Rethinking British Defence Policy and its Economic Implications

The Second World War was a defining episode for Britain, both politically and industrially. The cold war reproduced the experience of the Second World War through Britain's role as number two in the Western alliance. With independent nuclear weapons and more military roles and command positions than any other NATO country apart from the United States, the British were able to hold onto a view of themselves as citizens (in fact subjects) of a great power. Because of the key importance of defence procurement the cold war sustained for many years the geographical and sectoral composition of industry. The cold war, in the words of the conservative MP George Walden, 'inflated our international influence' and resulted in an 'artificially large military burden'.[1]

To-day, the entire strategic environment has changed. There is no longer any immediate strategic threat to Britain. At the same time, new and tragic wars are taking place in the Balkans, the former Soviet Union, the Middle East and Africa. While Britain's commitments to peace-keeping have increased, defence thinking is still dominated by the idea of a World War II type of conflict in Central Europe or the surrounding seas.

In this paper, I argue that Britain faces a restructuring challenge which has parallels, even if less daunting, to the challenges faced in Eastern Europe. The defence sector, borne out of the experiences of war-time planning, operated rather like the command economies of Eastern Europe. For that reason, it constitutes a major factor in explaining Britain's relatively poor economic performance. The end of the Cold War offers an opportunity both for cutting and restructuring Britain's defence sector, in ways that could be potentially beneficial to British security and economy. If this is to be done properly, Britain has to abandon some of its most cherished assumptions about both defence and economic policy.

In contrast to Eastern Europe, however, the end of the Cold War has not led to the kind of far reaching debate about the implications for Britain's future that is required if thinking on these issues is to change. What is needed, according to George Walden is 'an imaginative and constructive approach ... to get people to understand that the good life and a proud, prosperous and influential Britain cannot be bought by an overblown defence establishment .... The alternative is a country that simultaneously loses its will for self-reform and its empire of influence, a sour and shrunken island so insecure in the new world that it resorts, like our legendary football hooligans, to aggressive insularity to sustain its sense of identity'.

[1]Speech to the Royal Institute of International Affairs, June 1990, reproduced in *London Review of Books*, "The Year Peace Broke Out"

This paper is about the implications of the end of the cold war for Britain's security policy and economy. The first part is about Britain's security and defence policy and the current choices. The second part describes the scale of Britain's defence effort and the third part is about the defence industrial sector, how it functions and how it is changing. The final part assesses the impact of defence cuts so far and possible alternatives.[2]

Britain's Security and Defence Policy

Background

Traditionally, British foreign policy has been defined in terms of what Churchill described as three overlapping circles: Britain's role as a post-imperial power with a number of post-colonial responsibilities and close relations to Commonwealth countries; Britain's special relationship with the United States, through which it was able to act as a minor super power, viewing itself as second only to the United States and differentiated from the rest of Europe; and, finally, Britain's role as a European country and member of the European Community.

There was always some tension between these three roles but all three were predicated on the assumptions of the cold war and the notion of a more or less permanent Soviet threat. Periods of confrontation were generally associated with a tendency to emphasise the British and Atlanticist roles whereas periods of détente, of efforts to accommodate the Soviet threat, tended to be associated with an emphasis on Britain's European role.

Throughout the 1960s and 1970s, under the governments of Wilson, Heath and Callaghan, there was a shift of emphasis towards the European role. The empire was replaced by the Commonwealth; colonial responsibilities, especially naval policing and far-flung land-based commitments, were phased out. In 1966, Britain took the decision to withdraw from East of the Suez Canal. Britain joined the European Community in 1973 and, on a number of issues, (the US role in the third world, NATO strategy etc.), distanced itself from the United States and took a common position with other West European countries.

During the 1980s under the government of Mrs Thatcher, this tendency was reversed. Along with President Reagan, Mrs Thatcher eagerly embraced the new cold war; defence spending rose and the government strongly supported the deployment of cruise missiles and went ahead with the purchase of American *Trident* missiles for Britain. By re-emphasising the special relationship with the United States, the British government was able to rekindle populist notions of Britain's position as a great power. In addition to the Soviet threat, Mrs

[2] ibid Vol 12, No 14, (26 July 1990) pp 10-12

Thatcher, along with the US government, placed increasing emphasis on new threats in the third world, arising from the proliferation of missiles and weapons of mass destruction, the rise of regional dictators like Galtieri (Argentina), Gaddaffi (Libya) and Saddam Hussein (Iraq), and the growth of terrorists, drug traffickers, fundamentalists, etc. The Falklands War substantiated this notion and provided an occasion on which to revive Second World War imagery and sentiments of Britishness.

In principle, the end of the cold war calls into question both the transatlantic relationship and the future of a specifically West European identity. On the one hand, Britons national position has come to the fore once again. On the other hand, there is a need for a newly defined international role. In practice, a rethink of Britain's foreign and security policy has been very slow to emerge.

Options for Change

In February 1990, in response to an oral question in the House of Commons, the Secretary of Defence, Tom King, announced that the Government was examining *'Options for Change'*. He explained that this exercise was different from defence reviews which had taken place in 1957, 1966-8, 1974-5 and 1981 since these were driven by the need to make expenditure cuts whereas the *'Options for Change'* were the result of changes in external circumstances. On March 28, 1990, he told the House of Commons Defence Committee: 'We have an emerging situation - emerging is an understatement, a galloping situation - that has changed the prospects, changed the likelihood of our whole defence requirements, in terms of the threat as it was perceived - not entirely, but in many important aspects - I see the emerging situation ... as more dramatic and more comprehensive than people faced whether at Versailles or Yalta'.[3]

On 25 July, 1990, the Government announced a framework for *'Options for Change'*, involving substantial cuts, especially in the British Army of the Rhine. Six days later Iraq invaded Kuwait. It was not until after the Gulf War, in July 1991, that the Government published details of *'Options for Change'* in its first post-cold war White Paper (*Statement on the Defence Estimates 1991*, hereinafter referred to as SDE 1991). Considering that *'Options for Change'* were supposed to be a considered response to the end of the cold war, SDE 1991 is remarkably coy about the security context. The threats to Britain which are now known as 'risks' were outlined in one paragraph. They included the residual threat from the Soviet Union (which then still existed) which was said to be an 'unstable superpower'; 'instability in

[3]Quoted in Richard Ware, *Background Paper No. 276, UK Defence Policy: Options for Change*, House of Commons Library, 4 October, 1992.

Eastern Europe and elsewhere' and 'events outside Europe, including the proliferation of sophisticated and destructive weaponry'.[4]

[4]Statement on the Defence Estimates 1991, London, HMSO, July 1991, Cmnd 1559-I, para 306.

The Government endorsed the NATO communiqué issued after the Rome Summit of November 7, 1991 which presented Nato's new strategic concept. This was somewhat more explicit about the new security context. According to the NATO leaders, Western countries no longer face 'the predominant threat of the past'. Instead, 'the risks to Allied security that remain are multi-faceted in nature and multi-directional, which makes them hard to predict and assess'.

The communiqué refers to two kinds of risks; those that arise in Eastern Europe and those that arise in the Mediterranean and the Middle East. The risks in Eastern Europe 'are less likely to result from the calculated aggression against the territory of the Allies but rather from the adverse consequences of instabilities that may arise from the serious economic, social and political difficulties, including ethnic rivalries and territorial disputes, which are faced by many countries in Central and Eastern Europe. The tensions which may result as long as they remain limited, should not directly threaten the security and territorial integrity of members of the Alliance. They could, however, lead to crisis inimical to European stability and even to armed conflicts which would involve outside powers or spill over into NATO countries, having a direct effect on the security of the Alliance'. The risks in the Mediterranean and the Middle East are said to stem from the 'proliferation of ballistic missiles and weapons of mass destruction capable of reaching the territory of some of the member states of the Alliance'.[5]

In practice, the 1991 White Paper defined Britain's defence roles in traditional ways and merely slimmed down each role. 'Instabilities in Eastern Europe' were, in effect, treated as a substitute for the Soviet threat. Hence, the charge that the review was Treasury - driven had some substance. During the cold war, Britain was said to have five defence roles: independent nuclear weapons; defence of the UK home base: defence of Germany, including the British Army of the Rhine, defence of the Eastern Atlantic and Channel Areas; and 'Out of area' capabilities. The British Army of the Rhine and defence of the Eastern Atlantic and Channel Areas were Britain's contribution to NATO and accounted for the most substantial share of defence spending. SDE 1991 continue to emphasise these five roles although the cuts fell most heavily on the British Army of the Rhine and the anti-submarine warfare role in the Eastern Atlantic (designed to protect American reinforcements in case of a war in Europe).

