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Operations in Libya

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Additional written evidence

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Defence Committee

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Contacts

All correspondence should be addressed to the Clerk of the Defence Committee, House of Commons, London SW1A 0AA. The telephone number for general enquiries is 020 7219 5745; the Committee's email address is defcom@parliament.uk. Media inquiries should be addressed to Alex Paterson on 020 7219 1589.

List of additional written evidence

(published in Volume II on the Committee's website www.parliament.uk/defcom)

Written evidence

Written evidence from Commodore Steven Jermy RN

Summary

Events, and Her Majesty's Government's actions in Libya suggest that the UK has still not recovered its ability to think and act strategically in pursuit of the national interest. Although, at the time of writing, the campaign appears to have taken a more positive turn, this may be temporary, and very possibly more to do with good luck than with good strategy. Luck—good and bad—very often plays an important role in operations and war, and we should naturally be prepared to ride good luck. But equally, we should also work to understand how to improve our strategy-making and, thus, our overall strategic performance.

Background

1. I, Commodore Steven Jermy RN, am a recently retired naval officer, with a particular interest in strategy. My service career spanned carrier aviation, ship command and high level staff appointments and I served: at the operational level in carrier aviation, including flying from HMS INVINCIBLE in the Falklands War and commanding the Fleet Air Arm; at the strategic level, including as Principal Staff Officer to the Chief of Defence Staff and as Strategy Director in the British Embassy in Afghanistan.

2. Since retiring, I have published the book *Strategy for Action: Using Force wisely in the 21st Century*, which seeks to improve the way in which strategy is made and, thus, the way force is used in pursuit of the national interest.

3. I judge that, whilst recent progress in Libya seems positive, there are likely to be difficult months ahead and, more importantly for the Select Committee, key lessons to be learned, based on our experience to date.

4. The lessons are apparent in six inter-related areas: first, our ability to analyse the political context; second, our ability to identify and pursue a coherent political objective, calculated in relation to the national interest; third, our ability to create and execute strategy to deliver an identified political objective; fourth, our understanding of the advantages and disadvantages of air, rather than land, support to indigenous forces; fifth, the costs and consequences of being unable to deploy fast jets from British aircraft carriers; sixth, the consequences of the lack of a higher level British foreign policy or grand strategy and institutional competency in Whitehall in strategic-thinking and strategy-making. The campaign's strategic narrative provides a useful backdrop for the analysis.

Narrative

5. Following peaceful protests on 15 February 2011, the Libyan Army and Police were forced from Benghazi by 18 February, and the National Transitional Council formed on 27 February. At around this time, the British Prime Minister proposed the imposition of a no-fly zone, to prevent the use of Gaddafi's forces against Libyan civilians. On 17 March, the UN Security Council authorised UNSCR 1973, the two key elements of which were the imposition of a no-fly zone and the authorisation of "all necessary means", other than a "foreign occupation force", to protect civilian and civilian-populated areas.

6. On 19 March, French forces, later joined by aircraft of most coalition partners, began operations against Libyan ground forces in the Benghazi areas and, more broadly, against the Libyan air-defence system. Although operating under the authority of UNSCR 1973, the coalition's air targeting policy suggested an intent that went beyond the mandate, with *regime change* appearing to be the tacit but unstated political objective. Indeed, the Foreign Secretary made clear in public statements that the British would wish to see Gaddafi gone. This aggressive interpretation of the UNSCR 1973 inevitably put pressure on the coalition, with public concerns voiced by a number of key coalition members and other important international powers, not least China and Russia.

7. Meanwhile, the progress of the campaign in May and June 2011 was to-and-fro, unsurprisingly given that, despite the advantage of air power, the rebels were, initially, not armed and organized as a fighting force. With the assistance of "advisors" including, according to some sources, coalition Special Forces, rebel forces were able to operate more effectively, and in particular more consistently secure their gains. The rebels' successful invasion of Tripoli, and critically, the rising up of local people, in August led to Gaddafi's withdrawal, and the rump of the regime forces fighting a rearguard campaign in the remaining regime strongholds.

Understanding the Political Context

8. It is not clear, based on the evidence of the Government's actions, that the political analysis of the situation in Libya, prior to the West's intervention, was not sufficiently comprehensive, nor contained the insights, to support the planning of a properly scoped operation.

9. What such an analysis ought first to have shown was that the situation in Libya was quite different to, for example, that in the early days of the Afghanistan intervention; and that this would, in turn, have implications for the utility of air power.

10. In Afghanistan, there was a simmering civil war, prior to the intervention, between two reasonably evenly-matched opponents—the Taliban and the Northern Alliance. And thus, when air power, properly directed by Western Special Forces, was used to support the Northern Alliance, the results were quick and decisive.

11. Whereas in Libya, the uprising was at its very earliest stage, with a significant imbalance between the opponents—Gaddafi's security forces and the rebels—in military capability. Given the lack of an obvious military entity to give the uprising early power, it was reasonably foreseeable that the uprising would take time to gain military capability and, thus, success. And, by deduction, it was similarly foreseeable that the intervention was likely to be of extended duration. And yet the Government in particular and the Coalition in general, on the evidence of both statements and actions, appeared surprised, and then concerned, by the length of time needed to defeat Gaddafi's forces.

12. This weakness in political analysis appears to being playing into the Government's understanding of the current context, post the defeat of Gaddafi's security forces. The Government's statements and actions give the strong impression of the National Transitional Council (NTC) as a coherent regime in waiting—as evidenced by Britain's, and other's, international recognition of the NTC as Libya's legitimate government.

13. Whereas informal reporting and, latterly, the unwillingness of rebel forces and local defenders to give up arms suggests that the NTC has, as yet, uncertain legitimacy and fragmentary power, as demonstrated by its inability, at the time of writing, to extend its writ into Tripoli.

14. Furthermore, the second significant difference, between the Afghanistan and Libyan campaigns, is the absence of Western troops on the ground. The consequence of this, and the NTC's limited ability to impose its will, is that, notwithstanding a very significant investment of Western military resource, we have precious little—if indeed any—control over how events will now pan out.

15. In the long view, this is probably not a bad thing, in that responsibility for Libya's future will rest ultimately with Libyans. But in the short term, there needs to be some government recognition—and explanation to the British public—of this lack of control. And there also probably needs to be some thought given to government policy, based on the different scenarios that could play out in Libya.

16. An optimistic scenario is of a general increase in stability, widespread acceptance of the NTC as it gains legitimacy, and measured progress toward some form of political system that results in representative government, acceptable to the general population. But two pessimistic scenarios are equally plausible.

17. In the first, the weakness of the NTC's power and an unwillingness for armed groups to accede to its writ, leads to a sustained period of insecurity which could include, for example, significant revenge killings of: former Gaddafi forces; Gaddafi-aligned tribes; Sub-Saharan Africans. The British Government would need to consider its position in the event of a request, by people attacked under such a scenario, for the use of British air power, against rebel forces, to "stop slaughter."

18. In the second, Islamic extremists gain an upper hand. This could because they are able, in the same way as the Taliban, to deliver local security when the NTC cannot. Or it could be as a result of a democratic process.

19. In either scenario, the victory would look pyrrhic, at best, but might also lead to increasing threat to British interests, at least in the short term.

Identifying the Political Objective

20. The British Government, and the French, appears to have fallen into the same trap as the Blair administration did in Iraq, in that its military actions suggest that it has pursued a political objective of *regime change*, which is rather different to UN authorised objective of *protecting civilians* (or, as routinely stated by the Prime Minister, "stopping slaughter"). The remarks of the Foreign Secretary have, at times, come perilously close to admitting this point.

21. Of course, the apparent success of the rebels against Gaddafi's forces allows for some *post hoc* justification of this approach. Be that as it may, long time political and strategic costs may result.

22. First, key non-Western countries—particularly China and Russia—who are uncomfortable with the idea of interference by the international community in internal activities of sovereign states may, in the future, be less willing to sanction UNSCRs argued for genuine humanitarian reasons.

23. Second, the West in general, and Britain and France in particular, are now open to the charge of political hypocrisy, should we choose not to intervene to "stop slaughter" in the future. We have been saved from this prospect in Syria, so far, thanks to the Syrian people's desire for no external assistance. But were, for example, Bahraini or Yemeni uprisings to seek our support, or the Syrian people change their minds, we could find ourselves in a difficult political position.

24. The much more fundamental problem, for Britain at least, is the lack of a compelling argument to say why, and to what degree, the pursuit of either the stated or tacit political objectives are in the British national interest.

25. This is important because, without an understanding of how the political objective contributes to the national interest, it is difficult to decide what price we should be prepared to pay—in blood and treasure—in its pursuit. And without an understanding of the blood and treasure—ie the resources—we are prepared to deploy and expend, it is difficult, if not impossible, to shape the right strategy to offer the best chances of delivering success.

Lack of a Coherent Strategy

26. An early lack of military strategy was evident from an examination of Government and Coalition statements, all of which focused on the creation of a no-fly zone—note that a *no-fly zone* is a term of military doctrine, not a strategy.

27. The imposition of such a zone requires that just two things be achieved: first, a condition of Coalition air superiority over opposing air forces; second, the neutralisation of enemy air defences, so as to enable one's own aircraft to fly over the zone without interference. A no-fly zone does not, however, require the destruction of enemy ground forces.

28. Of course, UNSCR 1973 also authorises the use of "all necessary means"—ie armed force—to protect civilians. In the case of Libya, this provides a reasonable, albeit not wholly watertight, argument to support the use of force to protect civilians from the impact of offensive operations by Gaddafi's forces against, for example, rebel-held areas.

29. However, the use of NATO air power to support offensive operations by rebel forces against those of Gaddafi falls outside UNSCR 1973's authority, and thus do not appear to comply with international law. This, too, is further evidence of a lack of strategy in that had a coherent strategy been shaped early, then a key consideration in that shaping would have been that force be used within the framework of authority provided by UNSCR.

30. The lack of strategy in military operations reduces the likelihood of success and increases the chances of error.

31. There are a number of related risks, of which three are germane. First, political and military decisions must be made on the hoof ie "muddling through"—with a heightened chance that they will be wrong. Second, there will be no strategic framework against which to measure progress. Third, military personnel will necessarily be strategically rudderless, which increases the pressure on commanders and may also undermine morale, as personnel sense the lack of overall strategic direction.

Air Support to Indigenous Forces

32. It is classically the case that air power is an important, but nevertheless supporting, arm in civil wars such as that in Libya. This is simply because air power cannot be used to seize and hold ground. Success in such operations will, rather, depend critically on the capacities of the opposing ground forces.

33. Furthermore, the successful use of air power to support land forces in turn depends critically on effective air-land integration, classically and contemporarily provided by Forward Air Controllers (FACs) working for land force commanders. The skill sets of FACs will not be available within a rebel army. It follows that, if air power is to be used successfully to support indigenous forces, then as a minimum professional FACs, with adequate force protection, will need to be on the ground, and provision needs to be made for this within UNSCRs.

34. Furthermore, whilst air power has significant utility during war-fighting operations, this utility drops sharply in post-conflict operations. So far, the International Coalition's main contribution to, investment in, and opportunity to exert control over, the campaign has been through the use of air power, and this thus reinforces the point that, with the end of war-fighting operations, then so too ends the Coalition's opportunity to substantively shape the course of events.

35. The key lesson is that this consideration needs to be borne in mind at the outset of any campaign where air forces, rather than land forces, are used as the primary instrument of intervention of British or Western power. If we choose this approach, we should do so in the knowledge that, once operations are complete, then whatever military and civil investment we may have made, we will have little if any strategic control over, but may nevertheless bear substantial responsibility for, the eventual outcome, whether good or bad.

Carrier versus Land Based Air

36. Of the major NATO nations engaged in the operation—the US, Britain, France, and Italy—only Britain did not deploy aircraft carriers. Britain's inability so to do was a direct and immediate consequence of the SDSR decision to pay off HMS ARK ROYAL and the GR9 Harriers. This, in turn, constrained our freedom of action in three ways.

37. First, unlike the US, France and Italy, Britain had, necessarily, to ask for permission to use local airfields—in this case, Italian—in order to participate, sustainably, in the campaign. It is often stated, by over enthusiastic air power advocates, that the UK has Access, Basing and Overflight (ABO) *rights* around the

world and that, for this reason, aircraft carriers are not essential for the deployment of air power. Whereas the legal reality is that there are only two generic locations in the world from where Britain has the *right* to operate military aircraft: first, British sovereign territory; second, Royal Navy warships operating in international waters.

38. In all other locations in the world, we must seek the *permission* of the base nation and our ability, thus, to operate British military aircraft from non-sovereign land bases is *always* subject to the political agreement, decision and, ultimately, whim of the basing nation, acting in its national interests.

39. The Libyan experience thus underlines the good sense of the Government's decision to continue with the purchase of the two new aircraft carriers. But it also unequivocally exposes the risk that we will bear between now and the recovery of the aircraft carrier capability, which, under current plans, will not be meaningful until 2023, and very possibly later.

40. These strategic risks are not trivial. For example, for the first time in over 100 years, Britain will be unable to mount operations of the scale and nature of the Falklands War of 1982 or the Sierra Leone intervention of 1998. And we will remain in this position for well over a decade.

41. Second, even where ABO agreement has been secured, if the air bases are at distance from the area of operations, then costs of maintaining aircraft on station, for example to enforce a no-fly zone or maintain a combat air patrol, can increase very significantly. The increased costs are multi-faceted, but include airframe hours, which are a major cost driver as well as transit fuel and the additional costs of supporting tanker aircraft.

42. There is also an operational price in that more aircraft will be needed to provide airpower at distance, the corollary being that the same amount of aircraft operating from distance will be unable to provide the same effective combat power as those operating close by.

43. Third, distance may also mean that it is impossible to deploy some key capabilities. Combat Search and Rescue (CSAR) is a case in point in that the CSAR cover for British aircrew operating over Libya was—and could only have been—provided from NATO carriers operating in international waters in the Gulf of Sirte.

Foreign Policy and Grand Strategy

44. The final—and perhaps most important—lesson is to do with the absence of an overarching foreign policy or, in its harder-edged form, grand strategy, with which to address the Arab Spring and the broader issue of extremist Islam in the Maghreb and Middle East.

45. This lack manifests itself in the Libyan operation, most obviously in our continuing inability to distinguish between those crises that, because they occur in key strategic areas, bear critically on the British national interest, and those that do not. It seems clear, for example, that events in the Maghreb, whether or not they may be morally reprehensible, will bear less critically on Britain's national interest than those in the Gulf or Suez.

46. And yet, whilst already heavily engaged in Afghanistan, Britain elected to engage in Libya and use most of its remaining military contingency, thus loosing its ability, at a time of unusual historical volatility, to act in these critical strategic areas.

47. This is perhaps because of the lack any coherent regional policy or grand strategy against which to balance the advantages of intervening in Libya against the disadvantages of critically prejudicing our ability to act elsewhere, in more important strategic areas. This looks to be further evidence of a worry, already explored by the Public Administration Select Committee (PASC) in 2010, of the inability of Westminster and Whitehall—especially Whitehall—to think and act strategically, and suggests the PASC's recommendations have yet to be acted upon. This is the most serious of all the concerns illustrated during the Libyan operation, and merits the closest scrutiny by the House of Commons Defence Committee.

9 September 2011

Written evidence from Professor M J Williams

Implications for British Defense Dependency on Foreign and Security Policy

M J Williams is Visiting Professor of Government at Wesleyan University in the United States and is Lecturer in International Relations at Royal Holloway, University of London. Previously he was a Visiting Fellow at the University of Oxford, a lecturer at the University of London and the Head of the Transatlantic Programme at the Royal United Services Institute for Defense Studies. Dr. Williams is the author of "The Good War: NATO and the Liberal Conscience in Afghanistan" (2011) and "NATO, Security and Risk Management: From Kosovo to Kandahar" (2009). He has consulted extensively for several NATO allies.

1. The NATO-led intervention in Libya over the past six months highlights some areas of concern for the UK. The operations, whilst seemingly successful at this point in time, offers several lessons.

2. First, and most importantly the strikes against Libya highlight the increasing and critical dependency of the UK (and other European allies) on the resources of the United States. The UK risks becoming a vassal

state of the US, unable to act independently unless it rethinks some aspects of defense reorganization and investment in the military. Second, the role of the US will remain omnipresent, but the approach of Washington to the wider world is changing. The Americans ostensibly "handed off" the Libya mission to Europe, but they remained deeply involved. Given the current internal debates in the US about American foreign policy, the public pushback on foreign intervention and budget constraints that the US must recognize and address in the near term, there is a strong possibility that the US may sit out on issues of importance to Britain but only of tertiary importance to Washington. Given the British and European dependency on US military assets this raises a major problem for British foreign policy. Third, NATO is at the very least a two-tiered alliance. Any pretense that the Alliance is based on mutual solidarity is rubbish. Libya reinforced a division evident since the late 1990s. The UK must consider the impact of a multi-tiered NATO on future policy. Fourth, the UK got lucky that this intervention ended when it did. The UK was stretched to conduct the mission of this length and intensity. Had the conflict not ended the UK would have found it increasingly difficult to keep up the pace of operations. Furthermore, the PR fall out from a protracted conflict would have been disastrous for HMG and for Britain's global image. The Prime Minister gambled and his bet paid off, but it was a gamble given the current defense climate. The focus of this briefing will be on the defense dependency of the UK and Europe on the US.

The Strategic Defense and Security Review and Libya

Some of the assumptions made in HMG's Strategic Defense and Security Review were inherently flawed as a result of groupthink focused on fighting the last war as opposed to a range of future conflicts. The document supposedly address the UK's role in an uncertain world, but in some key areas it seems policy-makers failed to build in enough full-spectrum capacity to ensure a truly independent British foreign policy.

In 2010 the UK invested roughly 2.7% of GDP on defense. Over the next four years that percentage will decrease to 2%. The implications of this are cuts to the Army total around 7,000 soldiers. Roughly 40% of the Army's artillery and tanks will be liquidated. The Royal Navy and the Royal Air Force will also come under the hammer. Both will face cuts in personnel of 5,000 apiece. The RAF Harrier aircraft have already been cut and HMG's only aircraft carrier HMS Ark Royal was decommissioned in March of 2011. It will be a decade before a new carrier strike force is in place and although the Government commissioned two carriers it now looks as if only one will be put into service. Defense spending will supposedly stay at 2% over the next four years.

The result of these cuts is quite simply that Britain will have a less able military. Some of these cuts make sense others do not. The decision for example to pull forces out of Germany to save on basing costs and to also eliminate heavy armour and artillery intended for a major land war in Europe is a good one. Some residual capacity is of course warranted as heavy armor is not obsolete, merely limited, but the bulk of the cuts are in order. Other cuts are more problematic such as the decision to strike the HMS Ark Royal from service immediately. These decisions had a direct impact on the UK's ability to easily and effectively wage an air assault against Libya. The decision to create a new carrier strike group is laudable, but the lack of a carrier in the medium-term is lamentable and was based more on budget slashing than sound strategic rationale. In the end, there is no problem with having diminished Armed Forces so long as the Government is willing to accept it must do less globally. The Libya intervention does not reflect an appreciation for the implications of the cuts on UK Armed Forces. Asking the military to do more with less is reckless and the public should be concerned about the Government's seeming desire to not properly resource soldiers they ask to go in harms way.

There are a number of implications from these defense cuts aside from the military's reduced ability to work as an effective policy tool. The cuts will reduce Britain's ability to lead when it comes to European security and defense. Given the already morbid rates of defense investment in Europe, Britain's abdication of a leadership role will do little to prod other European nations to invest adequately in defense. A lack of defense investment will also see a reduction in British led research and development. This means that British firms will be less innovative and will therefore contribute less to the British economy over time. The domestic societal benefits of defense investment and research will also be reduced. Historically the defense sector has lead to major scientific and technological benefits that have benefited wider society and the economy.

Finally and perhaps most importantly, reduced defense investment will only make Britain more, rather than less dependent on the United States. For a Government that advocated a foreign policy more independent (although still allied with) the United States, the defense cuts are an interesting way of achieving this goal. The UK will rely ever more heavily on the US particularly when it comes to C4ISTR technologies and logistics. As Nicholas Burns remarked to the FT in April 2011 "There's a concern in the US that the European allies will not be able to match the intensity of air and sea operations that the Americans had in the first two weeks of operations ... The potential challenge is can they deliver an effective military response that will push Gaddafi back and can they avoid the political disunion in a fractious NATO alliance over air strikes going forward?" Indeed, as the war dragged on and the contributing nations began to flag this concern grew evermore omnipresent.

Defence Dependency Culture in the UK and Europe

The little war against Libya illustrated a new approach of the US to international affairs. The public story is that the US took an initial leadership role (at the prodding of France and Britain). After leading the first phase

of the NATO attack against Libya flying approximately 1,600 sorties before the US withdrew to a support function. On the surface it looked as if the US was largely not engaged in the operation, the reality is quite different. The plan was to pursue a "covert intervention" strategy rather than an overt one. The US was involved in all planning and deliberations regarding the campaign for the duration of the operation. This reflects a new US approach to international affairs, one that will remain the de facto course under the Obama Administration and may reflect a wider change due to mounting domestic pressure from the US electorate to save money buy cutting back on foreign adventures. The public wants a focus on the domestic woes of the country and on job creation, rather than spending billions on wars overseas.

On the surface it would appear that the operation against Libya then was the hour of Europe, but in reality it revealed a fractured and divided continent. There were 15 European states working alongside the US and three Arab states to oust Gaddafi. The campaign utilized 29 airbases in six different countries, but only six European states actually participated in the air strikes alongside the US and Canada. Germany refused to support the operation. This further reinforces a serious problem within NATO regarding solidarity and capability. Meanwhile the US contributed the bulk of the support for the operation, as I noted it would in a piece for *The Guardian* on 17 March at the start of operations.

Over the course of the campaign the US contributions included the following:

— The United States contributed a dozen warships to the Libya campaign that played a critical role in the opening attack. The USS Florida launched 100 cruise missiles against Libyan air-defenses.

— US C4ISTR technology was used to track and target opposition forces. US JSTARS surveillance airplanes were used to provide offshore intelligence on enemy positions, while US Predator drones provided relays of specific target areas.

— The targeting packages for the European strikes against targets in Libya were prepared by American specialists operating out of NATO's operation HQ in Naples, Italy.

— Refueling of the combat aircraft was undertaken by US tanker aircraft. The US Air Force flew 30 out of the 40 tankers used to support combat operations. Without US assistance Europe could not have maintained the 24 hours a day, campaign days a week campaign.

— The US re-supplied European attack aircraft when European countries ran out of precision-attack munitions.

— The US flew over 5,000 missions; over 1,200 were military strikes against Libyan targets.

— While the US avoided putting a large number of US forces on the ground, but Washington did contribute CIA agents to the operation.

— The US operated the satellite communications channel utilized by British and French Special Forces as well Arab Special Forces from Qatar and Jordan. The US also supplied high-tech gear, previously unavailable even to allied nations.

— The US Navy conducted counter-scud missile operations.

This list, composed and cross-verified from multiple sources available to the public and private sources most likely does not reveal to the fullest extent the reality of European and British dependence on the United States. The reality is that this war, just like the wars in Iraq, Afghanistan and Kosovo, was largely an American operation. Many in Britain and Europe will try to put a brave face on it, but the fact of the matter is that this operation would never have been possible without US support.

The lack of munitions highlights for example, perhaps most embarrassingly, Europe's lack of capabilities. When European nations ran low on munitions it was surprisingly the Norwegians, Danish and Belgians who carried out the most sorties early on. This was not because any of these countries were particularly well equipped. It was because they fly F-16s meaning that American munitions could be utilized immediately, where as the French and British European strike aircraft had to be modified before they could use US munitions and thus had to take a backseat for a period of time. Europe is near entirely dependent on the US for any sort of serious military operation of a sustained duration and this will only increasingly become the case as British defense cuts take hold and a lack of defense investment across the continue continues.

There is certainly nothing wrong with decreasing the defence budget, but this will come the expense of Britain's ability to conduct an independent foreign and defense policy. Perhaps cost and equipment sharing can mitigate some of the overwhelming dependence on the US, but over time the capabilities gap between US forces and European forces will only worsen. HMG must seriously assess what sort of country Britain wants to be in a more globalized world and depending on US interests to always match British ones is dangerous. The US public is approaching near all time high levels of reluctance regarding international intervention. The rise of more conservative parties may bode for an increasingly isolationist and withdrawn foreign policy. Alternatively should a more hawkish wing of the Republican Party take power the world may see a return to extremely assertive interventionism. Such future adventures may drag the UK into American escapades if deemed necessary to maintain access to American equipment and favour with the US Government. At this point in time British ambitions do not match British resources, it is a situation that must be reconciled to protect both British national interest, but perhaps more importantly to protect the lives of those who put themselves in harms way for Her Majesty's Government.

A Multi-Tiered NATO

There is no question that NATO has been one of the most successful military alliances of all time. NATO helped to root democracy in Western and later Eastern Europe. It protected a fragile Western Europe from Soviet advances during the Cold War and it has served an effective risk management organization since the early 1990s. Unfortunately, since the end of the Cold War the alliance has suffered from the lack of a firm and mutually agreed upon *raison d'être*. Some of the allies believe that using the Alliance to manage global risks and humanitarian crises (a la the Balkans, Kosovo, Afghanistan) is a worthwhile pursuit, while others are far less convinced for a variety of reasons. The absence of a concrete overwhelming and clearly identifiable threat has allowed NATO to fracture. A lack of interest (and serious participation) in on-going operations and a failure to adequately invest in defense illustrates this gap. Libya only reinforces this worrying trend, with certain allies carrying the lion's share of the burden (Britain, France, Denmark, Belgium, Norway) while some refused to participate at all (Germany for example). Unless NATO leaders can figure out a new grand bargain that makes NATO relevant to ALL of the members, the Alliance will continue to decay.

September 2011

Written evidence from C J A Cope, Political Editor, Warship World Magazine

Towards the end of June, the Defence Secretary, Dr Liam Fox, gave a speech to the Royal United Services Institute. In that speech, he made a number of claims which, on examination, do not appear to be accurate. This is what he said:

> "Let me take head-on the persistent claim that the nature of our operations in Libya, and the cost of them, would be different had we an aircraft carrier and the Harrier in service."
>
> "The truth is that we still would have based RAF Tornadoes and Typhoons in Italy for the air-to-air role and to carry the precision weaponry such as Stormshadow or Brimstone that Harrier cannot carry."
>
> "So it would not have been cheaper—in fact, it would have been much more expensive."

Costs

According to a parliamentary reply by Peter Luff dated 14 September 2010, the cost per flight hour of operating the Tornado GR4 was £35,000, the Harrier GR9 £37,000 and the Typhoon FGR4 £70,000.

Nevertheless, as to why the GR9 should cost more to operate per flight hour than the Tornado has not been explained and should be questioned. These figures must be independently verified by the National Audit Office.

Elsewhere in his speech, Dr Fox said that Labour had already reduced the Harrier fleet in 2009, leaving the remaining aircraft being unable to sustain operations in Afghanistan, let alone undertake contingencies such as Libya. He also said that only Tornado had the capacity to do both.

Nevertheless, in a parliamentary reply dating from this spring, the MoD stated that the number of Harrier GR9s withdrawn in December 2010 was 62. This is far in excess of the numbers of Tornadoes and Typhoons operated by the RAF either in Afghanistan or Libya. 40 of these Harriers were fully fitted for and capable of frontline combat or ground support operations. In spite of the Tornado fleet numbering 107 aircraft, only 28 were fully fitted for and capable of conducting the Afghanistan close air support task. In other words, there was much more capacity within the Harrier GR9 fleet to support Afghanistan and Libyan operations. The Tornado Force Elements at Readiness (FE@R) was therefore significantly less than that of the Harrier.

A further parliamentary reply indicated that savings from the withdrawal from service of Ark Royal in December 2010 are estimated at £105 million between 2011–12 and 2014–15. Prior to SDSR, the MoD had disclosed that Ark Royal would be taken out of service in the third quarter of 2014.

Accordingly, the average annual savings following the withdrawal from service of Ark Royal during that three-year period are £35 million. That equates with the savings from the withdrawal from service of Illustrious which have also been estimated by the MoD at £35 million per annum.

It must follow, therefore, that to have maintained Ark Royal in service throughout 2011, enabling the ship to operate in the Mediterranean during Operation Ellamy would have cost the MoD about £35 million.

Dr Fox appears to be suggesting that it is cheaper to be operating RAF Tornadoes and Typhoons from Gioia del Colle in Italy than GR9s operating from Ark Royal in the Mediterranean.

It does not take a mathematical genius to realise that operating GR9s from a carrier lying just outside Libyan territorial waters has simply got to be substantially cheaper than flying Tornadoes and Typhoons from their base in Italy the 600 or so nautical miles to Libya and then back again, with VC10/ Tristar refuelling en route—not to mention the massive logistical support train by air and overland.

It is high time that the MoD disclosed the actual cost of basing Tornadoes and Typhoons in Italy, particularly following the report in the Sunday Times in June that the RAF was spending an estimated £40,000 a night for pilots and support staff to stay at 4* hotels in southern Italy.

There have been reports that land-based operations in Libya over a six months period are likely to be costing £900 million, compared with £150 million (just 17%) for sea-based operations. Moreover, if one includes infrastructure costs, the RAF figure could rise to £1.35 billion.

In any event, independent verification is essential and again I would urge you to invite the NAO to conduct an inquiry.

Launched from a carrier, a GR9 can be on task delivering weapons within 30 minutes of, for example, a call for urgent support from ground forces. In contrast, a Tornado/Typhoon operating from Gioia del Colle has a transit time of 1.5 hours to reach its target and, of course, requires air-to-air refuelling. In addition, the RAF insists on having 24 hours' notice of close air support missions in order to support ground forces.

And finally, on the cost of operating aircraft, it has been disclosed that the Army Apache (of which four have been deployed with Ocean) are costing some £15,000 an hour—less than half that of Tornado.

WEAPONRY

1. *ALARM (air-to-ground missile)*

Is used to take out hostile radar systems. Can be operated by Tornado, but not by the GR9. However, not deployed in Libya/Afghanistan.

