those six, two concern practice ordnance intended for training, two relate to decoy devices and only two comprise new development concepts intended for operational ordnance. All six of these projects have the potential to proceed to local manufacture and possibly to exports. DSTO’s capability in the area of weapons development is not in question here. What is in question is whether the RAAF is making adequate use of this asset by sponsoring just two areas of study leading to the development of operational ordnance.

![Figure 1 - DSTO R&D Expenditure by Client (FY 1991-92)](image)

\(^{23}\) DOA 87, p 69.


An inadequacy of resources cannot be argued as the reason for the present deficiency. Figure 1 shows that 42 per cent of funds were expended on DSTO infrastructure and in the performance of research under DSTO’s ‘own initiative to expand its technology base’. This latter practice has merit in maintaining and expanding the skills and capabilities of DSTO. However, better ADF guidance on future directions for development and study would ensure that the ends of both the ADF and DSTO are met.

The need for more rigorous guidance of DSTO’s work and the need to improve ‘the fit between its (DSTO’s) own plans and the Defence Five Year Plan’ was identified in a recent parliamentary report on public sector R&D.27 As was identified earlier, there is a clear need to link defence R&D activity to higher strategic level guidance with respect to ADF force structure and preparedness requirements. Persisting with the present situation will be wasteful of our valuable R&D resources.

**IMPROVING SELF-RELIANCE**

The present serious limitations to self-reliance in the employment of air power run contrary to Australia’s defence policy. If this contention is accepted then the need for improvement is clear. An immediate, yet limited, improvement in self-reliance may be achieved by building upon the existing arrangements and practices. The first step in the process would be to create a stockholding of those contingency reserve stocks deemed essential based on an assessment of the credible contingencies.

As a follow-on step, Australia could seek to extend the cooperative logistics arrangements with the US to expand the range and quantities of stocks held by US services and which are available to Australia. Doing so would enable the ADF to offset contingency reserve stocks that would otherwise have to be held in-country. However, there would have to be a recognition that, under certain circumstances, timely supply of these stocks may not be reliable.

Finally, while continuing to choose suppliers on the basis of the most cost-effective bid, the ADF could seek to broaden the supplier-base. Diversifying the supplier base would necessitate careful management to overcome problems that could arise in configuration management, maintenance of technical standards and inventory control.

Pursuing the present arrangements, albeit improving the level of support available to air power, would at best be acceptable as a short term measure for the sake of expediency. The problems identified earlier of having an uncertain resupply subject to the political whim of our supplier nations would leave Australia vulnerable to any adverse changes in our strategic environment and could limit the government’s response options to any threat that may arise.

An alternative course is for Australia to strive to become totally self-sufficient. To achieve self-sufficiency there would have to be a gradual replacement of all imported

weapons and ordnance with locally developed and/or manufactured items. Such a move would entail a significant expansion of existing indigenous R&D and manufacturing capabilities. Given the present limited defence R&D and industry base, the road to self-sufficiency would be a long and expensive one. Therefore, it is not surprising that DOA 87 stipulates that ‘self-reliance does not mean self-sufficiency’, thus eliminating this option from Australia’s defence policy.\(^\text{28}\)

Neither self-sufficiency nor an enhancement of the existing arrangements will satisfy Australia’s defence self-reliance needs in the long term. What is really needed is to cost-effectively provide for an appropriate level of self-reliance in the long term. To achieve this goal defence supply and R&D support arrangements need to be put in place which, while complying with the requirements of national defence policy, are responsive to Australia’s evolving national security needs, and are cost-effective in the long term. Additionally, in order to give Australia maximum flexibility and place the least dependence on foreign support, the contribution of indigenous defence R&D and manufacturing resources should be optimised. This would entail optimising the mix of items manufactured locally vis a vis those procured overseas.

The basis for such an optimisation would be an evaluation of needs based on a strategic assessment of the present and future security environments. That is to say there should be a determination of the air power weapons and ordnance which, for national security reasons, need to be manufactured in-country. These weapons may be either locally developed or manufactured in Australia under licence. Of the remaining items those which are cost-effectively available in-country may be procured locally while the remainder are obtained from other sources.