The 1993 White Paper (*Statement on the Defence Estimates 1993*, hereinafter referred to as SDE 93) made an attempt for the first time after the end of the Cold War to redefine Britain's defence roles. This categorisation was preserved in the Statement on Defence Estimates for

[5]NATO, *Press Communiqué* S-1 (91) 85, November 7, 1991.

1994. This redefinition is based on two significant changes of assumption. First of all, the Government makes it clear that a 'major external threat ... is ... even more unlikely to re-emerge in the foreseeable future than seemed to be the case in 1991'. (para. 108) Secondly, the government argues that the distinction between capabilities for the NATO area and 'out of area' capabilities is no longer relevant. The main risks are new types of conflict such as Yugoslavia, Northern Ireland, or Iraq which may or may not involve NATO forces in a peace-keeping role.

On these assumptions, SDE 1993 defines three major roles for Britain:

1) The defence of Britain and its dependent territories;

2) Britain's contribution to NATO - 'to insure against a major external threat to the United Kingdom and our allies' (103); and

3) Britain's contribution to international peace and security, including peace-keeping.

The government has introduced an extremely complicated system of earmarking military forces for different roles so that it is difficult to estimate the resources devoted to each role. The government estimates the gross costs of each role and then calculates a set of incremental costs to allow for the fact that some forces can be used in several different roles. Given the remoteness of the external threat and the immediacy of new types of conflict, defence role two would seem to be rapidly declining in importance. Nevertheless, defence role two still accounts for the largest share of defence resources, whether calculated in gross or incremental terms. One argument that the government makes is the importance of multi-nationality.

> 'The stationing of national forces on the territory of other member nations and the maintenance of multinational formations provide a visible demonstration of the Alliance's commitment to the visible security of its members. Its force planning process aims to achieve interopertability and co-ordinated planning but it also gives useful transparency in the regular exchange of detailed information on national defence planning and military capabilities. In this way, it contributes to political stability and discourages the <u>renationalisation of defence</u> ' para. 402 (emphasis added).

This is an important argument. But, in the absence of a major external threat, there is no a priori reason why it should apply only to members of NATO.

Defence Capabilities

In terms of actual defence capabilities, SDE 93 does not mark a radical departure from the past. This is partly because the structure of the defence sector is rather difficult to change. The budget is dominated by major projects like the Trident submarines or the European Fighter aircraft which have very long lead times and around which a constituency of vested interests in both industry, the civil service and the armed forces develops. In effect, existing capabilities have been attributed to new roles. What does each role entail?

Defence Role One:

Under the heading of defence role one are included Britain's nuclear forces which can also be attributed to defence role two; Northern Ireland and the stationing of forces in dependent territories, e.g. Hong Kong, Gibraltar, Belize, etc., which can in theory be also attributed to defence role three; and the security and integrity of the UK in peace-time.

Britain's strategic nuclear forces consist of four *Polaris* submarines which are soon to be replaced by *Trident* submarines each of which will carry not more than 96 warheads. In addition, Britain maintains *Tornado* and *Buccaneer* and naval aircraft *Sea Harrier* helicopters, and *Nimrod* bombers which carry free fall nuclear bombs. Naval depth bombs and ground-based nuclear weapons (short-range missiles and artillery) are being phased out. Unlike French nuclear weapons, British nuclear weapons are committed to NATO. The main rationale for their possession is the 'second centre of decision-making' - the notion that the enemy, i.e. the Soviet Union or now perhaps Russia, will be more likely to be deterred if it is more uncertain about a likely response to an attack. In practice, Britain's independent nuclear weapons are associated both in popular perception and in statements of politicians with Britain's role in the world as a former superpower.[6]

One of the interesting features of the new definition of defence roles is that the military role in Northern Ireland has become much more transparent. Some 19,000 servicemen and women are stationed in Northern Ireland on tours of duty ranging from 6 to 30 months. Given the need to rotate forces and for long breaks between tours of duty, nearly half the army is, in fact, earmarked for Northern Ireland, even though the same forces can still be earmarked for other purposes.

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[6]The decision to acquire nuclear weapons was taken by a small subcommittee of the cabinet in 1947, consisting of Stafford Cripps, Hugh Dalton, Clement Attlee and Ernest Bevin. Cripps and Dalton were against acquiring the bomb on cost grounds. Bevin arrived late after a lunch with the US Secretary of State Byrnes. Bevin said: "We've got to have this ... I don't mind for myself but I don't want any other Foreign Secretary of this country to be talked *at* or by a Secretary of State in the United States as I have just had in my discussion with Mr Byrnes. We have got to have this thing over here whatever it costs... We've got to have the bloody Union Jack flying on top of it". Quoted in John Saville, "Ernest Bevin and the Cold War", Socialist Register, 1984, p 89.

Out of a total annual defence budget of £23.5 billion in 1993-94, some £4 billion is spent on nuclear weapons and £1.6 billion directly on Northern Ireland.

Defence Role Two:

During the cold war, Britain's main roles in NATO were twofold. First of all, Britain had the responsibility for defending 200 kilometres of the intra-German border, and, in addition, maintained a military presence in Berlin. The British contribution to the Central Front was considerably larger than any other non-German partner except the United States. Land and air forces in Germany were structured for rapid offensive operations with an emphasis on tanks and strike aircraft for deep interdiction along the lines of classic WWII-type warfare.

Secondly, Britain had a significant naval role. Britain still has the largest navy of any European NATO country, which before '*Options for Change*' consisted of three aircraft carriers, about 50 destroyers and frigates, 30 submarines and 40 mine counter measures vessels.

Up until the late 1960s, the navy's role was primarily related to Britain's post-colonial responsibilities and even today, those who prefer to emphasise Britain's national role tend to favour expenditure on the navy as opposed to the army. In fact, after the decision to withdraw British forces East of Suez, the navy's role was redefined. At that time, NATO was shifting its strategy from the doctrine of massive retaliation to the doctrine of flexible response. Under the former doctrine, the NATO response to any Warsaw Pact attack was to be a strategic nuclear response. The strategy of flexible response implied that NATO would initially respond to the Warsaw Pact attack with conventional forces (or at any level deemed appropriate) and this opened up the possibility of a long war in Europe and the arrival of reinforcements from the United States. Hence, there was perceived to be a need for a naval role in the Eastern Atlantic and Channel areas to protect reinforcements in time of war. In theory, therefore, the role of the navy was a NATO role, primarily directed towards the defence of Europe.

In this respect, the role of Britain's aircraft carriers is particularly interesting. The 1966 White Paper announced the decision to phase out carrier-borne aircraft. This decision was taken, according to Dennis Healey, then Minister of Defence for the following reasons:

> 'It was obviously necessary to see whether it was really essential to spend these enormous sums of money on so limited a capability. It emerged rapidly that the role of the carrier in support of land operations could, in most cases which concerned us,

> be carried out more cheaply and effectively by land-based aircraft; and that if we renounced the strategic option of landing and withdrawing troops against sophisticated opposition outside the range of friendly land-based aircraft, this would have little important effect on our commitments.....While it was a difficult judgement to decide against a carrier force for maritime operations East of Suez, once we had decided to withdraw from major military responsibilities in that area in the middle seventies, I do not believe that the decision was easy to contest'.[7]

Subsequently, the decision came up against resistance from the Navy and from shipbuilders. The Conservative Government of 1970-74 took the decision to go ahead with a replacement for aircraft carriers, after all. However, they were to be called Anti-Submarine Warfare (ASW) Cruisers, and their role was ASW and not intervention. There were criticisms of the cost of such ships in an ASW role, since they tie up a considerable number of destroyers and submarines in their defence. They are at least as vulnerable as cheaper ships and the aircraft could operate from shore.

The 1980-81 defence review undertaken by John Nott took the decision once again to phase out aircraft carriers. However, in the 1982 Falkland's War, the ASW cruiser HMS *Invincible* played a crucial role and it was decided to retain such ships. Even though the role of aircraft carriers has been rationalised in European/ NATO terms, like independent nuclear weapons, they have a symbolic (and real) function in establishing Britain's global identity.

After the end of the cold war, most NATO members took the decision to reduce drastically forces allocated to NATO. Forces in the Central Region are to be reduced by 45% and there are also substantial cuts in naval forces. The British Army of the Rhine (BAOR) is to be halved, a number of bases are to be closed and RAF Germany is also to be cut substantially. Aircraft carriers are to be retained and a helicopter carrier has been ordered. Destroyers and frigates are to be reduced to 35. Conventionally powered submarines are to be phased out on the grounds that the Soviet submarine threat to the East Atlantic has disappeared and 12 nuclear powered fleet submarines will be retained.

