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Chinook Helicopter Update

Background

3.1 The Defence Capability Plan is a detailed, costed plan for Australia's military capabilities over a 10-year period. The plan is reviewed regularly to take account of changing strategic circumstances, new technologies and changed priorities. Between the period when the Defence White Paper 2000 was announced in December 2000, and 30 June 2005, the Government had approved more than 140 major projects or phases of projects. During the course of 2004-05, 26 major capital equipment projects, including AIR 9000, Phase 5A, were approved by Government.[1]

3.2 AIR 9000 is the project to provide helicopter capability to the ADF over the coming decades. The program aims to rationalise the helicopter fleets over time, reduce the number of platform types operated and encourage investment in Australian industry.

3.3 The Army's fleet of six Chinook aircraft will undergo a mid-life upgrade under Phase 5 of AIR 9000 to modernise the platform and address current and future capability deficiencies of the Chinook weapon system.

3.4 Concurrent with the Phase 5 upgrades is the operational deployment of the Chinook to support Australian and coalition forces engaged in the ongoing fight against terrorism in Aghanistan.

3.5 The Army's aviation capability contributes to the strategic tasks of defending Australia, securing our immediate neighbourhood, supporting

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1 Department of Defence, *Defence Annual Report 2004-05*, p. 70

wider interests and supporting peacetime national tasks. The capability of Army aviation is achieved by providing aircraft and personnel at high readiness levels for tactical troop lift, counter-terrorist support, command and liaison and reconnaissance operations. The Committee notes the importance of a sound aviation safety culture, an ongoing attention to airworthiness management, and a robust training system, as additional essential elements in delivering an effective aviation capability. The Committee further notes that significant questions have been raised about these issues as a result of its inquiry into the falsification of Army aviation records, discussed at paragraphs 6.20 – 6.23 in Chapter 6 following.

3.6 Current aviation capability consists of Kiowa, Iroquois, Black Hawk and Chinook helicopters. The Kiowa in 1st Aviation Regiment are being progressively replaced by two squadrons of Armed Reconnaissance Helicopters. It is intended to replace the Iroquois helicopters with MRH-90 troop lift helicopters commencing in 2007.

3.7 The aim of this chapter is to examine the upgrades to the Chinook helicopter in terms of programmed upgrades under AIR 9000, the additional enhancements undertaken to improve survivability and effectiveness in Afghanistan and the impact on operational commitments. Further, a broader examination of AIR 9000 and the ADF's rotary-wing capability in a general sense is also provided.

Phase 5 Upgrade

3.8 Since the public hearing in March 2006 during which several aspects of the Chinook aircraft and its capability were examined by the Committee, an updated Defence Capability Plan has been released, *Defence Capability Plan 2006-2016*. However, all discussion and witness testimony throughout this Chapter in relation to the upgrades to the Chinook aircraft has been undertaken in the context of the Defence Capability Plan extant at the time of the public hearing in March 2006, ie *Defence Capability Plan 2004-2014 Public Version.*

3.9 AIR 9000 Phase 5 aims to address current and future capability deficiencies of the Chinook weapon system. There are two sub-phases of this project. Phase 5A, which will upgrade the engines presently installed on the Chinook with a view to reducing operating costs and improve operational performance ahead of the planned mid-life upgrade which is

occurring at Phase 5B.[2] This mid-life upgrade will address the modernisation of the Army's fleet of six Chinook medium-lift helicopters to their planned withdrawal date of around 2025.

3.10 Head of Aerospace Systems Division provided the Committee with an update of the progress in relation to the Chinook Phase 5A engine upgrade. Second-pass approval for the project occurred in December 2004 and the design that the ADF is buying is based on a modification that has already taken place on the US fleet. The engine and the modification kits are being acquired through the Foreign Military Sales system. The project is running to schedule with delivery of the engines and modification kits planned for September 2006.