2. *AMRAAM/ASRAAM/AIM9 Sidewinder (air-to-air missiles)*

AMRAAM is a BVR (Beyond Visual Range) missile and carried by Typhoon. ASRAAM can be carried by some, but not all, Tornado aircraft. The GR9 is fully configured/fitted for the carriage and use of the well-proven Sidewinder missile. Accordingly, all three aircraft types have an air-to-air capability. However, the Tornado is notoriously deficient when conducting air combat within visual range. In contrast, the Harrier is highly agile and has a proven track record in aerial combat. Nevertheless, it has to be conceded that, without radar or a BVR system, the GR9 simply cannot fulfil an area interceptor role. But the GR9 armed with the latest Sidewinder missile and controlled in-flight by carrier-borne radar controllers/ direction officers, could defend itself in close combat against any third world fighter threat. I need hardly remind you of the astonishing success rate of the Sea Harrier during the Falklands War, when operating within visual range and with superior pilot expertise. And, of course, with the new Type-45 destroyers equipped with Aster missiles and the Sampson radar system, hostile aircraft BVR would be eliminated using Sea Viper. The Aster 30 has a range of 50 miles.

3. *Paveway*

There are three separate marks in service, namely Mark II (simple laser-guided bomb), Mark III (GPS precision guided "bunker-busting" 2000lb bomb), Mark IV (GPS precision guided bomb).

Tornado GR4 and Harrier GR9 have the capability to deliver all three variants accurately. Typhoon can only deliver the Mk II variant and then only when it has independent targeted help.

4. *Brimstone/Hellfire*

Both are anti-tank missiles. Whereas the RAF aircraft can deploy Brimstone, the GR9 cannot. However, Hellfire is as good as Brimstone (and cheaper) and is carried by Apache. Nevertheless, Apache can deliver Hellfire much more responsively and from shorter range, making it a better and much more cost-effective operational weapons system.

5. *Stormshadow/Tomahawk (TLAM)*

Whereas the RAF aircraft can carry Stormshadow, the GR9 cannot. Furthermore, the RAF has no Tomahawk capability.

Stormshadow has a history of misfires, not guiding to target and warhead failures on hitting a target. The RAF has substantial stocks of Stormshadow missiles (900 were ordered). Each cost $1.3 million, having a range of 400 miles.

On the other hand, Tomahawk, operated from Britain's modified T-boats, together with the new Astute class SSN, has a range of up to 1,500 miles, can be re-programmed in flight (unlike Stormshadow) and is extremely reliable with a high probability of kill (unlike Stormshadow). Furthermore, Tomahawk is less than half the price of Stormshadow.

The only advantage of Stormshadow over Tomahawk is that it has a warhead specifically designed to penetrate and destroy hardened targets, which Tomahawk cannot do. Nevertheless, an operational commander would undoubtedly be using the Mark III Paveway with the Tornado or GR9, instead of calling up a Tomahawk cruise missile if needing to destroy a hardened target.

We know that on her first deployment, HMS Triumph (SSN) fired six Tomahawk cruise missiles. The number fired on the second deployment has yet to be disclosed (thought to be eight). Equally, the Navy has limited stocks of Tomahawk missiles. During the early stages of the campaign, the US Navy deployed USS Florida,

an SSGN, which fired some 90 Tomahawk cruise missiles against Libyan targets. There was, of course, no guarantee that the USN would participate in Operation Ellamy. Please also note that no European navy apart from the RN can fire cruise missiles.

The new Astute class can carry up to 38 weapons and would be perfectly capable of deploying 24 Tomahawk cruise missiles in any deployment.

An SSN has strategic mobility whereas airfields are static and vulnerable.

6. *Other systems*

The GR9 can also operate Maverick, which is a close-air-support anti-tank weapon, having an excellent track record and the CRV7 rocket, a close-air-support weapon which also has a good track record. Neither is carried by Tornado.

In addition to being equipped with the Hellfire missile, the Apache helicopter has a highly accurate cannon with 500 rounds available (far more effective and flexible than the Tornado cannon which carries half the number of rounds).

Military Conclusion

Four Astute-class SSNs armed with Tomahawk would be capable of eliminating no less than 96 targets, thereby avoiding any need to use Tornado/Typhoons armed with Stormshadow missiles. One Astute is in service. The next three boats should be in service by 2016. Today, we have four TLAM-equipped T-boats, albeit with a reduced payload.

HMS Ocean, equipped with Apache helicopters, with support from Sea King AEW helicopters, has been deployed. Apache with Hellfire missiles and cannon is being utilised for anti-tank/anti-armour purposes. A full complement of 20 Apaches is feasible, bearing in mind that over 60 were delivered to the Army Air Corps.

In addition, the Navy could have been operating HMS Ark Royal equipped with GR9s and supported by Sea King AEWs. GR9s equipped with Sidewinder missiles would have been used in air-to-air combat if the Libyan air force had managed to operate.

The GR9 equipped with Paveway could have carried out bunker-busting operations and close-air-support (this is what it was designed to do) using also the Maverick close-air-support anti-tank weapon, together with the CRV7 rocket.

This naval combination would have been more effective and considerably cheaper than involving RAF Tornadoes and Typhoons and highly expensive air-to-air refuelling and logistics backup.

During Ellamy, the RAF has managed only one Tornado mission every two days, compared with the USMC flying two missions per Harrier every day.

In any event, the French aircraft carrier Charles de Gaulle (CDG) has achieved no less than 40% of daily strike missions in Libya, compared with NATO aircraft and RN/USN SSNs/SSGNs making up the remaining 60%.

SDSR made it clear that in future, we would be increasingly dependent upon allies. Consider, therefore, the following situation in relation to Operation Ellamy:

1. USN—Carriers not involved.
2. French Navy—CDG returned to Toulon with a refit due at year-end.
3. Spanish Navy—Carrier not involved.
4. Italian Navy—Carrier withdrawn for economic reasons. Government contemplating withdrawal of air base facilities, with profound implications for future RAF operations.
5. RN—No fixed-wing carriers in service.

Political Conclusion

Contrary to what Dr Fox told the RUSI:

(a) The nature of our Libyan operations would have been greatly improved using a carrier/Harrier combination, together with Apache helicopters and TLAM-equipped SSNs.

(b) We could have dispensed with all land-based air operations from Italy.

(c) There is an effective naval alternative to Brimstone/Stormshadow.

(d) The Navy could have carried out the UK's entire contribution to Operation Ellamy at a fraction of the cost incurred by the RAF.

19 July 2011

Written evidence from the "Keep Our Future Afloat Campaign"

1. Executive Summary

1.1 This paper by the Keep Our Future Afloat Campaign, a trade union lobby group, offers our views on the following issues identified by the Committee:

- the contribution of allies and partner nations in delivering a successful military intervention;
- the effectiveness of the operation in Libya and the UK forces' role with particular regard to the submarine element of maritime forces;
- the implications of this operation for the outcomes of the SDSR; and
- new capability decisions taken in the SDSR have affected our contribution in Libya.

We focus primarily upon the important roles Royal Navy nuclear powered submarines have played being "on station, first" delivering a range of defence precision attack, intelligence gathering, and sea denial capability and effect in the Libyan campaign. Where relevant we allude to US Navy submarine operations in the same theatre.

1.2 Events in Libya have shown that the Royal Navy continues to be called upon to deliver a multi-faceted role ranging from covert intelligence gathering through to delivery of precision military effect, enforcing an arms embargo, delivering humanitarian aid and mine clearance. These complemented the often higher public profile operations delivered by the RAF and its partner NATO air-forces.

1.3 Publically available evidence points to UK's Operation Ellamy and USA's Operation Odyssey Dawn[(1)] in Libya demonstrating the strategic defence importance of both nations nuclear-powered attack and SSGN submarines in monitoring emerging situations early, and when required to delivering capability and effect designed to rapidly erode the air defence, command and radar abilities of the Libyan regime's forces.

1.4 The Strategic Defence and Security Review's (SDSR) commitment to submarines reinforces Peter Luff MP's views, expressed in a letter to the Chairman of KOFAC dated 11 August 2011 that "the Strategic Defence and Security Review was relatively positive for you".

1.5 If the events had unrolled some weeks later the Royal Navy may have had less capability available, HMS Cumberland for example was on its way back to UK to be decommissioned when it was tasked to stay on station and enter the new theatre of operations performing valuable humanitarian evacuation roles when air evacuation was not practical.

1.6 KOFAC feels that the operations in Libya reinforce the need for UK to have the fleet, air and other resources ready to respond against further unanticipated scenarios and missions.

1.7 It is understood that stocks of ammunition to support a number of weapon systems became challenged,[(2)] for example cruise missiles, for future campaigns and to ensure flexibility there will need to be a timely replacement supply of munitions including Tomahawk Cruise Missiles.

1.8 We also note that the American Marine Corps forces welcomed the flexibility offered by their AV 8B Harrier STOVL aircraft in being able to operate from a variety of naval platforms to support ground forces.[(3)]

1.9 As the Secretary of State for Defence—Liam Fox MP has stated, "... operations in Libya are showing how capable we are post SDSR as a leading military power."

2. The Keep Our Future Afloat Campaign—An Introduction

2.1 This evidence is offered by the "Keep Our Future Afloat Campaign" (KOFAC).KOFAC was launched in April 2004, it is led by UNITE, GMB and CSEU with support from Furness Enterprise and the local community. Its aims are to:

- sustain and grow jobs in naval shipbuilding in northwest England;
- secure full utilisation of the unique naval shipbuilding industrial base—the shipyard at Barrow in Furness and a supply chain of 1,200 companies; and
- sustain the naval ship/nuclear powered submarine power design capability, which is located in Barrow in Furness—600 designers comprising 60% of UK total capability.

2.2 The Campaign's strategy is set out within the Strategy and Action Plan 2010–12 available at www.navalshipbuilding.co.uk. The Campaign believes that investment in maintaining a strong Royal Navy is crucially important as UK depends on the sea lanes for its trade. KOFAC is widely recognised as being influential.[(4),(5),(6),(7),(8)]

3. Submarines

3.1 Royal Navy and US Navy nuclear powered submarines had a dominant early involvement in implementation of UN Security Council Resolution 1973 through Joint Task Force "Operation Odyssey Dawn", also known in the UK as "Operation Ellamy". Over the past six months they have played a significant, valuable and by their nature stealthy and sometimes secretive, role in maritime Operation Unified Protector off Libya

demonstrating the enduring value of nuclear powered submarines that were originally designed and built to counter anti-submarine warfare threats in the cold war age. These boats have highly relevant, highly flexible capabilities (see Annex 1) in today's joint operations namely first on station—independent and enduring—covert—intelligence gathering, support operations and precision strike. This complemented the delivery of capability and effect by the coalition air forces and surface warships.

3.2 A Royal Navy Trafalgar Class submarine had been off Libya, on stand-by, undetected in the Mediterranean for several days[9] operating independently well before it was announced the Royal Navy had launched cruise missiles. This showed the value of submarines stealthy, persistent presence compared to other ships.

3.3 The Royal Navy used Tomahawk cruise missiles on 19 March 2011[10] to attack targets inside Libya which included neutralising air and missile defence system radars, anti-aircraft sites, key communications' nodes in the areas around Tripoli and along the country's Mediterranean coast.[1],[10] These operations were designed both to de-risk subsequent missions flown by NATO aircraft, degrade its capability re resist a no-fly zone and to prevent further attacks on Libya's citizens and opposition groups by the Libyan regime.

3.4 The media on 23 March 2011 reported that HMS Triumph had fired Tomahawk missiles at Libyan air defence targets during the opening two nights of Operation Ellamy's coordinated action with some media reports suggesting as many as 12 had been fired from Triumph over the previous four days.[11] Triumph was at sea until 4 April 2011 and returned in June.[12]

3.5 Submarines also showed their strategic roles to "*collect intelligence where other intelligence systems would not work*." According to the Lexington Institute's Loren Thompson (Providence Journal, 5 September 2011).

3.6 Subsequently HMS Turbulent patrolled in June off Libya.[13]

3.7 For the first time a modified US Navy Ohio Class guided missile submarine, USS Florida fired cruise missiles in combat.[14],[15]

3.8 It is anticipated that our submarine presence off Libya will have also contributed to sea control, sea denial and monitoring Libyan naval assets and merchant vessels approaching the coast.

3.9 Evidence is now emerging in the public domain of the effectiveness of submarines. Vice Admiral John Richardson, US Navy is reported as saying operations off Libya "*highlight the value of a multi-mission platform like an attack submarine or a guided missile submarine*",[15] adding "*there were other things submarines did, beyond first strike to exercise the multi-mission capability*".[15] *Submarines are becoming the preferred way of controlling sea-lanes and attacking targets onshore*.[14] which is why KOFAC believes that they are an essential part of UK's post SDSR defence posture.

3.10 The Committee may wish to consider asked MoD about the effectiveness of submarine operations and whether there may be a case post Operation Ellamy and post SDSR for increasing UK's stock of Tomahawk cruise missiles rather than having to rely on the US fleet to provide emergency replacement stocks of the weapon.

4. Surface Warship Operations

4.1 In addition to using Trafalgar Class submarines, the Royal Navy's destroyer, HMS Cumberland, which was due to be decommissioned under the SDSR, was initially diverted to undertake humanitarian evacuation from Libya on 24, 27 February and 4 March 2011 and later given an extended life so it could operate off the coast of Libya along with HMS Westminster to enforce an arms embargo and used surveillance to verify shipping activity[16] as part of a fleet of NATO ships.

4.2 HMS Liverpool (destroyer) then in late July HMS Iron Duke and HMS Sutherland and HMS Ocean engaged in Sea King Helicopter led area control and surveillance operations, interception of small high speed craft boarding undertaking mine laying, returning fire, from regime shore batteries, acting as a floating base for first maritime operational use of Apache strike helicopters to attack shore facilities, intercept and destroy small boats, and take out armoured vehicles. Protecting humanitarian shipping movements into Tripoli and at sea rescue of damaged shipping. They also helped prevent Libyan warships shelling shore positions and prevented arms being delivered.

4.3 HMS Brocklesby and HMS Bangor, Sandown Class, Mine Counter Measures' vessels helped ensure maritime security and clear mines from the port of Misrata which threatened delivery of humanitarian aid into Libya. RFA Orange Leaf provided logistics support.

4.4 It is also worth noting that the American US Marine Corps used AV-8B Harrier[17] aircraft flying off assault ships to attack ground forces and air defences in Libya, because they did not have "in theatre" an aircraft carrier. Britain was unable to use its own Harrier aircraft because they had been withdrawn from operational service earlier, following October 2010's Strategic Defence and Security Review.

4.5 The American armed forces have concluded that use of the AV-8B "shows why the Marine Corps needs the F35-B STOVL joint strike fighter because it can offer an immediate ability to start impacting on a wide range of things... the need for a STOVL jet sells itself".[17]

5. Conclusions

5.1 Operations in Libya have shown the "*Strategic Utility of the Royal Navy*"[18] and that the "Adaptable Britain" security posture is "*able to operate and be maintained at range*".[18] Submarines have played a unique and vital role in our NATO operations. They are "*the most sophisticated and flexible weapons that we have to exercise sea control.*" The Libyan theatre highlighted our submarines:

- Stealth, mobility, firepower and advanced sensors which make them the weapon of choice across the full spectrum of military operations;
- Operability in open ocean and littoral seas delivery force protection for other maritime assets;
- Intelligence gathering so critical to irregular war effort using advanced intelligence, surveillance and reconnaissance capability; and
- Land attack through precision strike capacity using Tomahawk cruise missiles.

5.2 It therefore follows that there is "*an enduring need for Britain to retain the capability to design, build, operate, maintain and dispose of nuclear powered submarines.*"

5.3 The surface fleet has also demonstrated "*the value of persistent presence in regions of interest*".[18]

5.4 It is, as the Minister for Defence Equipment, Support and Technology said on 7 June 2011, that "the Royal Navy's submarines, destroyers, mine-hunters and support ships have been invaluable in protecting civilians from Gaddafi's war machine."[19]

Annex A

ATTRIBUTES OF A ROYAL NAVY NUCLEAR POWERED SUBMARINE

The most basic and important attribute of a submarine is based on its ability to submerge beneath the surface of the sea and become virtually invisible from threat sensors. This covert nature offers a number of advantages:

- It allows the submarine to conduct operations without any indication that a UK force is present.
- It provides the element of surprise—an aspect of warfare in which any military force can attempt to capitalise on. This in turn creates uncertainty in the mind of the adversary.
- Freedom of movement to operate in waters that may be denied to other forces.
- Finally, it provides survivability—the submarine cannot be readily attacked because it cannot be readily detected.

The SSN has the ability to deploy at high speed independently and operate in forward positions for prolonged periods without logistic support. The limits of endurance are only food and weapon expenditure. A UK SSN has a standard endurance of in excess of 70 days.

Source: http://www.royalnavy.mod.uk/operations-and-support/submarine-service/fleet-submarines-ssn/trafalgar-class/hms-triumph/introduction/index.htm

8 September 2011

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[1] www.globalsecurity.org/military/ops/odyssey-dawn.htm.

[2] Navy running short of Tomahawk missiles, T Harding Defence correspondent, *Daily Telegraph*, 23 March 2011.

[3] Harrier ops making case for F35B, Tom Kington, *Defense News*, 28 March 2011.

[4] September 2004 Secretary of State for Defence, the Rt Hon Geoff Hoon MP described KOFAC as "*one of the most effective defence lobbies he* had come across."

[5] The Rt Hon Alun Michael MP, Minister for Industry and the Regions 13 December 2005 indicated *"This (KOFAC) type of approach by management, trade unions and the local authority is very powerful."*

[6] 27 September 2006 Lord Drayson, the Ministry of Defence Under-Secretary of State and Minister for Defence Procurement, said *"you do realise you are effective",* adding *"no-one else is doing this type of thing".*

[7] "KOFAC has made valuable contributions to the Defence and Maritime Strategies in the past, it would be useful to hear their thoughts as we move forward ... my predecessors Lord Drayson and Baroness Taylor always found their input both useful and information."—Minister for Defence Equipment, Support and Technology, 24 June 2009.

[8] KOFAC has made an extremely powerful effective case for a smooth transition between the ASTUTE and Successor programme. Peter Luff MP, Minister for Defence Equipment, Support and Technology 20 September 2010.

[9] Source: www.ft.com/cms/s/0/736b0c00–95E3–11E0-ba20–00144feab490/html#ix221XHOUF5Bt

[10] Royal Navy fires cruise missiles at key Libyan targets, MoD 20 March 2011.

[11] Royal Navy submarine home from Libyan operations, MoD 4 April 2011.

[12] Triumph home from striking another blow, MoD Press Release 20 June 2011.

[13] Turbulent knuckles down to her extended tour of duty—MoD Press Release, 20 June 2011.

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[15] US Sub Force Sharpens it sense of self—page 6, *Defense News*—Christopher Cavas 29 August 2011.

[16] www.globalsecurity.org/military/ops/odyssey-dawn.htm.

[17] Harrier ops making case for F35B www.defensenews.com 28 March 2011.

[18] 7 June 2011 speech by First Sea Lord at RUSI Future Maritime Operations Conference.

[19] 7 June 2011 speech by Peter Luff MP at RUSI Future Maritime Operations Conference.

Written evidence from Mike Young, Decision Workshops Ltd

HOW TO UNDERSTAND, PLAN, AND FORECAST FUTURE POLITICS:
EVIDENCE TO SUPPORT THE USE OF ROLE PLAYING WORKSHOPS USING CONFRONTATION ANALYSIS

SUMMARY

1. Workshops using role-play supported by Confrontation Analysis can be invaluable in understanding planning and forecasting complex political situations, such as that in Libya.

2. We submit as evidence to support this in the form of the results of a workshop that was held at Cranfield University on 19 July.

3. The workshop participants found that they could get a good understanding of the behaviours and reactions of the other parties involved in the conflict by using this method.

4. The use of role play to produce accurate forecasts of the outcome of conflicts is a *fully disclosed evidence based procedure*. A summary of the academic evidence supporting this is included.

5. Because history is genuinely chaotic the workshop cannot be expected to totally mirror future history, but it will produce output that will seem a plausible alternative in the light of subsequent events, and will be an excellent guide to decide on the effectiveness of policy and look at unforeseen consequences.

6. We recommend the use of such workshops to test out and develop political strategies against a realistically behaving opposition, to help understand the potential future history and long-term consequences of political actions.

INTRODUCTION

7. This submission has been made by the company "Decision Workshops". The company has been working with Cranfield University; the Defence Academy of the UK and DSTL on workshops to understand, plan and forecast the future history of Libya. The workshop reported on here was held a Cranfield University on 19 July. A follow up workshop will be held at DSTL on 6 October.

8. This document will support the final four of the points requested by the enquiry: those relating to the future of Libya.

- The "end game": what would a successful outcome look like and how do current operations contribute to achieving this?
- The extent to which the UK and NATO are interacting with and supporting the opposition forces in Libya;
- Whether the necessary planning is being done to ensure the long-term stability of Libya when the military effort is complete; and
- What is our exit strategy?

9. These are interesting questions because they require *an understanding of and ability to forecast the future political situation in Libya*, and knowing how to "play the politics" correctly.

10. This document presents evidence that role playing workshops supported by Confrontation Analysis would be a way to do this. This will help the UK to avoid involving itself in foreign ventures without understanding the long-tern consequences of its moves.

The Present Weak State of Political Forecasting

"A politician needs the ability to foretell what will happen tomorrow, next week, next month and next year. And to have the ability afterwards to explain why it didn't happen."—**Winston Churchill**

11. Influential experts and the political leaders they advise believe that they can make useful forecasts about complex and uncertain situations, such as the one we currently see in Libya. But simply observing the disagreements of the experts should make us question whether relying on their opinions is a good approach to making important policy decisions.

12. What can be done about it? How can we better understand and forecast the behaviours of those involved in confrontations such as the one in Libya?

Evidence Supports Role Play Rather than Judgement for Forecasting Accuracy

13. There has been much academic study that supports the view that just relying on people's judgement is a very poor method of forecasting outcomes of confrontations. The evidence shows that judgement, is only marginally better than chance at predicting outcomes: Game Theory, a mathematical method popular at the time of the cold war, fares no better. However when the participants take part in a role play then it was found the ability to forecast was dramatically increased. This evidence is summarised at Appendix 1.

The assassination of Franz Ferdinand was only successful due to a series of unpredictable events. But would the assassins have acted if they had thought through the long-term consequences of their success?

A War is a Chaotic System

14. But future history cannot be forecast totally as it is what is known mathematically as a "chaotic" system—one where a small, usually insignificant event *just could* have immense consequences further down the line. This means the "prediction" of history in detail, like that of the weather, is not possible. The analogy often quoted to describe a chaotic system is that a butterfly flapping its wings can eventually determine if a hurricane forms or not.

15. Examples of small, almost random, events that may alter the future history of the war in Libya (at the time of writing 9/9/2011) would be the capture or escape of Gaddafi or the assassination of members of the NTC or their supporters. Obviously the success or not of these events may depend on very minor unpredictable previous events, such as a delay of ten minutes, and cannot be forecast with certainty. This makes the detailed history of the war intrinsically uncertain.

16. What can be done, though, is to understand *how others will react* to different events should they occur. Even against this chaotic background, moves will only be successful if they make the correct assumptions about the behaviours and reactions of other parties.

17. A historical example of this is the 1914 assassination of Franz Ferdinand. Before the event we could not have predicted with certainty if the assassination would be successful, (in fact it was very nearly unsuccessful). However the reactions of the other parties involved should have been thought through more carefully. The subsequent unfolding of the political events that led to the First World War is often looked on as inevitable.

Confrontation Analysis

18. A method known as Confrontation Analysis,[1] when integrated into a role playing workshop can be a very powerful tool to structure, test and refine a political strategy.

19. Confrontation Analysis acts to keep the workshop participants focused on the important issues and acting in role. The role play is not "free-form", but rather structured by this process.

20. Developing a scenario for a Confrontational Analysis workshop is an inherently useful exercise as it helps quantify the factors involved in decision making. It is an excellent vehicle to incorporate the opinions of subject matter experts.

21. The behaviour of somebody like Gaddafi may be irrational in our eyes, but it is not random, in the way throwing a dice would be. It can be forecast provided that you understand his constraints, his values, and nature of the dilemmas he is under. Confrontation Analysis is a tool that specifically helps to help build this understanding.

22. The major benefit is in understanding how and why others will *react* in the way they do. Unlike some other methods such as game theory a "rational actor" is not assumed, but rather the emotions and irrationalities are seen by Confrontation Analysis as a product of the particular dilemmas the character is under.

23. Participation in interactive activities such as role-play workshops or war-games is recognized by the American government as a useful educational exercise to help prepare decision makers for the different scenarios.[2] The use of roleplaying command level exercises is widely used in the emergency services and for emergency planning in the Health Service.[3]

Cranfield University Role-Playing Workshop

24. Cranfield University hosted a workshop on 19 July at the Defence Academy of the United Kingdom at Shrivenham. This workshop used Confrontation Analysis supported by role play to investigate the possible future of Libya over next couple of months. In it a selection of military, ex-military and civilian subject matter experts role-played the political and military moves of the different parties that were involved in the Libyan Civil War.

25. We find this form of workshop to be potentially a very powerful tool for the Ministry of Defence, the FCO and the diplomatic service to develop and rehearse political strategies.

26. To support this claim we submit as evidence the output of the workshop, which can be compared with the actual unfolding of events.

Output from Confrontation Analysis Role-Play Workshop on 19 July

27. At the workshop we developed a forecast of the future history of Libya, in terms of decisions and actions made by the different parties involved. This has been compared with actual events as they unfolded, to see how accurate it was, and if the parties behaved in ways we had expected or foreseen.

What was different?

Cease fire and evacuation of Tripoli

28. The main difference between the workshop and reality was that in the workshop Gaddafi was able to get the UN and the NTC to agree to a cease fire early on. He did this by offering to evacuate Tripoli as a precondition for that cease fire. The deal was that in exchange for a cease fire Gaddafi would withdraw his forces from Tripoli to his heartland in Sirte and Fezzan (the southern desert of Libya). This is almost exactly the areas he still controls at the time of writing, (9 September).

29. The ceasefire was accepted because the prize offered (Tripoli, which was at the time still in Gaddafi's control) was large enough to be "worth" the cost of the cease fire to the NTC. Although Gaddafi has always been willing to accept a cease fire, at no time has he offered a large enough *additional* incentive alongside to actually get it.

30. A couple of days after the workshop William Hague started hinting that a cease fire and internal exile may be an acceptable solution for the UK.

31. With the benefit of hindsight, it can be seen that if Gaddafi had done that, then he would be in a much better position politically than he is now. With a cease fire Gaddafi would still be in de facto control of his heartland and able to negotiate from a position of much greater strength than he has now.

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[1] For details on the theory of confrontation analysis see http://www.decisionworkshops.com/#/i-structure/4548609042 or http://www.decisionworkshops.com/#/understanding-the-cards/4553637296. Or see the book "*Confrontation Analysis, How to win operations other than war*" by Professor Nigel Howard available online at www.dodccrp.org/files/Howard_Confrontation.pdf

[2] *The Art of Wargaming, A guide for professionals and hobbyists* (2011) Peter Perla ISBN 978–0-4467–3124–6.

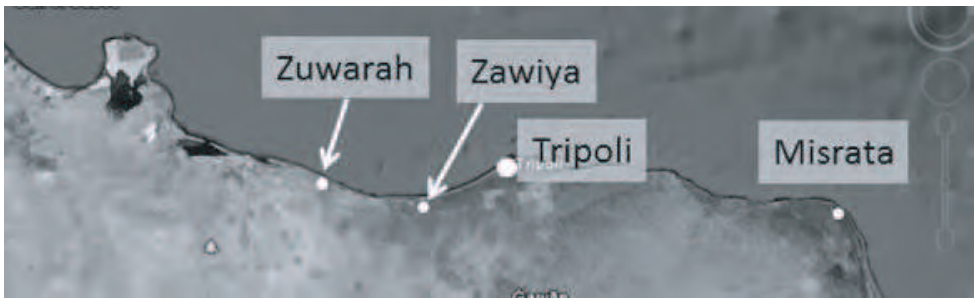
[3] Emergency Planning Review, the Journal of the Emergency Planning Society.

32. An interesting point is that the man playing Gaddafi had actually taken part in a rehearsal workshop a week or so before (and played Gaddafi), and so it is reasonable to assume he had learnt from that rehearsal what the best political moves would be. Perhaps this illustrates the way lessons from this process could alter political policy. Interestingly, the workshop inadvertently found the best solution for Gaddafi, rather than the best solution for the western powers!

Some of the names were different

33. Sometimes some the names were different. In particular the workshop predicted in fighting within the NTC with clear winners and losers, but got the names of those winners and losers wrong. In the workshop general Abdul Fatah Younis managed to survive, and indeed increased his power, it was other members of the NTC that lost power to him. In real life he was assassinated a couple of days after the workshop. Without wanting to stretch a point too much, the analyst who played Abdul Fatah Younis also happened to be the only other participant at the workshop who had also took taken part in the rehearsal!

34. Similarly in the workshop the Berbers attacked and took the town of Zuwarah, rather than the almost identically named town of Zawiya, a few km down the road, which was actually taken on 13 August. Both of these moves had exactly the same strategic effect, cutting off Gaddafi's supply line to Tripoli from Tunisia.



What was similar?

35. Many of the news stories of the few weeks after the symposium resonated as paraphrases of things that happened both in workshop and in real life. In particular all the following events happened in both the workshop and in real life:

Military Similarities

36. **Successful Berber military offensive northwards towards the coast**. In both the workshop and real life the Berbers struck north from the Nafusa mountains to capture a town on the coast, cutting off Gaddafi's supply line from Tunisia.

37. **Tripoli falls with little bloodshed.** Unlike other times when cities were involved in civil wars (such as Beirut or Sarajevo) the capture of Tripoli was achieved without major bloodshed, and relatively swiftly. In the workshop it was evacuated, in real life it fell relatively easily. In both the workshop and real life most of Gaddafi's forces melted away.

