

## Capability Cost Trends Implications for the Defence Review Malcolm Chalmers

### Future Defence Review Working Papers

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### *Issue*

Continuing growth in the unit costs of UK defence capabilities, together with cuts in the defence budget, will make it impossible to preserve current numbers of service personnel and front-line capability.

### *Context*

Between 1988 and 2008, the core real defence budget fell by 9%. Yet this same period saw a fall in the number of ground formations by 28%, a reduction in available aircraft by 33%, and a reduction in major vessels by 47%. This growth in the unit cost of front-line capabilities – averaging 1.7% per annum – resulted from continuing efforts to improve the qualitative effectiveness of the armed forces. It also reflected the growing costs of attracting high-quality candidates into a military career at a time of rising earnings in the wider economy.

### *Key Findings*

- The next six years are likely to see a cut in the defence budget of around 10-15% in real terms, alongside unit cost growth of between 1% and 2% per annum.
- The number of trained service personnel is projected to fall by around 20%: from 175,000 in 2010 to around 142,000 in 2016.
- Without a fundamental change in strategic orientation, and even allowing for further efficiency savings, projected reductions in budgets and personnel will require large reductions in the number of front-line capabilities.
- If cutbacks are evenly spread, ground formations would have to fall from 97 to 79, available aircraft (fixed wing and rotary) would be reduced from 760 to 615, and major vessels would fall from 57 to 46.
- Once a MoD budget settlement is agreed, the key question will be whether the current balance of capabilities should be maintained, or whether some capabilities should be protected at the expense of deeper cuts elsewhere.
- Long procurement lead times have caused government to announce its intention for a ten year 'planning horizon' for equipment spending. But this needs to be developed in the context of plans for other elements of military capability, including personnel and infrastructure. The government should therefore consider the introduction of a long-term plan for defence spending as a whole.
- Actions could quickly be overtaken by events, and some will argue for a limited review that balances the defence budget for the next three years. However, they would then have to accept the near-certainty of a further 'mini-review' during 2012-13.

## ***Analysis***

Over the last two decades, the unit costs of providing UK defence capabilities – major vessels, aircraft and ground formations – have grown at an average rate of 1.7 per cent per annum (see Table 1). As a result, while the core defence budget has only fallen by 9 per cent in real terms since 1988, the reduction in front-line strength has been dramatic. Between 1988 and 2008, the number of ground formations has fallen by 28 per cent, the number of aircraft by 33 per cent, and the number of major vessels by 47 per cent.

Growth in the costs of providing these capabilities is a result of parallel trends across the range of defence inputs, most notably the development, production and maintenance of equipment, and the people (service and civilian) who operate and maintain defence capabilities.

Continuing unit cost growth for new equipment (which constitutes around 20 per cent of the total budget) is driven primarily by qualitative improvement. Each new generation of aircraft, ship or armoured vehicle has typically been much more effective – in accuracy, range, payload and connectivity – than its replacement. But it has also, as a result, been significantly more expensive. Over the last two decades, the evidence suggests that unit costs of new equipment have been growing at a rate of between 2 per cent and 3 per cent in real terms. For example, three of the largest procurement projects of the last decade (Typhoon aircraft, Type-45 destroyers and the *Astute*-class submarine) have seen average annual rates of inter-generational unit cost growth of 3.4 per cent, 2.8 per cent and 2.2 per cent respectively.<sup>1</sup> Even if one assumes that inter-generational cost growth is higher in these ambitious high-technology projects than in the programme as a whole, real unit cost growth for equipment over the last two decades was probably at least 2 per cent per annum.<sup>2</sup>

The direct costs of employing service and civilian personnel amount to a further 36 per cent of total defence spending. These costs have also been rising over time. The last two decades have seen the pay levels of UK service personnel growing at around 1.7 per cent per annum in real terms, roughly equivalent to the 1.5 per cent growth rate for average earnings in the economy as a whole.<sup>3</sup> Increasing pay levels have been necessary in order to be able to attract high quality candidates into a military career at a time of relative prosperity. The intensity of military operations in the last decade has also seen continuing pressure for more to be spent on personnel-related costs, including housing, welfare support and post-conflict care.

Because of new technologies and improved training, today's servicemen and servicewomen are performing with a higher level of professionalism and capability than ever before. But it takes roughly the same number of service personnel to support the average aircraft, ship or ground formation as it did two decades ago. While numerical capabilities have been reduced by 36 per cent over the last two decades, total personnel numbers have fallen by 40 per cent. This includes a 41 per cent reduction in service personnel numbers, together with a 39 per cent reduction in civilian personnel numbers (adjusted for jobs transferred to the private sector, and excluding unpaid staff).<sup>4</sup> The total costs associated with the average UK Ministry of Defence (MoD) employee has thus been increasing by an average of 2.1 per cent per annum over the last two decades.

