



National Audit Office

**MINISTRY OF DEFENCE**

# Chinook Mk3 Helicopters

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL | HC 512 Session 2007-2008 | 4 June 2008



# SUMMARY

**1** The Ministry of Defence (the Department) operates a fleet of 40 Chinook Mk2/2a helicopters, primarily in support of Army and special operations. In 1995 the Department ordered 14 Chinook Mk2a helicopters from Boeing of which six were retained as Mk2a and have flown satisfactorily since they were delivered. The other eight, however, were modified as Mk3 to meet a longstanding requirement for dedicated helicopters for special operations. Those eight Chinook Mk3 helicopters cost some £259 million and the Department took delivery of them from Boeing in December 2001. Although Boeing met its contractual obligations, the

avionics software fell short of United Kingdom military airworthiness standards and the helicopters have not flown on operations.

**2** In 2004, the Committee of Public Accounts described the original procurement of the Chinook Mk3 Helicopter as “one of the worst examples of equipment procurement” that it had seen. This report follows on from the Committee’s concerns and examines whether the Department has taken appropriate steps to make the eight Chinook Mk3s operational. Our methodology is set out at Appendix 1.

## The decision making process

**3** There was no immediate solution on how the Chinook Mk3 helicopters could be made operational. In September 2004 the Department identified a “Fix to Field” project as the best value for money solution. This project involved replacing or modifying the cockpit display and other systems, which would deliver more capable helicopters for special operations. It would also reduce shortfalls in helicopter lift by freeing up Mk2/2a helicopters that had been modified to deliver the special operations capability in the interim.

**4** The Department began a preparation phase for the Fix to Field solution in September 2004, and the project was estimated to deliver in-service helicopters in 2008. In the end it took 30 months for the Department and Boeing to agree an affordable programme of work. Although the preparation phase was protracted, it did result in a robust business case with which to take the project forward. The final estimate for the in-service date was 2011-12 with a predicted cost of £215 million.

## Change of strategy – the general shortage of helicopters

**5** The delay in making these Chinooks airworthy contributed to the overall shortfall in helicopter lift and meant that the Department had a smaller Chinook fleet from which to provide capability in Afghanistan. Assuming an appropriate level of pilots and logistic support, additional Chinook flying hours could have been used to carry out operations with greater flexibility including more non-essential military tasks in support of the international mission in Afghanistan.

**6** In July 2006 the Department announced that the number of troops stationed in Afghanistan would be increased from 3,500 to 4,000 and in January 2007 the number was increased to 7,700. As a matter of urgency, the Department began to search for ways to increase significantly the levels of helicopter capability available to commanders in operational theatres, especially in Afghanistan. The Chinook is the most capable support helicopter in the adverse hot and high conditions of Afghanistan. In March 2007 the Department therefore decided to make the eight Mk3 Chinooks available for operations as soon as possible. The Fix to Field project was cancelled in favour of converting (or “reverting”) the Mk3 to the Mk2/2a standard. The Department estimated that the Reversion project would make them available for operations two years earlier than the Fix to Field project. In March 2007 the Department also purchased six Merlin helicopters for use in Iraq.

**7** The need for more helicopters in Afghanistan and elsewhere was recognised and the decision to cancel the Fix to Field project and revert the Chinook Mk3 was undertaken quickly. The timescale imperative meant that the Department undertook limited analysis of the operational benefits and drawbacks, and the costs and risks of this decision. However, detailed Business Cases were subsequently prepared and approved in accordance with the Department’s regular approvals processes before the main contract was signed in December 2007.

**8** The Department and Boeing are confident that the Reversion project can deliver the additional operational capability by 2009-10. They have, for example, adopted fast track procurement arrangements and, building on the earlier investment in the Fix to Field project, developed a safety management plan, agreed by Boeing, which is expected to deliver an airworthy helicopter. In March 2007, the cost of Reversion was estimated at £53 million. The Department acknowledged at that time that the estimate was immature and had been produced quickly. By the time the Department had developed a mature estimate in November 2007, the cost estimate had risen to £90.1 million (an increase of 70 per cent). This excludes £22.5 million of specific equipment required for Afghanistan funded by the Treasury from the Contingency Reserve.

**9** Since 2002, the Department has met the needs for demanding very low light special operations by using Chinook Mk2/2a helicopters modified with a Night Enhancement Package. The ergonomics of the modified cockpit are imperfect and, while the Department is content that the modified Chinook Mk2/2a helicopters are safe to fly, it accepts that there are safety and operating risks associated with the Night Enhancement Package. The Department has partially mitigated these risks. As part of the latest equipment planning round the Department has earmarked funding to introduce an enhanced partial digital cockpit across the entire Chinook fleet to address these concerns, maintain commonality and increase operational flexibility. The Department expects the enhanced Chinooks for special operations to start to enter service early in the next decade, sooner than under the Fix to Field project. The full special operations capability, using the Chinook Mk3 helicopters “fat” fuel tanks, will be met but later than planned under the Fix to Field project. The costs of the project are commercially sensitive as negotiations are on going.

## Conclusions

**10** Our conclusions on the progress of the project are:

- The Department’s progress up to the point of committing to reversion in March 2007 on the Chinooks and how they could be made operational was protracted. As a result the shortage of helicopters to support operations has been exacerbated.
- Had the Department progressed the Fix to Field project more quickly the Reversion project would have been unnecessary.
- The Department’s decision to revert the Chinook Mk3 helicopters will make them available, to meet the overriding priority for additional helicopter lift, two years earlier than would have been the case under the Fix to Field project and will result in a largely common cockpit across the fleet with consequent improvements in operational flexibility. The Department expects this will also result in a lower level of support costs.
- Although the Department has met the needs for special operations by adapting Chinook Mk2/2a helicopters the solution has been sub-optimal.
- Early in the next decade, to solve the risks associated with the cockpit ergonomics of the Night Enhancement Package, the Department plans to introduce an enhanced partially digital cockpit across the Chinook fleet, which will enable the prosecution of special operations with greater flexibility and less operational risk.

- The timescale imperative meant that the March 2007 decision to revert the Chinook Mk3 helicopters, whilst informed by a high level consideration of options, was not based on the level of detailed analysis that we would usually expect to see for an investment of this magnitude. The project has subsequently passed through the Department’s regular approvals process.
- The total costs associated with the Chinook Mk3 helicopters from their initial procurement through to completion of the Reversion project will be some £422 million (**Figure 1**) some £85 million less than the Fix to Field project. This figure does not however include further expenditure required to sustain the Night Enhancement Package which is currently being negotiated with industry and is therefore commercially sensitive.

**1** Estimated costs of procuring the eight Chinooks, making them operational and sustaining the special operations capability

	Fix to Field Costs (£ million) <sup>1</sup>	Reversion Costs (£ million)
Total expenditure on Mk3s	474.56	389.41
Total expenditure on Night Enhancement Package for Mk2/2a	32.3	32.3 + X <sup>2</sup>
<b>Total expenditure</b>	<b>506.86</b>	
<b>Expected In-service Dates</b>	<b>2011-12</b>	<b>2009-10</b>

Source: National Audit Office analysis of Ministry of Defence data

**NOTES**

1 Estimated costs and In-service date of Fix to Field post capability and cost reduction exercise and re-bid in 2006-07.

2 Sustainment costs for the Night Enhancement Package are commercially confidential until a contract is let.