38. **Tripoli falls to Berber/Misrata forces rather than rebel forces from Benghazi.** In both the workshop and in real life, Tripoli fell to rebel forces from Misrata and Berbers from the Nafusa mountains. The army from the major rebel held area, Cyrenaica, was not able to reach Tripoli as Gaddafi still held the town of Sirte.

39. **Hard core of Gaddafi forces retreat to heartland.** In both the workshop and real life, Gaddafi's forces abandoned Tripoli and fled to his hinterland, (Sirte and the Fezzan desert in the south) where he still maintains considerable popular support.

40. **Forces from Benghazi that do arrive in Tripoli come by boat.** In both the workshop and real life a small force came from Benghazi to Tripoli by boat.

41. **Some armed citizens of Tripoli join liberation of Tripoli**, but no large massed unarmed protests. The citizens on Tripoli knew that Gaddafi will not tolerate even unarmed protest, therefore their only option was armed rebellion, but until rebel forces entered the city, there were a large number of Gaddafi paramilitary to deter open rebellion.

42. **Power vacuum in Tripolitania**. The workshop ended with a power vacuum in Tripolitania, identical to the one that has formed in the last couple of days.

Political Similarities

43. **Internal exile by Gaddafi seen as acceptable to the UK.** Gaddafi put forwards the concept of himself going into internal exile. A couple of days after the symposium this was suggested as acceptable by William Hague.

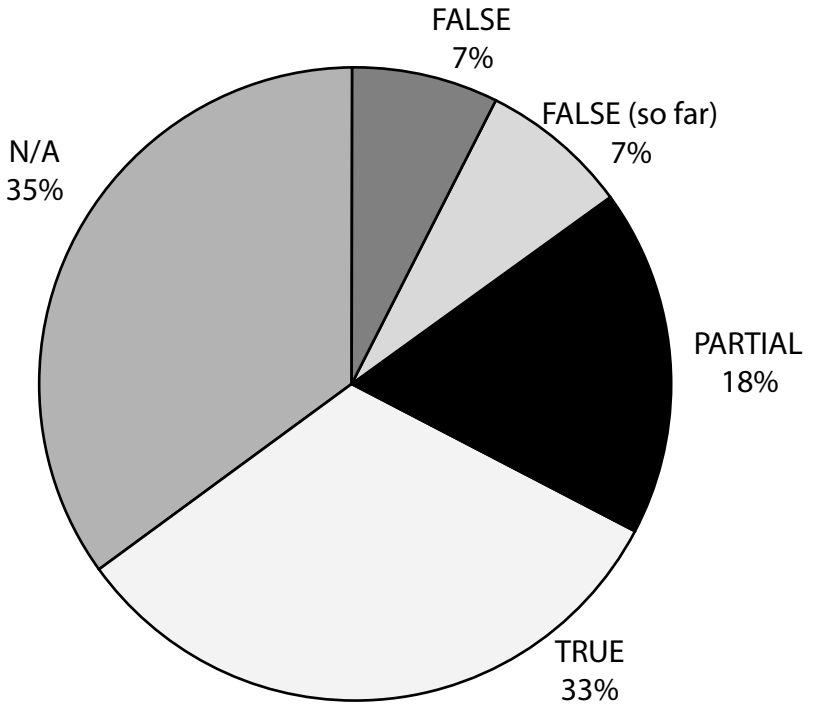
44. **Clear winners and losers in the NTC.** The symposium predicted the power struggle within the NTC and its supporters with some members sacrificed at the expense of others. This has also come true with a vengeance. The assassination of General Abdul Fatah Youanis, and the subsequent reshuffling of the council indicates this has happened.

45. **Increase in numbers in the NTC**, but this is not matched by devolution of power, which continues to be at the top. The NTC is continuing to increase in numbers, believed to be about 40 at the moment, with plans according to the economist, to expand to 95.[4]

46. **NTC members supported by the West in exchange for oil and mineral contracts.** The NTC has said that it will honor these western contracts even though they were set up under Gaddafi.

Pie Chart of Results

Every individual decision made in the workshop was recorded and the success of the predictions (as of 9 Sept 2011) are shown below. Full details are available at http://www.decisionworkshops.com/#/forecasts/4553769632.



APPENDIX 1

EVIDENCE THAT ROLE PLAY IS THE BEST WAY OF FORECASTING OUTCOMES FROM CONFLICT SITUATIONS.

47. The evidence for this is outlined below:[5]

48. The experiment was based on people trying to estimate the results from a set of eight obscure real life historical confrontations where the actual outcome was known.

49. To see how good a prediction method was, the researcher mixed the actual outcome with other plausible outcomes that could have occurred, to see how good the prediction method was at selecting the actual outcome. Names were changed to further prevent recognition.

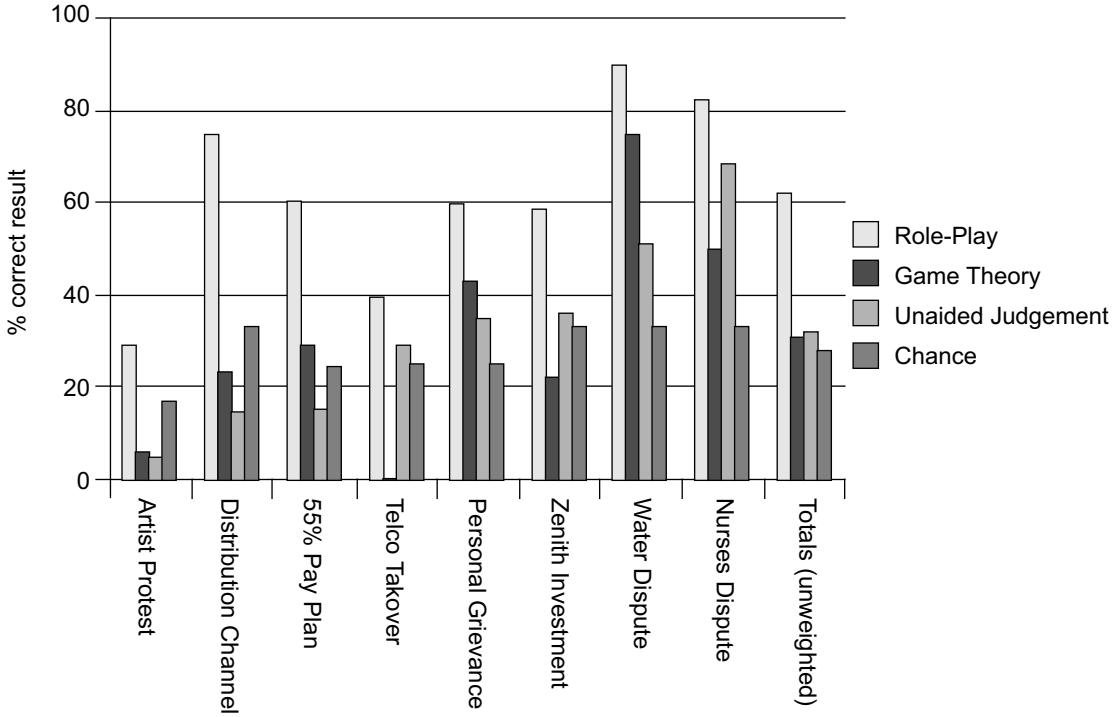
50. Four methods were used:

51. **Chance (guessing):** As there are six possible outcomes for the "Artist's protest" there is a one in six (17%) chance of getting the right answer just by chance: as there were four outcomes for "55% Pay Plan", "Telco Takeover" and "Personal Grievance" there is a 25% chance of getting the right answer by chance, and

[4] http://www.economist.com/node/21528671

[5] What follows is a summary of two papers by Keston C Green: *Forecasting decisions in conflict situations: a comparison of game theory, role-playing, and unaided judgemen*t at http://www.forecastingprinciples.com/paperpdf/Greenforecastinginconflict.pdf and *Game theory, simulated interaction, and unaided judgement for forecasting decisions in conflicts: Further evidence* at http://www.kestencgreen.com/gt_update_in_IJF21.pdf Other books support this such as:
Tetlock P "*Expert political judgement*" Princetown University Press 2005 ISBN 0–691–12302–1
Wilson A "*War Gaming*" (1970) ISBN 14021207–8.

three outcomes for the others giving a 33% chance of chance. Altogether this gave an average score of 28% just by guessing.



Source: "Game theory, simulated interaction, and unaided judgement for forcasting decisions in conflicts: further evidence" Kesler C Greer: Sept 1/2004 www.ketsencgreen.com

52. **Unaided Judgement:** Working from a brief and asking somebody what they think actually happened. This produced worse results than guessing for several scenarios, and averaged only a couple of percent better than just guessing. It confirms the common feelings about the usefulness of the kind of meetings known as BOGSATs ("Bunch of guys sat around a table").

53. **Game theory:** Asking people with an expertise in game theory usually yielded a slightly better result than unaided judgement did, but the game theorists scored 0% in the "Telco Takeover" scenario and as a result their average was diminished.

54. **Role-play:** People asked to participate in role playing produced considerably better results than the other two methods, and always better than guessing.

55. In conclusion, taking the modal result of a series of role-plays (the one that occurs most often) will give a very high probability of forecasting the actual outcome of a confrontation.

56. Note: The "Water dispute" scenario was a disguised military/political confrontation, representing the conflict in 1990 between Turkey and Iraq under Saddam Hussein over Turkey reducing water flow to the Tigris and Euphrates rivers.

September 2011

Written evidence from Raytheon UK

Raytheon UK is pleased to submit this written evidence in support of the Defence Committee's inquiry into Operations in Libya. In particular this evidence is submitted with respect to the question posed about the implications of this operation for the outcomes of the Strategic Defence and Security Review (SDSR).

Background

The Airborne Standoff Radar (ASTOR) program that includes the Sentinel R Mk1 as the aircraft element was launched in December 1999 as a key component of the Armed Forces Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) capability to become the country's future key ground surveillance capability. It provides surveillance over a wide area; the ability to focus on a discreet area of interest; and the ability to identify moving targets. Using a business jet enables the sensor to be flown much higher than larger aircraft thus greatly extending the range of radar coverage.

Raytheon delivered the programme to the original target cost of £850 million and went from concept to operational capability, deployed in theatre in just over eight years, a significant achievement for what was an extremely complex and technically ambitious programme.

The Strategic Defence and Security Review announced the retirement of the RAF's fleet of five Sentinel R Mk 1 aircraft on completion of the support to ongoing operations in Afghanistan circa April 2015.

Support to Operation Ellamy

The Sentinel R Mk1 has been providing strategic ISTAR support to the UK and NATO since the beginning of operations in Libya. It has achieved a greater than 97% level of availability. The Sentinel capability has been critical in delivering data to support the general intelligence picture and also to identify specific targets for the strike force. The platform has been at times the only strategic ISTAR platform available and hence has been pivotal to the execution of tasking in support of the objectives of the coalition. The performance of both the platform and the support provided by Raytheon to the operations has been formally acknowledged and praised by the front line command.

The Sentinel R Mk1 has proven its critical role in support of both Operation Ellamy and Operation Herrick providing a wide area surveillance capability that currently can only be delivered by a few assets. It has been relied upon by the collation forces on a number of occasions, and is one of the few capabilities that the UK can deploy that can demonstrably add immediate value to the operation.

SDSR Capability Gaps

The Strategic Defence and Security Review announced the retirement of the RAF's fleet of five Sentinel R Mk 1 aircraft on completion of the support to ongoing operations in Afghanistan circa April 2015.

This decision leaves the UK without a viable wide area ground surveillance capability. Raytheon's understanding is that the MoD believes that wide area surveillance can be provided by a combination of the Scavenger* capability, the procurement of which has not yet commenced, and the Joint Strike Fighter (JSF).

However, whilst these programmes may provide a ground surveillance capability, they are intended to provide coverage complementary to Sentinel's wide area capability. JSF and Scavenger will be optimised for local area surveillance provided by smaller sensors and less powerful processing capability. Unmanned assets like Scavenger need cueing from very wide area pattern of life based product libraries and without Sentinel, another means will be needed to update these databases in near real time. We are not aware of MoD plans to provide this capability.

With the JSF not due to enter into service until between 2017 and 2020 and Scavenger not planned to deliver an operational capability until sometime after 2018, there remains a risk of no capability in this area for a significant period of time.

The Sentinel system also has a valuable role in communications. The Ground Station currently provides the coalition forces with the only means of interoperation with JSTARS which will be lost when Sentinel is retired.

Furthermore this loss will have an effect on potential plans for the long range deployment of UAVs, for which radio relay of data may be required, especially if SATCOM bandwidth is limited or not available. Sentinel's high altitude ceiling has been utilised in this way by the USAF using the original ASTOR demonstrator GEX 9001 as a trials aircraft operating out of Afghanistan.

The Battle Against IEDs

In addition to its pattern of life picture that Sentinel currently provides, the system could assist further in the battle against IEDs due to the inherent quality of the raw data provided. Offboard post processing trials have proven that there is the capability to identify disturbed earth and cue the identification of IED locations. The Sentinel aircraft does not require any modifications in order to deliver this near real-time IED detection capability. Therefore, with minimal additional outlay, further trials could be undertaken with in theatre data to refine this capability, and potentially help to reduce the casualty figures in theatre.

Such a capability is considered essential given the latest trend in warfighting scenarios, and would be valuable, not just for current operations in Afghanistan, but wherever the next theatre of interest lies. Afghanistan has proven that terrorism will likely continue to revolve around insurgency and IED based threats, a scenario that the current platforms have difficulty in addressing over wide areas.

Future Potential

The ASTOR System has untapped capability that with incremental investment could deliver significantly enhanced capabilities. This spiral capability development would be a more cost effective and lower risk way of delivering new capability, rather than investing in the development and entry into service of new platforms.

The SDSR decision to cancel the Nimrod MRA4 leaves the UK with maritime capability gaps that the Sentinel R Mk 1 capability could address, including:

- deep sea search and rescue maritime target detection;
- Scene of Action presence for maritime emergencies beyond the range of current Sea King helicopters;

— overhead naval force protection; and
— wide area submarine threat detection.

The Sentinel Dual Mode Radar Sensor (DMRS) could be modified to accept a high sea state target detection capability that would match and possibly even surpass that lost by the cancellation of the Nimrod MRA4. This capability is already in service in the US.

In addition the ASTOR Ground Station could be upgraded, with relatively little investment, to provide a multi ISTAR hub for the reception of information feeds from Watchkeeper, Reaper and, in the future, Scavenger. This would fit well into the future plans for the Solomon programme, as we understand them, maximising reuse of existing assets, saving valuable resource and costs.

CONCLUSION

Sentinel R Mk 1 has proven invaluable to operational success in Libya and Afghanistan.

The SDSR decision to retire Sentinel leaves the UK with capability gaps covering significant wide area pattern of life surveillance, long range target detection and coalition force interoperability. Retirement of Sentinel leaves the UK with vital capability gaps some of which may be filled by new platforms in the 2020–24 timeframe, but not all.

In addition spiral development of the proven Sentinel capability could deliver solutions to capability gaps left by other SDSR decisions, such as maritime search and rescue, and deep sea threat detection, at significantly lower cost and risk, than developing and deploying new platforms.

September 2011

Written evidence from Patrick M Lavender, Former United Nations FAO Legal Adviser

SUMMARY

The use of North Atlantic Treaty Organization (NATO) to implement United Nations' Resolution 1973 (2011), adopted by the Security Council at its 6498th meeting, is ultra vires the North Atlantic Treaty Organization, ergo, neither the participation of the United Kingdom's Armed Forces in NATO operations in Libya has been properly approved by Parliament, nor has the financing of those operations.

Whilst prima facie a matter for consideration by the Attorney General's Office and the Foreign and Commonwealth Office the implications necessarily require the Defence Committee to be appraised of the ramifications both as to present and future operations.

1. The North Atlantic Treaty was signed on 4 April 1949 and provides for a system of collective defence by which NATO members agree to a collective response to an armed attack upon any one or more member(s).

(a) Article 5 provides:

The Parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all and consequently they agree that, if such an armed attack occurs, each of them, in exercise of the right of individual or collective self-defence recognised by Article 51 of the Charter of the United Nations, will assist the Party or Parties so attacked by taking forthwith, individually and in concert with the other Parties, such action as it deems necessary, including the use of armed force, to restore and maintain the security of the North Atlantic area.

Any such armed attack and all measures taken as a result thereof shall immediately be reported to the Security Council. Such measures shall be terminated when the Security Council has taken the measures necessary to restore and maintain international peace and security.

(b) Article 6 (1) provides:

For the purpose of Article 5, an armed attack on one or more of the Parties is deemed to include an armed attack:

— *on the territory of any of the Parties in Europe or North America, on the Algerian Departments of France (2), on the territory of or on the Islands under the jurisdiction of any of the Parties in the North Atlantic area north of the Tropic of Cancer*
— *on the forces, vessels, or aircraft of any of the Parties, when in or over these territories or any other area in Europe in which occupation forces of any of the Parties were stationed on the date when the Treaty entered into force or the Mediterranean Sea or the North Atlantic area north of the Tropic of Cancer.*

2. NATO and its Protocols only provide for the use of *armed force* by NATO members in the exercise of the right of *self-defence* where a NATO member(s) has been the subject of an *armed attack* within the *North Atlantic area*.

3. Libya is not a member of NATO, it had not made an *armed attacked* upon any NATO member prior to the commencement of NATO's operations in Libya, nor is it within the *North Atlantic area*.

4. The implementation by NATO of UN Resolution 1973 (2011) adopted by the Security Council at its 6498th meeting is ultra vires the North Atlantic Treaty Organization and the participation of the United Kingdom's Armed Forces in operations in Libya under the auspices of the North Atlantic Treaty Organization has consequently not been properly approved by Parliament nor has the financing of those operations.

The inappropriate use of the United Kingdom's defence resources has numerous significant implications not only in terms of limiting the use of those resources for other operations but also in improperly exposing the United Kingdom's service personnel to death and injury.

9 September 2011

Written evidence from Admiral Sir John Woodward GBE KCB and colleagues

EXECUTIVE SUMMARY

(i) The Defence Committee remit to "inquire into the effectiveness of the operation and the UK Forces' role in Libya" is understood to embrace cost as well as operational effectiveness. This submission will provide an objective assessment of each measure of effectiveness responding to the specific questions that the Committee ask and will propose "Changes in The Way We Do Things" in order to increase capabilities, effectiveness and efficiency.

(ii) Given that Libya has been the first new challenge to UK's Armed Forces since the SDSR, it is inevitable that the answers to the Committee's specific question must also express wider arguments concerning the state of UK's Armed Services consequent upon the SDSR.

(iii) It will:

(a) Examine the cost effectiveness of the current Operation in Libya and the significance to future Defence assumptions, indicating any penalties of cost to the nation and or of declining Defence capabilities.

(b) Examine the utility and effectiveness of air power when deployed as a force separate from a maritime or land strategy.

INTRODUCTION TO THE SUBMITTERS

(iv) This Submission has been prepared by Members of the Phoenix Think Tank:

— Admiral Sir John Woodward GBE KCB—Commander Carrier Battle Group, Falklands, 1982.
— Commander N D MacCartan-Ward DSC AFC—Air Warfare Instructor.
— Captain Michael Clapp CB—Commander Amphibious Task Group, Falklands 1982.
— Commander Laon S G Hulme OBE—MiD Falklands War—Two Sea Commands.
— Dr Paul Arnison-Newgass—Royal Dragoons, Army Air Corps, CMP RAF, RAMC (TA), Royal Fleet Auxiliary.

And is supported by:

— Admiral Sir Ian Garnett KCB—formerly Chief of Joint Operations and Chief of Staff, SHAPE.
— Admiral Sir John Devereux Treacher KCB—formerly CINC Fleet and Vice CNS.
— Major General Julian H A Thompson CB OBE Royal Marines.
— Rear Admiral Terry Loughran CB FRAeS—Command of HMS Ark Royal (Bosnia) and Flag Officer Naval Aviation.
— Dr Harry Bennett—Associate Professor History, University of Plymouth.
— Alexander Clarke—MSc, BA, PhD Candidate Kings College London (War Studies).
— C J A COPE—Political Editor, Warship World magazine.
— Lieutenant-Commander Lester May RN.

SUBJECT

(v) This submission will address the following areas of interest iterated by the Committee:

A. The effectiveness of the on-going mission to protect civilians in Libya—the extent and success of coordination of efforts with French and US forces in particular.

B. The costs of the operation and its implications for other UK operations.

C. How capability decisions taken in the SDSR and subsequent policy documents have affected our contribution in Libya.

D. The implications of this operation for the outcomes of the SDSR.

E. The effectiveness of NATO command structures in the preparation and conduct of operations in Libya.

F. The "end game": what would a successful outcome look like and how do current operations contribute to achieving this?

G. The broader implications of the intervention in Libya in the context of reacting to instability in the wider region.

And then propose:

Any changes required to the "Way We Do Things".

Introduction

1. The Committee is wise to undertake this review of the response of UK's Armed Forces to Libya but also, crucially, to heed the wider implications for the nation's defence forces and priorities unmasked by this particular deployment—and the consequences of the SDSR.

2. Libya represents precisely the kind of unpredictable, untidy mix of a humanitarian/combat mission to which British Armed Services have been hitherto supremely well able to commit. They have had robust resources to deploy flexibly, adapting to the special circumstances and above all they have had the capabilities and attitudes generic to British service personnel. It is now questionable whether the UK has retained such capabilities.

3. Libya fits well into Donald Rumsfeld's category of *known unknowns:* that is "predictably unpredictable, but entirely certain to happen". That neither Libya nor the so-called "Arab Spring" (instability across the Middle East) was predicted as Strategic Assumptions by the SDSR must ask grave questions of the National Security Strategy (NSS) planners who apparently chose to ignore such hidden risks. It calls into question therefore the very basis of the SDSR and most crucially its decision to place the Armed Forces effectively in limbo until 2020.

4. It is therefore, respectfully submitted that in addition to the specified areas of enquiry the Committee will wish to note the relevance of relating the UK's response to Libya to future defence capabilities and also the resultant risks taken/accepted together with any degraded national defence capabilities and expectations. A further question that over-arches the specific areas of review is: "How can we ensure a more cost-effective and operationally effective capability for our Armed Forces in the future?"

The Areas of Interest

A. *The effectiveness of the on-going mission to protect civilians in Libya—the extent and success of coordination of efforts with French and US forces in particular*

The Protection of Civilians/Rebel Forces

1. It may be noted that Resolution 1973 specifically authorised the protection of civilians and the imposition of a no-fly zone. It excluded direct materiel support for the "rebels" and the contribution of land forces. Any advantages to the rebel cause resultant upon allied actions were purely co-incidental. A wider definition of "civilians" might have included the rebel fighters who were after all not a part of an established army.

2. Until the Libyan conflict is resolved, any final judgement on the effectiveness of the mission to protect civilians/rebel forces might be considered premature. However, the civilian population and rebel forces under siege by Colonel Gaddafi's military offensive have regularly stated that the NATO offensive air support effort has been insufficient and less than effective in those areas where they are under most pressure.

3. The "disconnect" between those planning the air strike missions and the "rebel forces on the ground" has doubtless resulted from the obfuscation in the UN Resolution and unspecified political objectives and intentions. Closer integration with the rebel forces and "real time" kinetic responses would have greatly improved the allied ability to protect civilians—particularly after the first stage of bombardment. This lack of tactical cohesiveness has arguably resulted from the deliberate lack of integration between the two parties and this forms the basis of a major strategic lesson to be learned from Operation Ellamy/Unified Protector.

4. It demonstrates clearly that, when operating in isolation, air power lacks that dynamic effectiveness necessary for the rapid projection of power and fulfilment of a military mission in the national interest—compared to air power that is cohesively integrated with and operationally controlled by the combat forces on the ground (Army) or from the sea (Navy).

Coordination of Effort

Initial Phase of Operation

5. The UK Government deserves credit for its prompt and successful influence in galvanising the Security Council into Resolution 1973—accepted by 34 nations of whom 16 promised material support eg aircraft, ships, use of facilities. This was an achievement notwithstanding the military variability of delivery. Reversion of command and control to remote Naples may have been inevitable given the complexity of assets and resources but seems to have diluted and blunted the response. The unanswered question that may emerge is "*had the right mix of assets been available from fewer nations from the outset would tighter and more*

responsive operational control have resulted?" While the dramatic entry of RAF fast jets and their huge logistical train may have been unnecessary (See "B", below), the political benefits of wider participation, especially of Arab nations cannot be overlooked—although it is not clear whether they needed to be swept up into a NATO operation or if as in the Indian Ocean alliance they could not have been more simply established under definable "in theatre" command.

6. Immediately following the declaration of United Nations Security Council Resolution 1973 it was clear that the United States, France and Britain had already made appropriate preparations for the enforcement of the desired No-Fly Zone. The United States Navy and the Royal Navy had prepositioned appropriate warships within weapons' range of Libyan air defence targets but President Obama decided not to commit the strike carrier that was available in the Red Sea to the Operation; ostensibly because he did not wish the United States to be seen to be the primary enforcer of the No-Fly Zone. However, he did commit three important elements of the United States Navy and these played a most important part in gaining and maintaining military momentum:

(a) **Carrier borne United States Marine Corps Harrier AV-8B+ aircraft** from the Assault ship *USS Kearsarge* conducted more than two strike missions per aircraft per day from the very moment that United Nations Security Council Resolution 1973 was approved.

(b) **United States Navy F-18 Growler aircraft** had been transferred from the Iraq Theatre and successfully jammed all Libyan air defence radar and surface-to-air missile systems.

(c) **United States Navy Tomahawk-fitted warships** acting in concert with the F-18 Growler aircraft and the **Royal Navy submarine, HMS Triumph**, destroyed the majority of the Libyan air defence network within some 35 minutes of the commencement of the operation and by doing so made possible unhindered subsequent air strikes.

7. This was a textbook example of excellent coordination and extremely rapid response with command and control of integrated air power projected from the sea by two major NATO navies acting in concert while then under national command and control in theatre. (This command and control was subsequently transferred to NATO and executed from a remote headquarters in Italy).

8. Shortly after the destruction of the Libyan air defences, the French were able to launch land-based combat strike missions against the Libyan mainland thanks to their geographical proximity to that country. They also mobilised their aircraft carrier *Charles de Gaulle* which remained offshore and dedicated to projecting airpower from the sea.

Sustained Phase of Operations

9. After the initial and successful destruction of Libya's air defence capability by maritime air and surface units, land-based fighter aircraft with supporting tankers and AEW/EW aircraft were deployed by various nations to airfields in the Mediterranean. Control of Operation Unified Protector (including the British element under Operation Ellamy) was transferred from the United States Navy to NATO—and principally to NATO's land-based air representatives.

10. *De facto*, this transfer of control removed operational decision-making from the in-theatre naval commander with full command, control and integrated intelligence facilities to an isolated "committee" far removed from the scene of action and without the benefit of "real-time appreciation of" or "the ability to respond sufficiently rapidly to" any on-going combat situation. This command and control weakness was further exacerbated by the withdrawal of the *USS Kearsarge* and its Harriers from the combat theatre. Without the Harriers and prior to *Charles de Gaulle* and its Rafale fighters being available (and later *HMS Ocean* with embarked Army Air Corps Apache attack helicopters), the ability to attack and destroy mobile Libyan military threats before they had inflicted significant damage on the Libyan population and rebel fighters was greatly diminished. Distant land based airpower was proving less responsive and less effective than sea-based from the outset.

11. After the successful first phase destruction of major Libyan military targets requiring maximal target penetration, the operational requirement quickly changed to real-time kinetic tactical targeting in response to recce identification—particularly when smaller moving targets were actually in contact with the rebels. Distant land based airpower which often required a 24 hour delay to respond, quickly proved far less effective than sea-based organic air power in dynamically changing battle situations. While the UK's fast jets undoubtedly contributed to maintaining total air supremacy, they were not best suited to this kind of engagement (see "E", Para 8 & 9, below) for which US Harriers were purpose-built (as were UK's) and as later were UK's embarked Apaches.

Discussion

12. The maritime forces of the United States, France and Britain (including integrated surface and sub-surface units and sea-based airpower) were co-ordinated successfully to destroy the majority of Libyan air defence capability within hours of United Nations Security Council Resolution 1973 being agreed.

13. However, although the coordination of prepositioned naval assets was exemplary during the initial phase of operations, more than 95% of the effective strike power was provided by the United States Navy. Britain's contribution, in isolation, would have had little effect on Libya's air defence infrastructure. The visible demonstration of this successful sea-based power projection that resulted in the destruction of the Libyan air

defences calls into question the rationale of SDSR 2010 which has a clear bias in favour of land-based aircraft versus sea-based aircraft.

14. While late in theatre, the UK found it necessary to deploy major logistical support and infrastructure resources to Gioia del Colle, Akrotiri and other air bases "relatively" close to Libya to demonstrate land-based air capabilities. This, together with the necessary over-land resupply convoys, resulted in significant expense to the UK taxpayer at a time when severe austerity measures were being put in place by the Government. These major logistics support costs could have been significantly reduced through sea-based airpower. It is apposite to note the Italian viewpoint on this point: Vice Admiral Giuseppe de Giorgi (Inspector of the Italian Navy Schools, formerly Chief of Staff of the Commander in Chief Fleet, Italian Navy) said at RUSI recently that the Italians had deployed their carrier because flying a Harrier from a carrier was 1/8 cost of Tornado and 1/10 cost of Typhoon.

15. With land-based air units operating from different airfields throughout the Mediterranean (fighters from Gioia del Colle; air-to-air refuelling tankers, AWACS and ISTAR aircraft from Sicily and Akrotiri), the planning and execution of coordinated combat strike missions was a much slower and less effective process than that clearly demonstrated by sea-based air: where all command, control and replenishment functions are immediately available on site/within the carrier group thereby enhancing the effectiveness of power projection missions against mobile Libyan armour targets.

16. As a clear demonstration of constant readiness to act in accordance with the UK's foreign policy and national interests, it should be noted that all maritime forces involved in the Libya mission were standing naval forces that had already been deployed for their normal tasks of defending trade routes and overseas interests and other peacekeeping operations. As such, the additional maritime cost to the taxpayer resulting from their deployment off Libya was largely related to weapons expenditure.