This long-term cost trend is similar to that in the US. A recent Congressional Research Service study shows that total US spending per active duty troop has been growing at an average rate of 2.1 per cent per annum in real terms since the end of the Korean War.<sup>5</sup>

A range of indicators therefore suggest that the average real costs of supporting front-line capabilities, and/or service personnel, have been rising by around 2 per cent per annum over the last two decades. If this trend continues, it will add further downward pressure on the level of front-line capabilities that can be afforded for any given budget.

**Table 1: Force Levels and Spending, 1988-2008**

	<b>1988/89</b>	<b>2008/09</b>
Core defence spending (2008/09 prices, millions) <sup>6</sup>	£35,761	£32,405 (-9%)
Major vessels <sup>7</sup>	108	57
Aircraft <sup>8</sup>	1250	840
Ground formations <sup>9</sup>	134	97
Average change in numerical capabilities		-36%
Capability unit cost growth		1.7% per annum
Civilian personnel <sup>10</sup>	142,000	86,500 (-39%)
Service personnel <sup>11</sup>	326,300	193,100 (-41%)
Cost growth per employee <sup>12</sup>		2.1% per annum

**Explanations**

Before 1990, growing unit costs for military capability were driven by the particular nature of the Cold War. This decades-long militarised peace did not experience the exceptionally high, but relatively brief, levels of resource mobilisation that characterise full-scale war. But it did see sustained levels of defence investment that (as a proportion of GDP) were much higher than in most periods between major wars. In particular, the Cold War resulted in unusually high levels of resources being ploughed into competitive military research and development programmes over several decades. The pace of military-technical innovation was further accelerated by, and in some cases contributed to, rapid technological change in the wider civilian economy.

Although costly in economic terms, the progressive modernisation of NATO forces (especially those of the US) paid strategic dividends. The Soviet Union, and those states reliant on Soviet technology, found themselves increasingly unable to match the pace of improvement in NATO-equipped forces. Successive Middle Eastern wars – both between Israel and its neighbours, and between the US-led coalition and Iraq – provided dramatic testimony to the superiority of US capabilities. The numerical balance of forces became increasingly less meaningful as a measure of the relative strength of NATO and Warsaw Pact forces.<sup>13</sup>

If post-1990 force planning had continued the previous focus on defence of NATO territory, the end of Cold War competitive pressures would have substantially lessened pressures for qualitative improvements. And the detailed examination of UK trends does indeed suggest some slowing of cost growth in the first post-Cold War decade, with the cost-saving impact of lower readiness levels balancing some continuing growth in procurement unit costs.

Even as the Cold War driver for cost escalation diminished, however, the growth in UK involvement in long-range, and extended, military operations during the second post-Cold War decade added new cost pressures. In the decade after the Strategic Defence Review (1998-2008), despite core defence spending rising by around 14 per cent in real terms, numerical capabilities fell by 18 per cent, almost as sharp a reduction as in the previous decade of spending cuts. As a result, there was a sharp acceleration in the rate of growth in the unit cost of numerical capabilities: from only 0.2 per cent per annum during 1988-98 to 3.3 per cent during 1998-2008.<sup>14</sup>

The explanation for this acceleration appears to have been that forces previously intended primarily for deterrent purposes were

now being put to the test in challenging conflicts against evolving enemies. Operating at long distances in some of the most remote and underdeveloped parts of world has sharply increased logistic costs. Keeping even a relatively small and lightly armed UK force in Afghanistan, for example, now requires a proportionally much bigger support effort – including surveillance, strike, transport and medical support – than would have been made available to a comparable force in past operations (whether in European wars or on imperial deployments).

The counter-insurgency campaigns that have dominated UK military operations since 2003 have added demands for capabilities quite different from those which have driven technological change in recent decades. During the Cold War, innovation focused on the requirement to achieve superiority in force-on-force encounters: tank-on-tank (or anti-tank missile), aircraft-on-aircraft, ship-on-submarine. While these still play a role in driving procurement priorities, however, current operations are generating new demands. The need for discrimination and proportionality in ‘wars amongst the people’ increases requirements for ever-better tactical intelligence-gathering capabilities and for increasingly accurate and low-yield munitions. Because current operations are contributory and discretionary, moreover, there is constant pressure for more resources (including expensive new equipment) to be devoted to force protection. Public opinion will settle for nothing less. Nor do these cost pressures end once operations are concluded. Political pressure is also, rightly, leading to increased resources being devoted to compensating and caring for those who are wounded, or bereaved, as a result of operations.