These forces are to be deployed according to Nato's new strategic concept to meet the 'multi-faceted and multi-dimensional risks' which replace the Soviet threat. Forces stationed in Europe are now known as Reaction forces, ready to react to different risks. Hence, Britain's contribution has been re-labelled as maritime, land and air reaction forces. The reaction

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[7]Speech to the Royal United Services Institute, 2 October 1969, quoted in Mary Kaldor and Albert Booth: "Alternative Employment for Naval Shipbuilding Workers: A Case Study of Resources devoted to the Production of the ASW Cruiser" in Kaldor, Smith and Vines, (eds) *Democratic Socialism and the Cost of Defence*, Croom Helm, 1978, p 395.

forces are said to be designed around the characteristics of flexibility, capability (maintaining the level of sophistication of equipment), and multinationality. A key element of the new force structure is the multinational Rapid Reaction Corps which Britain will command.

At the NATO summit of January 1994, an additional concept was developed of Combined Joint I Task Forces (CJITF). These 'will be adaptable to the wider range of missions that the Alliance may be required to fulfil in the future'[8] and will allow non-NATO states to participate in operations.

Although strategy is moving more and more towards the idea of extending multinationality beyond NATO and of new types of operations, nevertheless, implementation in practice amounts to scaling down and re-labelling. As SDE 93 pointed out:

> 'The reaction concept calls for forces that closely resemble the British force structure as it has developed over the last 30 years for both national and NATO purposes. The characteristics include high readiness in key areas, modern equipment and sufficient strategic and tactical transport to provide mobility' (p.37).

Because the spectrum of risks as defined by NATO still includes 'high-intensity' conflict which is a label for a modern World War II type conflict, there is no significant change in the types of equipment and force structure that were required during the cold war. The main difference is the emphasis on mobility. (Earlier, forces could all be stationed in readiness on the German border). Hence, the new emphasis on helicopters and the new lease of life for carriers.

Defence Role Three:

Defence Role Three includes capabilities for intervention, i.e. as in Iraq, peace-keeping forces under international auspices, military assistance and exercises with other countries, and inspection and implementation of arms control treaties. The intervention role bears some relation to the high-intensity plans developed in NATO, although whether this sledge hammer approach to intervention was justified in the case of Iraq can be questioned. But the most rapidly growing component of Defence Role Two is peace-keeping and this could potentially have radical implications for force structures.

UN peace-keeping increased dramatically in 1992, from 12,000 to 60,000 troops engaged in UN operations. Britain was the second largest contributor, with contingents in Cyprus,

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[8] Statement on the Defence Estimates 1994, Cmnd 2550, April 1994

Cambodia, Western Sahara, Iraq/Kuwait, and Bosnia-Herzegovina. In the former Yugoslavia, Britain has 3,500 troops in Bosnia-Herzegovina under the auspices of UNHCR, with headquarters at Vitez, a carrier group in the Adriatic to reinforce the troop contingent, destroyers and frigates as part of a West European Union force to police the sanctions, and a contribution to the Sarajevo airlift.

Although the government claims an 'increasing congruence' between forces designed for defence roles two and three, in fact, there are important differences - some of which are highlighted by the contrast between the Gulf War and the Yugoslav war. Forces for defence role two are structured for rapid offensive operations. The aim is to maximise casualties on the enemy side and minimise casualties on the allied side and to achieve objectives quickly. Hence, the emphasis is on high performance, destructiveness and survivability. Especially important are long and medium range land or sea based strike capabilities.

In peace-keeping and peace enforcement operations, on the other hand, forces have to be structured for long-term defensive and policing operations, i.e. protecting aid convoys or safe havens, disarming para-military groups, etc. The aim is to minimise casualties on all sides. This involves, first of all, a different type of soldiery with new skills, such as languages, mediation, confidence-building skills, greater individual responsibility, and different motivation.[9] This requires specialised training. Secondly, it involves a different composition of forces. Infantry are much more important than air or naval forces; there are greater logistical and engineering requirements than anticipated in the main European theatre. SDE 93 emphasises the need for 'endurance' and 'sustainability'. And finally it requires different types and characteristics for equipment. Mobility and accuracy continue to be important but not destructiveness. Reliability and efficiency (i.e. efficient use of fuel, spares, etc.) are much more important. It is doubtful how useful the 'big' systems are in the new conflicts. In Yugoslavia, the British forces can use Warrior and Scimitar armoured vehicles but not Challenger tanks. Even the Warrior has proved 'somewhat heavy and unwieldy and difficult to control on ice and snow' even though it provides good protection. [10] Likewise, the role for sophisticated long-range combat aircraft is limited, but reconnaissance, close air support, and especially helicopters are important.

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[9] The House of Commons Defence Commitee reported:
"As we observed in Cyprus and Bosnia, platoon commanders and NCO's are more than likely to be required to make swift and complex decisions, taking into account political, legal and ethical considerations outside most conventional military training. ....Exceptional adaptability is also required on the part of professional soldiers required to act against military logic - such as using open communications, tolerating high levels of provocation, wearing distinctive clothing rather than camouflage (all white for EC monitors in the former Yugoslavia) and flying missions at a pre-ordained altitude and on a fixed route known to potentially hostile forces." Defence Committeee, Fourth Report, *UK Peacekeeping and Intervention Forces*, 9 June 1993, Session 1992-3, 188369, para 73.

[10] *Ibid*, para

Even though there are only 5000 British troops in Bosnia, forces are stretched because other forces are not appropriately trained and equipped for peace-keeping.

The Scale of the British Defence Effort

The Defence Budget

Britain spends around £24 billion per annum on defence. This represents 4% of GDP, 16% of total expenditure by local and central government (excluding transfer payments) and just under 30% of central government consumption. (see Table I). As a share of Gross Domestic Product, this is higher than any other NATO country except the United States and Greece. The United States spends 5.4% of GDP on defence and Greece spends 5.5%. France and West Germany spend 3.4% and 2.2% respectively.[11]

As can be seen in Chart I, UK defence spending rose rather dramatically in the early 1950s, reaching over 8% of GDP in 1955. Thereafter, defence spending fell and remained more or less constant throughout the 1960s. There was a significant rise in defence spending in the early 1980s. Since 1984, defence spending has declined slightly in real terms falling as a share
of GNP from 5.2% in 1984 to 3.7% in 1993.

Chart 1

UK DEFENCE SPENDING
$M at 1985 prices and exchange rates

[11]Stockholm International Peace Research Institute (SIPRI) *SIPRI Yearbook 1993, World Armaments and Disarmament*, OUP, 1993.

Source: World Armament and Disarmament: SIPRI Yearbook 1980, Taylor & Francis, London 19 World Armament and Disarmament: SIPRI Yearbook 1994, OUP, London 1994.

It is worth noting that the decline in defence spending does not seem to have released much by way of a 'peace dividend'. It seems to have been one element of a general constraint on public expenditure under the Thatcher government.

Or to put it another way, in so far as there was a peace dividend it did not take the form of social spending or investment in manufacturing. During this period, there was a significant rise in personal consumption and also in investment in services. In so far as the rise in personal consumption was a consequence of tax cuts or of lowered interest rates, owing to the reduction in public borrowing, then the peace dividend could be said to have taken the form of private consumption.

Since the significant part of the British armed forces are stationed abroad, defence has always constituted a drain on the balance of payments. Although defence exports are considerably higher than defence imports, the surplus in goods has never been sufficient to cover the invisible deficit resulting from the deployment of troops abroad.

Defence Employment

The defence sector employs around one million people in Britain, or roughly 4% of the total workforce. A report from the main defence trades unions estimates that a further 500,000 people are dependent on the spending of defence workers making a total of nearly 6% of the workforce.[12] Of those employed by the defence sector, around 30% are members of the Armed Forces, 16% are Ministry of Defence civilian staff and 44% work for the defence industry in making defence equipment both for the British armed forces and for export. Around 150,000 people are employed by the export sector, i.e. about a quarter of total defence industry employment.

Defence employment has declined steadily especially during the 1980s. Over 330,000 jobs have been lost, exclusively in the domestic defence sector. Some 60,000 jobs in the defence industry alone were lost between June 1990 and December 1991.[13] According to trades union estimates, over 100,00 jobs were lost in the three years following the announcement of *'Options for Change'*.[14]

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[12]IPMS (The Institution of Professionals, Managers and Specialists), MSK (Manufacturing, Science, Finance and TGWU (Transport and General Workers Union), *The New Industrial Challenge - The Need for Defence Diversification*, London, 1991.

[13]IPMS, MSP and TGWU, *Defence Employment Briefing*, No. 2, January 1992.