17. It is said that:

> "The benefit of experience is to be able to recognise when one is making the same mistake for a second time".

It is worthy of note that a similar situation occurred in 1956 during the politically ill-fated Suez campaign. While the French Air Force did manage to operate aircraft from Israel and were relatively close to the target areas the RAF had to fly long distances from Cyprus. The most effective sorties were therefore those made by carrier-borne aircraft. (See Phoenix Think Tank paper, "*History of the Fleet Air Arm*".)

18. In summary: coordination, command and control and intelligence integration whilst tight and effective during the initial combat phase of the Libyan operation (as a result of 95% of air effort being provided by the US) this became significantly less effective during the second phase when under NATO control from Naples at the very time that the Libyan people's humanitarian and combat requirements were for closer more responsive and much more timely support.

B. *The costs of the operation and its implications for other UK operations*

Costs of the operation

Official costs

1. Statements by Government Ministers, the MoD and the Treasury have yet to give a realistic empirical cost to the taxpayer of Operation Ellamy. Parliament has been told that the costs of this Operation are being covered by the Treasury Contingency Reserve Fund (CRV) but, to date, the National Audit Office (NAO) has not been provided full details on this matter.

2. When the NAO is able to address this issue, it would be prudent for that office to look at the "full picture" including:

(a) **Administrative Support Costs** of all elements involved in Operation Ellamy including UK base support costings.

(b) **Deployed Air Units** Airframe costs per hours flown; fuel usage costs including air-to-air refuelling of combat aircraft and the logistic support of deployed land-based air units; weapons transport and storage costs; hotel costs, allowances and subsistence costs of deployed units; rental costs associated with the use of foreign sovereign bases such as Gioia del Colle; etc.

(c) **Sea**. Additional costs incurred by involvement in Operation Ellamy over and above those that would be attributable to the normal operation of such platforms when conducting standing operational commitments.

3. Only with such complete costings available will the true cost of Britain's land-based air initiative over Libya be known and the relative costs of sea-based air determined to conclude the additional costs being borne by the UK taxpayer.

Estimated costs

4. Some official cost figures have been made available through various answers given in the House of Commons and House of Lords. In depth aviation expertise is able to provide realistic figures for fuel

consumption of various aircraft types whether sea-based or land-based. The number of missions flown by attack aircraft can be deduced from various MoD Updates as well as a reasonable estimate of the number of supporting missions flown by air-to-air refuelling tankers, AEW and EW aircraft and logistic support flights.

5. A reasoned compilation of these estimated figures for six months duration of Operation Ellamy has therefore been conducted to arrive at a suggested overall cost of the land-based air initiative.[6] A further cost has been estimated to show what might have been achieved cost-wise if sea-based air had been available instead. These figures are given at Annex A and B to this Area of Interest for ease of reference and, although certain details may be questioned by official MoD sources, they demonstrate a major disparity:

(a) A land-based air cost for Operation Ellamy of approximately £900 million.

(b) An equivalent sea-based air cost of approximately £150 million.

6. If administrative support costs[7] are added to these figures as suggested at paragraph 2 above, the resultant overall costs would be as follows:

(a) Land-based air cost for Operation Ellamy of approximately £1.35 billion.

(b) An equivalent sea-based air cost of approximately £0.245 billion.

Implications for other UK operations

7. The major disparity in cost between contingency operations overseas conducted by land-based air and sea-based air as given at paragraphs 4 to 6, above, calls into question the way ahead determined by SDSR 2010. The figures clearly show that sea-based air operations offshore are significantly more cost-effective than land-based air operations—even for operations such as Ellamy where Allied sovereign air bases relatively close to the theatre of action can be relied upon.

8. It is of significant relevance and importance that Operation Ellamy has demonstrated that we in Britain can no longer rely upon the air defence and offensive air support "umbrella" of the United States Navy carrier fleet. Should the UK be required to protect our national overseas interests beyond the Mediterranean theatre:

(a) United States Navy air support must not be assumed,

(b) There may be no Commonwealth or Allied sovereign or "friendly" air bases available to support the deployment of UK Land-Based Air assets and overland resupply may not be possible,

(c) If available, any such foreign sovereign base might be at risk of attack by those that would wish to do the UK harm (making the deployment of land-based air assets a major risk), or

(d) Such a base is likely to be at extended range from the UK and the combat theatre thereby incurring logarithmically increased costs of deployment, logistic and combat support.[8] See Figure 1 and 2, below.

9. In Figure 1, below, the mission costs for land-based air at 600 miles (Libya) are four times that of sea-based air. The mission costs from Akrotiri, Cyprus to the Strait of Hormuz (1,500 miles) would be 40 times that of sea-based air.

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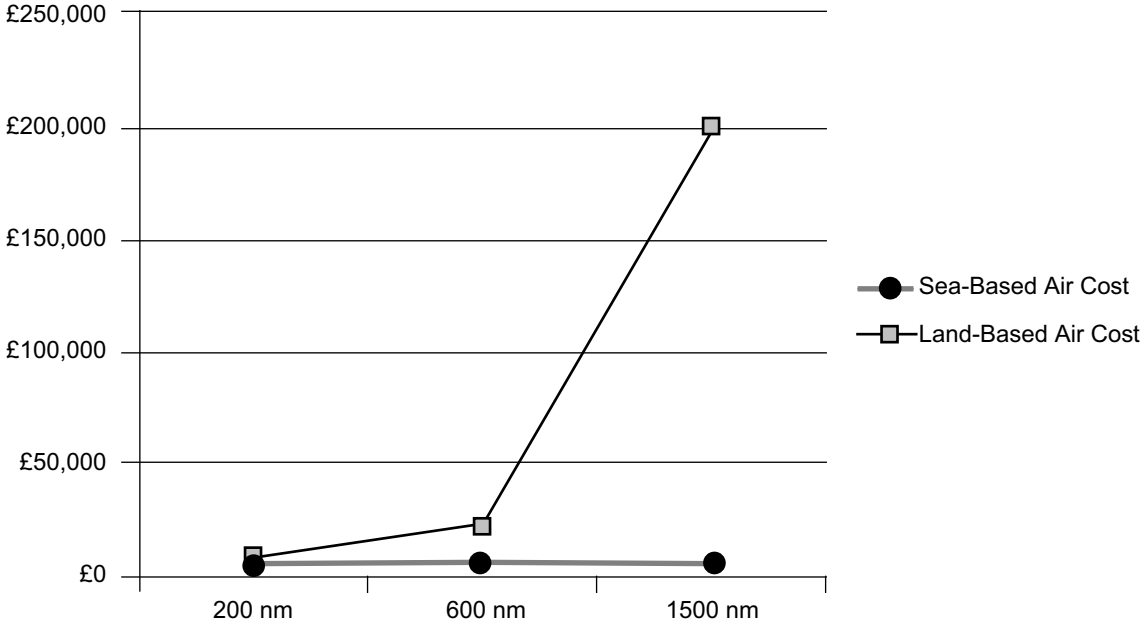
[6] See attached paper, "1. The Comparative Costs of Land-Based Air Operations over Libya".

[7] See paper attached, "3. UK Airfield Costs and Sea-Based Air 'Mobile Airfield' Costs in support of Task Force Operations."

[8] August 2011. The Commons Public Accounts Committee chairman, Margaret Hodge MP: "*The Ministry of Defence has a duty to make sure that our troops serving on the front line get the supplies they need, when they need them and in the most cost-effective way.*"
Defence Equipment Minister, Peter Luff MP: "*The complexity of supplying a conflict zone should not be underestimated …, overcoming major challenges like the Icelandic ash cloud and disruption to overland supply routes in Afghanistan.*" Transporting supplies overseas is costly for the MoD, with the bill for 2010–11 totalling £347 million. This figure does not include the amount spent on military supply flights.

Figure 1

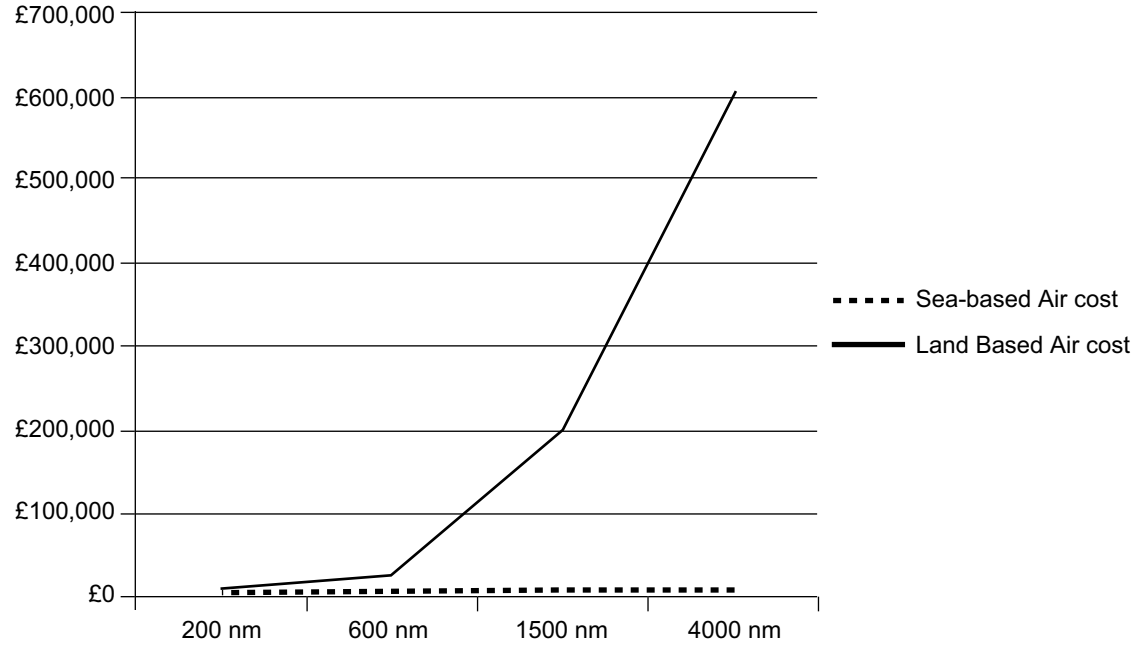
LAND-BASED AIR VERSUS SEA-BASED AIR COSTS AT 1,500 MILES



10. Figure 2, below, demonstrates that land-based air strike missions flown from Ascension Island to the Falklands would be more than 100 times the cost of equivalent sea-based air support assuming the massive air-to-air refuelling effort became available.

Figure 2

LAND-BASED AIR VERSUS SEA-BASED AIR COSTS AT 4,000 MILES



Deterrence

11. The ability to project effective and balanced military power worldwide is a very cost-effective tool for deterring those that would harm our interests and for preventing escalation of any "disagreement" into "full-blown combat operations". Sea-based airpower is an important element of any power projection capability, along with attack submarines, amphibious naval units and mobile ground forces (eg the Royal Marines). And it becomes the vital element of power projection capability when there is no other cost/operationally effective ability to deploy land-based air power.

12. Prior to United Nations Security Council Resolution 1973 being declared, the land-based air assets of the UK and other nations arguably presented Colonel Gaddafi with no immediate threat and did not deter his actions in any way at all. The presence of a full British carrier air group (and the transfer of the US strike carrier air group from the Red Sea) in Libyan waters would have provided a much clearer declaration of intent and a clear visible deterrence.

13. SDSR 2010 removed Britain's ability to demonstrate such intent and deterrence. Soon after the start of the Libyan campaign, President Obama demonstrated a reluctance to become too involved in the leadership of Operation Unified Protector and, by failing to move the Red Sea carrier group into Libyan waters, failed to demonstrate US intent and thereby failed to deter. His lack of understanding of the value of deterrence through visible military presence is apparently mirrored by SDSR actions.

Discussion

14. The Defence Internal Brief, SERIAL: 2011DIB/72 DATE: 3 August 2011, *"Publication of the House of Commons Defence Committee Report on the Strategic Defence and Security Review and the National Security Strategy"* circulated by the Secretary of State appears to take no account whatsoever of such implications. At the top of page 3, second paragraph, Dr Fox states:

> "As we are proving in Libya, our Armed Forces have the capability to project power across the globe—demonstrating the SDSR's emphasis on taking an adaptive posture in the uncertain world we live in was right."

15. In the light of the facts stated above and the Committee's own report on the SDSR 2010 recommendations, this statement is strange. The short paper, "2. *Avoiding an Exaggerated Appreciation of Land-Based Air in the Libyan Operation*", attached, questions the validity of this statement (which was mirrored earlier by the Minister for the Armed Forces). It suggests that without sea-based air, we cannot guarantee to be able "to project power across the globe".

16. In the context of our maritime heritage and our need to protect the U.K.'s trade routes and overseas interests, the Committee might wish to acknowledge that Britain can no longer be classified as a major military world power. Perhaps, if Britain maintains in service adequate sea-based air power in the form of carrier air groups, it would be more pertinent and accurate now to describe Britain as "*a significant maritime power with the ability to protect its overseas interests and dependencies*".

Annex A

"THE COSTS OF THE OPERATION AND ITS IMPLICATIONS FOR OTHER UK OPERATIONS"

Cost of Land-Based Air Operations—Libya—Includes the following:

CLOSE AIR SUPPORT AIRCRAFT MISSIONS PER WEEK (ESTIMATE)

	No.	*Fuel Cost*	*Airframe cost**	*Weapons Cost***	*Sub Total*	*6 months*
Tornado	56	£960,000	£6,860,000	£4,000,000	£11,820,000	£307,320,000
Typhoon	28	£480,000	£7,350,000	£2,000,000	£9,830,000	£255,580,000

* See Note 2, below, for calculation basis.

** MoD statement gives the cost of weapons delivered per week to be £6 million.

AIR TO AIR REFUELLING TANKER MISSIONS PER WEEK (ESTIMATE)

No.	*Fuel Cost*	*Airframe cost*	*Weapons Cost*	*Sub Total*	*6 months*
20	£300,000	£1,800,000	£0	£2,100,000	£54,600,000

SENTINEL R1 AIRCRAFT MISSIONS PER WEEK (ESTIMATE)*

No.	*Fuel Cost*	*Airframe cost*	*Weapons Cost*	*Sub Total*	*6 months*
8	£120,000	£1,200,000	£0	£1,320,000	£34,320,000

AWACS AIRCRAFT MISSIONS PER WEEK (ESTIMATE)

No.	*Fuel Cost*	*Airframe cost*	*Weapons Cost*	*Sub Total*	*6 months*
8	£120,000	£1,600,000	£0	£1,720,000	£44,720,000
			Sub-Total for 6 months		**£696.540 million**

ACCOMMODATION AND ALLOWANCES PER WEEK (ESTIMATE ***)

	No. Personnel	*Accommodation*	*Sub Total*	*6 Months*
Gioia Dell Colle *	550+	£250,000	£250,000	£6,500,000
Trapani	150	£75,000	£75,000	£1,950,000
Naples	50	£15,000	£15,000	£390,000
Poggia Renatico	50	£35,000	£35,000	£910,000
Akrotiri **	400	£40,000	£40,000	£1,040,000
Longer Separation Allowance			£150,000	£3,900,000
Local Overseas Allowance			£12,000	£312,000

* MOD, MA, 15 June 11: "The average monthly cost of all UK personnel at Gioia dell Colle is around £1 million."

** Akrotiri already has an RAF personnel establishment in excess of 1,500 to support aircraft operating through there or from there (AAR tankers, Sentinel, AWACS and logistic support aircraft). A further 100 personnel have been deployed for Operation Ellamy (MA, 14 June 11)—Ellamy costs should therefore include a proportion of standing personnel. Only this will give a reliable overall cost estimate.

*** Minister for Armed Forces costs in Parliamentary answer to Jim Murphy, MP. (Hansard/Commons/bydate/20110614/writtenanswers/part007).

Sub-Total for 6 months **£15,002,000**

LOGISTIC SUPPLY AIR FROM UK—MATERIALS, SPARES, ORDNANCE (ESTIMATE)

No. Return Flights	*Fuel Cost*	*Airframe cost*	*Sub Total*	*6 months*
14	£350,000	£2,400,000	£2,750,000	£71,500,000

LOGISTIC SUPPLY LAND FROM UK (ESTIMATE)

Per Week	*6 months*
£50,000	£1,300,000

Sub-Total for 6 months **£72,800,000**

PERSONNEL TRANSPORT AND CHANGE-OVER—SIX MONTHS (ESTIMATE)

No. Return Flights	*Fuel Cost*	*Airframe cost*	*Sub Total*	*6 months*
80	£2,000,000	£19,200,000		£21,200,000

Sub-Total for 6 months **£21,200,000**

ADDITIONAL COSTS EG BASING RENTAL, ROTATION OF FIGHTERS FOR MAINTENANCE, ETC

Sub-Total for 6 months **£100.000 million**

Estimated Total Bill for 6 months Land-Based Air Deployment **£905.542 million**

Notes:

1. Aviation Fuel cost estimated to be £4.00 per gallon—as for civil airlines.

2. Airframe cost given = Government Figures per hour (eg Tornado: £35,000, Typhoon: £70,000 per hour) multiplied by length of mission multiplied by the number of missions.

3. Weapons cost per week taken from MoD news release: £6 million.

4. The estimated number of missions flown by 12 Tornado per week (56) equates to 1.3 missions per aircraft every two days. United States Marine Corps Harriers were flying two missions per aircraft per day (three times as many as the Tornado). MoD reports would appear to indicate a higher flying rate (and therefore, greater expense): *Tornado and Typhoon flew numerous patrols over Libya during the past two days*. (MoD, 18 June 11.)

5. Various MoD statements/statistics as given by Defence News Analysis.

Annex B

"THE COSTS OF THE OPERATION AND ITS IMPLICATIONS FOR OTHER UK OPERATIONS"

Equivalent Cost of Sea-Based Air Operations—Libya—includes the following:

CLOSE AIR SUPPORT AIRCRAFT MISSIONS PER WEEK (ESTIMATE)

	*No. Sorties****	*Fuel Cost*	*Airframe cost**	*Weapons Cost***	*Sub Total*	*6 months*
Harrier	28	£161,000	£1,036,000	£3,000,000	£4,197,000	£109,122,000
Apache	14	£28,000	£210,000	£1,400,000	£1,638,000	£42,588,000

* See Note 2, below, for calculation basis.

** Weapons cost per week less than land based. No Storm Shadow. Hellfire less expensive than Brimstone.

*** More than half Tornado/Typhoon sorties did not result in target attack

AEW SEA KING AIRCRAFT MISSIONS PER WEEK (ESTIMATE)

	No. Sorties	*Fuel Cost*	*Airframe cost*	*Weapons Cost*	*Sub Total*	*6 months*
Sea King	14	£28,000	£70,000	£0	£98,000	£2,548,000

Sub-Total for 6 months	**£154,258,000**
Estimated Total Bill for 6 months Sea-Based Air Deployment	**£154.258 million**

Notes:

1. Aviation Fuel cost estimated to be £4.00 per gallon—as for civil airlines.

2. Airframe cost given = Government Figures per hour where available (eg Harrier: £37,000) multiplied by length of mission multiplied by the number of missions.

C. *How capability decisions taken in the SDSR and subsequent policy documents have affected our contribution in Libya*

INTRODUCTION

1. The attached paper, "4. Air Power Projection Options—The Logical Choice is Clear", summarises the capability and associated mission fuel costs of the Close Air Support capable aircraft in the UK inventory prior to SDSR 2010. The Review team had to decide whether to retain a sea-based air power projection capability or a purely land-based one. Their considered opinion and recommendation was to retain sea-based air power in the form of *HMS Ark Royal* and the Harrier GR9. At the last minute, this recommendation was reversed following pressure from the RAF Chief of the Defence Staff who arguably had single service interest at heart rather than the national interest. The lessons of Suez appear to have been forgotten and the benefit of military experience lost.

2. In consideration of UK's overall defence capabilities (as invited by this question), it emerges that defence planners had indeed concluded that, for fully enabled combat, defence, projection and deterrent forces, strategic assumption required both RAF fast jets primarily for defence of UK air space and a powerful (well tried) sea-air component of the Royal Navy, clearly envisaged for the new Queen Elizabeth class carriers (and historically an invariable component of the Fleet). It follows that both RAF fast jets—in apparently substantial numbers albeit originally developed for the cold war—in combination with RN sea-air would provide the necessary flexibility and timeliness of response to best serve the UK's national interests and defence. Such a combination would certainly have provided the Government with significantly more political and military options while achieving the flexibility of an immediate rapid response and deterrence of readily available sea-based air and an expeditionary potential later of RAF fast jets (along with the unavoidable heavy logistical tail and the necessary political/diplomatic enablements of over-flight and overseas bases). Such a combination would have achieved the kind of adaptability and flexibility for UK's Defence Forces that had been accepted as a core principle—ref. Defence Green Paper.

3. The abandonment of defence planning of such a vital component of national defence along with accepted core principles surely requires reversal or a comprehensible explanation. The Libyan operation has demonstrated the consequences of the inexplicable bias in SDSR and the Government's placing all its eggs in the land-based air basket.

COST-EFFECTIVENESS

4. The decision to withdraw *HMS Ark Royal* and the sea-based Harrier GR9 force from service and to retain the land-based Tornado GR4 force instead has unnecessarily cost the UK taxpayer upwards of £750 million

for the Libyan operation alone.[9] This is in addition to the £6.1 billion of taxpayers' money (forecast lifetime cost differential)[10] that could have been saved if this decision had been reversed—as originally planned.

Operational Effectiveness

5. Within a few short hours of the launch of Operation United Protector (that coincided with the signing of the United Nations Security Council Resolution 1973), sea-based platforms and aircraft from the United States Navy, Royal Navy and the French Navy destroyed Libya's air defence system with a barrage of missile and air strikes. The majority of the strikes were carried out by the U.S. Navy.

6. The SDSR decision to withdraw *HMS Ark Royal* and the Harrier GR9 from service prevented Britain from playing a more effective and immediately responsive role from the outset.

7. This decision further prevented Britain from playing a more meaningful part in sustained operations in support of rebel forces. As submitted in section A of this submission, sea-based airpower in the form of Harriers launched from the *USS Kearsarge* and Rafale Fighters launched from the *Charles de Gaulle* provided the bulk of close air support missions in support of rebel forces until the *USS Kearsarge* was withdrawn for political reasons. Even then, Reuters reports that approximately 40% of all strike missions were flown by *Charles de Gaulle* fighters. The availability of *HMS Ark Royal* and the Harrier GR9 would have significantly increased the percentage of missions flown by sea-based air and more effectively and responsively than the more costly Tornado/Typhoon combination.

8. The operational effectiveness of land-based aircraft operating from ranges of at least 600 miles has been widely criticised. As given at paragraph 11 of Area of Interest A, above, the planning and execution of coordinated land-based combat strike missions was a much slower process than that achievable and already demonstrated by sea-based air (where all supporting functions are available on site/within the carrier group)—thereby limiting the effectiveness of such missions against mobile Libyan armour targets.

Discussion

9. It must be beyond any reasonable doubt that SDSR 2010 failed to acknowledge the possibility of Britain becoming engaged in contingency operations such as Unified Protector.

10. It is also not unreasonable to suggest that the SDSR team were beguiled into total reliance upon the perceived capabilities of the RAF's fast jets to the exclusion of complementary Fleet Harriers; unwarranted reliance was assumed concerning United States Navy carrier air power being readily available for the U.K.'s political purposes and an unreliable dependence upon allies for the support of all British Expeditionary Force operations.

11. These two errors of judgement have resulted in:

(a) The taxpayer having to fund an exorbitantly expensive land-based air operation over Libya that is far less cost effective than an equivalent sea-based air operation.

(b) A need for the Coalition Government to re-examine its decision "to gap the British sea-based air capability until at least 2020".

D. *The implications of this Operation [Libya—Operation Ellamy] for the outcomes of the SDSR*

Introduction

1. Libya operations may well be proclaimed a successful vindication of the SDSR Defence cuts—already claimed to demonstrate UK's continuing ability deploy with flexibility and agility and make a difference on the world stage. The truth is the very opposite. It is essential that this Committee recognises the degraded capabilities of the Defence Forces directly due to the SDSR that have in effect put the Defence of the Realm at unnecessarily increased risk. It is no reassurance that all will be reversed by 2020.

2. The SDSR seems to have two over-riding considerations

(a) to sustain Afghanistan at all costs and then to inflict a further swathe of Defence cuts; and

(b) to justify the reduction of all non-Afghanistan essential forces by skewing Defence Assumptions to the least likely—so as to allow ministers to claim that the nation has retained armed forces sufficient to respond to all reasonable risks—until 2020.

3. Libya has quickly and embarrassingly demonstrated the false premise of the SDSR that UK could safely reduce its Armed Services to a bare minimum (until 2020) and that the risks were acceptable. Libya has further demonstrated that the UK does not have the capacity to act unilaterally or even effectively in the Nation's interests—albeit where these are shared—nor can reliance be placed upon allies. A main plank of Defence Strategy appears to have been the acceptance not so much of allied assistance as a force multiplier but of near total reliance upon allied military assets. The altogether unreliable response of NATO partners in Afghanistan

[9] See Areas of Interest A and B for more details.

[10] MoD DOC Audit, 2010:
Cost of retaining Tornado GR4 in service: £7.5 billion.
Cost of retaining Harrier GR9 in service: £1.4 billion.

ought to have forewarned Defence Planners of this delusion; further proof of this unjustifiable reliance is the brief participation off Libya of the French carrier *Charles de Gaulle* for over five months before having to withdraw temporarily in adverse weather and now for essential maintenance. Yet, notwithstanding these limitations, Defence planning has claimed that the French carrier will be a credible alternative to UK in the absence of RN sea-air capabilities (until 2020).

4. The SDSR has created significant and serious gaps in the national defence structure of the armed forces (on top of 13 years of persistent cuts and reductions already suffered). It would have been surprising if such deficiencies had not restricted political and military options in Libya, degrading UK's response and resulting in very significant increases in cost implications.

5. Given that the Libya operations are on-going with likely changing objectives it must be accepted that UK's options are severely restricted by the reduced state of our Armed Forces and particularly the severely restricted ability to project power from the sea. The Government has for example stressed rightly from the start that operations are only sanctioned by 1973 to protect civilians—that is to exclude "boots on the ground" in direct or even air support of the rebels. However, now that the "rebels" have been recognised by the UK as the legitimate representatives of the people of Libya there is arguably no reason why (out-with the UN) they should not request direct military support from the UK or any other ally.

6. The SDSR has very materially restricted UK's military options to pursue national interests.

7. Operation Ellamy/Unified Protector has demonstrated that land-based air power:

(a) Is vastly more expensive to deploy overseas in support of military operations than sea-based air—even within the NATO area. This Operation will have cost the British taxpayer approximately £1 billion over a six-month period.

(b) Is not as responsive as sea-based air for initial (First Echelon) Expeditionary Force/ Peacekeeping combat operations.

(c) Is not as flexible or as effective as sea-based air for the continued support of Ground Force operations because of its distance from the active combat zone and the difficulties it faces in coordinating diverse land-based air assets for the efficient conduct of tactical strike missions.

8. As a result of the SDSR, UK is rapidly becoming a different nation by default and one less likely to be respected by friends and foes alike. Our strategic reach has been severely curtailed because we will no longer be able to support the United States militarily in the key way which the UK has done for decades. This might put in doubt our position as a Permanent Member of the UN Security Council if we become unable even to protect our own dependent territories.

The Role and Configuration of UK's Land-Based Air Power

9. It is for consideration therefore that the role and configuration of UK's land-based air power within Britain's National Defence Strategy should be urgently reviewed.

Physical Constraints

10. The physical constraints of UK's land-based air power as configured today make it non-cost-effective and inappropriate for overseas operations. It relies entirely upon:

(a) The availability of land bases close to the theatre of action—and such availability is questionable with Britain's diverse overseas interests (including the British South Atlantic Islands).

(b) Over-flight and overland transit rights for its logistics support—such rights being controlled by other nations who can therefore have considerable influence upon the sovereign will and intentions of the British government (*vide* Pakistan and Russia controlling logistic support routes into Afghanistan).

(c) Major air to air refuelling support en route to the target area and direct support of combat strike missions over the target area.

(d) Air superiority and airspace denial within the combat zone in order to ensure the safe operation of refuelling tankers and supporting ISTAR assets.

(e) The safety and security of the overseas air bases to which it deploys.

11. These constraints place strict limits upon the ability of the British Government to project military and political influence overseas with land based air in support of the national interest.

Adaptability

12. It is difficult to understand why the government of the UK, aware of our proud history as an Island Nation whose prosperity will always depend upon global maritime trade, continues to procure fighter aircraft for the Royal Air Force that cannot deploy to or be operated from aircraft carriers.

13. The SDSR 2010 team might well have taken into account such compelling logic. Their initial recommendation to retain the Harrier in service rather than the non-carrier capable Tornado bears testament to this. But the final decision to withdraw Harrier from service was illogical and wrong.

THE NATIONAL INTEREST

14. The Committee might wish to address the root cause for this misguided SDSR 2010 final recommendation. In doing so, the Committee might also wish to investigate why the Royal Air Force continues to insist on the procurement of a non-carrier capable Joint Strike Fighter for the limited role of the air defence of the United Kingdom (against which there is no threat in any case).

15. In the light of Britain's global maritime interests, logic and common sense would appear to dictate that all fighter and fighter ground attack aircraft procured for the Armed Services should be capable of embarkation in and operation from the new Queen Elizabeth class aircraft carriers. This would allow the cost-effective and operationally effective deployment of under-utilised land-based squadrons in a time of need. (Please see attached paper, "5. Expeditionary Force".)

E. *The effectiveness of NATO command structures in the preparation and conduct of operations in Libya*

INTRODUCTION

1. It has become apparent that the decision by Britain and France to promote a No-Fly Zone over Libya was not part of a cohesive maritime or land strategy. There appears to have been inadequate planning for Operation Ellamy/Unified Protector either by the UK or by NATO. It appears that the assumption was made by the British and French governments that a simple offensive air campaign would provide the intended result:

(a) Protection of the Libyan civilians and rebel forces from Colonel Gaddafi's forces.