The demands of operations in Iraq and Afghanistan have been most clearly reflected in the rapid growth of spending on Urgent Operational Requirements. But they have also had a profound effect on long-term equipment plans, with each of the services seeking to incorporate lessons learned in plans for new capabilities. This pressure has been one of the drivers for the recent sharp increase in the projected costs of new equipment. It is noteworthy, for example, that the second largest project in the latest National Audit Office Major Projects Report is the £12 billion Future Strategic Tanker Aircraft, the main purpose of which is to support extra-European deployments. This contract includes industry-supplied in-service support, and is therefore not directly comparable to other large procurement projects, such as the £5 billion carrier programme and the £18 billion Typhoon aircraft programme. But it is still a remarkable cost for fourteen support aircraft.<sup>15</sup> Even as major combat operations in Europe are fading as a cost driver, long-range power projection operations are playing an increasing role in shaping long-term, as well as short-term, needs.

**Future Cost Growth**

There may be some easing in unit cost growth during the next two years. The government's 2009 Pre-Budget Report announced a 1 per cent cap on public sector pay settlements in 2011/12 and 2012/13, which would mean a reduction of around 2 per cent in real pay levels.<sup>16</sup> David Cameron has confirmed his intention, if elected, to implement a one-year public sector pay freeze, which would accelerate such a reduction.<sup>17</sup> With appropriate exemptions for those deployed on operations, such a freeze could help meet targets for immediate reductions in the MoD budget, and thus somewhat reduce the pace at which staffing reductions would otherwise be required. To the extent that employment conditions in the wider economy remain difficult, moreover, the impact on recruitment and retention might be relatively limited.

Beyond the next two years, however, MoD pay levels will need to track earnings in the economy as a whole if they are to remain competitive. There are also strong social and political pressures for more to be spent on the welfare of armed forces personnel, both directly (pay and allowances) and indirectly (medical, accommodation, pensions). The budgetary respite achieved from a post-election pay freeze is likely to be rather short-lived.

It is therefore assumed in this paper that the unit cost of defence capabilities will rise between 1.0 per cent and 2.0 per cent per annum in real terms over the next six years (from 2010/11 to 2016/17). This is well below the 3.3 per cent per annum trend of the last decade, and could be over-optimistic, given both the diseconomies of scale involved in reducing unit numbers and the continuing upward cost pressures as a result of recent operations.<sup>18</sup> But it is above the 0.2 per cent trend between 1988 and 1998, when tighter overall budgets (and a more benign strategic environment) encouraged greater restraint in unit cost growth. In light of the respite likely to be achieved by a pay freeze in 2011-12, together with increased incentives for efficiency savings as a result of overall budget cuts, capability cost growth of 1.5 per cent seems a reasonable central assumption.

It is also assumed, for the purposes of this paper, that the proportions of total spending devoted to new equipment, equipment support, personnel, research and other items remain constant. There will be some – for example in parts of the army – who may argue for protecting the personnel budget from reductions. Others, for example associated with the defence industry, may argue for preserving equipment programmes, emphasising the wider economic benefits with which such spending is sometimes associated. While a shift in either direction is possible, however, operational considerations suggest limits to doing so in the absence of significant changes in wider security policy priorities.

### **The Pre-Crisis Baseline Budget**

Core defence spending grew at 1.3 per cent per annum over the last decade (1998-2008), and significant additional amounts have been spent on operations. The 2007 Comprehensive Spending Review continued this trend, announcing 1.5 per cent per annum real terms increases for the period from 2007/08 to 2010/11.<sup>19</sup>

Until the full impact of the financial crisis began to sink in during 2009, further modest real defence spending growth had been therefore a reasonable basis for post-2010 planning. In line with this expectation, the indicative forward procurement plan has continued to be based on maintaining levels of non-deterrent procurement spending. Allowing for some slippage in the programme, this is broadly consistent with the maintenance of a forward equipment procurement plan (excluding nuclear deterrent spending) that adds up to 1.2 per cent annual real growth between 2009/10 and 2019/20.<sup>20</sup> In addition, Equipment Support Spending is due to increase from £6.5 billion in 2009/2010 to £8.6 billion in 2018/2019: an annual real growth rate of 0.4 per cent per annum.<sup>21</sup>

As long as the assumption of modest real terms growth remained viable, these levels of equipment commitment may have seemed to be broadly affordable. In recent years, however, escalation in the costs of projects already included in the forward programme has more than outweighed savings made from 'natural' delays in project timetables. Rather than removing projects from the programme altogether, the MoD has used project delays as a means of balancing its accounts in the short term. The consequence of this 'save now, pay later' approach, as the National Audit Office has described it, has been to increase the overall costs of individual projects, as well as delaying the introduction of new and more capable equipment.<sup>22</sup> Even on the assumption of a defence budget that remains level in real terms, overloading of the programme would have forced some difficult decisions on procurement priorities.