[14] TGWU Press Release, June 9, 1993

The decline in defence spending reflects a long-term rise in the capital intensity of defence spending. Expenditure per person employed in the defence sector almost doubled in real terms during the 1980s. (See Table 2) This reflected both an increase in the capital intensity of warfare, i.e. the amount of equipment per soldier, and the growth of output per person in the defence industry. During the 1980s, nearly 200,000 jobs were lost in the defence industry and yet defence production increased in real terms.

Defence Equipment

Table 3 indicates the share of equipment spending in total defence expenditure. Procurement expenditure includes expenditure on research, development, production, and imports of equipment. Both procurement expenditure and R & D expenditure are extremely high as shares of defence expenditure in historical terms, in comparison with other countries and in comparison with other sectors. Spending on equipment represents a form of investment. In the economy as a whole, investment accounts for 16% of GDP while procurement expenditure accounts for 45% of the defence budget. Likewise total (military and civil) R&D expenditure accounts for just over 2% of GDP as a whole, while military R&D expenditure as a share of the total defence budget is 11% (comparison of Tables 1 and 3). Britain's spending on military R & D as a share of GDP (.42) in 1988 is considerably higher than any of its main competitors except France and the US (see Table 4). In fact, these figures underestimate the true size of defence R & D in Britain. A survey of industry under-taken for the first time in 1989 revealed that the industry funded 26% of the defence R & D in Britain. This would suggest that the percentage share of R & D in GDP is as high as .57.[15]

The high levels of procurement and R & D reflect the rising costs of equipment, which in turn reflects the increase in embodied technology. The cost of four *Trident* nuclear weapons systems, for example, is £10,676m. The development cost alone of the European fighter aircraft is estimated at £3,463m.[16]

It is usually estimated that the costs of individual weapons systems rise at 6% a year in real terms although for some types of systems, e.g. aircraft, the rise is probably higher. The steady rise in unit costs has been paralleled by declining numbers both of weapon systems and of types of weapon systems, and this has been accentuated by the post-cold war cuts.

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[15]Report by Comptroller and Auditor General, *Classification of Defence Research and Development Expenditure*, London, HMSO, 5 December, 1991.
[16]SDE 1994.

During the 1970s and 1980s technological advance consisted mainly of the application of electronics to weapons systems. As one recent report put it:

> 'Increasingly, the requirements of systems integration and therefore the command of electronics and software skills, have been supplanting in importance the traditional skills of the builders of the major weapons platforms, (ships, aircraft, tanks) leading to significant organisational changes'.[17]

Developments in electronics along with improvements in materials and in design of munitions have greatly increased the accuracy and destructiveness of all weapons systems. This has increased the vulnerability of weapons platforms and therefore the cost of offensive weapons. Given the potential effectiveness of electronic defences, offensive equipment has become much more expensive because of the need for more effective protection and more complex electronics systems which can help evade detection (stealth technology) and jam enemy guidance systems. The rise in the cost of weaponry is thus linked with the choice of offensive roles.

Table 5 provides some indication of the scale of defence production in Britain. As a share of manufacturing defence production has risen from 7% in 1979-80 to 11% in 1986-7 and subsequently declined somewhat. Exports account for between 20% and 30% of total defence production which is relatively low compared with manufacturing generally (the defence sector is relatively autarkic) and only between 2 and 3% of total exports. Defence production is particularly important in some sectors, accounting for 38% of aerospace equipment, 36% of ships and 16% of Telecom equipment.

The Regional Impact of Defence Expenditure

Table 6 shows the breakdown of defence employment by region, both MOD manpower (armed force and civilian staff) and employment generated by purchases of defence equipment. The figures do not include indirect employment i.e. those employed by sub-contractors nor employment generated by exports; they therefore account for around half the total. Nevertheless, they do provide an indication of the regional spread of employment. What is remarkable is the concentration of defence employment on England (85%) and on

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[17] *Future Relations between Defence and Civil Science and Technology*, prepared by the DRC/SPSG Defence Science and Technology Policy Team for the Parliamentary Office of Science and Technology, SPSG Review, Paper No. 2, London.

the South (58%). Defence industry employment as a share of total manufacturing is particularly high in the North, South East and South West. To some extent, this is due to the decline in manufacturing in these regions. If one takes the sector, metal goods, engineering and vehicles which accounts for over 90% of defence equipment spending (SIC 3), some 53% of jobs in the North are defence dependent. [18] In the South East, defence industry employment accounts for around 15% of manufacturing; if one adds in employment generated by exports, the figure is likely to be between 20% and 30%. (It is possible that the figures are inflated because contracts are signed with Head Offices in London.) One interesting implication is that the shift toward aerospace and electronics away from ship-building and engineering and the defence boom of the early 1980s was probably a major factor in the boom in the South East of England. By the same token, the decline in defence spending may well be a significant in explaining the current recession in the South East, bringing the South East more in line with the North. Since 1985, defence industry employment in the South East has declined by nearly half from 84,000 in 1985-6 to 44,000 in 1992-3.

In addition to particular regions, particular towns are often heavily dependent on a particular weapons project or a particular military base. Towns dependent on weapons projects include Preston and Edinburgh (the European Fighter Aircraft), Barrow in Furness (*Trident*), Yeovil (helicopters), Bristol (military engines and aircraft), Stevenage (missiles), Brough near Hull (*Hawk* aircraft), Cheltenham (Smith Industries).[19] Because of the high skill base, the location of defence industries may be a significant factor in generating a cluster of high tech firms in a region. This, for example, may well be the explanation of the prosperity of the M4 corridor or the so-called Silicon Glen in Scotland. The Chief Economic Development Officer for Blackburn Borough Council has described the importance of the Royal Ordnance Factory, Blackburn, which makes fuses and timing devices for ammunition and missiles in the following terms:

> 'For many years, Royal Ordnance has been at the forefront of skills training in the area, and through mobility in the labour force, the company has undoubtedly helped to raise the skill base of the economy as a whole. This in turn has helped to foster a wide range of new small companies, particularly in engineering and electronics. Also the presence of a large employer like Royal Ordnance is a persuasive argument in convincing incoming industries of the skill base of the area and this has been used to good effect'.[20]

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[18] IPMS, MSF and TGWU, Defence Employment Briefing, No. 2, January 1992.

[19] See IPMS, MSF and TGWU, op cit.

[20] Steve Hoyle, Chief Economic Development , Blackburn Borough Council Royal Ordnance, *Blackburn- A Framework for Co-operation: The Role of Local Authoritities in Enabling Conversion Strategies*, 1991.

Similarly, military bases may dominate towns or rural areas where there is little developed manufacturing industry. Examples of such regions include the Fishguard area in West Wales (RNAD Milford Haven and RNAD Trecwn), Fife (Rosyth Naval Base and RAF Leuchars), Plymouth and Devenport (Devenport Dockyard, Plymouth Naval Base and RAF Mount Batten), and the cluster of army camps and training areas in Wiltshire and around Salisbury. Although bases do not have the same high tech clustering effect, they do stimulate the local construction industry as well as local services.

A study undertaken of the Dyfed area around Fishguard showed that RNAD Trecwn was the biggest employer in the area after agriculture, although agricultural employment was declining. The two other employers are Sealink/Stenna (the ferries to Ireland) and a clothing manufacturer Slimna (which accounts for only around 150 jobs). The area currently has unemployment amounting to 15.5%.[21]

John Lovering has argued that the geographical pattern of British defence manufacturing was established during the 1940s and 1950s and remained more or less static during the cold war period - he talks about the 'Cold War spatial fix'.[22] During the 1920s and 1930s, new industries such as aircraft, vehicles and electrical engineering developed in the South of England and the Midlands and these were to become the backbone of a restructured defence industry. (The traditional nineteenth century defence industry based on ship building and engineering was largely located in Scotland and the North.)

However, during the Second World War, industries were relocated to 'safe areas' in the North and West to evade aerial attack. This pattern was reinforced by the cold war rearmament of the 1950s and was sustained up to the 1980s. Lovering argues that, in the post-cold war era this spatial fix is dissolving. This is because of the growing importance of R&D, the division between production and R&D, and the growing importance of international network as a result of which enterprise become detached from their local surroundings.

> 'From the 1950s to the 1980s, the defence-dependent local economies of South Manchester, Preston, Derby, the Bristol sub-region and North London/South Herefordshire could be regarded as manifestations of the cold war corporatist phase in the history of the British defence industry. By contrast, in the 1990s, the cluster of high-

[21] *The Future of RNAD Trecwn*, a report by the local authorities and joint trade unions steering group, September 1991.