(b) The removal of Colonel Gaddafi and his regime from power.

2. The "need to do better in the future" has already been addressed by Vladimir Socor, a contributing editor for the Atlantic Council, who has presented "*An Interim Assessment of the Mission In Libya*". In his assessment, he remarks that:

(a) France and Britain are mainly in charge of this war, operating as a tandem but basically in their respective national capacities. President Nicolas Sarkozy and Prime Minister David Cameron each embarked on this intervention as a short-term political project, only to see it turn into stalemate and the expected political rewards turn into liabilities.

(b) This intervention's political objectives remain undefined notwithstanding the show of force: almost 7,000 air-bombing sorties thus far, a naval blockade, and underwriting operations by rebel forces on the ground. Any "responsibility to protect" populations from violence is a humanitarian not a political objective; and cannot in any case become a NATO goal in its own right, divorced from larger political and strategic objectives.

(c) Western belligerents hobbled their operation from the outset by ruling out the use of ground troops.

(d) NATO had expected to fight for a few weeks; it set a three-month deadline for the combat and post-combat phases; it had to prolong the combat operation by three more months; and is now facing the distinct possibility of a further prolongation of combat operations by September.

(e) Along with the costly failure in Afghanistan, another failure in Libya would make NATO look irrelevant to American and West-European publics.

(f) If NATO fails again, not in a distant expeditionary operation as in Afghanistan, but this time in its own immediate neighbourhood, then proposals to dilute NATO into some "common European security architecture" with Russia would gain traction.

(g) Who is going to treat NATO seriously after that?

3. Effective Planning Procedures would have assessed:

(a) Which of Colonel Gaddafi's military assets should be targeted.

(b) How they should be targeted (with what assets).

(c) What weapons platforms were available for the efficient conduct of offensive air operations.

(d) Which of these weapons platforms would provide optimum operational results against the desired targets.

4. It appears that such a detailed assessment was not satisfactorily completed and this led to the command and control of Operation Unified Protector being vested in a predominantly land-based air oriented NATO team. Close Air Support missions in support of Libyan rebels were therefore planned and conducted from a location far removed from the target combat area. This arguably led to a slow and cumbersome response to targeting requests/intelligence.

PLANNING PROCEDURES

Which of Colonel Gaddafi's military assets should be targeted?

Mobile Armour/Artillery Targets

5. An in depth review of the offensive air campaign over Bosnia/Kosovo has indicated the following:

(a) The claims of mobile armour/artillery targets destroyed by interdiction and Close Air Support missions were considerably exaggerated;

(b) This was a result of extensive camouflage and deception by the Serb ground forces.

6. Libyan forces appear to have been aware of these offensive air deficiencies and have certainly employed extensive camouflage and deception in order to attract a wasteful delivery of expensive weaponry by NATO forces.

Fixed and Hardened Targets

7. A balanced assessment should have been made concerning the level of strike action to be devoted to fixed and hardened targets such as headquarter buildings used for intelligence and other military purposes. This assessment should have taken into full account the initial aim of Operation Unified Protector which arguably was "*the close air support of Libyan rebel forces under direct fire from the Libyan military*".

8. From the official MoD Libya updates, it would appear that a disproportionate amount of effort has been expended upon attacking structures that may or may not have contained Libyan military planning/intelligence units. The operational effect of such missions appears to have been marginal at best because it does not appear to have diminished Colonel Gaddafi's onslaught against the rebels. The following MoD updates support these remarks:

27 July

Major General Nick Pope, the Chief of the Defence Staff's Communications Officer, said:

"Royal Air Force aircraft, under the auspices of NATO's Operation Unified Protector, have during recent days inflicted numerous losses on those of Colonel Qadhafi's forces who continue to threaten the Libyan people."

"Overnight Sunday through to Monday, RAF Tornado and Typhoon aircraft maintained a close watch on regime forces mustered near Gharyan and Zlitan. A tank and another military vehicle were spotted near Gharyan; both were destroyed. At Zlitan, NATO surveillance assets had identified ***seven buildings*** *in use by the regime as military command and logistics facilities, including two being used to maintain Qadhafi's tank force, and all* ***were successfully attacked by our aircraft****. One armed truck was also destroyed. Meanwhile, patrols also continued over Brega in the east, where RAF jets destroyed* ***another of Qadhafi's storage facilities****, as well as an additional five armed trucks."*

"On Tuesday, RAF aircraft successfully targeted ***five military facilities*** *in and around Al Khums. In the early hours of this morning, Tornado GR4s conducted a further precision strike on* ***a large regime barracks and command centre in Tripoli****."*

One should question how many of the eight "armed trucks" and "other military vehicles" were actually engaging rebel forces and rebel held positions. The 15 non-dynamic buildings and facilities that were attacked were well away from the fighting between Gaddafi's forces and the rebels.

11 August

"And last night, [6] Tornado GR4s launched from RAF Marham in Norfolk. Supported by VC10 and Tri-Star tankers, they flew south across Europe and the Mediterranean to ***launch a large salvo of Storm Shadow precision guided missiles at command bunkers near Sebha, 700 kilometres south of Tripoli, out in the Sahara.*** *They landed at Gioia del Colle after a mission lasting seven hours, and will in due course recover back to Marham."*

Six Storm Shadow (Approximately £5.4 million): Aviation Fuel (Approximately £1 million): Airframe Cost—Tornado (£2.1 million)—Refuelling Tankers (Estimated £1 million). Total: £9.5 million for attacking non-dynamic targets hundreds of miles away from rebel force positions.

How they should be targeted (with what assets)?

9. The deployed UK fast jets Tornado and Typhoon do not have any substantial advantage in weapon delivery capability over a combination of Harrier and Apache. The necessity to task a Tornado and Typhoon pair so as to achieve accurate weapon delivery for the latter seems wasteful of expensive resources. It smacks of using a *sledge hammer to crack a nut*—and at significant cost penalty.

10. Table 1, below, demonstrates the firepower available from the sea-based/carrier capable aircraft and from the land-based aircraft (Tornado):

Table 1

COMPARATIVE WEAPON LOADS—SEA VERSUS LAND-BASED AIR

	GPS Guided Bomb	*GPS Bunker Buster Bomb*	*Maverick*	*Brimstone/ Hellfire*	*2.75"/ CRV Rockets*	*20mm/ 30mm Cannon*	*Storm Shadow*	*ALARM*	*Tomahawk*
Sea-Based Air	√	√	√	√	√	√	×	×	√
Land-Based Air	√	√	×	√	×	√	√	√	×

The two weapons that are not carried by either Harrier or Apache are the Storm Shadow missile and the ALARM anti-radar missile. However, ALARM has not been deployed to either Libya or Afghanistan and the Storm Shadow capability can be adequately covered by the GPS Bunker Busting Bomb carried by the Harrier (now being used by Tornado in Libya for precisely this purpose instead of Storm Shadow).

11. The advice given to Secretary of State, Dr Liam Fox, on this subject and presented by him in evidence to the Defence Committee (April 2011) needs to be challenged:

> **Q64. Thomas Docherty:** *Secretary of State, I am sure that you are learning valuable lessons from the current air operations, both for the on-going Libyan events and for contingency planning—following on from Mr Glen's question—perhaps elsewhere in the region or for other parts of the world. Have any of those lessons caused you to regret or reconsider the scrapping of the Harriers and the carrier-based capability of either Ark Royal or Illustrious?*
>
> **Dr Fox:** *No, Tornado gives us capability that Harrier could not* [How so, when Tornado is not carrier capable?]. *In addition to the Paveway IV laser or GPS-guided bombs that both Harrier and Tornado can carry, Tornado gives us the stand-off, deep-penetration capability with the Storm Shadow missile* [questionable results in Libya and not deployed at all to Afghanistan] *and the Brimstone missile* [the equivalent, Hellfire, is being successfully used in Libya], *which is a low-collateral weapon for use in urban areas, such as Misurata.*
>
> *In addition, Tornado has a gun, which Harrier did not* [the Apache has a better gun]; *Tornado has a longer range than Harrier* [not enough to justify 600 nautical mile missions from Italy requiring air to air refuelling]; *it needs to be refuelled less frequently* [the Harriers off Libya did not need air to air refuelling]; *and it has a two-man crew, which helps with better mission control from the air* [Harrier professionals would question that remark]. *I remind the Committee of the logistics legacy: there would not have been enough Harriers for Afghanistan* [absolutely not the case. The Harrier has a far greater Force Elements at Readiness than Tornado] *and for what we have been asked to do in Libya had we taken the alternative decision and kept Harrier but not Tornado. If Mr Docherty is asking whether, had we had another £3 billion, we would have liked to have kept even more aircraft, the answer is obviously yes. But he will also remember that we are trying to deal with the Government's primary objective of a £158 billion deficit.*

12. If indeed the principal aim of Operation Unified Protector was to provide the close air support of Libyan rebel forces under direct fire from the Libyan military, the planning process for NATO missions should have taken into account the following:

(a) The armour/artillery units bombarding rebel-held towns and positions enjoy considerable mobility. Attacking such units therefore requires rapid response from NATO air units.

(b) Close Air Support aircraft stationed 600 miles away from the Theatre of action do not have the ability to provide the required rapid response (particularly if the bureaucratic planning process for such missions can take up to 24 hours). Just the flight time to the target area is of the order of 1.5 hours—in which time the targeted units could be many miles away.

(c) Although sophisticated targeting intelligence can be gathered by AWACS, A/E-18 Growler and other ISTAR aircraft particularly for armoured formations in the open desert, the same is not necessarily true for targets in the urban environment. The latter requires "boots on the ground" even if just limited to Special Forces. UN Resolution 1973 did not authorise this and, as such, the urban targeting problem should have been one of the prime considerations affecting the decision to enter into this Operation.

13. The "planners" should have remembered the lessons of Suez and recognised from 12.a and 12.b, above, that sea-based air operating in close proximity to the Libyan mainland would provide the most operationally effective (and cost-effective) offensive air support.

What weapons platforms were available for the efficient conduct of Offensive Air Operations?

14. It is arguable that the two main protagonists supporting the idea of a No-Fly Zone over Libya, Britain and France, did not conduct a thorough assessment of the most suitable weapons platforms available for such a task. Instead of "proper planning", "crisis management" appears to have been the order of the day. (From a purely British perspective, it would appear that MoD/RAF told Ministers, "Yes, we can do that!" and little more attention was paid to the matter.)

Proper Planning

15. The first initiative taken by participating nations did indeed reflect proper planning. That was the early deployment of maritime forces including sea-based air to Libyan waters.

16. However, with regards to the NATO Organisation as a whole there appears to have been an unfortunate lack of coordination. An emergency meeting of the NATO Security Council should have been convened well before the UN Resolution 1973 was declared. Such a meeting would/should have come to the following conclusions:

(a) Rapid and responsive offensive air support for the Libyan rebels was required.

(b) The Libyan air defence capability needs to be destroyed/thoroughly incapacitated immediately. This would best be achieved by Tomahawk capable warships and submarines in conjunction with sea-based air platforms.

(c) The most responsive and flexible weapons platforms for providing the necessary Close Air Support of the rebels were those associated with sea-based air: whether strike carrier (United States and France), Harrier carrier (Italy, Spain and Britain—if the latter was willing to reverse its SDSR 2010 Harrier withdrawal decision) or Attack Helicopter Platforms such as HMS Ocean *which is also deploying the AEW Sea King helicopter.*

(d) A NATO Expeditionary Task Force consisting of sea-based air platforms as given at paragraph 16.b and 16.c, above, needs to be established under naval command and control.

(e) Land-based ISTAR support aircraft should be deployed to appropriate airfields close to the theatre of action.

17. Such a coordinated planning effort by NATO might well have persuaded the United States to commit more for longer provided that European Member Nations were seen to be pulling their weight. Britain's excessive and expensive individual contribution in the form of deployed land-based air assets would then have been unnecessary.

Crisis Management

18. The manner in which Britain took a firm lead in pressing for UN Resolution 1973 might, from a humanitarian point of view, be viewed as laudatory but militarily the operation appears to have become an embarrassment for the British government and a massive expense for the UK taxpayer who is struggling with personal finances in "Austerity Britain". As covered under "Proper Planning" above, this Operation has suffered from a sustained inadequacy of operational management by NATO's land-based air commanders.

19. Britain's decision to gap its aircraft carrier capability for 10 years has been criticised by military organisations and other nations as being seriously misguided. Spending our limited resources on a questionably effective and very expensive land-based air initiative over Libya cannot be a good example of Britain's aspirations to global military and political influence.

20. The rebel forces have complained about the lack of real close air support of their fighters where it is most needed. Such complaints have considerable validity in the light of the length of time it takes for land-based aircraft to respond to urgent situations on the ground in Libya.

Which of these weapons platforms would provide optimum operational results against the desired targets?

21. This question has been answered at paragraph 16, above.

Summary

22. On the evidence to date, the NATO command structure adopted for the preparation and conduct of operations in Libya was inadequate.

23. There was a lack of proper planning by individual nations and by NATO itself with no objective assessment of the most cost and operationally effective way to enforce the Libyan No-Fly Zone and to protect Libyan civilians and rebels from Colonel Gaddafi's armour and artillery.

F. *The "end game": What would a successful outcome look like and how do current operations contribute to achieving this?*

1. A successful outcome from a NATO point of view might be signified by:

(a) The guaranteed end of Colonel Gaddafi's military operations against his own people.

(b) The complete desertion of Colonel Gaddafi's forces to the rebel cause.

(c) The abdication of all power within Libya by Colonel Gaddafi, his family and his inner circle.

Whether such an outcome is possible in the light of the entrenched and partisan tribal interests within Libya and the thirst for revenge on all sides must be in some doubt.[11]

2. Current offensive air support operations need to be concentrated upon the interdiction and destruction of those military units that continue to bombard rebel positions and rebel held towns. Bringing more intensive fire to bear on these active combat units of the Libyan army would signal to the latter that they are on the losing side and would encourage the necessary mass desertion of Gaddafi's forces to the newly recognised interim Libyan government. Rebel forces could then advance upon Tripoli with immunity from attack and Gaddafi would be finished.

G. *The broader implications of the intervention in Libya in the context of reacting to instability in the wider region*

Introduction

1. The implications of the intervention in Libya and the lessons learned from that intervention are far-reaching particularly in the context of reacting to instability in the "wider region". (Hopefully, the Committee is referring to the global stage and to those key areas that could have a damaging effect upon the British economy if threatened by instability, military confrontation and/or militant terrorist action.)

2. The Defence planners did not envisage either the so-called "Arab Spring" or the Libya uprising. This may not be a failing but what has been undoubtedly a failure of strategic planning has been to base UK's defence planning upon the presumed absence in the foreseeable future of any such risks to national interests—having admitted that such turmoil has always been unpredictable. In any case there had been plenty of indications of instability across the Middle East—with persistent threats from Iran in the region to the Persian Gulf, failed or failing states in Yemen and Somalia, piracy across the Indian Ocean and the Falklands—before beginning to assess direct risks of terrorism to UK and coastal waters. To which may be added now serious instability in Syria.

3. It is incomprehensible how in the face of such evidence of global instability and threat UK's Defence planners took what they claim to have been a "justifiable risk" to downgrade UK's Defence Forces, their flexible capabilities (already stretched) and deterrent credibility. This was a conscious choice that has misdirected national priorities.

4. UK's national interests are very much served by stability in the Middle East and across the Arab world—hence the Middle East is a prime concern. Failure in Libya will seriously undermine UK's credibility and deterrent potential—it is vital both diplomatically and militarily that UK succeeds in ridding the region of such a malign influence as Gaddafi—not so as to impose upon Libya a western democracy nor indeed perfect governance but to ensure a regime at least closer to the precepts of enlightened values and a nation that can re-join the community of nations.

5. Primarily, it is diplomatic effort that achieves political, commercial and trading stability; indeed this may also be the only means of later coercion in the form of sanctions. Diplomatic choices are reduced especially in circumstances where there are no military options. UK has committed itself to global influence—and that, with our Commonwealth and Overseas Territories, rightly is a national expectation. Confusion will persist for a while about the degree of national interests served in Afghanistan but it will be important that UK does not revert into isolationism as did post-Vietnam USA. UK has taken the decision that national interests as well as defence are best served by not "opting out". It is dishonest and a false reassurance therefore to so degrade the nation's Defence Forces whilst claiming global potential. This has clearly been noted in the world press and has done little for the UK's standing. It must be plainly stated that impotent Armed Services dramatically reduce diplomatic choices—such that we have been deprived of **both** "a loud voice" and a "big stick".

6. The SDSR has rendered the armed services unbalanced. Politicians have failed to convince the nation that just because UK no longer faces the potential annihilation of all-out nuclear war, the lesser defence risks can be discounted—even if more likely and apparent. It is vital that Defence Planning should be shielded from such short term subjectivity and should serve national defence interests more honestly.

[11] "*Tribal Rifts Threaten to Undermine Libya Uprising*." David D Kirkpatrick reported from Tripoli, and C J Chivers from Zintan, Libya. The New York Times, 13 August 2011

Discussion

7. Discussion of these implications/lessons should be placed in the context of:

(a) Unilateral action by Britain in defence of Britain's overseas interests.

(b) Action as part of a coalition of forces, whether under the auspices of NATO or other international bodies.

8. Such discussion demands an answer to the question, *"How much more costly will the projection of air power be using land-based resources rather than sea-based resources if required to be deployed at much greater range from the UK than Libya/Italy?"*

Lessons Learned

9. The earlier part of this Submission has highlighted various lessons that need to be learned prior to Britain reacting to and becoming involved in further overseas interventions in pursuit of our nation's national interest:

(a) Airpower in its own right and in isolation is not a panacea for the resolution of armed conflicts.

(b) The deployment of land-based air power independent of any cohesive maritime or land strategy is non-cost-effective and can suffer from severe operational limitations associated with that "independence". As occurred in the Suez campaign, the principal limitation is an inability to react rapidly and responsively to the real-time needs of ground forces resulting from long transit distances to the target area and bureaucratic planning procedures.

(c) Sea-based air power is fully integrated within the cohesive structure of Carrier Battle Groups and of Amphibious Battle Groups. Its efficient command and control within the fleet organisation provides for rapid and effective reaction to the needs of ground forces ashore without reliance on third party organisations.

(d) NATO has been described today as *an alliance of the willing*. It is now evident that in the absence of overwhelming common threat (eg the Cold War) NATO members are influenced by their own (changing) political agenda and imperatives. Hence dependence upon allied support or assets as the means of projecting UK's own national interests is delusional.

(e) The unwillingness of the United States to take the active lead in Operation Unified Protector or to provide one of its strike carriers to support the Operation has signalled the end to the automatic reliance placed by Britain and other nations on the U.S. Navy "air defence umbrella". This ought to sound a stark warning of US opposition to such vital UK interests as the defence of the Falklands, if that is perceived to run counter to US interests in S America.

(f) Operation Ellamy/Operation Unified Protector was launched without proper planning by NATO or individual nations, including Britain, and without a balanced assessment of which military resources were best suited to achieving the aims of the Operation in the most efficient manner.

Unilateral Action by Britain in Defence of Britain's Overseas Interests

> *"Whereas any European power has to support a vast army first of all, we in this fortunate, happy island, relieved by our insular position of a double burden, may turn our undivided efforts and attention to the Fleet. Why should we sacrifice a game in which we are sure to win to play a game in which we are bound to lose?"*
>
> Winston Churchill.

10. The Island State of Britain depends upon its global sea lines of communication and trade for its very existence. In turn, the protection of its trade routes and access to foreign markets depends upon the mobility and flexibility of its maritime forces and those of its allies. The Centre for Economics and Business Research (CEBR) predict that, over the next 20 years, the U.K.'s imports delivered by sea will grow 287% by volume and exports by sea 119% by volume. Furthermore they show that Britain's trade will shift from "short haul" origins and destinations across the Channel to "long haul" origins and destinations in the Middle East, Asia and elsewhere around the world.

11. The increasingly troubled world economic and political scene has resulted in our principal ally, the United States of America, being overstretched and under resourced and it is now impractical to suggest that the world's trade routes can be adequately protected by the United States alone. We cannot and should not therefore rely entirely upon our NATO allies for providing a sustainable umbrella of protection for our Global National Interests but should strengthen our Forces and enhance our Commonwealth co-operations.

12. Operation Ellamy has taught us that, following the implementation of SDSR 2010 recommendations, Britain's armed forces are not adequately configured or equipped for independent Expeditionary Task Force or truly global operations—primarily because we have gapped our aircraft carrier/sea-based air capability.

13. Without the part played by the United States Navy during initial operations, the Libyan air defence infrastructure and weapon systems could not have been destroyed and made impotent. Without such destruction and airspace denial/air supremacy being achieved by the U.S., the U.K.'s land-based offensive air support

aircraft, AWACS and ISTAR aircraft would have been vulnerable to attack and would have had great difficulty in providing adequate support for Libyan civilians and rebel forces on the ground.

14. For operations further afield than the Mediterranean, the availability and security of air bases needed for the deployment of land-based air is questionable. The Arabian Gulf is a case in point.

15. For the foreseeable future, the Arabian Gulf will remain a significant source of oil and gas. In terms of modern anti-ship weapons systems that are now proliferating throughout the developing world, the waters of the Gulf have become highly vulnerable to surprise attack. A key issue here is the significant and unpredictable threat posed by Iran and the arguable inability of other Gulf States to counter that threat effectively. The withdrawal of United States forces from Iraq only compounds the long-term problem (for decades now, Gulf States have lived in fear of Iran's fundamental Shia desire for aggrandisement and control of the Gulf).

16. As briefly discussed in the paper, "6. Defending the UK's Interests Worldwide—The Libyan Experience" (attached), a properly equipped Carrier Battle Group stationed in the Indian Ocean could provide a long range surveillance and air strike/attack capability that would deter Iran from precipitous aggression against neighbouring states and against international shipping within the Gulf. Such deterrence cannot be provided by land-based air assets sitting in the United Kingdom.

17. If Iran decided to blockade the Strait of Hormuz through military action, the deployment of land-based air to static airfields within the Gulf region would carry considerable risk of the missile attack—and sovereign base rights and over-flight rights might not even be granted by Arab states that have been accommodating in the past. Without a robust sea-based air capability, Britain would be unable to counter or deter the aspirations of Iran.

18. Similarly, Britain would be largely impotent if the Argentine chose to invade the Falklands. Without sea-based air, deterrence is severely weakened: we could not muster an effective Expeditionary Task Force capable of retaking the Islands.

Action as Part of a Coalition of Forces, whether Under the Auspices of NATO or other International Bodies

19. The Libyan operation should have taught us to be less enthusiastic and naïve when it comes to relying upon our NATO or other allies to support British led initiatives. We should be particularly aware that we can no longer fully rely upon the United States Navy Strike Fleet to provide an air umbrella for British Expeditionary Task Force operations.

20. Following SDSR 2010 and the Draconian cuts to the Royal Navy fleet and naval air power, we no longer have the ability to project significant military and political power upon the high seas. We should therefore be more conservative in our willingness to engage in military actions such as Libya that require us to "punch above our weight" and should restrain our moralistic desire to be one of the World's Policemen.

Changing the Way We Do Things

1. It is for consideration that the Government should now be more objective in its prime duty of defending Britain and its overseas interests from harm. It needs to develop a cohesive Armed Forces Strategy that reflects the opinions stated by Winston Churchill as quoted within this Submission—which are as true today as when they were first uttered. The priorities of national defence interests need to be presented to the electorate honestly and openly and to be reflected in acceptance of the imperative of adequate funding of the Armed Services and not as "an optional, competing extra". The first duty of government etc. has been stated conveniently but not with sufficient conviction or evidence.

2. Defence procurement priorities should be aligned to:

(a) The long-term operational commitments of our Armed Forces.

(b) A reasoned understanding of global unrest and the areas in which the latter might demand the projection of British military power and political influence in the future.

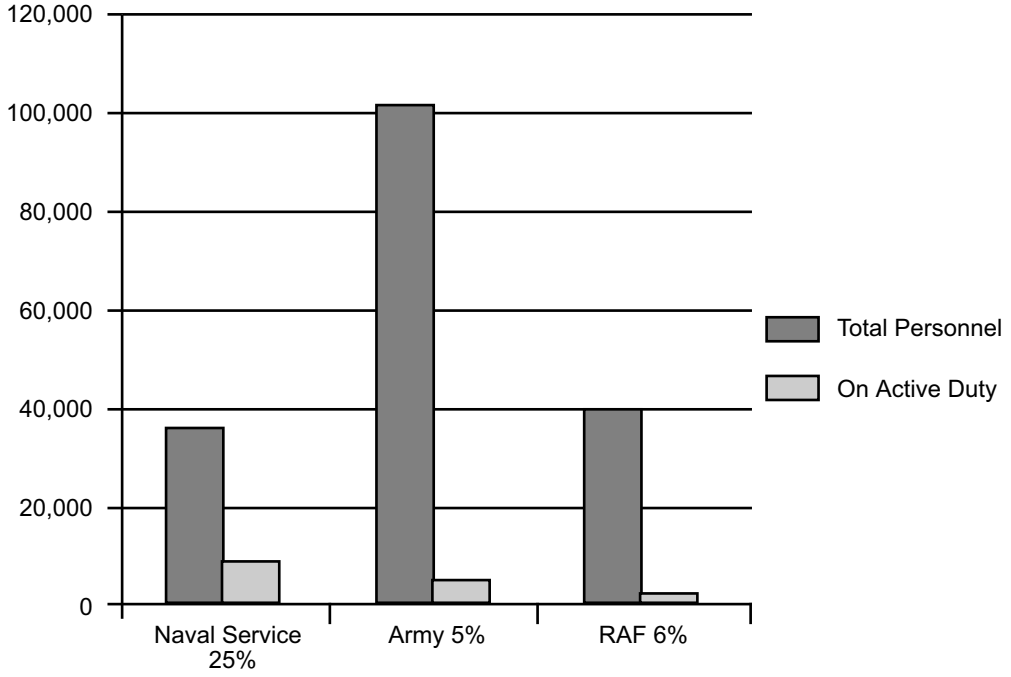
(c) Maintaining a technological advantage over our likely opponents.

3. Paying "lip-service" to these priorities but ignoring our fundamental military needs as an Island Nation can only diminish our ability to project such power and influence. SDSR 2010 was a prime example of this and, in very short order, has led to a non-cost-effective land-based air campaign in support of the Libya No Fly Zone that is not producing/has not produced the desired operational effectiveness.

Long-Term Operational Commitments

4. The attached paper, "7. *Armed Services—Active Operational Commitments and Personnel*", reveals that the personnel strength of Individual Services is disproportionate to the standing active operational commitments of each service. Figure 3, below, demonstrates this.

Figure 3



5. The Naval Service has the lowest number of personnel but has the highest level of standing operational commitments. If properly manned and equipped, it would be able to satisfy the majority of our nation's defence needs at home and abroad in a thoroughly flexible, responsive and operationally effective manner.[12] It should therefore have the highest priority for defence procurement and expenditure and this should include measured and early investment in sea-based airpower.

A Reasoned Understanding of Global Unrest

6. This Submission has revealed the folly of relying upon in the distant support of land-based air for Expeditionary Task Force Operations such as Operation Ellamy/Unified Protector. This Operation has cost the taxpayer dear, has been questionable in its operational effectiveness and should have taught us that land-based air alone is unsuited to the support of Task Force operations further afield, whether in the Strait of Hormuz, in the South Atlantic or elsewhere.

Recommendation

7. If, as our Island Nation, our Overseas Territories and Commonwealth status and responsibilities suggest that we should, we wish to regain the ability to project significant military and political power in defence of our overseas interests, a major U-turn on the findings of SDSR 2010 will be necessary and the *Queen Elizabeth* class carriers and their air groups will need to be brought forward rather than delayed. In order to finance this, the continued unjustifiable expenditure on the Typhoon programme and certain other land-based air programs (including Tornado and any land-based Joint Strike Fighter Option) should be curtailed.

8. It is urged that, notwithstanding a reluctance to revisit the SDSR, the lessons learned from the Libya experience will now be acknowledged and will generate the political will to act upon them, for the sake of the nation.

The Comparative Costs of Land-Based Air Operations over Libya

Executive Summary/Introduction

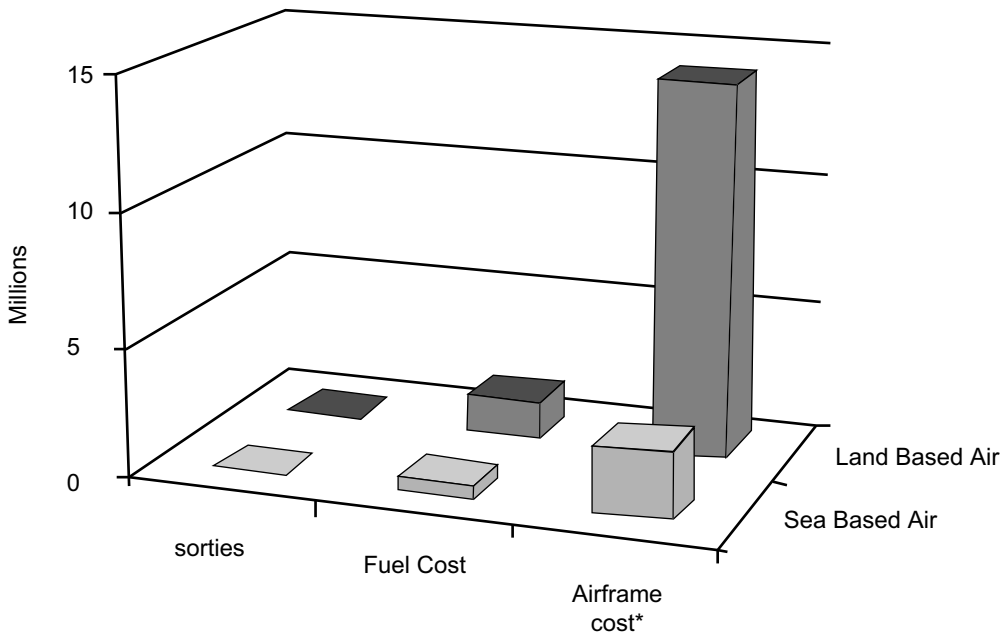
(i) This paper analyses various recent figures and statements given by MoD/Parliamentary agencies concerning Land-Based Air operations over Libya. These figures which compare well with those presented in the PTT paper, "Air Power Projection Options" are then used to update earlier estimates by the author.