Priorities for the equipment programme, moreover, should not be considered in isolation. Continuing unit cost growth means that some reduction in numerical capability is bound to occur in future, in turn reducing requirements for new equipment (as well as for equipment maintenance, infrastructure and operating personnel). For example, assuming 1.5 per cent annual unit cost growth, level real funding over the next six years would still lead to total numbers of military personnel falling from 198,000 in 2010 to 181,000 in 2016, and trained personnel numbers falling from 175,000 to 160,000. If cutbacks were evenly spread, this would equate to a reduction in ground formations from 97 to 89, major vessels from 57 to 52, and available aircraft from 760

to 700. These reductions, in turn, would have allowed cuts in plans for replacement and modernisation of existing systems.

### **Towards a Post-Crisis Baseline Budget**

Yet few now expect that the MoD will be able to maintain its existing budget in real terms after 2010/11. The allocation of resources for the defence budget for 2011/12 and subsequent years will not be known until the post-election spending review. But the signs are not good. The nation's fiscal circumstances have deteriorated sharply, and the government is now projecting a budget deficit in excess of 12 per cent of GDP for both 2009/10 and 2010/11. In order to avoid an even deeper recession, the government has retained previous spending plans for 2010/11, including those for defence. But both major parties have made clear that tough spending choices will then have to be made. These choices are being made increasingly difficult by the growing levels of interest payments needed to service new government debt.

In its analysis of the 2009 Pre-Budget Report, the Institute for Fiscal Studies estimates that departmental spending is now set to decline by around 3 per cent per annum in real terms over three years, beginning in 2011/12. Given the protection given to the health, schools, police and international development budgets by the government, it goes on to estimate that other departments (of which defence is the biggest) could be facing annual reductions of 5.6 per cent in real terms: a cumulative cut of around 15 per cent over three years.<sup>23</sup>

While such a reduction in the defence budget cannot be ruled out, for example in the event of a crisis of confidence in debt markets, it is not likely. The consequences of such a sharp reduction in defence (and other) spending would be so severe that it would oblige the government to look again at ways in which the burden of necessary deficit reduction was shared more widely. The present government, still in pre-election mode, has signalled its commitment to protecting the schools, health, police and international development budgets, and has continued to give new commitments to social protection spending (for example on the up-rating of the state pension). The post-election government, of whatever party, may find it has no alternative but to make cuts in some of these sacred cows.

In the debate on how to divide up a declining public cake, neither major political party seems prepared to give defence a level of priority equivalent to the NHS, which is subject to its own strong upward cost pressures. If the MoD can make a

strong case, however, it might be able to lift itself to a 'medium' ranking in the pecking order of spending priorities – below health, and probably also below schools and police, but perhaps still somewhat above the low relative position from which it has suffered in the past.

On the cautiously optimistic assumption that this will be the case, a plausible 'Central-Case Scenario' for the MoD is a settlement equivalent to 'cash plus'. In this scenario, the MoD would be awarded 0.5 per cent annual cash growth in its core budget after 2010/11. This would be equivalent to a 5 per cent real reduction over the three years to 2013/14 (rather than the 15 per cent projected by IFS). Over the six years to 2016/17, it would mean a reduction of around 11 per cent in real terms.<sup>24</sup>

This projection is consistent with the author's July 2009 estimate that the MoD now faces a possible reduction in real defence spending of around 10-15 per cent between 2010 and 2016.<sup>25</sup> It would be a reduction of the same order as the 14 per cent reduction between 1988 and 1998, made possible by the end of the Cold War. But it would be significantly greater than the 4 per cent reduction between 1964 and 1970, the period when the withdrawal from East of Suez was substantially completed.

Even on this cautiously optimistic scenario, the total number of MoD personnel will fall by around 20 per cent over the next six years: from 283,000 in 2010 to around 230,000 by 2016. If this reduction were to be equally shared between service and civilian personnel, this would imply a cut in trained service personnel numbers from 175,000 today to around 142,000 by 2016.

### **Can Efficiencies Save the Day?**

If this reduction in personnel numbers were to be accompanied by equivalent reductions in front-line capabilities, as has been the past pattern, the numbers of front-line ground formations, aircraft and major vessels would also have to be reduced by around 20 per cent, as shown in Table 2. Ground formations (including infantry, armour, artillery and support regiments) would fall from 97 to 79, available aircraft (fixed wing and rotary) would be reduced from 760 to 615, and major vessels (submarines, carriers, escorts and major supply ships) would fall from 57 to 46. In turn, this reduced capability would require less spending on equipment, infrastructure and other supplies, as well as fewer personnel. There would be considerable upheaval, as bases were closed and employees made redundant. There would be particular challenges for the armed forces, as they attempted to maintain sustainable age/rank balances while retaining key technical personnel.

**Table 2: Projected Impact of 'Central-Case Scenario' on Defence Capabilities**

	2010 (estimated) <sup>26</sup>	2016 (projected)
Major vessels	57	46
Aircraft (forward operating fleet)	760	615
Ground formations	97	79
Civilian personnel	86,190	70,000
Trained service personnel	175,320	142,400

Note: Assumes 11 per cent real budget reduction between 2010/11 and 2016/17, together with 1.5 per cent per annum unit cost growth.