[22] See John Lovering, "The Creation of a Spatial Fix", in forthcoming book.

technology defence industries in the semi-rural South East and South West may be seen as expressing a new internationalised, de-industrialised UK defence industry.[23]

[23]"The Changing Geography of Military Industry in Britain", Regional Studies, Vol.25, No. 4, 1991.

The interaction of the defence sector with the British economy as a whole cannot, however, be assessed in purely numerical terms. Even though it is clear that the defence sector represents a very important part of the British economy, especially in industrial and regional terms, the consequences of defence cuts can only be judged in the context of an analysis of how the defence sector functions and how it is changing.

The Functioning of the Defence Sector

If in Eastern Europe, the defence sector represented the epitome and heart of the command system, in Britain, the defence sector operated rather differently from the rest of the economy. Indeed, in many respects, the defence sector during the cold war period worked rather like a command economy within a capitalist or mixed economy and this had far-reaching consequences for the economy as a whole.

The structure of the British defence sector was more or less established during the Second World War. As we have seen, the military roles, the associated organisation of the armed forces, and the location of bases and industries were all, to a large extent, the outcome of the Second World War. Political choices about military roles have tended to reflect the desire to reinforce the perception of Britain's national and Atlanticist identity that was created in the 1940s; hence, the conservatism about choice of roles. The organisation of the armed forces cannot be disentangled from the roles the military are expected to perform. Moreover, armed forces everywhere tend to conservatism. The tendency to 'fight the last war' is a consequence both of the rational tendency to base planning and training on actual experience and on the bureaucratic tendency for inertia which is the result of an interest in institutional survival.

The defence industry was less conservative, however, because of the way it is organised. The industry was characterised, broadly speaking, by four types of company. First, there were until recently, state-owned enterprises that were the oldest part of the defence industry: the Royal Ordnance Factories (ROF), the Royal Dockyards (RD) and the Research Establishments (RE). (The ROFs and Royal Dockyards have now been privatised.) The Government was responsible for maintaining capacity in these enterprises for mobilisation in case of war. These were not unlike state enterprises in centrally-planned economies.

Secondly, there were the large private contractors which consolidated and became fewer over the last forty years. By the end of the 1980s the British defence industry was dominated by one or at most two contractors in each major area of equipment. These

included British Aerospace (fixed wing aircraft), Westland Group PLC (helicopters), VSEL Consortium Ltd (ships and engineering), General Electric Co PLC (electronics), Vickers PLC (tanks). By and large, these companies depended primarily on defence for their existence or, at least, they had large divisions, separate from the rest of the company, that were dependent on defence. They view defence as their 'core business'.

Thirdly, there were large numbers of middle-sized subcontractors whose defence dependence varied widely. And finally, there were a large number of small subcontractors, generally totally dependent on a prime contractor; often they were owner-managed firms set up by an ex-employee of a prime contractor to supply a specialised component or service on a commercial basis. The composition of the dominant prime contractors has remained rather stable although the number of prime contractors was reduced through merger. There were, however, considerable changes in the composition of subcontractors, and a number of new medium-sized subcontractors have entered the market specialising in new technologies.

The defence industry was, thus, largely in private hands. Nevertheless, defence enterprises did not behave like typical capitalist firms; this is because of their dependence on a single state market. Even though many companies had and have substantial exports, they are dependent on the domestic market to develop products, to achieve sufficient economies of scale to be able to sell at a relatively competitive price, and to reassure customers of the utility of the equipment.

The defence market can be described as a combination of monopsony and oligopoly. This leads to a situation not unlike that described by the theoreticians of the shortage economies that used to characterise Eastern Europe. In theory, defence spending is determined by political priorities at the centre, the companies compete for their share of the defence budget, and the choice of a particular contractor is supposed to be based on a considered judgement by the Government as to the cost-effectiveness of that contractor in developing and producing equipment to fulfil a particular role.

In practice, however, the Government has to take into account the need to maintain a capacity to develop and produce a particular piece of equipment and through a network of contacts and meetings (which, in the defence world, are what counts as market research), the companies themselves contribute to the specification of equipment and hence, the make-up of the budget. This process can be compared to the process of 'building up' and 'breaking down' the plan described by the Hungarian economist Tamas Bauer.[24] Also, because the largest prime contractors tend to be the most powerful or the most experienced at 'market

[24]Tamas Bauer, "Investment Cycles in Planned Economies", *Acta Oecomonica*, 21:3, 1978.

research', there is a tendency to reproduce the composition of the prime contractors via this process. This is, in essence, similar to the 'input-output conservatism' which Alec Nove describes in relation to the Soviet economy.[25]

In the former centrally-planned economies, a tendency to shortage arose from the fact that investment projects always cost more than anticipated. This was because enterprises tended to 'hook on' to the plan by underestimating costs or because, in the absence of competition and a hard budget constraint, enterprises solve unforeseen problems by spending more. This is similar to the cost overrun and delay problem in the defence industry which is notorious and shows little sign of abating despite numerous reforms. Even with fixed price contracts, once a company has obtained a contract, it is very difficult for the Government to resist additional payment for, say, unforeseen technical change because there are so few alternatives and, especially in the case of large projects, the consequences of cancellation would be disastrous.[26]

Where the British defence sector differed from a command system, however, was the pace of technical change. If enterprises are state-owned and the Government is responsible for maintaining capacity, there tends to be a resistance to technical change because this disrupts the normal routines and the established supply chains. Private enterprises, however, have to finance their own capacity and this requires continuous contracts. In order to obtain new contracts, companies have to be able to offer improvements over existing products. This gives rise to constant pressure for technical change which takes the form of product improvement, and hence the rising unit costs of equipment. In a market with a single dominant buyer and a few suppliers, it makers no sense to offer process improvement, which might reduce the cost of the product and, hence, the size of the overall market.

Thus technical change, in the form of product improvement, is a way of maintaining the stability of the prime contractors although it does involve considerable change in the composition of subcontractors. Particularly important in recent years has been the growth of electronics subcontractors as the traditional weapons platform becomes a platform for electronics systems. The attempt to improve products to fulfil traditional offensive roles has thus involved an escalation of cost. And this, in turn, puts perpetual pressure on the defence budget.

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[25]Alec Nove, *The Soviet Economic System,* Allen and Unwin, 1977.

[26]For recent cost overruns and time delays, see *The 1989 Statement on Major Defence Projects*, Committee on Public Accounts, HMSO, 1991.

How did this sector interface with the rest of the economy? What were the consequences of the existence of a mini-command system within a capitalist economy? Britain's poor economic performance as compared with, say, Germany or Japan has been widely noted. In particular, during the 1970s and 1980s, Britain experienced a dramatic decline in international competitiveness; a deficit in manufacturing trade emerged for the first time in 1981 and has subsequently widened. The connection between the existence of a large defence sector and poor economic performance has been explained in various ways, generally in terms of the opportunity cost of defence spending, particularly R & D spending. The analysis of the defence sector as a mini-command sector, however, suggests a specific explanation. On the one hand, the defence sector sustains certain sectors for example, aerospace, electronics, shipbuilding or nuclear energy that might otherwise have run down. The regional clustering of industries described above is one way in which this is achieved. In this sense, a kind of 'imprinting' takes place similar to what can be observed in Eastern Europe. On the other hand, the continued existence of these sectors may inhibit the emergence of other sectors, e.g. alternative energy sources, by absorbing scarce technological resources, and perhaps, more importantly, by transferring habits, methods and design approaches of the defence sector to other sectors and distorting their development. Many commentators refer to the 'culture' of defence companies - the preoccupation with technical requirements rather than cost, the lack of marketing know-how, the preference for perfection above utility. As military technology has increasingly diverged from civil technology because of perpetual product improvements, these barriers to technical change in the civil sector increase.