(ii) The paper then provides a comparison between overall Land-Based Air costs of Operation Ellamy with those costs that would be realised if Sea-Based Air had been deployed instead.

(iii) Figure 1, below, reveals demonstrative cost differentials.

[12] A critical examination and revision of the Harmony Rules governing the manning standards of the three Services is necessary. All Service Personnel should be subject to the same rules—not special rules for individual Services.

Figure 1



THE RELEVANT BRIEFS/UPDATES

NATO Rolling Script Libya Brief 27 June, as at 17:30hrs

1. *"Since the beginning of the NATO operation (31 March 2011) a total of 12,745 sorties, including 4,804 strike sorties have been conducted. We have damaged or destroyed more than 2,400 legitimate military targets. This includes around one hundred command and control sites—which Qadhafi used to organize attacks on civilians, several hundred ammunition stores, tanks, armoured personnel carriers and rocket launchers which were used indiscriminately against his own people."*

2. This indicates that:

(a) Damage or destruction of legitimate military targets has been achieved only once for every five sorties flown.

(b) Only 50% of the strike sorties flown have resulted in the successful release of weapons against targets.

(c) Two thirds of missions flown (7,941) have been non-strike sorties.

Op Ellamy media Updates DMC-Ops PR—25–28 June

3. "Throughout all these operations, NATO tanker and surveillance assets, including RAF VC10, Sentry and Sentinel aircraft, as ever provided essential support."

"UK forces currently deployed on this operation include:

(a) RAF Tornado and Typhoon aircraft based at Gioia del Colle in Italy.

(b) RAF Sentry and Sentinel surveillance aircraft, based in Sicily and Cyprus.

(c) RAF VC10 and Tristar tankers, based in Sicily, Cyprus and the UK.

RAF air transport aircraft provide extensive logistic support to the deployed bases in Italy, Sicily and the Sovereign Base Areas in Cyprus."

4. These statements would appear to suggest that the 7,941 non-strike sorties were principally air to air tanking and logistic support sorties, indicating the huge reliance placed on these resources in order to enable land-based fighter attack missions. The costs in terms of fuel and airframe hours for this "supporting cast", none of which is essential for sea-based air operations, has not been revealed by Ministry of Defence sources and expectedly will not have been disclosed to Ministers or the Treasury. (Hence, the apparent under-estimates in cost that the Secretary of State and others have publicized.)

Libya update 24 June

5. "Typhoon has performed extremely well, complementing the Tornado in what is a very effective ground attack partnership. The Typhoons alone have flown the equivalent of 24 times around the world* in this operation so far."

6. *This equates to a distance of 576,000 miles or 1,152 hours flight time at 500 miles an hour. At a fuel consumption of 1250 gallons per hour, this equates to 1,440,000 gallons at a cost of £5,760,000. Over three months, this equates to £1,920,000 per month for Typhoon alone which calls into question the MoD/RAF figure given for aviation fuel consumption per month for ALL land-based RAF aircraft supporting Libya (£1.2 million per month).[13] This amount of fuel would have provided for more than 1,100 carrier-borne Harrier attack missions—which is more than twice the number of effective attack missions flown by Tornado and Typhoon to date.[14]

7. 1,152 hours flight time equates to 330 aircraft missions of 3 hours 30 minutes, indicating that, on average, the Typhoon has flown 110 aircraft missions per month over Libya—or 28 missions per week. Please see Annex A for the modified listing of the overall "*Cost Of Land-Based Air Operations over Libya*".

Discussion

8. According to NATO/MoD UK releases, attack aircraft flying ground attack missions from land bases have only released weapons against prescribed targets on less than 50% of those missions. It is assumed that UK Land-Based Air attack aircraft are no exception.

Attributable Typhoon Costs

9. The cost per flying hour of the Typhoon aircraft has been stated in parliament as £70,000 per hour.[15] With 1152 hours flown over Libya, this equates to £80,640,000 for three months. (If aviation fuel cost is not included in this figure given to Parliament, the total figure for Typhoon hours flown over Libya would be nearly £86,400,000—and this does not take into account significant air to air refuelling and logistic support costs.)

10. Contrary to what one would expect when looking at such costs, the Typhoon's role in Libya is very limited. There is no air threat, the aircraft has no air to ground surveillance or targeting capability and is only capable of delivering Paveway Mk II laser guided bombs which do not have GPS precision guided capability (thereby restricting target options to those that do not have a risk of collateral damage).

Question

11. Why is the limited capability Typhoon being operated over Libya at all and at such huge expense (more than £80 million in three months) when we are told by MoD/RAF that the Tornado GR4 is such a capable and reliable Close Air Support vehicle—with a much lower cost per airframe hour?

Suspected Answer

12. There is probably more than one answer:

(a) There are not enough serviceable Tornado aircraft to do the job properly.

(b) The presence of Typhoon in the Libyan Theatre is a Public Relations exercise by the Royal Air Force to attempt to provide some justification for the existence of this very expensive fighter aircraft.

Question

13. Why do at least 50% of Typhoon (and Tornado) attack sorties result in no weapons being deployed against the target?

Answer

14. This is probably the direct result of the 24 hour delay in responding to Close Air Support requests (atrocious tasking procedures) as well as the long transit time from take-off to being over the desired target area.

If Sea-Based Air had been Programmed Against the Same Number of Targets

Attributable Apache costs

16. For each mission sortie, the Apache will fly for one hour as opposed to 3.5 hours for Typhoon/Tornado. The cost per flying hour of the Apache aircraft is estimated at £15,000 per hour. Being close to the scene of action and much more responsive to urgent close air support requests, it is likely that the Apache attack

[13] **Parliamentary Question—Libya—Armed Conflict**. Mr Jim Murphy MP: To ask the Secretary of State for Defence how many RAF personnel are active as part of Operation Ellamy; where each unit is based; and what the average (a) daily and (b) monthly cost of operating each such unit has been. [57703]
Nick Harvey MP: Fuel Aviation fuel costs average around £1.2 million per month or £43,000 per day, although the costs vary week by week.

[14] **MOD op update from Monday 27 June**
"Since the start of military operations, Royal Navy, Royal Air Force and Army Air Corps strikes have destroyed some 520 regime targets that were threatening the civilian population."

[15] Stated by Peter Luff MP, 24 Nov 2010: Column 319W in response to a question by Penny Mordaunt MP.

helicopter would be able to strike its chosen target more effectively on each mission[16] as in Afghanistan. That is to say, 50% of Apache attack sorties would not be wasted as with Tornado/Typhoon.

17. Attributable Apache airframe costs for three months are estimated to be £2.73 million plus £0.364 million in fuel costs. See Annex B for more details.

Attributable Harrier costs

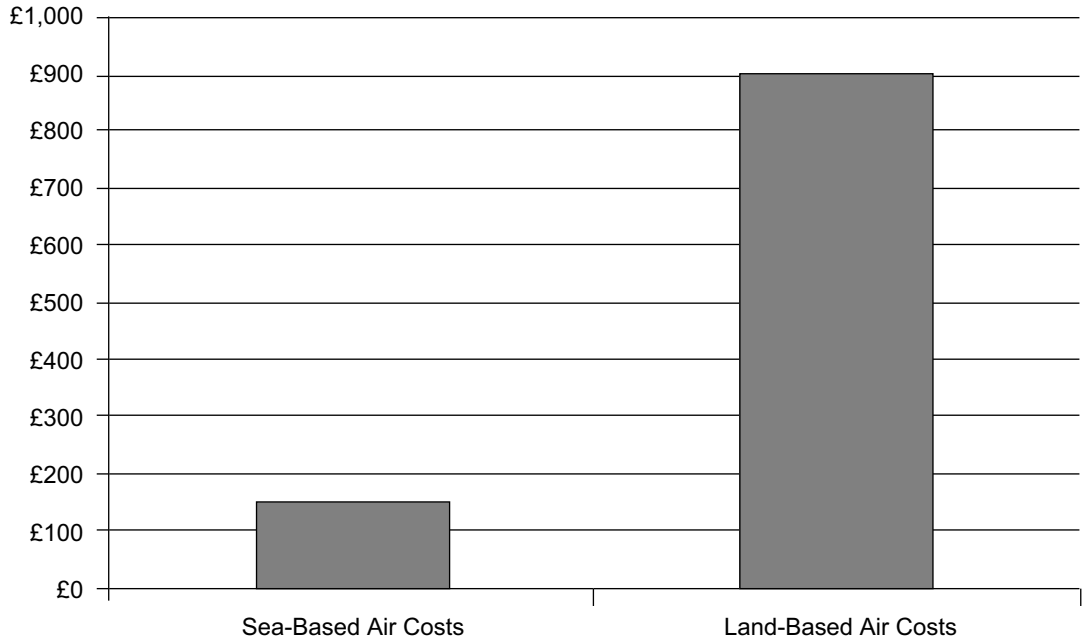
18. For each mission sortie the Harrier will fly for one hour as opposed to 3.5 hours for Land-Based Air. The cost per flying hour of the Harrier aircraft has been stated in parliament as £37,000 per hour (this figure is strongly contested by operators as being far too high[17]—according to US Naval Air Systems Command, the Harrier costs no more than US$22,000 per hour—that is, £13,750 per hour. Where did Peter Luff MP get his figures from?). Being close to the scene of action and much more responsive to urgent close air support requests, it is likely that the Harrier would be able to strike the chosen target more effectively on each mission.

19. Attributable Harrier airframe costs for three months are calculated as £13.47 million plus £2.09 million in fuel costs. See Annex B for more details.

Comparison: Overall Land-Based Air Costs versus Overall Sea-Based Air Costs

20. The revised overall cost of both options as given at Annex A and Annex B is given in figure 2 below:

Figure 2



Conclusions

21. The Land-Based Air Support of No Fly Zone operations over Libya is approximately six times more expensive than the equivalent Sea Based Air Support would have been—for the same weapons effect.

22. For offshore operations where Land-Based Air is positioned even more than 600 miles from the target area, the differential in cost will logically increase exponentially.

23. In this financially constrained climate, our political masters should recognise this fact and ensure that Sea Based Air is properly funded in the future—at direct cost to Land-Based Air funding, if necessary.

24. Dr Fox's suggestion that support for the Harrier is based on sentiment is demonstrably wrong.

[16] Being close to the target when briefed and consequently over target much more quickly, it is likely that the Harrier/Apache would substantially reduce the present expensive 50% mission wastage rate.

[17] Combat Aircraft, Stephen Trimble, Washington DC: May 2011. *"Sweeping review into a cost of F-35."*
A key target is reducing the $442 billion estimate at fiscal year 2002 inflation values, which was calculated by the US Naval Air Systems Command in late 2009. This estimated that the F 35 will cost US$30,700.00 an hour to fly: 40% more than the legacy Boeing F/A-18A-D and the McDonnell Douglas AV-8B [Harrier].

Annex A

COST OF LAND-BASED AIR OPERATIONS

Cost of Land-Based Air Operations—Libya—Includes the following:

CLOSE AIR SUPPORT AIRCRAFT MISSIONS PER WEEK (ESTIMATE)

	No.	*Fuel Cost*	*Airframe cost**	*Weapons Cost***	*Sub Total*	*6 months*
Tornado	56	£960,000	£6,860,000	£4,000,000	£11,820,000	£307,320,000
Typhoon	28	£480,000	£7,350,000	£2,000,000	£9,830,000	£255,580,000

* See Note 2, below, for calculation basis.

** MoD statement gives the cost of weapons delivered per week to be £6 million.

AIR TO AIR REFUELLING TANKER MISSIONS PER WEEK (ESTIMATE)

No.	*Fuel Cost*	*Airframe cost*	*Weapons Cost*	*Sub Total*	*6 months*
20	£300,000	£1,800,000	£0	£2,100,000	£54,600,000

SENTINEL R1 AIRCRAFT MISSIONS PER WEEK (ESTIMATE)*

No.	*Fuel Cost*	*Airframe cost*	*Weapons Cost*	*Sub Total*	*6 months*
8	£120,000	£1,200,000	£0	£1,320,000	£34,320,000

AWACS AIRCRAFT MISSIONS PER WEEK (ESTIMATE)

No.	*Fuel Cost*	*Airframe cost*	*Weapons Cost*	*Sub Total*	*6 months*
8	£120,000	£1,600,000	£0	£1,720,000	£44,720,000

Sub-Total for 6 months **£696.540 million**

ACCOMMODATION AND ALLOWANCES PER WEEK (ESTIMATE ***)

	No. Personnel	*Accommodation*	*Sub Total*	*6 Months*
Gioia Dell Colle *	550+	£250,000	£250,000	£6,500,000
Trapani	150	£75,000	£75,000	£1,950,000
Naples	50	£15,000	£15,000	£390,000
Poggia Renatico	50	£35,000	£35,000	£910,000
Akrotiri **	400	£40,000	£40,000	£1,040,000
Longer Separation Allowance			£150,000	£3,900,000
Local Overseas Allowance			£12,000	£312,000

* MOD, MA, 15 June 11: *"The average monthly cost of all UK personnel at Gioia dell Colle is around £1 million."*

** Akrotiri already has an RAF personnel establishment in excess of 1,500 to support aircraft operating through there or from there (AAR tankers, Sentinel, AWACS and logistic support aircraft). A further 100 personnel have been deployed for Operation Ellamy (MA, 14 June 11)—Ellamy costs should therefore include a proportion of standing personnel. Only this will give a reliable overall cost estimate.

*** Minister for Armed Forces costs in Parliamentary answer to Jim Murphy, MP. (Hansard/Commons/bydate/20110614/writtenanswers/part007).

Sub-Total for 6 months **£15,002,000**

LOGISTIC SUPPLY AIR FROM UK—MATERIALS, SPARES, ORDNANCE (ESTIMATE)

No. Return Flights	*Fuel Cost*	*Airframe cost*	*Sub Total*	*6 months*
14	£350,000	£2,400,000	£2,750,000	£71,500,000

LOGISTIC SUPPLY LAND FROM UK (ESTIMATE)

	Per Week	*6 months*
	£50,000	£1,300,000
Sub-Total for 6 months		**£72,800,000**

PERSONNEL TRANSPORT AND CHANGE-OVER—SIX MONTHS (ESTIMATE)

No. Return Flights	*Fuel Cost*	*Airframe cost*	*Sub Total*	*6 months*
80	£2,000,000	£19,200,000		£21,200,000
		Sub-Total for 6 months		**£21,200,000**

ADDITIONAL COSTS EG BASING RENTAL, ROTATION OF FIGHTERS FOR MAINTENANCE, ETC

Sub-Total for 6 months	**£100 million**
Estimated Total Bill for 6 months Land-Based Air Deployment	**£905.542 million**

Notes:

1. Aviation Fuel cost estimated to be £4.00 per gallon—as for civil airlines.

2. Airframe cost given = Government Figures per hour (eg Tornado: £35,000, Typhoon: £70,000 per hour) multiplied by length of mission multiplied by the number of missions.

3. Weapons cost per week taken from MoD news release: £6 million.

4. The estimated number of missions flown by Tornado per week (40) equates to one mission per aircraft every two days. United States Marine Corps Harriers were flying two missions per aircraft per day (four times as many as the Tornado). MoD reports would appear to indicate a higher flying rate (and therefore, greater expense): *Tornado and Typhoon flew numerous patrols over Libya during the past two days*. (MoD, 18 June 11.)

5. Various MoD statements/statistics as given by Defence News Analysis.

Annex B

EQUIVALENT COST OF SEA-BASED AIR OPERATIONS

Equivalent Cost of Sea-Based Air Operations—Libya—Includes the following:

CLOSE AIR SUPPORT AIRCRAFT MISSIONS PER WEEK (ESTIMATE)

	No. Sorties ***	*Fuel Cost*	*Airframe cost**	*Weapons Cost***	*Sub Total*	*6 months*
Harrier	28	£161,000	£1,036,000	£3,000,000	£4,197,000	£109,122,000
Apache	14	£28,000	£210,000	£1,400,000	£1,638,000	£42,588,000

* See Note 2, below, for calculation basis.

** Weapons cost per week less than land based. No Storm Shadow. Hellfire less expensive than Brimstone.

*** More than half Tornado/Typhoon sorties did not result in target attack.

AEW SEA KING AIRCRAFT MISSIONS PER WEEK (ESTIMATE)

	No. Sorties ***	*Fuel Cost*	*Airframe cost*	*Weapons Cost*	*Sub Total*	*6 months*
Sea King	14	£28,000	£70,000	£0	£98,000	£2,548,000
				Sub-Total for 6 months		**£154,258,000**
				Estimated Total Bill for 6 months Sea-Based Air Deployment		**£154.258 million**

Notes:

1. Aviation Fuel cost estimated to be £4.00 per gallon—as for civil airlines.

2. Airframe cost given = Government Figures per hour where available (eg Harrier: £37,000) multiplied by length of mission multiplied by the number of missions.

Avoiding an Exaggerated Appreciation of Land-Based Air in the Libyan Operation

REFERENCE

Letter from Nick Harvey MP, Minister of State for the Armed Forces to Sarah Wollaston MP, dated 15 June 2011, covering correspondence from Dr Paul Arnison-Newgass

1. In this world of the Internet and real-time communication, it is for consideration that the MoD scriptwriters who provide our Minister of State with information (for his responses to enquiries from the public) are prone to misleading error. I refer to the following sentence from the second paragraph:

> *"And as events in Libya show the agile and flexible force that we concluded we needed in last year's Strategic Defence and Security Review (SDSR) make a profound influence on the world stage."*

2. Prior to the advent of real-time news being available through the Internet, the scriptwriters could say almost anything they wished without fear of substantial rebuttal. This is no longer the case and some of the information emanating from MoD does that organisation a considerable disservice and arguably lays Ministers open to public questioning. The statement referred to above can most kindly be described as "A Generous Interpretation of Libyan Events". Less kindly, it might be thought a "Gross Exaggeration".

3. Where and how is this Agility and Flexibility being demonstrated in the Libyan Theatre? Contrary to the MoD-provided statement:

1. Land-based air power is proving "less responsive" and "cumbersome" and this has been remarked upon at all levels within the international community. The only "profound influence" being generated on the world stage is a negative one: European NATO nations are:
    (a) unable to hold up their corner,
    (b) short of weapons, and
    (c) un-responsive to the needs on the ground.

2. The majority of effective strike power has been provided by the aircraft carrier *Charles de Gaulle*,[18] the United States Marine Corps Harriers (until withdrawn for political reasons by President Obama—too visible involvement for the American public to stomach) and, quietly and with no fanfare, by United States naval and air force aircraft (3,475 sorties—approximately 1/3rd of the total).[19]

4. SDSR gapped the United Kingdom's Sea-Based Airpower and in doing so prevented the UK from responding to the Libyan crisis in a truly agile and flexible manner (as with *Charles de Gaulle*).

5. Significantly, the Minister remarked upon the overriding need for fiscal constraint but, equally significantly, failed to mention the large and unnecessary cost of Britain's Land-Based Air contribution to Operation Ellamy compared with what it would have cost utilising the Sea-Based Air assets that were removed by SDSR 2010.

6. If the future constitution of our armed services is going to be based in part upon the Libyan experience, we must assess the true costs of that experience. Over a six-month period direct Land-Based Air Costs are realistically estimated to be approximately £900 million.[20] The more responsive, agile and flexible Sea-Based Air Costs would have been approximately £150 million. If the costs of the UK infrastructure supporting Libyan air operations (RAF airfields and Naval air stations and carrier) are taken into account, the Land-Based Air costs would rise to £1.35 billion compared with £0.245 billion for the same period utilising Sea-Based Air.

7. The SDSR recommendations will therefore have caused Britain to spend approximately £1 billion more than it would have needed to in just a six-month period—if the right decisions had been made in SDSR. This extravagant and wasteful expenditure will only be increased for any operations further afield than Libya if we continue to rely on Land-Based Air.

UK Airfield Costs and Sea-Based Air "Mobile Airfield" Costs in support of Task Force Operations

INTRODUCTION

1. When comparing Land-Based Air costs against Sea-Based Air costs for task force operations offshore, it is not unreasonable to take into account the cost of running the air bases in the UK (and, for example, Akrotiri, Cyprus) from which the RAF and the Royal Navy Fleet Air Arm deploy their aircraft.

2. This paper addresses these costs and draws appropriate comparisons. Official Government figures are used/extrapolated as given (unless otherwise stated): for example, by Nick Harvey MP (Minister of State (Armed Forces), Defence; North Devon, Liberal Democrat) in Parliamentary Written answers and statements, 2 December 2010 in response to a question by Sir Menzies Campbell CBE QC (North East Fife, Liberal Democrat) on the subject.

[18] David Brunnstrom—BRUSSELS (Reuters), Thu Jun 30, 2011 5:25pm GMT. *"The Charles de Gaulle… has launched an average of 40% of the daily strike missions in Libya."* It would appear that one medium-sized aircraft carrier can provide as much a daily firepower in the target area as the combined efforts of Land-Based Air from UK, Denmark and Norway.

[19] AFRICOM spokeswoman Nicole Dalrymple, 4 July 2011.

[20] Updated figures are presented in more detail in Phoenix Think Tank *Air Power Projection* papers and in the paper, "*The Compelling Cost of the Land-Based Air over Libya*".

AIRFIELDS SUPPORTING OPERATION ELLAMY: LAND-BASED AIR

3. Annual running costs for the principal airfields providing Land-Based Air support for Operation Ellamy are as follows:

Table 1

ANNUAL AIRFIELD RUNNING COSTS 2010–11—LAND-BASED AIR

	Aircraft	*Total £ millions*
RAF Akrotiri	Support Base	*£100**
RAF Brize Norton	Logistics	£220
RAF Coningsby	Typhoon	£101
RAF Kinloss	Nimrod	£76
RAF Lossiemouth	Tornado GR4	£115
RAF Lyneham	Logistics	£121
RAF Marham	Tornado GR4	£144
RAF Waddington	E-3 Sentry AWACS	£113
	Total	**£991**

* Estimate.

All of these airfields except Akrotiri are dedicated to supporting a particular type of aircraft deployed for Operation Ellamy: Akrotiri is continuously manned and maintained as a contingent capability for the support of offshore operations, eg Afghanistan, Libya. (Aircraft carriers also provide contingent capability but with greater flexibility, mobility and deterrence).

AIRFIELDS/PLATFORMS THAT COULD HAVE SUPPORTED OPERATION ELLAMY: SEA-BASED AIR

4. Annual running costs for the principal airfields and/or operating platforms that could provide Sea-Based Air support for Operation Ellamy are as follows:

Table 2

ANNUAL AIRFIELD RUNNING COSTS 2010–11—SEA-BASED AIR

	Aircraft	*Total £ millions*
RAF Cottesmore/Culdrose	Harrier GR9/AEW Helo	£107*
Army Air Corps	Apache	*£30***
Royal Fleet Auxiliary		£10
Illustrious class carrier		£25
Amphibious Assault Ship	HMS Ocean Air Group	*£15***
	Total	**£187**

* It is likely that RAF Cottesmore would not be the home base for Royal Navy Harrier aircraft; but rather, Royal Naval Air Station Culdrose which would also be the base for the AEW Sea King Mk7 helicopter.
** These figures are estimates.

DISCUSSION

5. The above assets are directly concerned with providing air support for offshore contingency operations. Other Royal Naval surface warships and submarines are not included in the equation because:

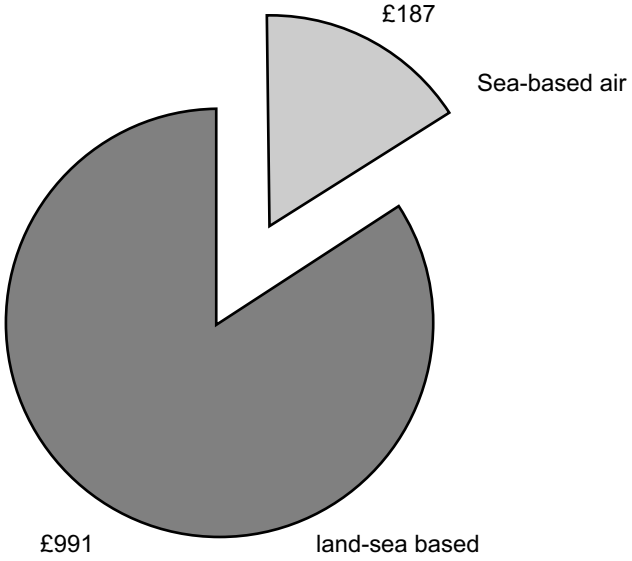
(a) They are not directly concerned with the physical provision of Close Air Support missions.

(b) They are in place and providing operational services irrespective of whether Land-Based Air or Sea-Based Air is used.

6. Figure 1, below, provides a graphical presentation of the comparison in cost terms between "the airfield requirements for the permanent basing of air assets that are deployed in support of offshore operations".

Figure 1

COST OF SUPPORTING AIRFIELDS



CONCLUSIONS

7. There is an extremely large and expensive infrastructure of RAF airfields and aircraft supporting Britain's ability to deploy Land-Based Air for offshore contingency task force operations.

8. The infrastructure for supporting the deployment of Sea-Based Air is very much smaller and less expensive—yet delivers the same or better effect.

RECOMMENDATION

9. Bearing in mind the fact that Sea-Based Air contingency operational deployments are better tactically, cheaper and once the carrier is deployed, faster (achieving at least as good combat effectiveness), Whitehall should now reconsider the wisdom of reliance upon Land-Based Air and concentrate future resources on the Sea-Based Air option.

Air Power Projection Options. The Logical Choice Is Clear

INTRODUCTION

1. 90% of the world's population lives within 100 nautical miles of the ocean shore. It follows that 90% of the possible trouble spots in the world also lie in littoral areas. It should be noted that for target areas well inland, Sea-Based Air support still has an extremely good range capability but the advantages in cost-effectiveness start to diminish as the range increases. Nevertheless, for example, in Afghanistan approximately 35% of all Close Air Support missions are flown by F-18 aircraft launched from United States aircraft carriers. It should be further noted that in Iraq 80% of all strike missions flown were conducted by carrier borne aircraft.

2. Prior to SDSR 2010 Britain had available four main aircraft types that have an ability to deliver weapons independently of other aircraft in support of own ground forces within an overseas theatre of combat:

(a) Harrier GR9. A specialist Close Air Support aircraft (Royal Navy/Royal Air Force). Carrier capable.

(b) Apache attack helicopter. A specialist Close Air Support aircraft (Army Air Corps). Carrier capable.

(c) The battlefield Lynx. A specialist Close Air Support aircraft (Army Air Corps). Carrier capable.

(d) Tornado GR4 (RAF). A low-level interdiction bomber. Non-carrier capable.

(The Typhoon not yet fully modified for the ground attack role.)

3. The first three types above are fully capable of operating from aircraft carriers and amphibious assault ships and can therefore normally be positioned close to the scene of required action as in Libya. The Tornado (and the Typhoon) can only be operated from airfields on land and require significant logistical support to do so away from their home base. The logical option for air power projection (Sea-Based Air versus Land-Based Air) should therefore be defined by:

(a) operational effectiveness,

(b) cost effectiveness, and

(c) the risk factor associated with the presumption that secure land-based airfields will be available for UK aircraft deployment close to the Theatre of action.

Capability and Cost

4. Table 1, below, demonstrates the firepower available from the Sea-Based/Carrier Capable Aircraft and from the Land-Based Aircraft (Tornado):

Table 1

COMPARATIVE WEAPON LOADS—SEA VERSUS LAND-BASED AIR

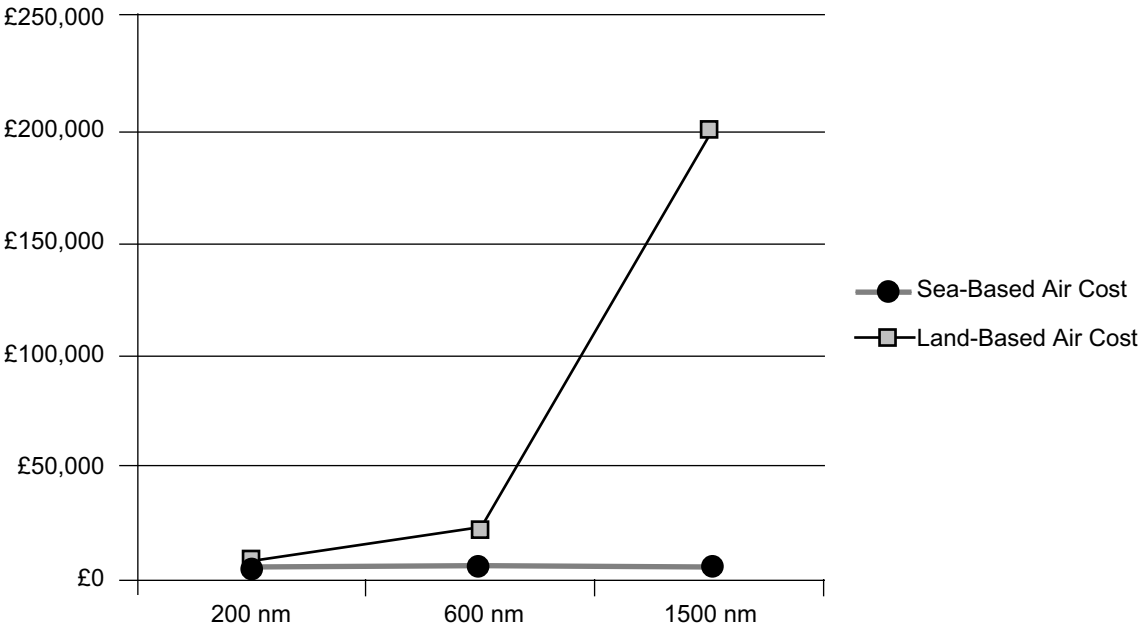
	GPS Guided Bomb	*GPS Bunker Buster Bomb*	*Maverick*	*Brimstone/ Hellfire*	*2.75"/ CRV Rockets*	*20mm/ 30mm Cannon*	*Storm Shadow*	*ALARM*	*Tomahawk*
Sea-Based Air	√	√	√	√	√	√	×	×	√
Land-Based Air	√	√	×	√	×	√	√	√	×

The two weapons that are not carried by either Harrier or Apache are the Storm Shadow missile and the ALARM anti-radar missile. However, the Storm Shadow capability can be adequately covered by the GPS Bunker Busting Bomb carried by the Harrier (now being used by Tornado in Libya for precisely this purpose instead of Storm Shadow).