The basic working assumption in this calculation is that numerical capabilities will need to decline in line with personnel numbers. But might it be possible to reduce personnel numbers while making a much smaller reduction in capabilities? As in any large organisation, significant inefficiencies do exist; and increased cost pressures will intensify incentives for doing more with less.

The MoD certainly prides itself on its achievements in meeting, and exceeding, its targets for efficiency savings. Its relative lack of success in gaining extra resources, compared to the rest of government, seems to have encouraged a greater pace of productivity improvement than in better financed sectors (such as health and policing). Over the last decade, for example, significant economies have been claimed as a result of contracting-out, as well as civilianisation of work previously done by service personnel. More can be done in this direction, for example by increasing centralisation of provision of functions such as training and human resources. Significant numbers of service personnel are still in posts that do not require military training, and could be filled by civilians at lower cost.<sup>27</sup> A review of the potential for civilianisation could include an examination of the growing proportion of senior military posts (one-star and above) in the grade structure. Further significant savings might also be made by reducing civilian numbers, while preserving front-line capabilities.<sup>28</sup>

Yet the scope for 'pure' efficiency savings should not be overstated. The current budget for civilian personnel, for example, accounts for only 9 per cent of total defence spending. Moreover, out of a total of 86,600 civilian personnel in post in April 2009, only 28,300 work for central services in areas such as procurement, personnel, and finance. 38,200 work for front-line service commands, including 10,500 locally-employed personnel in Germany, Cyprus and operational theatres such as Afghanistan. A further 7,700 are

employed by the MoD Police and Guarding Agency, 2,300 provide the crew for Royal Fleet Auxiliary vessels, and 9,600 work for Trading Funds, including the Meteorological Office, Defence Support Group and Defence Science and Technology Laboratories.<sup>29</sup> While the scope for economies in all these areas should be examined, large reductions may only be possible if reductions are also being made in the capabilities which they support.

The Defence Review will also want to explore ways of delivering equivalent military effect using new types of defence technology. Unmanned vehicles, for example, offer the potential of substantial savings over current manned systems, especially in relation to personnel costs. Over time, new technologies might also offer the potential for less costly forms of force deployment at sea and on land. As a result, some current military tasks might be capable of being performed without current levels and types of equipment.

On a more strategic level, a downgrading of the priority given to power projection could, in principle, yield large savings. If the government were to decide, for example, on a reorientation of its defence posture towards national homeland defence, some of the most expensive systems currently in service (for example, those designed to support long-range deployments) would not be needed. Others could be maintained at a much lower state of readiness.

If new direct military threats to the UK do emerge in future, such an option might become a real possibility, especially if the UK's alliance relationships begin to fray. In the absence of such threats, however, it is hard to see the government wishing to adopt such an explicitly isolationist approach. Britain's security relies, more than ever, on the strength of its relationships (political, economic and military) with other states. Its defence policy is now largely shaped around the requirement to make a sizeable contribution to collective military efforts. Most of its major post-Cold War military deployments have been as part of international coalitions. And the importance of multilateralism and alliances is growing, not diminishing, as a result of European (and British) decline relative to the emerging economies of Asia.

If the centrality of alliances to the nation's security is accepted, the driving force for UK defence planning is likely to remain the requirement to provide capabilities that can be used in operations with others. The size of the contribution which the UK is able to make to collective capabilities will sometimes have to be adjusted to fit with the resources available. But the requirements of coalition operations – interoperability, the need to respond rapidly at long range, the need to limit casualties in wars of

discretion – will severely limit the options for achieving savings through technological downgrading. If it comes to a choice, the UK's contributory model of defence places a premium on quality over quantity.

In some cases this model may require the UK to give up some specific capabilities in order to remain a serious contributor in other areas. But uncertainty as to the future nature of the conflicts in which the UK may be asked to take part is likely to maintain pressure for breadth, if necessary at the expense of size, in national capabilities. As a result, while the Defence Review could decide to reduce some force elements more than others, it is hard to see it foregoing major capabilities altogether.

### **Beyond 2016: Is There Any Prospect of Stability?**

The MoD cannot expect to be exempted from the wider public spending cuts that are now probable after 2010. But it may still have some room for manoeuvre in relation to the pace at which reductions take place. Although it is not unique in this respect, the time lags involved in decommissioning capabilities and implementing staff reductions, together with the existing contractual over-commitment in the procurement budget, will make it difficult to make large cuts in spending in the short term. The MoD therefore has a case for arguing that any reduction in budgets should not be so precipitate as to incur unnecessary costs or endanger longer term restructuring.