This argument is particularly relevant in the field of electronics. Up until the early 1970s, Britain was at the forefront of electronics development because of the dominance of the defence sector. As developments in civilian technology began to move along a separate trajectory, however, the dominance of the defence sector became a handicap rather than an advantage, absorbing scarce skills, influencing design habits, etc. Ferranti, for example, was responsible for the first European microprocessor but it was too complex and expensive for civilian application. In the last twenty years, electronics have become a key factor of production influencing every industrial sector. Hence, the failure to keep up with civilian electronics may well have had pervasive effects on the economy.[27]

Whatever the explanation, Britain's poor economic performance constrained the growth of the defence budget even before the end of the cold war. The budgetary pressure caused by the rising cost of equipment due both to technical change and cost overruns, combined with

[27]See M.Kaldor, W.Walker "Technologie Militaire et Dynamisme économique", *La Recherche*, Mensuel Numéro 203, October 1988.

budgetary constraints generated a series of responses, both on the part of the Government and industry which brought about significant changes in the defence sector especially during the 1980s. These responses resemble reform efforts in Eastern Europe prior to 1989; each response generated new difficulties. Some analysts in Eastern Europe argue that continuous reform is a necessary attribute of command systems; this may also be true of the defence sector 'reforms'. These included:

a) Cuts, defence reviews, etc.:
Advanced technological equipment does not only cost more to develop and produce, it also costs more to operate, service and maintain. As equipment grows in technological sophistication, it tends to require more parts, use systems closer to their limits, to involve more complex interaction between parts and systems. This reduces reliability and durability and increases servicing requirements. Likewise, technologically sophisticated equipment tends to be more difficult to operate, increasing the requirements for training and practise, imposing more strain on the operator and increasing the requirements for highly-skilled personnel; to be a *Tornado* pilot, it is said that you have to be the air equivalent of a concert pianist. Successive Governments have been extremely concerned about the declining 'teeth-to-tail' ratio; yet this may well be the consequence of the growing logistical and servicing requirements of technologically sophisticated equipment.

In a desperate effort to contain growing defence costs even before the end of the Cold War, successive governments introduced a series of defence reviews (1957-8, 1966-8, 1974-5, 1981) and were forced to introduce periodic cuts. Indeed, some have interpreted 'Options for Change' as merely another defence review, which is 'Treasury driven'. Even after 'Options for Change', the pressure for cuts continued. These cuts and reviews have included cancellation of major projects (e.g. TSR-2, E-3 Airborne Electronic Warfare plane), reductions in numbers of weapons systems, procurement stretch-outs, e.g. delays, savings on ammunition, spare parts, storage, training etc. Hence, the tendency to shortage in the defence sector. The latest in this series of cost-cutting exercises is the 1994 study entitled Front Line First[28]

b) Procurement Reform - Competition, Contractorisation, and Privatisation
From time to time, Governments attempt to introduce reforms in the procurement system in order to overcome the problem of escalating cost and shortage. These include reshuffling of departments, introducing procedures which approximate competition and so on. During the 1980s, special efforts were made by the Thatcher Government. As in Eastern Europe, there were attempts to make a non-market system appear to be more like a market; they resembled the introduction of financial indicators to replace administrative directives which were

[28]Ministry of Defence Front Line First: The Defence Costs Study, London, HMSO, 1994

carried out in several East European countries. These reforms have affected the administration of defence and the armed forces as well as the industry. As elsewhere in British society, the Government has introduced the notion of budgetary planning under its New Management Strategy (NMS). But the reforms in the relationship with industry were particularly important:
The 1984 White Paper announced:

> 'Central to our strategy is the need to promote more extensive and effective competition in the supply of defence equipment. Competition is vital for the achievement of the best value for money, the most efficient use of industrial resources and the stimulation of innovation and new ideas'.[29]

In 1985, Peter Levene was recruited from United Scientific Holdings to become chief on Defence Procurement. The 'Levene reforms' involved:

> i) Increased competition and fixed price contracts: The Government attempted to increase the number of contracts issued by competitive tender, and to replace, where possible, cost plus contracts by fixed price contracts. That is to say, instead of prices based on actual costs plus a percentage fee, fixed prices are negotiated at the outset. The term used by MOD is 'taut contract'.
>
> 'The emphasis is on providing incentives to deliver on time and to cost, with preference being for "firm" price contracts where the contract price is what the supplier is paid. However, "fixed price" contracts which make an allowance for inflation and target cost or other incentive arrangement within an overall "maximum price" are also paid'.[30]
>
> Since the appointment of Mr Levene, contracts 'priced by competition' have increased from 38% to 45% of the total value of contracts, and from 12% to 14% of the total number of contracts. However, total fixed price contracts have declined from 9 to 4% of the total value of contracts and from 5 to 2% of the total number.
>
> Defence contractors claim that these reforms have led to greater budgetary control and no doubt they provide a justification for restructuring and redundancies, along with the decline in the defence market. Nevertheless, it is impossible to introduce competition on the major projects such as *Trident* or EFA and it is always possible to

[29]SDE 1984.
[30] SPSG Review Paper *op cit*.

find ways round fixed price contracts through amendments, i.e. technical additions. Now the Government is once again limiting the number of companies invited to submit bids in order to simplify procedures.[31]

[31]SDE 93, para 504.

Again, to draw a parallel with Eastern Europe, it is impossible to introduce market conditions given the underlying relationship between the government and the companies and, in particular, the monopsonistic position of the Government.

(ii) Contractorisation: Another aspect of the Levene reforms has been to increase competition at the level of subcontractors and to encourage new small enterprises to enter the defence business as subcontractors. Both companies and military bases have been encouraged to contract out as much work as possible. Military bases are, for example, contracting out catering, cleaning and repair work instead of maintaining in-house chefs, cleaners or plumbers. Prime contractors will encourage employees to set up companies to supply parts or services previously undertaken in-house. For both bases and prime contractors, this is a way of shedding labour and cutting costs. As one contractor has put it, it is a way 'to shove the pain down the system'. [32] For prime contractors, it is also a way to increase their flexibility in defence markets. Technical change can be achieved much more easily through changing the composition of subcontractors than through internal restructuring.

(iii) Privatisation: In 1987 the Government decided to privatise the Royal Ordnance Factories and the Royal Dockyards. ROF Leeds was purchased by Vickers for £15 million. The remaining ROFs were purchased by British Aerospace (BAe) for £90 million. BAe then embarked on an asset stripping exercise. A report from Warburg Securities concluded that property sales from the ROFs and the Rover group, also purchased by BAe, would recoup more than the £340 million paid for their purchase. A considerable number of jobs have been lost in the ROFs. The Royal Small Arms Factory at Enfield has been closed, together with the R & D centre at Waltham Abbey. There were also plans to close ROF Patricroft near Manchester and ROF Bishopton in Scotland. The latter has been saved as a result of a union campaign but numbers will fall from 1,100 to 700.

There have been similar job losses at the Royal Dockyards which have been placed under commercial management. Devonport Management ltd have announced job losses of 5,000 at the Royal Dockyard Devonport (nearly half the total workforce), despite the fact that assurances were given to the High Court that job losses would be only 2,300 when the unions challenged the legality of privatisation.

The Research Establishments have also been reorganised as an independent trading company, the Defence Research agency.

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[32] Report from Bristol Polytechnic, *op cit.*

c) Internationalisation - exports, collaboration, and transnational mergers:

A third approach to the problem of rising defence costs is internationalisation; finding new foreign markets or alternatively reducing costs through collaborative production. In addition, a new aspect of internationalisation in the late 1980s and early 1990s is transnational merger.

i) Arms Exports: Britain is now the second largest arms exporter in the world, after the United States. Considerable efforts were made to increase arms sales under the Thatcher Government. The Defence Sales Organisation, set up in 1966, was renamed the Defence Export Services Organisation in 1985. The DESO has a staff of 400; it provides marketing information to British companies and assists customers in raising finance.

Defence sales increased in the late 1980s, at a time when they were declining in other countries, but showed a substantial fall in the 1990-92. (See Table 7). The main reason for the increase were major contracts for MultiRole Combat aircraft (*Tornados*) and other equipment with Saudi Arabia and Malaysia. The share of the Middle East and North Africa in total arms sales increased from 35% to 61% between 1985 and 1990; Saudi Arabia alone is said to account for 20% of total arms sales. The share of the Far East and Asia has increased from 9% to 13% of the total. The market in other third world regions has declined owing to the debt crisis; this is particularly striking in Africa where the former British colonies had always provided a relatively reliable market for British armaments. The market among other industrialised countries is stable or declining because of defence cuts.

Since the Gulf War, some doubt hangs over the future of British arms sales to the Middle East. This is because of expected restraints to the region, the fact that, owing to promises made during the Gulf War, the US is expected to displace West European countries as the dominant supplier to the region, the decline in oil revenues, and the scandal surrounding secret deals with Iraq during the 1980s. The Memoranda of Understanding signed with Saudi Arabia in 1985 and 1988 - the so called Al Yamanah agreements - did not result in as many orders as expected. According to these contracts, Saudi Arabia agreed to ship 400 000 barrels of oil a day to Shell and British Petroleum. The proceeds of the sale of oil are then paid to the defence contractors, first and foremost British Aerospace. However, owing to the fall in the price of oil, the revenue from the sale of *Tornados* and *Hawk* trainers has been much less than expected. Nevertheless, in January 1993, the government announced an additional order for Tornado's under the Al Yamanah agreement and orders for the new Challenger 2 tank from the Sultan of Oman.

ii) International Collaboration: Successive governments have attempted to reduce defence costs by international collaboration in the development and production of defence equipment. The most important example of international collaboration is the *Tornado*, developed and produced jointly with Italy and Germany. A successor project, the European Fighter Aircraft, is currently under development, also involving Spain, although it has been scaled down owing to pressure from Germany. SDE 1993 lists 22 international collaborative projects in production or in service as of 1 April 1993 and 23 projects in development or in early study phase.