5. The fuel cost per mission is markedly higher for the Land-Based Aircraft because of the long transit distances to the target area and the resultant need for Air-To-Air Refuelling. Figure 1, below, demonstrates that Land-Based missions from airfields 600 nautical miles away (which achieve just the same weapons effect) cost more than four times as much as Sea-Based Air missions. If Land-Based Air has to operate from a range of 1,500 nautical miles, each mission costs approximately 40 times as much as the equivalent Sea-Based Air mission.

Figure 1

FUEL COSTS PER MISSION—SEA VERSUS LAND-BASED AIR



6. 300 weapon delivery missions flown by Sea-Based Air costs £1,450,000 in aviation fuel (Harrier: £5,750 per mission—200 missions. Apache: £3,000 per mission—100 missions).

7. The same 300 weapon delivery missions flown by Land-Based Air from 1500 miles costs £60 million in aviation fuel (Tornado and Typhoon: £200,000 per mission).

Discussion

8. Based on fuel costs alone, Sea-Based Air is the logical cost-effective choice for the delivery of weapons in support of ground force operations overseas.

9. On the face of it, there is little difference in weapon carrying capability between Sea-Based Air and Land-Based Air. The only real option that current Sea-Based aircraft do not presently deliver is the ALARM anti-radar missile (which some, but not all, Tornado aircraft can carry—this weapon has not been deployed in Operation Ellamy and should not therefore be considered a decisive priority).

10. However, it is important to note that the Harrier is a specialist Close Air Support aircraft (as is the Apache helicopter) and is more flexible and capable in that role than the Tornado. (Tornado shortfalls in this role have become apparent in Afghanistan with the Apache helicopter taking on more of the Close Air Support missions.) Reasons for this include:

(a) The time delays involved in long transits to targets using Tornadoes rather than locally sea-based aircraft—making tactical response against mobile, transient targets markedly less effective.

(b) Relatively poor downward visibility from the Tornado twin cockpit configuration.

(c) The reliance of Tornado on extremely long runways due to the aircraft's power deficiency on take-off.

11. Contrary to the advice given by the Royal Air Force to Ministers, therefore, the Tornado has no significant weapons delivery advantage over the Harrier for Close Air Support and it costs much more to place the Tornado over the target than it does with Harrier or other Sea-Based Air vehicles. Fuel costs are markedly higher but these pale into insignificance when the logistics air support costs of deployed Land-Based Air are also taken into account.

Immediate Way Ahead

12. In the light of the above, it would have been financially and operationally advantageous for the Royal Navy Harrier GR9 squadrons to have been immediately re-commissioned and embarked in HMS Illustrious for service in the Mediterranean. This is still possible. The military and fiscal benefits of this would be matched by political gain—satisfying Sec Gates' call for more capability and commitment to be demonstrated by European NATO nations.

The Future

13. Whilst the F35C is the aircraft presently planned for use on our new carriers, there remain some doubts as to its timely availability, cost and suitability. Indeed, with the fiscal crisis and debt problems now facing the United States, it is possible that the F 35 program as a whole might be cancelled or considerably reduced in scope. If the latter, the procurement cost per unit could "skyrocket"; putting it beyond the reach of the limited UK defence budget. It would be prudent, therefore, for military and government planners to take serious note of this possibility and consider alternatives.

14. A cost-effective, interim and possibly permanent option is readily available for the choice of aircraft. This is the 4.5 generation F-18 Super Hornet swing role fighter aircraft. It carries a greater variety of state-of-the-art weapons than either the Harrier or the Tornado and is the aircraft of choice for United States aircraft carriers up until at least 2035. Demonstrative Close Air Support weapon loads for this aircraft are given at Annex A. It should be noted that on all missions the F-18 also carries state of the art air-to-air missiles, thereby providing a continuous level of long range Expeditionary Task Force air defence and airspace denial (obviating the need for any form of Typhoon support).

Annex A

F-18 SUPER HORNET WEAPONS LOADS

SEA-BASED-BASED AIR—GLOBAL CAPABILITY

F-18 Close Air support War loads

Always carrying at least two Sidewinder and AMRAAM air-to-air missiles.

Mk 82	*AGM88*	*CBU87*	*CBU89*	*GBU10*	*GBU12*	*GBU24*	*JDAM*	*AIM 9*	*AIM120*	*20mm*
6								2	2	500
	2							2	2	500
		4						2	2	500
			4					2	2	500
				2				2	2	500
					6			2	2	500
						2		2	2	500
							2	2	2	500
								2	6	500
									8	500

MK 82 500LB BOMB

AGM 88 HARM—anti-radar missile

CBU87

A cluster of 202 anti-armour, anti-personnel and incendiary bomblets that disperse over a discrete area and explode upon impact.

CBU 89 (78/B) GATOR

The Navy CBU-78/B is a 500-pound class cluster weapon that uses the Mk7 Rockeye dispenser. Rockeye has been in high-rate production for many years; the Mk7 dispenser is also a low-cost item.

GBU 10 2000lb Paveway

The GBU-10 consists of an MK-84 2,000 pound bomb with an added laser guidance package.

GBU 12 LGB Paveway

The Guided Bomb Unit-12 (GBU-12) utilizes a Mk82 500-pound general purpose warhead. The operator illuminates a target with a laser designator and then the munition guides to a spot of laser energy reflected from the target.

GBU 24 LLLGB Paveway

The Guided Bomb Unit-24 (GBU-24) Low Level Laser Guided Bomb [LLLGB] consists of either a 2,000-pound MK-84 general purpose or BLU-109 penetrator bomb modified with a Paveway III low-level laser-guided bomb kit to add the proportional guidance in place of the bang-bang type used in the Paveway II.

GBU 38 JDAM 2000lb

JDAM provides accurate delivery of general purpose bombs in adverse weather conditions. JDAM can be launched from approximately 15 miles from the target and each is independently targeted.

20 MM CANNON—500 ROUNDS

AIM 9 Sidewinder

AIM 120 AMRAAM

"Expeditionary Force"—Sea-Based versus Land-Based Air Power

1. Government [Labour and Coalition] policy on Defence since 1998 requires the capability to deploy military force globally, often called "Expeditionary Force".

2. If this is to be done on anything but the lightest scales, sea control and transport is a prerequisite, along with the maintenance of an "adequate" air situation overhead.

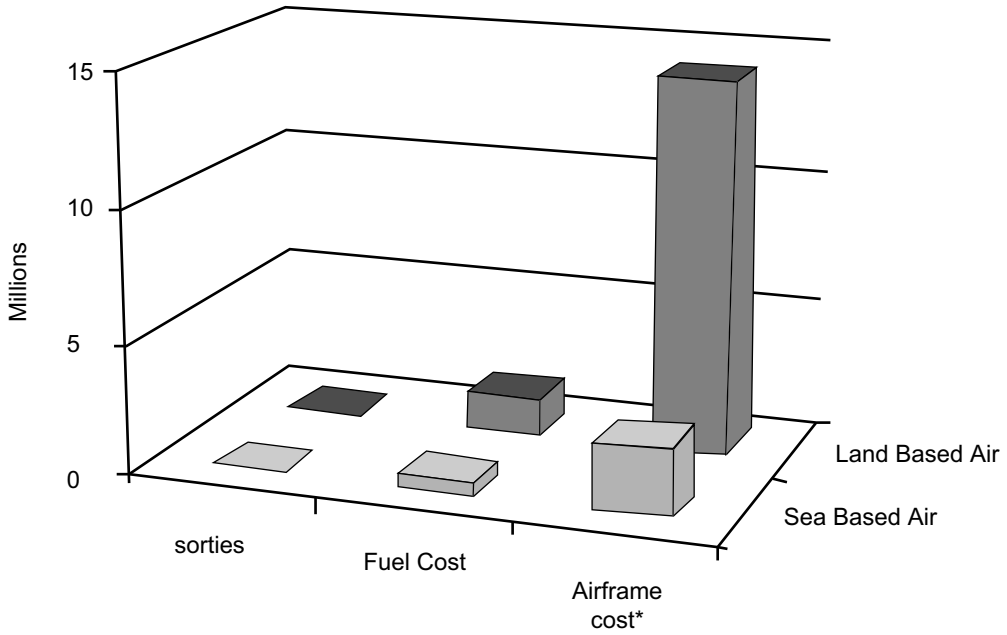
3. This last may be obtained by land-based aircraft but land-based airpower rapidly becomes extremely expensive and slow to react to events on the ground or sea as soon as the scene of action is more than three

or four hundred miles from its main base. Seaborne airpower does not become more expensive because its floating base and accompanying logistic support can be rapidly placed close to the scene of action.

4. Figure 1, below illustrates the disparity in fighter costs for the Libya operation—using data provided by the government[21] and using Harrier as the sea-based fighter aircraft.

Figure 1

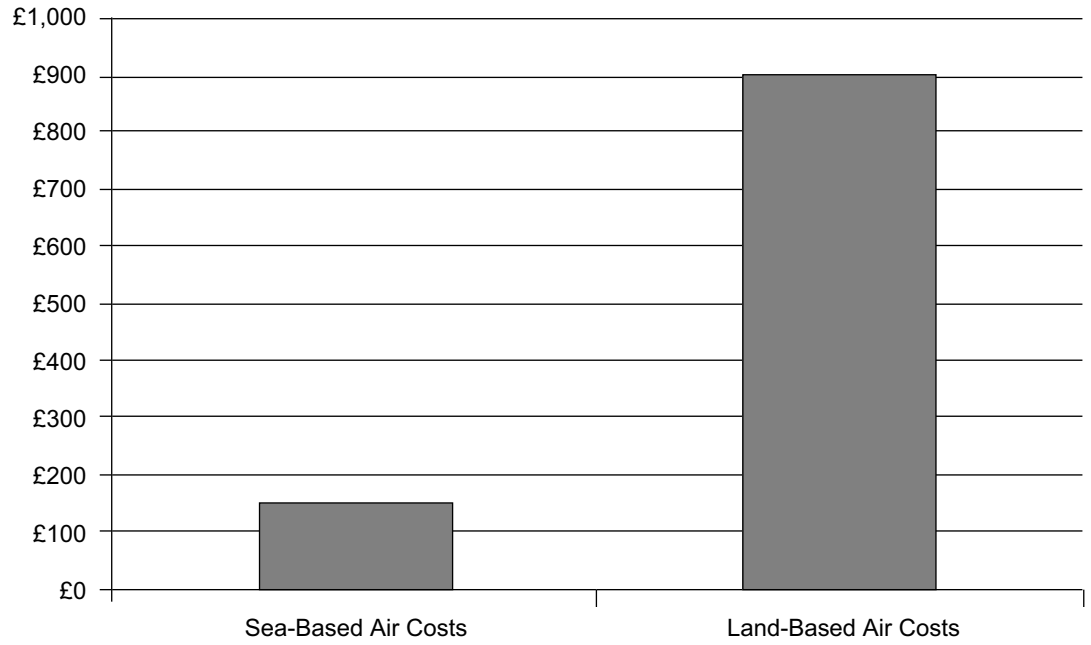
ATTACK AIRCRAFT COST PER WEEK £ MILLIONS



5. Figure 2, below provides estimates for the total cost of six months' operations over Libya—again using data provided by the government and using Harrier as the sea-based fighter aircraft.

Figure 2

COST IN £ MILLIONS



6. It follows that, where at all possible and in the interest of flexibility, cost and operational efficiency, all of the U.K.'s future fixed wing fighter aircraft should have full seaborne capability.

[21] As discussed in detail in Phoenix Think Tank papers on "*Air Power Projection Options*", June 2011.

7. The tasks of both the RAF's Tornado and Typhoon could be performed effectively in the future by the carrier capable F-35C. However, there continue to be development and funding problems for the F 35 family of aircraft and, indeed, as a result of the pressing United States debt management crisis it is possible that the program may be significantly curtailed—or even cut. Government/MoD planners should therefore consider an interim buy of an alternative, cheaper and readily available carrier capable aircraft such as the F18 E/F Super Hornet.

8. It is for consideration that an interim buy of this aircraft should be made before more cash is wasted on refurbishing old Tornado airframes and further Typhoons are bought. The main advantages of the F18 for the UK are:

(a) that it is available now

(b) that it is both land-based and carrier-based capable

(c) that it is one-third the price of a Typhoon or the F-35

(d) that it has more swing-role capability than Tornado and Typhoon combined

(e) that its performance as an interceptor is comparable to the Typhoon

(f) that it has tanker, EW/ELINT and Defence Suppression versions [F18G] that are not available elsewhere

(g) that it would allow for savings by having a Joint Headquarters and Training Squadron

(h) that either service operating the aircraft could support the other if required, and

(i) that savings would accrue in maintenance, training and spares which are plentiful as variants of the aircraft are operated by the USN, USMC, Canada, Australia, Spain, Finland, Kuwait, Malaysia and Switzerland.

Defending the UK's Interests Worldwide: The Libyan Experience

Executive Summary

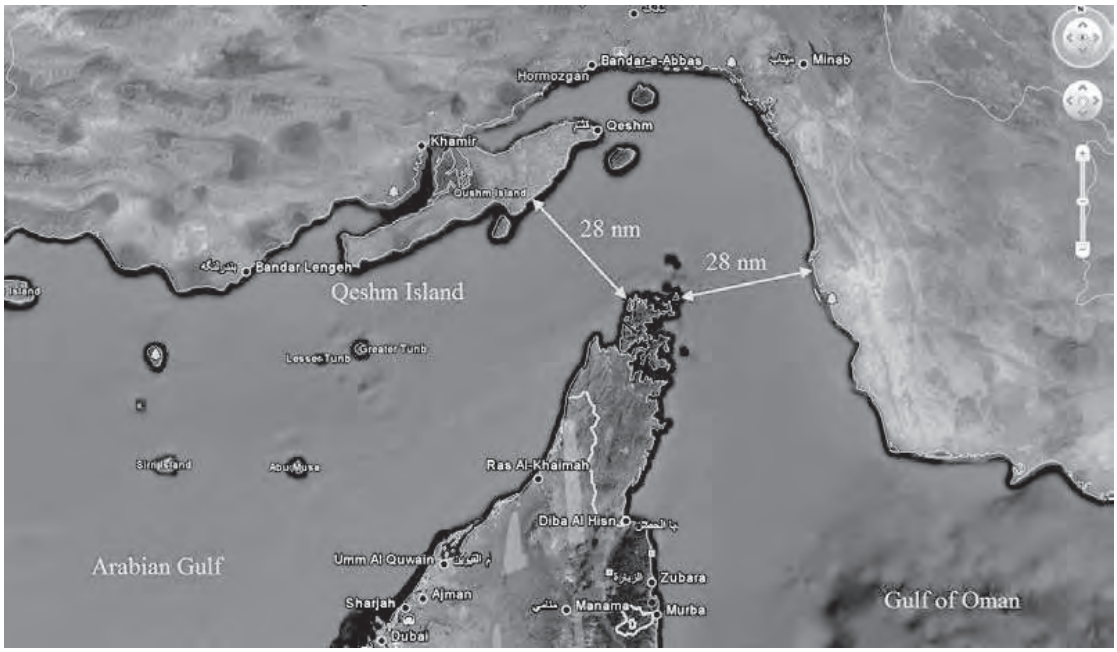
1. The re-emergence of asymmetric swarm attack within modern military tactical philosophy has significant implications for our need to protect our Sea Lines of Communication (SLOCs) and trade routes. This paper examines the role to be played by the *Queen Elizabeth* class carriers and their air groups in anticipating, deterring and overcoming asymmetric swarm attacks at commercial shipping chokepoints around the world, using the Strait of Hormuz as an example. The paper also highlights how the effectiveness of the carrier groups could be greatly enhanced by fixed and rotary wing Unmanned Carrier Air Vehicles (UCAV).

Introduction

2. One of the prime threats facing our Sea LOC and trade routes is the ability of rogue states and, to a lesser extent, terrorist organisations to launch "asymmetric swarm attacks" against merchant vessels and warships. The obvious points at which to launch such attacks are the chokepoints on important international shipping routes, a topical example of which is the Hormuz Strait at the entrance to the Arabian Gulf. Other choke points are the Bab el Mandeb near Aden, and the Sunda, Malacca, Lombok and Sumba straits around the Indonesian archipelago. All can be dominated by land based or small craft based anti-ship missiles (ASM).

3. Asymmetric Swarm Attack can be by soldiers or aircraft, warships or smaller craft, or any combination of these. The Soviets planned to use it for attacking NATO fleets in the North Atlantic and the Chinese Navy plans to conduct any combat operations against the U.S. Navy using swarm attacks. Swarm attacks can only be successfully opposed by providing own forces with the right equipment and weapon systems on-site/in theatre to deal with the threat.

THE HORMUZ STRAIT

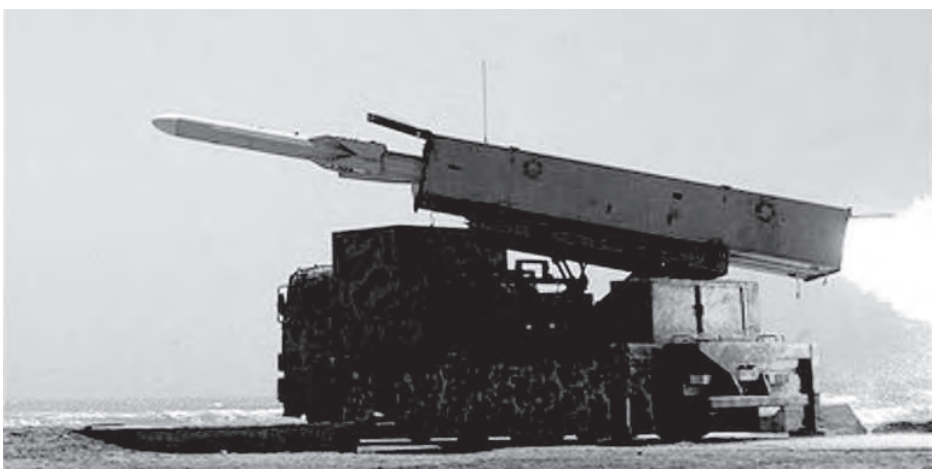


4. The most prominent expression of Iran's naval warfare doctrine was a series of limited naval skirmishes with the U.S. Navy in April 1988 during the final phases of the Iran-Iraq War, when hopelessly outclassed Iranian forces battled U.S. naval units in the Persian Gulf. The experience taught Iran that large naval vessels are vulnerable to small boat operations and spurred interest in missile-armed fast-attack craft.

5. Iran has amassed a fleet of fast patrol boats in the Hormuz Strait under the control of the Islamic Revolutionary Guard Corps. Armed with cruise missiles, mines and torpedoes, they can reach a speed of 100 kph/62 mph. They can cross the straits in 30 minutes and attack shipping with very much less warning.

6. During hostilities, Iranian naval forces would seek to close the Strait of Hormuz and destroy enemy forces in the Persian Gulf; speed and surprise would be key. Iranian naval forces would seek to identify and attack the enemy's centres of gravity as quickly as possible and inflict maximum damage before enemy counter-attacks degrade their capability. Because of the proximity of major shipping routes to the country's mountainous 2,000-km coastline, Iranian naval elements can sortie with little chance of early detection. Meanwhile, shore-based anti-ship missiles can engage targets almost anywhere in the Persian Gulf and the Gulf of Oman.

IRANIAN MOBILE LAND-LAUNCHED ASM



7. To achieve the latter capability, and to improve the flexibility of its shore-based missile force, Iran has devoted significant efforts to extending the range of locally produced variants of a number of Chinese shore-based anti-ship missiles (ASM) such as the HY-2 Silkworm and the C-802 (from 50 to 300 kms and from 120 to 170 kms, respectively). It has also introduced the use of helicopter-borne long-range anti-ship missiles.

Does the United Kingdom need a Unilateral Capability against Asymmetric Swarm Attack?

8. There are at least three scenarios in which a blockade of the Hormuz Strait (or other strategic choke points) could directly affect British interests:

(a) A total blockade against all international shipping.

(b) A blockade to prevent oil and gas from Iraq or Kuwait from getting to their markets.

(c) A blockade specifically targeted against British shipping.

In the light of the strategic oil and gas supplies situated within the Arabian Gulf, the first would generate a major international response led by the U.S. Navy. The second would also most probably invite a response by the USA to prevent another war between Iraq and Iran.

9. The last, however, would be a specifically targeted blockade against British shipping enforced by the Iran government or threatened by terrorist organisations supported by Iran. It is clearly in the interest of Britain to be able to respond independently to the threat of such blockades in the Strait of Hormuz and at other chokepoints worldwide.

How should The United Kingdom plan to Deter or React to such a Blockade?

10. Deterrence is born from strength and visible/recognised capability. Carrier Battle Groups have the integral capability to bring overwhelming power to bear against those that wish to threaten us. Such deterrence has been very successful at preventing the need for escalation of UK combat operations in the past—and the Queen Elizabeth class carrier and air group will provide the same deterrence in the future.

11. The only alternative would be to maintain sovereign bases in foreign lands close to the chokepoints from which appropriate air and surface operations could be launched. This was the premise behind the 1967 carrier withdrawal decision, based on the Royal Air Force claim that it could protect the fleet from air attack anywhere on the high seas of the world. That claim was proved fallacious in the 1982 Falklands conflict.

12. We can no longer afford the luxury of building, supporting and protecting military air bases throughout the world, use of which may be limited by the political will of other nations, particularly if those bases are specifically for a single local purpose and do not contribute to our general national security interests.

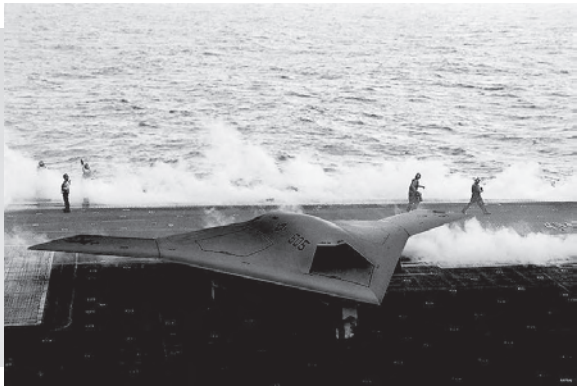
MOBILITY

13. Carrier battle groups have the ability to deploy rapidly to any scene of rising tension. Their movement on the high seas is not constrained by the sovereign rights of other nations and their extraction does not leave a military footprint, and they are not obliged to remain in any position where they could easily be attacked. Whether reacting to littoral conflicts or threatened blockades, their very presence in theatre acts as a very strong deterrent, which often leads to de-escalation in tension and prevents the need for full military action. Air to air refuelling may allow land based aircraft to reach a combat theatre, but it cannot create the intensity of flying operations that a carrier close to the combat zone can provide.

PROJECTION OF OFFENSIVE AIR POWER BY A CARRIER BATTLE GROUP

14. The long radii of action of the Joint Strike Fighter (eg F-35C—700 nm) will ensure the capability to reconnoitre and attack threat positions without placing the carrier group itself in danger.

15. Significant as this capability is, an even more impressive capability is now available for deployment from carrier group decks; that is, the use of fixed and rotary wing Unmanned Carrier Air Vehicles (UCAVs).



16. The rotary wing A160 Hummingbird UAV is already proving its worth in combat operations in Afghanistan and can be operated from any small ship that is helicopter capable. The fixed wing X-47B UCAV, now in pre-production for the U.S. Navy (and specifically planned for integrated carrier operations with the F-35C), will have a combat radius for reconnaissance and surface/ground attack missions of approximately 3,000 nm.

17. Embarking a mix of F-35Cs and X-47Bs in the Queen Elizabeth class carriers would further contain the cost of the F-35C procurement and, at the same time, would endow the carrier air group with an almost strategic level of reconnaissance and attack, providing the capability to attack targets anywhere in Iran from a launch position in the middle of the Indian Ocean. The embarkation of the versatile Hummingbird in accompanying warships would provide for a significant increase in the battle group's reconnaissance and attack capability.

18. In the context of the Hormuz Strait and deterring/combating asymmetric swarm attack, such capability would be invaluable. For example, if reacting to swarm attacks that have already taken place against merchant shipping, the carrier group could launch a continuous stream of stealthy and precise interdiction missions/ attacks whilst in transit to and well before it arrived in the combat theatre.

The New Age of Unmanned Air Vehicles

19. Combat operations in Afghanistan have already demonstrated the extraordinary effectiveness of rotary wing UAVs on the battlefield. The A160 Hummingbird, controlled by the army on the ground, has proven its worth time and again in the tactical support of frontline combat operations, conducting some missions that might not have been possible with manned aircraft, at far lower cost.

20. These UAVs are fully integrated within the local ground force command structure and complement the tactical air support expertise and capability already demonstrated by Royal Navy Lynx helicopters and Army Apaches. Further to their hitting power and flexibility, they have the distinct advantage of not requiring expensive aircrew officers to operate them. Indeed experience has shown that a Weapons Operator with an affinity for computer games is the ideal candidate for controlling these vehicles in the air and on task.

21. With UAVs having such extended combat ranges and endurance time, other factors come into play. These include the distance to reload and the capacity of the home base to maintain and repair the units when they come back damaged. Future unmanned systems will be stealthy and maintenance of the skin and ECM gear will be crucial to their mission success. In the Royal Navy, embarked facilities would make it unnecessary to rely on third party land-based support, which would require expensive facilities to be created close to each new theatre of action.

Typical Reconnaissance Equipment for UCAVs/UAVs

22. The UCAV/UAV with the "Gorgon Stare" is a good example of available modern systems. It has approximately 300 lenses using sophisticated infrared and ultraviolet technologies to detect, record and identify even very small (human) targets by day or night at ranges of more than 10 miles. It can cover a four-kilometre radius beneath the UAV from 12 angles, permitting a combat controller on the ground, a commander at HQ and an intelligence officer back in the U.S. all to choose a different angle from the same UAV.

23. The A160 Hummingbird appears to enjoy even more "specialist" capabilities. Fitted for AEW with its Forester Radar it is purported to be able to:

(a) "See through" three to four layers of forest canopy and detect ground targets;

(b) Detect air targets at a reasonable distance; and

(c) Detect submerged submarines when they are close enough to the surface (within 100m or so).

Offensive Attack Power of UCAVs/UAVs

24. The Hummingbird can carry a greater ground attack load than the Apache gunship. It can also carry a sono-buoy package and torpedoes, making it a prime system for the interdiction of swarm attack by surface craft.

25. The X-47B can carry all ordnance destined for F-35, making it a very powerful, very long range attack vehicle.

Preparing for the Contingency of a Blockade of the Hormuz Strait

26. It is of course inherent in all warfare doctrine to be prepared when there is a likelihood of attack against own interests, and to reconnoitre the threat in detail. This could be best achieved by having stealthy "eyes in the sky" patrolling the threat zone on a daily basis and gathering detailed information on the position and disposition of threat forces, to mitigate the possibility of mistakenly engaging non-combatant targets.

27. The F-35C could carry out this task from moderately long range, but the longer range X-47B is even less vulnerable to detection or interdiction than the F-35. It would be more logical and cost-effective to use the UCAV capability with its extensive loiter time over the target area and its impressive array of visual and electronic intelligence gathering equipment. The rotary wing UAVs are also extremely stealthy and capable in their own right.

Countering an Attack against our Shipping in the Hormuz Strait

28. Given full prior reconnaissance of Qeshm Island, adjacent coastlines and other smaller islands, accurate action can be taken against any land or sea attack on a British merchantman. Missile air defence and radar installations would be high priority first strike targets. Iran might initiate attacks on merchant shipping with massive swarm attacks or begin with smaller scale actions. Britain must be prepared first, to deter such attacks with a robust military presence in theatre and second, to provide a graduated and effective response to any level of attack. The Carrier Battle Group would not enter the "killing ground" of the Arabian Gulf if there were any possibility of an Iranian attack, but would stand off and use its long range attack capability to destroy Iran's inventory of swarm attack associated weapons systems.

Summary

29. There are several commercial shipping chokepoints around the world through which Britain's vital trade must pass, which may be threatened by rogue nations or terrorist organisations with the ability to launch mass asymmetric swarm attacks against shipping. Examination of this threat in the Hormuz Strait indicates that it can be countered by deterrence, and by graduated response leading to overwhelming force.

30. In the light of Britain's diverse global interests, she must be prepared to deal with this threat both unilaterally and in conjunction with Allies. This will require a detailed reconnaissance picture of the threat zone, an ability to distinguish between threat platforms and normal shipping, and an ability to interdict those platforms and associated land installations with overwhelming air attack power from long range.

31. The Queen Elizabeth class carriers and their air groups with their long range reconnaissance capability, their firepower, their inherent mobility and their rapid response time represent the most cost-effective and operationally effective options for dealing with this threat. Balanced investment in Unmanned Carrier Air Vehicles (UCAVs) and rotary wing Unmanned Air Vehicles (UAVs) would significantly enhance this capability.

Armed Services—Active Operational Commitments and Personnel

Executive Summary

(i) This paper provides the reader with an understanding of the level of Active Operational Commitment and Responsibility enjoyed by each of the three Services.

(ii) It compares the Personnel Strength of each Service with associated Active Operational Commitments and draws conclusions.

Introduction

1. In the light of the on-going Defence Select Committee, Public Accounts Committee and Defence Reform Unit deliberations concerning the way ahead for our Armed Forces, it is considered necessary that such deliberations

(a) Should be able to take into account the Active Operational Commitments and Responsibilities of each of the three Services; and

(b) Should be able to assess properly the direct contribution being made by each Service to Active Front Line Operations.