Agreement on a credible long-term rebalancing process can help the MoD in this effort, reassuring the Treasury that it is prepared to implement its share of agreed reductions, but over a realistic time scale. The resulting settlement might, for example, trade a relatively slow pace of budget savings in the short term (2010-13) in return for agreement to a strategy-driven process of reductions in the medium term (2013-16).

Given the long lead times involved in defence planning, the MoD might also want to argue the case for a greater degree of certainty over budget levels beyond 2016. Such longer term plans could not bind future governments. They would need to be reviewed regularly in order to take account of changes in both the strategic and fiscal environments. By introducing them as part of the 2010 Defence Review, however, such plans could be very useful in helping to establish discipline and balance in defence planning. Henceforth, if new costs arise or projects are proposed between regular defence reviews, sponsors would not only have to show why they are desirable in isolation. There would also have to be a mechanism for regular re-prioritisation, designed to maintain the overall financial integrity of the programme.

The government has already recognised the strength of this case in relation to the equipment budget. In his response to the Gray Report, Defence Secretary Bob Ainsworth announced the government's intention to introduce 'a ten year indicative planning horizon for equipment spending agreed with the Treasury', along with 'an annual assessment of the affordability of our programme.'<sup>30</sup>

The Treasury has not yet been persuaded to extend this same reasoning to the defence budget as a whole. Yet there is a strong case for arguing that long-term equipment plans need to be closely linked to planning for capabilities more generally. It makes little sense to agree the procurement of new pieces of kit, only to find that an inadequate budget exists for supporting them in service. Given this imperative, the government should seriously consider the introduction of an 'indicative planning horizon' for defence spending as a whole.

Some in the Treasury currently argue that such a framework would reduce its ability to alter budgets in response to economic circumstances or changing ministerial priorities. While the development of professional armed forces requires decades of human investment, they argue, so too does the development of professional cadres of teachers and doctors. The more that some parts of the government budget are deemed off-limits, the more volatility will have to be imposed on the budgets of unprotected spending departments.

Yet there are specific features of the defence budget that support the case for a longer planning framework. The MoD's capital programme is not only a much larger part of its total budget than it is in the main domestic spending departments. The average timescales involved in the procurement of major items of defence equipment are also significantly longer, and more technologically complex, than they are for hospitals or schools. Perhaps the nearest equivalent is the Department for Transport, which benefits from a ten-year Long Term Funding Guideline. The 2007 Spending Review confirmed a 2.25 per cent annual real increase in transport spending for the decade up to 2018/19.<sup>31</sup>

The experience of Australia and Canada might provide some lessons. Both countries have similar constitutional arrangements, and both spend comparable proportions of their budgets on equipment. Both have recently been persuaded of the case for long-term defence spending targets. In its recent Defence Review, Australia announced funding parameters of 3 per cent real growth in defence spending to 2017/18, followed by 2.2 per cent real growth from 2017/18 to 2030.<sup>32</sup> Canada's new long-term funding framework is less generous, reflecting its different

strategic position. Yet it still includes provision for 0.6 per cent real growth from 2008/09 to 2027/28.<sup>33</sup> Both plans are exclusive of the incremental costs of operations.

An additional advantage from, and perhaps a condition for, an agreement on a long-term defence spending plan would be that it would give the MoD an incentive to incorporate a realistic margin for unforeseen contingencies into its forward planning. Perhaps the most defining characteristic of today's strategic and technological environment is uncertainty. Yet the current approach, in which the forward budget is overloaded with commitments, means that there is a continuing tendency to raid temporarily under-spending items (for example, service posts unfilled) in order to pay for unavoidable (even if less important) commitments. With greater certainty over the total budget envelope, and a proper balancing of commitments with resources within it, such concerns can be reduced. Greater success in balancing the forward budget would also help to protect important long term investments, for example in defence research, from short-term economy drives.

If the government that comes to power in 2010 were to accept the case for long-term budget guidelines, the MoD might reasonably hope to share the fruits of post-adjustment economic growth. The exact assumption made will be the subject of political debate. On the assumption that the government deficit can be reduced to manageable proportions by 2016, however, real growth of around 1 per cent per annum between 2016/17 and 2019/20 might be a plausible planning assumption for the core defence budget. This would allow the MoD to maintain non-Trident core spending in real terms, while also allowing the government to state that nuclear deterrent capital spending is not at the expense of conventional forces.<sup>34</sup> It would be roughly comparable to growth in core defence spending during 1998-2008, more generous than Canada but less generous than Australia. It would be broadly consistent, albeit rather more generous, than historic patterns of UK defence spending, if one excludes the post-Cold War adjustment period.