The experience of collaborative projects has been disappointing. Contracts have been issued according to the principle of *juste retour*, which means that each country's share of the work is proportionate to its financial contribution; this principle has overridden the principle of efficiency. In many cases, each country has its own assembly line, thereby reducing the possible economies of scale that might have been reaped from such projects. (This is not always the case; the series of Anglo-French helicopters has been organised differently.) Each national defence ministry has its own competing requirements and compromises between these requirements often have to be built into the technology. Language difficulties, travel costs, etc., add to the administrative overheads. For these reasons all the problems that have been experienced in national projects are multiplied in the case of collaborative project. It is widely estimated that collaborative projects increase costs by 30-50% compared with purely national projects though if the costs are shared, this will still result in some savings.

Although the idea of collaboration was enthusiastically embraced by governments from the 1960s onwards, collaborative projects still only account for 15% of total defence procurement. According to the National Audit Office, the 'lack of common requirements and time scale were significant factors preventing collaboration between 1984 and 1988'.[33]

(iii) Transnational Mergers: As markets decline both because of defence cuts and, as rationalisation of the defence industry via national mergers and privatisation reaches its limits, an obvious next step is rationalisation across national borders. Up until recently, defence markets tended to be rather autarkic and defence companies epitomised the 'national champion' concept of the 1950s and 1960s. A new development over the last two years, however, has been a rash of transnational mergers, especially in Europe.

[33]National Audit Office: *Ministry of Defence Collaborative Projects*, HMSO, 1991.

The Stockholm International Peace Research Institute (SIPRI) lists 18 international take-overs in the arms producing sector and three mergers in 1988-9 20 take-overs and 11 mergers in 1990 -1, and 7 take-overs and 12 mergers in 1992. All the mergers except one involving the US and Israel were trans-European. American and Canadian companies were initially involved in take-overs although their role was almost negligible in 1990 and 1993.[34]

The most celebrated take-over was the joint GEC - Siemens bid for Plessey in 1989. This set the stage for a number of significant mergers in 1990-1. These include the merger of the helicopter divisions of MBB and Aerospatiale to create Eurocopter. (MBB has itself been taken over by Daimler-Benz making it the largest defence company in Europe). British Aerospace and Thompson CSF have merged their missile divisions into a single company, known as Eurodynamics. Thompson CSF has taken over Philips (Netherlands) defence business and Ferranti's naval electronics division. Matra (France) and MBB have combined to form a joint company manufacturing dromes, known as Eurodrome. Many commentators expect the European market to be dominated by four or five 'European' companies: Daimler Benz-MBB, British Aerospace, GEC, Aerospatiale/Dassault and Thompson CSF.

What these mergers do effectively is to break up national defence markets. At the same time, they mark the beginning of a Europe-wide division of labour in the defence sector. On the one hand, they could constitute a future European military-industrial complex - powerful interests which could pressure a future European defence agency, 'pork-barrel monsters' as Callum McDonald has put it.[35] On the other hand, the merger process allows for a considerable down-sizing of the European defence industry also means that national governments need no longer take responsibility for maintaining a national capacity to develop and produce particular types of military equipment.

The developments of the 1980s could be thus said to amount to an erosion of the defence sector as a command system. The attempt to introduce a market, through privatisation and competition policy, and the increasing internationalisation of the defence sector through transnational mergers has led to considerable rationalisation, the shedding of jobs, the changing composition of subcontractors and regional concentration. This trend can be

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[34] *SIPRI Yearbook 1990 and 1991*, and 1993 World Armaments and Disarmament, OUP, 1990, 1991, 1993.
[35] See "A New Model Army: Towards a European Defence Community", *Fabian Discussion Paper No. 10*, London 1991.

expected to accelerate with further defence cuts and further integration of the European defence industry. Whether this is, however, a prelude to a new generation of military technology and/or to the conversion of industrial structures and economies away from defence production depends on political choices.

Defence Cuts and Conversion

The Size of the 'Peace Dividend'

Although there have been substantial cuts in manpower, and in numbers of weapons systems, this is offset by the rising cost of equipment and growing expenditure per employee. The Government is currently holding down the level of defence expenditure which is expected to fall slightly to £23 billion in 1993-4. The Government anticipates a 12% reduction in defence expenditure in real terms by 1995-6 and it estimates that as a share of GNP, defence spending will fall from the current 3-9% to 3.2% over the same period.

If, however, Britain were to make far-reaching changes in defence assumptions and to abandon the readiness for high intensity conflict, much more substantial cuts could be made. In other words, Britain might abandon role two as well as the nuclear component of role one and focus on the security and integrity of the UK and dependent territories and on the British contribution to international peace and security. This would not mean entirely abandoning the NATO concept. Peace-keeping could be based on regional multinational formations maintained on different national territories. Combined with arms control inspections, joint exercises, and other confidence-building measures this would help to minimise the dangers of a renationalisation of defence in the European continent. But it would mean even bigger reductions in scale and a force restructuring away from WWII-style rapid offensive roles with their very costly technological requirements.

It is possible to calculate in rough terms on the basis of the Government's own figures provided in 1993 what this would mean in terms of costs[36]. On the assumption that forces earmarked for reinforcement in dependent territories and for intervention in regional conflicts should be included, this would mean a defence budget of £15,800 million, a reduction of around one third in the current defence budget as in Table 8.[37]

[36]Definitions changed somewhat in 1994. However, SDE 1994 did not provide estimates for the costs of each role.

[37] Calculated from SDE 93

Table 8

	Gross Costs £m
Security and integrity of UK in peace-time	1,500
N.Ireland	1,600
Dependent territories — peace-time deployment	700
Regional security — peace-time activities and deployment (includes former Yugoslavia)	3,700
Regional security — intervention capability	8,300
Total	**15,800**

What either the present 'peace dividend' or more substantial cuts could mean for the British economy, however, depends on the type of measures taken at macro- and micro- economic levels.

Macro-Economic Consequences

At a macro-economic level, the effects of defence cuts will depend on whether the cuts lead to an increase in non-defence public expenditure, to reductions in taxation, or to reduced deficits or increased surpluses. These effects in turn are the subject of controversy. Thus would a reduced deficit encourage investment via lower interest rates or lower wage rates, or assuming that wages are sticky downwards, would the increase in investment resulting from lower interest be much less than an increase in investment which would result from the multiplier effect of increased public expenditure? Even if it is assumed that defence cuts are compensated by public expenditure, the consequences will vary according to the type of public expenditure. Thus increases in social consumption (health and education) are likely to have direct employment-creating effects but may not utilise the same skills as are released from the defence sector. Increases in capital expenditure could have larger growth effects because of the crowding in effect of public investment.

Barber, Dunne and Smith[38] have simulated the effects of a 50% cut in UK defence spending by the year 2000 using the Cambridge Multi-sectoral Dynamic Model. The model's assumptions about the relations of aggregate demand are Keynsian. They make two alternative assumptions. In one case defence cuts are balanced by proportionate increases in

[38]Terry Barker, Paul Dunne and Ron Smith, "Measuring the Peace Divided in the United Kingdom", *Journal of Peace Research*, Vol. 28, No. 4, November 1991.

different categories of public expenditure so as to leave total public expenditure unchanged. On this assumption, GDP is increased over and above the expected growth throughout the period by 2% and unemployment is reduced by half a million. Assuming the exchange rate remains unchanged, there is some deterioration in the balance of payments. According to the second assumption, there is no reallocation of public expenditure, i.e. the overall total is reduced by the same amount as the defence cuts. On this assumption, GDP falls by 3.5% over the ten year period and unemployment *increases* by half a million.

What kind of adjustment can we expect for the different options? In the case of the current government policy, we can expect a negligible adjustment to defence cuts; if anything, reductions in taxation are more likely than increases in public expenditure. In this case defence cuts can be expected to reinforce the recession and to increase unemployment, as has been the case up to now.