3.11 Because the engine and modification kits have been purchased through the Foreign Military Sales system, the Head of Aerospace Systems Division commented that there was:

> … not a lot of commercial activity associated with it … [and that] the main commercial activity is with the Australian contractor, who will carry out the modification work in Australia.[3]

3.12 The Committee further sought information from Defence in relation to the operating costs of the Chinook, both before and after the Phase 5A engine upgrade. CEO Defence Materiel Organisation reported that the DMO sustainment portion of operating the fleet of six Chinook aircraft was $8.4 million for this financial year, noting that this figure did not include other support costs such as aircrew and fuel. Head Aerospace Systems Division further advised that:

> The business case for the project [Phase 5A upgrade] was based on obsolescence and life cycle cost, and the expectation was that upgrading those engines would not only provide improved performance and deal with the obsolescence problem, but also result in savings of around $28 million through-life support costs.[4]

3.13 He accordingly assessed the Chinook as 'a very economically supported platform'.[5]

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2 Department of Defence, *Defence Capability Plan 2004-2014 (Public Version),* p. 61.

3 Air Vice Marshal Clive Rossiter, Head Aerospace Systems Division, Department of Defence, Transcript, p.29.

4 Air Vice Marshal Clive Rossiter, Head Aerospace Systems Division, Department of Defence, Transcript, p. 30.

5 Air Vice Marshal Clive Rossiter, Head Aerospace Systems Division, Department of Defence, Transcript, p. 30.

Afghanistan Deployment

3.14 Phase 5 of the upgrade program for the Chinook coincided with the deployment of the aircraft, aircrew and logistics and maintenance personnel to support Australian and coalition forces in the ongoing fight against terrorism, this time in Afghanistan. The previous deployment of the Chinooks was to the Middle East in 2003 to support the Australian commitment to the war in Iraq.

3.15 On 10 January 2006, the Minister for Defence announced that two Chinook helicopters and about 110 personnel from the Army's aviation element in Townsville would deploy to Afghanistan as part of Australia's continuing commitment to the fight against terrorism. [6]

3.16 In announcing the deployment, the Minister further noted that the aircraft were undergoing a $25 million upgrade to ensure they would be combat ready for the deployment. The upgrade was part of a rapid acquisition project to provide the aircraft with enhanced Electronic Warfare Self Protection (EWSP) equipment, additional crew and passenger protection and advanced communications.[7] The Vice Chief of the Defence Force advised the Committee that the rapid acquisition program to undertake enhancements to the aircraft was agreed by Government based on a re-assessment of the operating environment the aircraft would be entering and the overriding requirement to ensure the aircraft's survivability.[8] The Committee accordingly sought further information on the nature of these enhancements and the implications for the deployed aircrew and aircraft.

3.17 Vice Chief of the Defence Force advised the Committee that the Chinook modifications were across the following broad areas:

- additional ballistic protection including hardening the skin of the aircraft,
- an electronic warfare self-protection capability,
- enhanced interoperability to optimise operation in a coalition environment, and

6 Minister for Defence Media Release 01/2006, *Chinooks to Deploy to Afghanistan*, 10 Jan 06

7 Minister for Defence Media Release 01/2006, *Chinooks to Deploy to Afghanistan*, 10 Jan 06

8 Lieutenant General Ken Gillespie, Vice Chief of the Defence Force, Department of Defence, Transcript, p. 19.

- improved gun mounts and different weapons, mini-guns, to enhance firepower with less strain on the airframe.[9]

3.18 The Vice Chief of the Defence Force emphasised that there were two main considerations with regard to the operating environment in Afghanistan that were relevant to the aircraft enhancements:

- the harsh natural environment that will be a test for the pilots and their skills, and
- the man-made factors that further contribute to the hostility of the environment.

> All our work is being done to ensure that the crews are trained and prepared, that the aircraft is prepared and that we can confront both those environments.[10]

3.19 The challenges and threats the Vice Chief of the Defence Force identified as issues for the Chinooks, the aircrew and the support personnel deployed to Afghanistan, were further reinforced in a report by the Australian Strategic Policy Institute (ASPI). ASPI described the situation in Afghanistan as follows:

> The escalating insurgency, narco-economics and politics, high-level corruption and rampant banditry have all helped to create a climate of lawlessness and impunity in Afghanistan.[11]

AIR 9000 Update

3.20 Project AIR 9000 is a multi-phase project which the *Defence Capability Plan 2004-2014 (Public Version)* stated as its aim 'to rationalise the helicopter fleets over time, reduce the number of platform types operated and encourage an investment in Australian industry …'[12] As noted earlier in this Chapter, since the public hearing in March 2006 an updated Defence

9 Lieutenant General Ken Gillespie, Vice Chief of the Defence Force, Department of Defence, Transcript, pp. 19-20.

10 Lieutenant General Ken Gillespie, Vice Chief of the Defence Force, Department of Defence, Transcript, p. 20.

11 *Precarious State: Afghanistan and the international and Australian response*, Elsina Wainwright, Australian Strategic Policy Institute, Strategic Insights Paper 23, March 2006, p. 6.