### **Conclusions**

If Britain's defences are to be put on a sustainable footing, efficiency savings will not be enough. In addition to the likelihood of significant real reductions in the available budget, defence planners need to take account of continuing growth in the unit costs of defence capabilities. The combination of these two trends means that the next six years are likely to see a reduction of around 20 per cent in numbers of service personnel, and a commensurate reduction in numerical military capabilities (major vessels, aircraft and ground formations).

Even in a time of general fiscal austerity, there will be a strong temptation to postpone the hard choices that this will require for as long as possible. The likelihood of intense operations in Afghanistan, at least until 2011, will provide a further rationale for keeping options open. Advocates of a 'strategic' 2010 Defence Review will argue that the responsibility for putting defence capabilities on a sustainable footing must not be shirked. But sceptics will point to the risk that precipitate decisions could quickly be overtaken by events, just as the carrier-cutting 1981 Nott Review was by the 1982 Falklands War. They may instead argue for a review that only takes those decisions that are needed to balance the defence budget for the next three years. In doing so, however, the sceptics would have to accept the near-certainty of a further 'mini-review' during 2012-13, along with the additional financial costs involved in this delay. This was the model adopted by the Labour Government of 1964-70. Because the 1965 Defence White Paper was only able to generate half the long-term savings required to reduce planned spending to agreed levels, further cost-cutting reviews had to be held in the years that followed.

Politically, the choice between these two options may depend on an assessment of whether it is better to incur the political pain of defence cuts all at once, or in successive smaller doses. In strategic terms, the choice may hinge on whether longer-term defence priorities can be agreed while the broader consequences of the Afghanistan operation remain so uncertain.

*Malcolm Chalmers is Professorial Fellow in British Security Policy at RUSI. He is also Professor of Defence and Foreign Policy at King's College, London, and Professor of International Politics at the University of Bradford. He is a member of the Defence Secretary's Defence Advisory Forum, and was previously Special Adviser to Foreign Secretaries Jack Straw MP and Margaret Beckett MP.*

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## Notes

<sup>1</sup> These figures compare final unit procurement costs, and therefore include any cost increases that take place between project inception and completion. These three projects account for 50 per cent of the total value of the fifteen largest ongoing equipment projects for which the MoD has taken the decision

to invest. National Audit Office, *Ministry of Defence: Major Projects Report 2009* (London: The Stationery Office, December 2009), Figure 3.

<sup>2</sup> See Malcolm Chalmers, 'The Myth of Defence Inflation', *RUSI Defence Systems* (Vol. 12, No. 1, June 2009), pp. 14-15. The impact of growth in the unit capital costs of new equipment on the procurement budget as a whole is worsened if one allows for development costs, since these have to be spread over a smaller number of production units. On the other hand, since support costs appear to be rising less rapidly than new equipment costs, overall equipment cost growth may be moderated.

<sup>3</sup> For military salaries, see *UK Defence Statistics 2009*, Table 2.24; for average earnings (including bonuses), see Office for National Statistics, *National Statistics Online*, <<http://www.statistics.gov.uk/statbase/TSDdownload2.asp>>, accessed 16 November 2009.

<sup>4</sup> The unadjusted total number of civilian personnel fell from 175,200 in April 1988 to 89,500 in April 2008: a reduction of 51 per cent.

<sup>5</sup> Stephen Daggett, 'Resourcing the National Defense Strategy: Implications of Long-Term Defense Budget Trends', Testimony before the House Committee on Armed Services, Congressional Research Service, November 2009, p. 2. If only UK service personnel are included, the rate of growth is 2.2 per cent per annum.

<sup>6</sup> The figures used here are on the 'net cash requirement' basis used in MoD, *Defence Statistics 2009*, Table 1.1, and are expressed in 2008/09 prices. They exclude additional Treasury-funded operational spending of £4,026 million in 2008/09, on the assumption that most of such spending reflects one-off extra costs that do not build total capability. The Treasury provides time series on spending on a functional basis, including around £1.6 billion annual 'defence' spending by the security and intelligence services. *Public Expenditure Spending Analysis*, various years. The Treasury definition of defence spending is not consistent between 1998/99 and 2008/09, making it more difficult to show trends over this period.

<sup>7</sup> Number of major vessels as of 1 April, including RN and RFA. Based on figures in MoD, *Defence Statistics 2009*, Chapter 4. Excludes patrol craft, survey ships and mine counter-measure vessels.

<sup>8</sup> Number of aircraft as of 1 April, including combat, C4/ISTAR, air support, logistics, helicopters and training aircraft from all three services. Based on Forward Available Fleet in MoD, *Defence Statistics 2009*, Chapter 4.

<sup>9</sup> Number of ground formations as of 1 April, including Army, Royal Marines and RAF Regiment.

<sup>10</sup> In order to make this series consistent over time, it has been necessary to make two adjustments to time series published in MoD, *Defence Statistics*, various editions.