2. For the purpose of this paper, "Active Operational Commitments" are those Commitments that require the deployment of military assets to deter or oppose a tangible or perceived threat. Standing Forces that continue to be maintained on the basis of the Cold War Strategy cannot be considered "actively committed" to operational activity. For example, the resources still maintained.

(a) to provide defence of UK air space against military attack; or

(b) to oppose a Soviet invasion of Europe

are not considered Active Operational Commitments—because in neither instance is there any perceived or imminent threat. (Please see Annex D for expanded comment/definition.) However, this paper is not suggesting and would not suggest that Britain can do without a well-equipped standing Army as a deterrent to those who might wish us harm. Such a standing Army would of course have to relate to current defence strategy and perceived threats.

3. The first three Annexes to this paper provide a breakdown of Active Operational Commitments and the numbers of Personnel directly associated with those Commitments.

4. Information from these Annexes is discussed and summarised below with a view to highlighting those areas that merit an increase in defence funding and other areas in which a revision in force levels and funding would be apposite.

5. The Commitments and Personnel figures may not be precise in all instances due to the lack of availability of certain statistics from MoD. However, they do provide a fairly accurate broad picture of how each service contributes to the frontline requirements facing the United Kingdom. Further input would be welcomed.

DISCUSSION

Annex A

ROYAL NAVY AND ROYAL MARINES

6. Based on the data available to date, **approximately 25% of Royal Navy and Royal Marines personnel and the majority of our fleet warships are deployed in the front line**, whether in Afghanistan, the South Atlantic, off Libya, in the Indian Ocean, in the Arabian Gulf or, indeed, in home waters. This global maritime military presence provides Britain with valuable political influence and is a visible deterrence to those who might wish to do us harm.

7. Other important Naval Commitments such as the Anti-Drug Patrols in the Caribbean have been discontinued as a result of the shortages of platforms and personnel inflicted by SDSR 2010.

Annex B

ARMY

8. Based on the data available to date, **approximately 5% of Army personnel are deployed in the front line at the present time.** As stated at paragraph 2, above, the value and the need for a robust, well-equipped standing British Expeditionary Force is not in question. However, the size and structure of this Service is considered to merit review.

Annex C

ROYAL AIR FORCE

9. Based on the data available to date, **approximately 6% of Royal Air Force personnel are deployed on Active Front Line Duty at the present time.** Logistic support for active land-based air operations offshore requires a further 7.5% of total manpower.[22]

10. Figures presented relating to Afghanistan and to Libya clearly demonstrate that the logistic supply of land-based air resources offshore costs more in terms of personnel and equipment than the frontline forces themselves. There are also undeclared logistics costs such as the permanent basing of RAF and Army personnel in Cyprus (2,800 personnel) and RAF Movements Personnel based in Bahrain, Oman, Qatar, Ascension Island and the United Arab Emirates (totalling at least 1,000).

11. At a time of fiscal constraint, this is clearly not an efficient way to conduct our military business. For instance, it is possible that air power delivered from aircraft carriers or air transport provided by civil airlines may be less expensive.

COMPARISONS DRAWN

12. The Annexes show that the Royal Navy and Royal Marines have far more Active Operational Commitments than the other two Services and yet have significantly lower numbers of personnel available for these important tasks.

Table 1

PERSONNEL ON ACTIVE OPERATIONAL COMMITMENTS

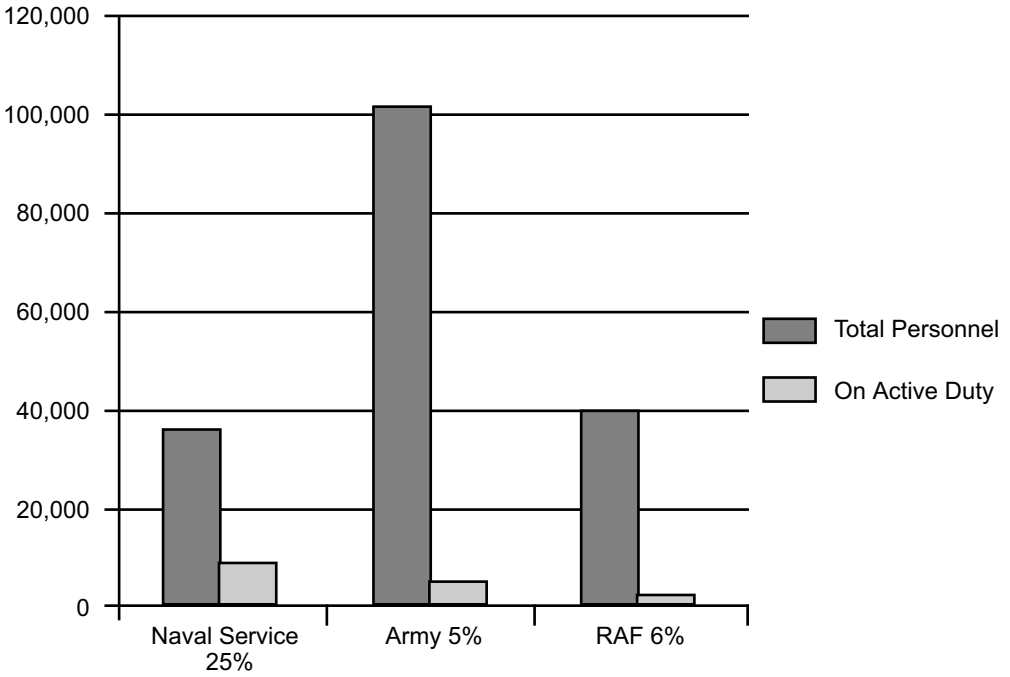
	Personnel Numbers		
Service	*At 1 April 2011*	*On Active Duty*	*Percentage*
RN & RM	35,430	8,677	24.49%
Army	101,300	5,300	5.23%
RAF	40,090	2,350	5.86%

[22] *"Strange as it may seem, the Air Force, except in the air, is the least mobile of all the Services. A squadron can reach its destination in a few hours, but its establishments, depots, fuel, spare parts, and workshops take many weeks, and even months, to develop."*

W Churchill. *"The Second World War."* Vol. 11, page 384.

Figure 1

GRAPHIC REPRESENTATION OF ACTIVE OPERATIONAL COMMITMENTS

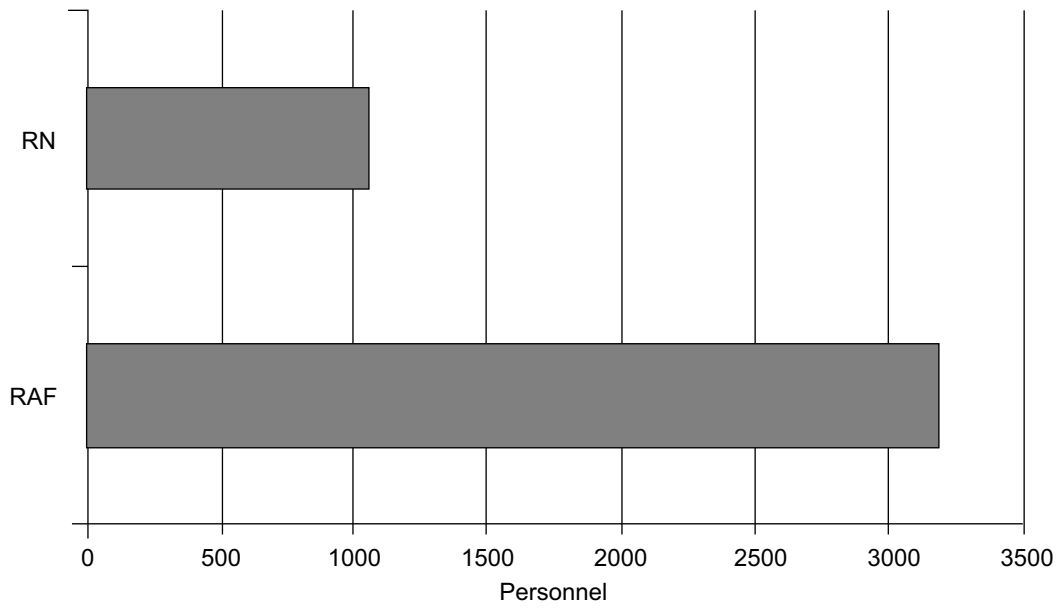


LIBYA—OPERATION ELLAMY

13. If we look specifically at the Libya campaign, Operation Ellamy, the comparison in personnel required to do the same job (with RAF Land-Based Air or with RN Carrier-Based Air) is given in Figure 2, below.

Figure 2

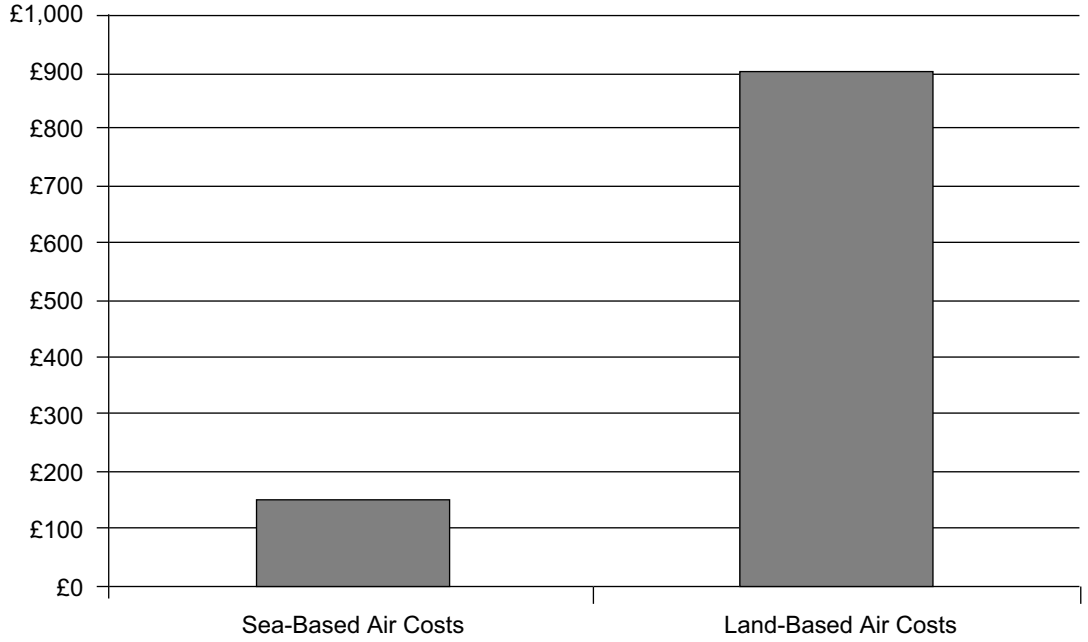
LIBYA—CARRIER VERSUS LAND-BASED AIR: PERSONNEL



14. Indeed, the Navy carrier option endows on-site operational advantages that are not available from the RAF option (including the ability to provide Command and Control and to deploy AEW Sea Kings, ASW Helicopters, Apache Attack Helicopters, Combat Search and Rescue, Hospital Care, Disaster Relief, etc). It would also save the taxpayer a lot of money as demonstrated in Figure 3, below.

Figure 3

LIBYA—CARRIER VERSUS LAND-BASED AIR: COST



Conclusion

15. The message is clear. In comparison with sister Services:
    (a) The Royal Navy is undermanned and overcommitted.
    (b) The Royal Air Force and the Army have far fewer commitments but relatively large manpower in relation to those commitments.
    (c) Based on the figures so far obtained, offshore deterrence and intervention would be more cost effective and more operationally effective[23] using maritime-based air power rather than land-based air power for any tasks beyond un-refuelled range of the UK.

Recommendations

16. It is recommended that:
    (a) The Defence Select Committee,
    (b) The Public Accounts Committee,
    (c) Defence Reform Unit, and
    (d) The Cabinet,

take note of the data provided within this paper and its Annexes and of the Conclusions at paragraph 14 above.

[23] Nicholas Watt, Guardian, 24 May 2011 reported: 'But [Nick] Harvey said deploying Apache helicopters [and or Harriers from warships] would have major advantages. ***"The principal advantage it would give us over what we are doing at the moment would be the ability to strike moving targets with greater precision than we are able to, using the air assets [Tornado and Typhoon] we are currently deploying,"*** he said.'

Annex A

THE ROYAL NAVY AND ROYAL MARINES

The Armed Services—Active Operational Commitments and Personnel

The Royal Navy and Royal Marines		
Total Personnel (1 April 11)	**Royal Navy & Royal Marines**	**35,430**
	[Royal Marines circa]	***7,000***

STANDING AND CONTINGENCY COMMITMENTS—WARSHIPS

STANDING COMMITMENTS AIRCRAFT CARRIERS

Task	*Platforms Involved*		*Personnel Involved*
Refit—returns to Fleet July 2011	*One Invincible Class—HMS Illustrious*		*685*
	Air Group		*366*
		Sub-Total	***1,051***

CONTINGENCY COMMITMENTS AIRCRAFT CARRIERS

Task	*Platforms Involved*	*Personnel Involved*

STANDING COMMITMENTS FRIGATES AND DESTROYERS

Task	*Platforms Involved*		*Personnel Involved*
UK maritime security	One Type 45 destroyer		195
UK maritime security	One Type 42 destroyer		287
UK maritime security	Two Type 23 frigates		370
Atlantic patrol tasking (South)[1]	Two Type 42 destroyers		574
Pre-deployment leave	*One Type 42 destroyer*		*287*
OP CALASH Counter Piracy	One Type 23 frigate		185
OP ELLAMY—Libya	One Type 23 frigate		185
OP ELLAMY—Libya	One Type 22 frigate		250
OP CALASH Counter Piracy	One Type 22 frigate		250
Towed array patrol ship	One Type 23 frigate		185
Fleet Ready Escort	One Type 23 frigate		185
Sea Training	*One Type 45 destroyer*		*195*
Sea Training	*One Type 22 frigate*		*250*
Sea training	*Two Type 23 frigates*		*185*
Refit	*Three Type 23 frigates*		*555*
Assisted maintenance	*One Type 23 frigate*		*185*
		Sub-Total	**2,666**

CONTINGENCY COMMITMENTS FRIGATES AND DESTROYERS

Task	*Platforms Involved*		*Personnel Involved*
OP TELIC—Iraq	One Type 23 frigate		185
		Sub-Total	**185**

STANDING COMMITMENTS AMPHIBIOUS FORCES

Task	*Platforms Involved*		*Personnel Involved*

CONTINGENCY COMMITMENTS AMPHIBIOUS FORCES

Task	*Platforms Involved*		*Personnel Involved*
OP ELLAMY—Libya	Amphibious Assault Ship		285
		Air Group	180
	Albion—class LPD (2)		*650*
		Sub-Total	**465**

STANDING COMMITMENTS SUBMARINES

Task	*Platforms Involved*		*Personnel Involved*
Hunter Killers (SSN)			
Tactical support of Fleet	Trafalgar Class (6)		780
Tactical support of Fleet	Astute Class (1)		98
		Sub-Total	**878**
Trident (SSBN)			
Strategic Deterrent	Vanguard Class (4)		540
		Sub-Total	**540**

CONTINGENCY COMMITMENTS SUBMARINES

Task	*Platforms Involved*	*Personnel Involved*

STANDING COMMITMENTS MINE WARFARE

Task	*Platforms Involved*	*Personnel Involved*
OP ELLAMY—Libya		
OP TELIC—Iraq		

CONTINGENCY COMMITMENTS MINE WARFARE

Task	*Platforms Involved*		*Personnel Involved*
	Hunt Class (8)		344
	Sandown Class (7)		238
		Sub-Total	**582**

STANDING COMMITMENTS PATROL VESSELS

Task	*Platforms Involved*		*Personnel Involved*
South Atlantic Fishery Protection	River Class (4)		120
		Sub-Total	**120**

CONTINGENCY COMMITMENTS PATROL VESSELS

Task	*Platforms Involved*	*Personnel Involved*

STANDING COMMITMENTS FAST PATROL BOATS

Task	*Platforms Involved*	*Personnel Involved*
Gibraltar	Scimitar Class (2)	14
UK Fishery Protection	Archer Class (2)	12
	Sub-Total	**26**

STANDING COMMITMENTS SURVEY VESSELS

Task	*Platforms Involved*	*Personnel Involved*
Ocean Survey	HMS Scott	63
Inshore Surveys	HMS Gleaner	8
	Sub-Total	**71**

CONTINGENCY COMMITMENTS SURVEY VESSELS

Task	*Platforms Involved*	*Personnel Involved*
Submarine & Amphibious Support	Multi Purpose Survey (2)	144
	Sub-Total	**144**

STANDING AND CONTINGENCY COMMITMENTS—PERSONNEL

STANDING COMMITMENTS ROYAL MARINES & RN PERSONNEL

Task	*Platforms Involved*	*Personnel Involved*
Afghanistan		3,000
	Sub-Total	**3,000**

CONTINGENCY COMMITMENTS ROYAL MARINES

Task	*Platforms Involved*	*Personnel Involved*
Special Operations		200
	Sub-Total	**200**

STANDING AND CONTINGENCY COMMITMENTS—AIRCRAFT

STANDING COMMITMENTS AIRCRAFT

Task	*Platforms Involved*	*Personnel Involved*
OP ATALANTA EU Counter Piracy	Lynx	
OP TELIC—Iraq	Lynx	
OP CALASH Counter Piracy	Lynx, Merlin	
Afghanistan	Sea King Mk 4, Sea King Mk7	
South Atlantic	2 Sea King	

CONTINGENCY COMMITMENTS—AIRCRAFT

Task	*Platforms Involved*	*Personnel Involved*
OP ELLAMY—Libya		
	Grand Total Active Operational Personnel	**8,677**
	Percentage of Total Manpower	**24.79%**

Notes

South Atlantic	A standing naval commitment to the South Atlantic and West Africa.
OP ATALANTA EU Counter Piracy	EU counter-piracy
OP ELLAMY—Libya	In support of UNSCR 1973 (Libya).
OP TELIC—Iraq	Security of Iraqi territorial seas.
OP CALASH Counter Piracy	Counter-piracy

Personnel attached to platforms/warships in refit, on pre-deployment leave or Sea Training not included in Active Operational Personnel figures.

Annex B

THE ARMY

Armed Services—Active Operational Commitments and Personnel

The Army
Total Personnel (1 April 2011) **101300**

STANDING AND CONTINGENCY COMMITMENTS

STANDING COMMITMENTS

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan	Ground Forces		3,000
South Atlantic	Ground Forces		800
UN Support	Ground Forces		500
		Sub-Total	**4300**

CONTINGENCY COMMITMENTS

Task	*Platforms Involved*		*Personnel Involved*
Special Operations			300
		Sub-Total	**300**

ARMY AIR CORPS

STANDING COMMITMENTS APACHE

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan			0
South Atlantic			
		Sub-Total	**0**

CONTINGENCY COMMITMENTS APACHE

Task	*Platforms Involved*		*Personnel Involved*
OP ELLAMY—Libya	7 Apache helicopter		350
		Sub-Total	**350**

STANDING COMMITMENTS LYNX

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan	Lynx		350
		Sub-Total	**350**

CONTINGENCY COMMITMENTS LYNX

Task	*Platforms Involved*		*Personnel Involved*
		Sub-Total	**0**

	Grand Total Active Operational Personnel	**5,300**
	Percentage of Total Manpower	**5.23%**

Notes

South Atlantic	A standing naval commitment to the South Atlantic and West Africa.
OP ATALANTA EU Counter Piracy	EU counter-piracy
OP ELLAMY—Libya	In support of UNSCR 1973 (Libya).
OP TELIC—Iraq	Security of Iraqi territorial seas.
OP CALASH Counter Piracy	Counter-piracy

Personnel and families deployed to Europe/Germany/Canada facing no perceived military threat cannot be considered to be on Active Operations.

Annex C

THE ROYAL AIR FORCE

The Armed Services—Active Operational Commitments and Personnel

The Royal Air Force	
Total Personnel (1 April 2011)	**40,090**

STANDING AND CONTINGENCY COMMITMENTS—AIRCRAFT

STANDING COMMITMENTS TYPHOON (60 AIRCRAFT)

Task	*Platforms Involved*		*Personnel Involved*
Policing of UK Airspace	46 Typhoon aircraft		2,000
Falklands Air Defence	4 Typhoon aircraft		200
		Sub-Total	**200**

CONTINGENCY COMMITMENTS TYPHOON

Task	*Platforms Involved*		*Personnel Involved*
OP ELLAMY—Libya	10 Typhoon aircraft		300
		Sub-Total	**300**

STANDING COMMITMENTS TORNADO (107 AIRCRAFT)

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan	8 Tornado aircraft		150
		Sub-Total	**150**

Contingency Commitments Tornado

Task	*Platforms Involved*		*Personnel Involved*
OP ELLAMY—Libya	10 Tornado aircraft		300
		Sub-Total	**300**

Standing Commitments Sentry AEW1 (7 Aircraft)

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan			200
		Sub-Total	**200**

Contingency Commitments Sentry AEW1

Task	*Platforms Involved*		*Personnel Involved*
OP ELLAMY—Libya	1 AEW1		200
		Sub-Total	**200**

Standing Commitments Sentinel R1 (5 Aircraft)

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan	2		200
		Sub-Total	**200**

Contingency Commitments Sentinel R1

Task	*Platforms Involved*		*Personnel Involved*
OP ELLAMY—Libya	1		200
		Sub-Total	**200**

Standing Commitments Merlin HC3 (28 Aircraft)

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan	5		200
		Sub-Total	**200**

Contingency Commitments Merlin HC3

Task	*Platforms Involved*		*Personnel Involved*
Nil			
		Sub-Total	**0**

Standing Commitments Chinook HC (46 Aircraft)

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan	Chinook		400
		Sub-Total	**400**

Contingency Commitments Chinook HC

Task	*Platforms Involved*		*Personnel Involved*
Nil			
		Sub-Total	**0**

Standing Commitments Puma HC1 (48? Aircraft)

Task	*Platforms Involved*		*Personnel Involved*
		Sub-Total	**0**

Contingency Commitments Puma

Task	*Platforms Involved*		*Personnel Involved*
Nil			
		Sub-Total	**0**

COMMITMENTS LOGISTIC SUPPORT

Standing Commitments Globemaster III (7 Aircraft)

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan	*?*		*400*
South Atlantic	*?*		*200*
		Sub-Total	***400***

Contingency Commitments Globemaster III

Task	*Platforms Involved*		*Personnel Involved*
OP ELLAMY—Libya			*200*
		Sub-Total	***200***

Standing Commitments Hercules C-130 (24 Aircraft)

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan	*?*		*800*
South Atlantic	*?*		*800*
		Sub-Total	***800***

Contingency Commitments Hercules C-130

Task	*Platforms Involved*		*Personnel Involved*
OP ELLAMY—Libya			*200*
		Sub-Total	***200***

Standing Commitments TriStar KC1 (9 Aircraft)

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan	*?*		*600*
		Sub-Total	***600***

Contingency Commitments TriStar KC1

Task	*Platforms Involved*		*Personnel Involved*
OP ELLAMY—Libya			
		Sub-Total	***0***

Standing Commitments VC10 (6? Aircraft)

Task	*Platforms Involved*		*Personnel Involved*
South Atlantic	*1?*		*200*
		Sub-Total	***200***

Contingency Commitments VC10

Task	*Platforms Involved*		*Personnel Involved*
OP ELLAMY—Libya	*1?*		*200*
		Sub-Total	***200***

Standing Commitments Airbus Voyager (1 Aircraft)

Task	*Platforms Involved*		*Personnel Involved*
		Sub-Total	***0***

Contingency Commitments Airbus Voyager

Task	*Platforms Involved*		*Personnel Involved*
		Sub-Total	***0***

COMMITMENTS RAF PERSONNEL

Active Front Line Duty

Task	*Platforms Involved*		*Personnel Involved*
Afghanistan			1,150
South Atlantic			200
OP ELLAMY—Libya			1,000
Policing UK Airspace			*2,000*
		Sub-Total	**2,350**
		Percentage of Total Manpower	**5.86%**

LOGISTIC SUPPORT OF FRONT LINE

Task	*Platforms Involved*	*Personnel Involved*
Afghanistan		*1,800*
South Atlantic		*1.200*
OP ELLAMY—Libya		*600*
	Sub-Total	***3,000***
	Percentage of Total Manpower	***7.48%***

Notes

South Atlantic	A standing naval commitment to the South Atlantic and West Africa.
OP ATALANTA EU Counter Piracy	EU counter-piracy
OP ELLAMY—Libya	In support of UNSCR 1973 (Libya).
OP TELIC—Iraq	Security of Iraqi territorial seas.
OP CALASH Counter Piracy	Counter-piracy

Personnel working from home and on standby for UK Airspace Policing are not included in Active Operational Personnel figures.

Logistics Support activities cannot be considered Active Operations in the front line—any more than the Logistic supply of the Fleet at Sea.

Annex D

"ACTIVE OPERATIONAL COMMITMENTS"

FRONTLINE FORCES

1. In this new world post-SDSR 2010 and with the Prime Minister arguing with Defence Chiefs over whether Britain still maintains a "full spectrum" of military capability, it is considered important to recognize the distinction between "standing forces" and "those forces deployed in the front line".

2. There will be those who will whimsically claim that all our personnel in uniform are in the front line. That, of course, is not so! One would be justified in saying that all our personnel in uniform should be prepared for and capable of operating in the frontline—but that is very different from saying they are already there. Personnel living with their families on a day-to-day basis within the UK or in Germany or in Cyprus cannot be considered as being in the front line. Conversely, personnel deployed to Afghanistan for combat operations are most certainly in the front line.

DISCUSSION

3. Individual Service Chiefs will undoubtedly wish to provide their own definition of what can be classified as "frontline" and what can be classified as "Active Operational Commitments". In the same breath, we should be reminded that each Service operates under different harmony rules, the most demanding of which are those affecting Royal Navy and Royal Marines personnel. It is invidious that Army personnel should have better and more relaxed conditions of service than Royal Marines personnel—especially when conducting exactly the same type of combat operations (vis Afghanistan). It is also unconscionable that Royal Air Force personnel should have better and more relaxed conditions of service than Royal Navy and Fleet Air Arm personnel.

4. It would appear to be no coincidence that the Royal Navy has many more continuing active operational commitments offshore than either the Army or the Royal Air Force.

DEFINITION

5. For the purposes of this paper, it is the commitments to formal tasks offshore/away from the family that define "Active Operational Commitments"—particularly when the personnel involved face the possibility of military action and/or are placed in harm's way.

6. Some of these Commitments are standing ones such as Afghanistan, Antipiracy Patrols, Hunter Killer Submarine Operations and the Protection of the Falkland Islands and surrounding waters. Contingency Commitments are those that the government has not anticipated but feels compelled to react to; eg the Libya affair.

Written evidence from Chris Coverdale, on behalf of the Campaign to Make Wars History and Stop the War Coalition

On 21 March the Government issued a note purporting to explain the legal basis for the use of armed force against Libya. The last paragraph of the note stated:

> The Attorney General has been consulted and Her Majesty's Government is satisfied that this Chapter VII authorisation to use all necessary measures provides a clear and unequivocal legal basis for deployment of UK forces and military assets to achieve the resolution's objectives.

The claim that the use of armed force in Libya is authorised by the Security Council operating under Chapter VII of the UN Charter is false. The UN is a peacekeeping organisation and it is prohibited from using armed force. Article 41 of Chapter VII of the UN Charter states unequivocally:

> The Security Council may decide what measures not involving the use of armed force are to be employed to give effect to its decisions…

The phrase *not involving the use of armed force* is the single most important phrase in the UN Charter and its meaning is crystal clear. Would you please ask Government witnesses to explain how the use by HM Forces of high-explosive weapons such as cruise missiles, rockets, bombs and depleted uranium tipped munitions accords with the UN Charter and the prohibition on the use of armed force.

In 1970 the UN General Assembly issued a statement of the principles of international law that underpin the UN Charter. Two of its most important stipulations are:

> Every State has the duty to refrain in its international relations from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the purposes of the United Nations. Such a threat or use of force constitutes a violation of international law and the Charter of the United Nations and shall never be employed as a means of settling international issues.
>
> No State or group of States has the right to intervene, directly or indirectly, for any reason whatever, in the internal or external affairs of any other State. Consequently, armed intervention and all other forms of interference or attempted threats against the personality of the State or against its political, economic and cultural elements are in violation of international law.

Would you please ask your witnesses to explain why the Government is ignoring these prohibitions and violating international law in both Afghanistan and Libya.

As at 7 October, NATO forces have made 9,335 unlawful armed attacks from the air against targets in Libya in violation of the no-fly zone and the total ban on all flights. Libyan sources confirm that between 30,000 and 50,000 Libyan men women and children have been killed as a result of the conflict. Not one of our victims was allowed to defend themselves in court before being summarily killed by order of Parliament, the Prime Minister and NATO Governments.

Every political, civil and military leader in NATO knows that every human being has a right to life, that killing children is a crime against humanity, that killing people because of their nationality is genocide, that using weapons of mass destruction such as cruise missiles and depleted uranium munitions are war crimes, that a No Fly zone means that flying is prohibited and that civilians cannot be protected by attacking them with high-explosive weapons of mass destruction. Would you please ask witnesses and the Government to explain why they are undertaking, authorising, supporting or condoning actions which they know to be unlawful.

For more than 50 years UK Government lawyers have deceived Parliament, HM Armed Forces and the public over the illegal nature of warfare and armed conflict. It is time to identify and tell the truth about the laws of war and to expose the deep-seated corruption within Britain's political and legal systems that has caused warfare and the use of overwhelming military force against innocent civilians to become a central and accepted part of the British way of life.

I ask you to initiate an immediate halt to Britain's involvement in the wars with Libya and Afghanistan so that the legality of UK, NATO and ISAF armed interventions and the killings of innocent Afghan and Libyan men women and children can be considered in court.

Finally I ask that you establish a truly independent inquiry into the legality of warfare and the use of force so that arrangements can be made to ensure that Britain never again violates the UN Charter or the laws of war.