12 *Defence Capability Plan 2004-2014 (Public Version)*, Department of Defence, Defence Publishing Service, Nov 03, p. 53.

Capability Plan has been released, *Defence Capability Plan 2006-2016*, which further refined and enhanced elements of the AIR 9000 Project.[13]

3.21 However, it should be noted that all discussion and witness testimony in relation to AIR 9000 has been undertaken in the context of the Defence Capability Plan extant at the time of the public hearing in March 2006, ie *Defence Capability Plan 2004-2014 Public Version*.

3.22 The progress of Project AIR 9000 has a direct bearing on the ability of the Army, and indeed the ADF, to deliver an effective aviation capability to support the national interest. The Army's combined arms warfighting concept relies on a total aviation package of armed reconnaissance, troop lift, and heavy-lift air. The Chief of Army has observed that,

> … as the ADF moves towards the Seamless Force of 2020[14], there are several Hardening and Networking the Army (HNA) capabilities that will increasingly enable the Army to being thinking about its role as a force that operates not simply on the ground but also as a force that operates from the air.[15]

3.23 He terms this new era for the Australian Army as 'the Army in the air' in which:

> the land force's combined arms potential will be transformed by a growing ability to fight in, and from the air. Indeed, it is entirely feasible that in 2030 the Australian Army will be constituted as a force that operates largely from the air.[16]

3.24 From a Navy perspective, their helicopter fleet is considered to be:

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13 *Defence Capability Plan 2006-2016 (Public Version p. 39),* states that 'Project AIR 9000 seeks to provide the ADF with the most appropriate force mix of helicopters. Fundamental to this is a strategic plan for the efficient management of all ADF helicopter fleets, in order to meet operational requirements in a range of roles (airmobile, armed reconnaissance, medium lift, maritime support, anti-submarine, anti-surface warfare, training and support to special forces).

14 'Seamless Force' is a concept associated with the ADF's Force 2020 vision (*Force 2020*, Department of Defence, June 2002, p. 17). Essentially, the ADF aims to be 'a highly capable force whose culture of innovation will allow us to adapt to change. Our people will be fundamental to our capability, and our seamless approach to warfighting will enable us to maximise the strengths of the individual Services … given our small size, the main reason why we must aspire to a Seamless Force is to maximise our collective warfighting capabilities and specialisations'.

15 *The Army in the Air, Developing Land-Air Operations for a Seamless Force*, Lieutenant General Peter Leahy, Australian Army Journal, Volume II, Number 2, Autumn 2005, p. 19.

16 *The Army in the Air, Developing Land-Air Operations for a Seamless Force*, Lieutenant General Peter Leahy, Australian Army Journal, Volume II, Number 2, Autumn 2005, p. 20.

> an integral component of the parent ship's weapons and sensor suite … [by extending] the detection range of the force, maximising the offensive range and reducing vulnerability to surprise attack.[17]

3.25 The Phases of the AIR 9000 Project are structured to address Army and Navy rotary-wing capability now and into the future with regard to both new platforms and enhancements and upgrades to existing in-service platforms.