This course would succeed only if there was a close coordination of the ADF procurement program and national defence R&D and manufacturing. Achievement of such a coordination would necessitate he creation of linkages between ADF air power planners, Australian industry, and DSTO and other national R&D centres. The intention would be to jointly plan medium to long term strategies for sustaining self-reliant air power operations. Joint planning would thus establish priorities for R&D activities, directions for developing local manufacture capabilities, and ADF procurement programs.

Pursuing this course would not preclude overseas procurement but would base procurement decisions on a consideration of the implications for self-reliance, strategic requirements, and cost-effectiveness. A not insignificant outcome is that this course would give confidence to industries willing to invest in defence production. Moreover, the possibility of negotiating procurement patterns with the ADF could provide industry with the necessary critical mass to pursue exports.

This course would also ensure proactive rather than reactive R&D activity. As such it is in direct agreement with Government policies which ‘emphasise that defence infrastructure, logistic and industry support, and defence science and technology are now fundamental for the self-reliant defence of Australia’.\(^\text{29}\)

\(^{28}\) DOA 87, p xx.
\(^{29}\) ibid., p 74.
The parliamentary report on ADF stockholding and sustainability particularly stressed that the risk associated with the existing logistics arrangements was unacceptably high even within a warning time scenario.\(^{30}\) In particular, the report recommended that ‘... Defence examine alternative supply arrangements, including new sources of supply, indigenous production or the maintenance of strategic reserves’.\(^{31}\)

Seeking to optimise the mix of local and foreign procurement has an inherent problem in that it does not redress the limits to self-reliance in the short term. This deficiency is overcome by effecting the short-term improvements to the existing arrangements (as discussed earlier) while simultaneously seeking to optimise the mix of local and foreign procurement in the long term. Doing so would allow self-reliance to be improved in the short term while also providing a long term solution which is at once cost-effective and adaptive to Australia’s changing security needs.

**CONCLUSION**

This paper has argued that while defence self-reliance requires a capability to conduct independent operations, air power does not meet this requirement in so far as concerns weapons and ordnance. The main contributors to this deficiency in ADF air power capability are; the great dependence air power has on foreign (mainly US) supplies, and the inadequacy of current contingency reserve stockholding policies.

The ADF’s reliance on supplies being readily available from the US is open to question under certain circumstances. While the Australia-US alliance has stood the test of time, the US would always pursue its own national interests ahead of those of its allies. Hence, in a situation where the US and Australian interests do not coincide, Australia’s response options in the event of threat could be constrained if war-fighting stocks from the US and other foreign sources were unavailable at the required resupply rate. Our dependence on other foreign sources increases our exposure to unwelcome political pressure and influence.

A great reliance is also placed on the ability of intelligence sources to provide forewarning of a threat and so provide an opportunity to build up contingency stocks. However, there are doubts on the ability of the intelligence services to provide adequate warning time. On several recent occasions Australia and the world have been surprised by a rapid turn of events of which intelligence agencies provided no forewarning.

Even if warning time were provided, there are disturbing trends emerging as a result of recent structural reforms in ADI, the primary indigenous arms manufacturer, and the ADF’s search for efficiencies. The combined effect of these trends may lead to the erosion of the local arms manufacturing base.

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\(^{30}\) Joint Committee on Foreign Affairs, Defence and Trade, *Stockholding and Sustainability in the Australian Defence Force*, p 30.

\(^{31}\) *ibid.*, p 30.
Moreover, while DSTO is a valuable defence asset, it appears to be under-utilised in developing and enhancing Australian self-reliance in the weapons and ordnance employed by air power.

The recommended course is to provide both a short to medium term remedy and a separate plan for the longer term. The short to medium term plan entails improving the existing arrangements for the supply of weapons and ordnance. This would involve the identification and procurement of contingency reserve stocks off-set by extending the cooperative logistics arrangements with the US and diversifying the supplier base.

To improve self-reliance in the long term, efforts would be made to optimise the mix of locally procured items and those obtained overseas. For this process to make the most cost-effective use of indigenous defence R&D and industry there would need to be close coordination of these activities. Such coordination would be achieved through the creation of formal planning linkages between the ADF, DSTO and other R&D centres, and industry.