First, the 1988 figure excludes positions that were later privatised, and are therefore not included in 2008. Second, the 2008 figure excludes unpaid staff, including those on loan to US bases, as well those on long-term sick leave, maternity pay and career breaks. These are excluded from the published 1988 figure. The author thanks the Defence Analytical Services Agency for the considerable help they provided in constructing this comparison.

<sup>11</sup> Full-time equivalent, including Gurkhas and untrained personnel.

<sup>12</sup> This is the rate of growth in total real core defence spending per person employed (excluding civilians in posts that were privatised after 1988).

<sup>13</sup> See Malcolm Chalmers and Lutz Unterseher, 'Is There a Tank Gap? Comparing NATO and Warsaw Pact tank forces', *International Security* (Vol. 13, No. 1, Summer 1988).

<sup>14</sup> Further details are available from the author, malcolmc@rusi.org.

<sup>15</sup> National Audit Office, *Ministry of Defence: Major Projects Report 2009* (The Stationery Office, December 2009), Figure 3.

<sup>16</sup> Treasury, *2009 Pre-Budget Report* (London: The Stationery Office, December 2009), p. 97.

<sup>17</sup> 'We can't go on like this', speech by David Cameron MP, 2 January 2010.

<sup>18</sup> Details of this calculation are available from the author on request.

<sup>19</sup> Treasury, *2007 Pre-Budget Report and Comprehensive Spending Review*, 2007, p. 232.

<sup>20</sup> Equipment procurement included in the forward plan totals around £5.9 billion in 2009/2010, rising to around £9.8 billion in 2019/20: an estimated annual real growth rate of 2.4 per cent. *Review of Acquisition for the Secretary of State for Defence: An Independent Report by Bernard Gray*, October 2009, p. 69. The rate of real growth falls to 1.2 per cent per annum if nuclear deterrent spending (for which the Treasury makes separate provision) is excluded. The estimated annual growth rate uses the MoD planning assumption of 2.7 per cent annual inflation, as reported in National Audit Office, *op. cit.*

<sup>21</sup> *Review of Acquisition, op. cit.*, p. 106.

<sup>22</sup> National Audit Office, *op. cit.*, Press Release, 15 December 2009. The Gray Report contains a detailed analysis of this issue. See Trevor Taylor, 'The Gray Report', *RUSI Newsbrief* (Vol. 29, No. 9, November 2009).

<sup>23</sup> Institute for Fiscal Studies, 'Briefing on Pre-Budget Report', December 2009.

<sup>24</sup> Based on projected GDP deflator trends in *2009 Pre-Budget Report*, Table B1.

<sup>25</sup> Malcolm Chalmers, *Preparing for the Lean Years*, RUSI Future Defence Review Working Paper 1, July 2009.

<sup>26</sup> Assuming no change from October 2009 (civilian personnel) and November 2009 (trained service personnel). Capability figures are based on April 2009. Civilian figures include unpaid staff, including those on loan to US bases, as well as those on long-term sick leave, maternity pay and career breaks.

<sup>27</sup> CBI, *Doing More for Less: A Credible Strategy for Restoring the Public Finances*, October 2009, p. 12.

<sup>28</sup> Andrew Chuter, 'UK Conservatives Target Civilian Cuts at MoD', *Defense News*, 8 October 2009.

<sup>29</sup> *UK Defence Statistics 2009*, Table 2.27.

<sup>30</sup> *Written Ministerial Statement by Secretary of State for Defence*, 15 October 2009. The Ministry of Defence has confirmed that this commitment applies to both procurement and support spending.

<sup>31</sup> Treasury, *2007 Pre-Budget Report and Comprehensive Spending Review* (London: The Stationery Office, 2007), p. 210.

<sup>32</sup> *Defending Australia in the Asia-Pacific Century: Force 2030*, Australian Government White Paper (2009), p. 137.

<sup>33</sup> 'A new long term funding framework', *Canada First Defence Strategy* (Government of Canada, 2009), Chart 2.

<sup>34</sup> These indicative figures include spending on the nuclear deterrent. Current MoD financial planning assumes that the capital costs of the nuclear deterrent, which are due to rise sharply in the years before 2019/20, will be financed as an addition to whatever core defence budget is agreed. If this practice continues, the Treasury could agree to maintain the 'core' defence budget in real terms, and fund Trident replacement in addition. On reasonable assumptions in relation to Trident replacement costs and timing, the net effect would be roughly the same as annual 1 per cent real increases between 2016/17 and 2019/20.

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**Royal United Services Institute for  
Defence and Security Studies**  
Whitehall, London SW1A 2ET, UK

Tel: +44 (0) 20 7747 2600  
Fax: +44 (0) 20 7321 0943

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E-mail: [michaelc@rusi.org](mailto:michaelc@rusi.org)  
Web: [www.rusi.org/fdr](http://www.rusi.org/fdr)

**Editor: Michael Codner**

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