- Phase 1 – development of the master plan for the rationalisation, enhancement and future development the ADF rotary-wing fleet.
- Phase 2 – acquisition of additional troop-lift helicopters
- Phase 3 – Seahawk mid-life upgrade
- Phase 4 – Black Hawk upgrade/replacement
- Phase 5A – Chinook upgrade – engine upgrade
- Phase 5B – Chinook upgrade – mid-life upgrade
- Phase 6 – Sea King replacement
- Phase 7 – new Navy and Army helicopter training system
- Phase 8 – new Navy combat helicopters

3.26 With regard to status of the various Phases of AIR 9000, Defence provided the following overview[18]:

- Phase 2 - Acquisition of additional troop-lift helicopters. Twelve French MRH 90 aircraft have been selected and a contract signed accordingly.
- Phase 3 – Seahawk upgrade. A proposal to Government for the mid-life upgrade is anticipated in the latter half or 2006 or early 2007.
- Phase 4 – Black Hawk upgrade/replacement. A decision has not yet been made in relation to this phase.
- Phase 5 – Chinook upgrades. A decision in relation to Phase 5A, to re-engine the aircraft, has been made and is under contract as discussed earlier in this chapter. Phase 5B, the mid-life upgrade, is scheduled for

17 *The Navy Contribution to Australian Maritime Operations, RAN Doctrine 2 – 2005*, Department of Defence, March 2005, p. 158.

18 Lieutenant General David Hurley, Chief Capability Development Group, Department of Defence, transcript, p. 21.

within the next 5-6 years in order to achieve the planned withdrawal of the aircraft at around 2025.

- Phase 6 – Sea King replacement. A submission to Government was being prepared in relation to this Phase with Defence noting that Phases 4 and 6 have some synergies and that a business case is being assessed which could combine both Phases. However, it was stressed that 'replacing the Sea King [is] one of the higher priorities in the shorter term.'[19]
- Phase 7 – Navy and Army helicopter training systems. This Phase of AIR 9000 will have two sub-phases. The Kiowa withdrawal date is currently planned for the 2012-2015 timeframe.
- Phase 8 – new Navy combat aircraft. This Phase will examine the eventual replacements for Sea Hawk and Sea Sprite when they reach their life-of-type.

3.27 The level of Australian industry involvement across all the phases of the AIR 9000 project was of interest to the Committee, particularly as the project aimed to:

> encourage investment in Australian industry to help build a sustainable aerospace industrial base that can provide high levels of support to the ADF and compete as part of the global supply chain …
>
> Australian industry involvement will be provided under the umbrella of long term strategic agreements with suitable commercial entities. The areas in which requirements are anticipated to focus include:
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> - rationalisation options for ADF helicopter platforms;
> - initiatives to optimise aircraft configurations and component commonality;
> - initiatives for optimising logistics infrastructure and support arrangements; and
> - simulator and training aids.[20]

3.28 Head Aerospace Systems Division advised the Committee that achieving a commonality of components is something the DMO and ADF aim for because it can reduce life-cycle costs. However when the business cases are considered, sometimes risks are identified which preclude such a

19 Lieutenant General David Hurley, Chief Capability Development Group, Department of Defence, transcript, p. 26.

20 *Defence Capability Plan 2004-2014* (Public Version), Department of Defence, Defence Publishing Service, Nov 03, p. 53.

course of action. Nonetheless, he noted that some of the more essential elements do achieve this commonality to optimise interoperability requirements, for example, electronic warfare equipment, self-protection equipment and secure communications. Other areas of major opportunity tended to be in the ground support systems, mission planning systems, and training systems.

3.29 In a broader sense, the Australian industry involvement in AIR 9000 has been positive with Australian assembly of both the Tiger Armed Reconnaissance Helicopter and the 12 MRH 90 troop-lift helicopters. Head Aerospace Systems Division stated that:

> Before those contracts came on board, Australian aerospace had a footprint in Australia of maybe about 50 people. It is up around 450 people today with both those programs.[21]

3.30 In reviewing the *Defence Capability Plan 2004-2014*, the Australian Strategic Policy Institute (ASPI) noted that the overall cost of the AIR 9000 project, with regard to upgrades of existing platforms only, had increased significantly. The Black Hawk upgrade had increased by about 50%, the Seahawk upgrade by more than 60%, and the Chinook helicopter had more than tripled in cost.[22] The Committee therefore sought an explanation from Defence in relation to these ASPI-identified cost increases.

3.31 CEO Defence Materiel Organisation observed that:

> It is not just the unit prices of the individual platforms, it has been all the auxiliary systems … for example, the cost of simulators for some of the helicopter fleets. So when it comes to the total project cost compared with where we were in the 1990s, there is no doubt that the cost of the entire helicopter class of assets has increased.[23]

3.32 The Committee expressed an interest in the issue of the costs associated with operating and upgrading the ADF's rotary-wing fleet in the broader context of future airlift requirements. Particular reference was made to the tactical role played by the Chinook and the Caribou.

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21 Air Vice Marshal Clive Rossiter, Head Aerospace Systems Division, Department of Defence, Transcript, p. 30.

22 *Reviewing the Defence Capability Plan 2004-2014: The good, the bad and the ugly*, Aldo Borgu and Mark Thomson, Australian Strategic Studies Institute, Strategic Insights Paper 3, February 2004, p. 4.

23 Dr Stephen Gumley, CEO Defence Materiel Organisation, Department of Defence, Transcript, p. 24.

3.33 Defence referred to their study into the ADF's future airlift requirements and noted that they had developed around five different options for a possible mix of airlift capability. Some of those involve extending the life of the Caribou, others the withdrawal of it from service. A recommended course of action as to the way ahead has not yet been put to Government.[24] However, it was observed by Defence that while the Caribou is a sound tactical transport aircraft, it is limited in utility to the non-combat environment because it lacks self-protection systems.[25]

Recommendation 2

3.34 **The Committee recommends that they be provided an update on the progress of the development of options for the optimum fleet mix to meet the ADF's future airlift requirements.**

3.35 Nonetheless, Defence stressed that determining the fleet mix to meet the ADF's future airlift requirements was not a simple matter and would involve options comparisons, business case assessment, examination of life-cycle costs as well as evaluating the inherently different ways in which rotary-wing aircraft are operated compared to fixed-wing aircraft.

3.36 Finally, in considering the ADF's rotary-wing capability, both now and into the future, the Committee sought information as to the capacity of this capability given the under-achievement of Army's flying hours during the reporting period. In particular, the Committee sought advice as to the contributing factors to this under-achievement: recruitment shortfalls, aircrew separations, training failures, or maintenance issues.

3.37 The Deputy Chief of Army advised the Committee that there were two key aspects to the helicopter rates of effort: estimation and achievement of flying hours. A 10-year rolling projection is produced to inform and guide, amongst other things, logistics planning and contractor effort. At additional estimates each year these projections are refined for the amount of flying that will actually occur. The types of activities and occurrences that can impact achievement under the 10-year projection are:

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24 Lieutenant General David Hurley, Chief Capability Development Group, Department of Defence, Transcript, p. 25.

25 Lieutenant General David Hurley, Chief Capability Development Group, Department of Defence, Transcript, p. 26.

> … availability of pilots, the implications of fleet maintenance and these days … operational deployments … We find traditionally that we do not fly as much on operations as we do at home because of some of the operational limitations such as weather … then when the pilots come home, they might go on post-operational leave …[26]

3.38 Deputy Chief of Army stressed to the Committee that while the types of occurrences above limited the flying hours available for pilots:

> … that in no case has any reduction in our flying hours limited our capability. The consequences of any reduction in the amount of flying we do tend to be on our support tasks rather than on our capability tasks.[27]

Conclusion

3.39 The effectiveness of the ADF's aviation capability is underpinned by the maintenance of a capable and ready rotary-wing force. The way in which the ADF's helicopter fleet is operated has evolved and expanded in recent years to meet the demands of a changing strategic environment. The project phases of AIR 9000 reflect the fact that the future of the ADF's aviation capability relies heavily on a rotary-wing force.

3.40 The Chinook medium-lift helicopter is a vital platform within the total rotary-wing force mix. The Phase 5 upgrades to the aircraft, combined with the self-protection enhancements necessitated by the Afghanistan deployment, should ensure the effectiveness and survivability of the aircraft to its planned withdrawal date of 2025.

3.41 To conclude, the Committee acknowledges the commitment and dedication of the Army personnel comprising the Chinook detachment in Afghanistan, and extends its best wishes to them.

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26 Major General Ian Gordon, Deputy Chief of Army, Department of Defence, Transcript, p. 69.

27 Major General Ian Gordon, Deputy Chief of Army, Department of Defence, Transcript, p. 69.