In the case of the more substantial cuts there is no *a priori* reason to assume any particular form of adjustment. However, an increased emphasis on Britain's contribution to international peace and security would imply a broader concept of security which would require increased economic assistance to Eastern Europe and the Third World. A broader concept of security also might entail the need to confront economic, social and environmental sources of insecurity and hence would result in increases in public expenditure. Hence defence cuts are likely to be compensated by increased public expenditure but a substantial part (say one third) would consist of foreign assistance which would only stimulate growth and reduce employment if it led to increased exports. Suppose increases in economic assistance amounted to an additional 1% of GDP, this would be roughly equivalent to the current external deficit. This would represent a doubling of the foreign exchange cost of security expenditure compared with the current cost of deploying troops abroad. Adjustment policies would have to take this foreign exchange cost into account. On the other hand, if one assumes that this stance takes place in an overall changed international context, and such a change is unlikely except on this assumption, then the increase in aid from other countries could help to stimulate British exports as well, i.e. this could be one element in a programme of global reflation.

A serious objection that has been raised against the Cambridge study is that the expected aggregate effects conceal the micro-economic consequences on particular regions, industries and skills. A major bankruptcy, for example, could have substantial repercussions at a macro economic level. Moreover, severe localised dislocations could constitute a political obstacle to further defence cuts.

Micro-Economic Consequences - Conversion of Bases and Industries

The conversion debate in Britain has a long history. During the 1970s, workers at Lucas Aerospace and at Vickers developed alternative plans for socially useful production instead of defence production. These plans arose because of the commitment of the 1974 Labour Government to cut defence. (Actually, these commitments were never implemented.) As one of the Lucas Aerospace shops stewards put it recently, 'There is an assumption that our diversification strategy was peace led. That was not actually the case. The beginning of the strategy was about job security; how can we develop a new strategy that will save our members jobs?'.

These plans were proposals for new technologies and product areas that could utilise the skills of the existing work force. They included: environmental products, e.g. alternative energy (wave, wind, etc.) equipment, recycling equipment; medical equipment, e.g. kidney machines; new forms of transport, etc. Although the unions never succeeded in putting their proposals into practice and faced considerable resistance from management, the ideas caught the imagination of unions both in Britain and elsewhere and some of the products were developed in Germany and Sweden. Moreover, in the early 1980s, at least two local councils, the Greater London Council and Sheffield, initiated conversion plans. Conversion was included in the GLC Industrial Strategy and a London Conversion Council was established, although, of course, this was dismantled along with the GLC. Sheffield City Council established a Centre for Product Development Services which was inspired by the Lucas Aerospace plan. The task of the centre was to support and promote initiatives designed to maintain and create employment through the development of socially useful products, processes and series.[39] The policies of Sheffield local authority undoubtedly contributed to the economic expansion of Sheffield during the 1980s.

During the 1980s, interest in conversion waned along with the defence boom. The term 'diversification' began to be used instead of 'conversion', because the latter term tended to be associated with job losses. Both Labour and Liberal Democrat parties are committed to the establishment of a Defence Diversification Agency. Labour would create such an agency in the Ministry of Defence. But the Government has up to now been rather resistant to the idea in line with its general laissez-faire attitude towards the economy. It has recently produced a publication 'Changing Tack' to assist diversification and the new Defence Research Agency established in April 1993 is helping to fund a civil aerospace R & D programme called 'pathfinder'.

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[39] Nuclear Free Local Authorities, *A National Steering Committee Briefing*, December 1990.

A series of reports in the middle 1980s suggested that high levels of military R&D were a significant factor in explaining the relative decline in Britain's technological performance.[40] Even the 1987 White Paper admitted that military R&D 'may crowd out valuable investment in the civil sector'.[41] One consequence was the establishment of a private company within the Ministry of Defence, Defence Technology Enterprises, whose role was to find and sell civil applications of technologies developed in the REs. The company was not, however, very successful and was closed down in 1990.

More interesting than the role of the Government has been the role of local authorities, often working in partnership with trades unions, management and community groups, and the role of the European Community. There has been a rash of reports commissioned by local authorities describing the defence-dependency of their area, the expected job losses, especially highly skilled jobs, and the prospects for conversion.[42] These reports constitute valuable research material about the economic effects of military bases and defence companies.

There are some general conclusions that emerge out of these surveys. First, as far as bases are concerned, the problem of closure is not markedly different from other sorts of job losses. Bases tend to make use of services, especially catering, cleaning and construction. The most significant job losses, as a result of a base closure, are probably in the construction industry. These are, however, jobs that can easily be deployed elsewhere. Serious problems, of course, arise in remote areas where bases may be the only or the largest employer, e.g. Dyfed in West Wales. One report noted that bases often contain historic buildings that are extremely expensive to maintain and that cannot be opened to the public for security reasons. Base closure could make possible much more productive use of such buildings.[43]

As regards defence manufacturing, there is first of all general concern about the high levels of skill and the difficulties of preserving those skills and developing appropriate technological alternatives. Secondly, a number of reports comment on the great difficulty faced by large prime contractors in changing 'company culture'. Particular problems are

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[40] Sir I. Maddock, *Civil Exploitation of Defence Technology: Report to the Electronics EDC*, London NEDO 1983; House of Lords, First Report of the Select Committee on Science and Technology, session 1986-7, *Civil Research and Development*, HC20-11.

[41] SDE, 1987.

[42] Examples include: The Impact of Reduced Military Expenditure on the Economy of the South West of England: Final Report, Research Unit in Economics, Bristol Polytechnic, on behalf of Avon and Bristol City Councils, and Cornwall, Devon, Dorset, Gloucestershire, Somerset and Wiltshire County Councils, May 1991; Lothian Regional Council The Development of Local Diversification Strategies, 1992; Hoyle op.cit.; The Future of RNAD Trecwy, op.cit.

[43] Bristol Polytechnic report.

marketing, design standards and costing. At ROF Blackburn, for example: 'Production costing .... is geared very much as one would expect towards the defence sector, either because of the need for quality control or due to the way in which the plants large overheads are spread across the factory. When unit costs are of prime importance ... Royal Ordnance would find it hard to meet the financial criteria'.[44] The smaller sub-contractors tend to be much more flexible than the prime contractors, although there are grave difficulties for highly specialised companies which may be 90-100% dependent on the defence market.

The European Community has supported projects of defence-dependent areas through the PERIFRA programme which is a pilot project designed to assist areas adversely affected by the end of the cold war, and, more recently the Konver initiative. The latter is a new initiative of the European Community, promoted by the European Parliament to provide 130 million ECUs in assistance for diversification to defence-dependent regions within the EU. Paricular emphasis is given to encouraging small and medium businesses and to environmental objectives.

So far, therefore, there has been very little *actual* conversion either of bases or of industries. (One celebrated example is Racal's diversification into the mobile telephone market.) The main effect so far of defence cuts has been unemployment. Indeed the scale of redundancies, suggests that the end of the cold war has been viewed by companies as an excuse for rationalisation. In December 1990, British Aerospace announced 5,000 lay-offs, including the closure of its Kingston and Preston plants. A further 2,200 lay-offs were announced in March 1991 in Bristol, Lostock and Stevenage. Likewise VSEL announced 3,500 lay-offs in November 1990, and a further 5,500 in Barrow in March 1991. One Ferranti worker described the situation in his company as follows: 'At a recent meeting of trades unions with management on the Ferranti crisis, we were given the plan, not the possibility of diversification for the company. They indicated that if they get away with reducing the work force as they like and end up with a fitter, hungrier company, then they will go into the commercial market and play a role within there'.[45]

The most noteworthy examples of actual conversion are Barrow-in-Furness and Lancashire. In both cases, grants have been received from the European Community's PERIFRA programme. In the case of Barrow, a one company town that manufactures *Trident* submarines, government funds have also been received. The funds have been used for the provision of industrial premises by English Industrial Estates, road projects, training

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[44] Steve Hoyle, op cit.

[45] Lothian Trades Union and Community Resource Centre, *A Conference on Alternative Strategies for Defence Dependent Communities*, Abridged Report, November 1989.

projects, and a series of proposed projects including land reclamation, tourism development, and the creation of a Diversification Zone.[46] Barrow was one of the areas where a conversion plan was produced by workers during the 1970s.[47]

On and off, throughout the 1980s, the unions continued to push for conversion together with peace activists.[48]

The Cambrian Technology Transfer Initiative was set up jointly by VSEL and Barrow in Furness Borough Council in 1981 with the aim of assisting the diversification of the industrial base of the town of Barrow.

In the case of Lancashire, Lancashire Enterprises, an economic development agency for the North West, has set up two programmes. One is an agency, operated on behalf of BAe, for finding jobs, retraining schemes or self-employment options for former BAe employees. The programme, which is called New Start, involves an intensive process of counselling, planning, placement and follow-up. The other programme is the Preston New Technology Park to be funded by PERIFRA. The aim is to establish a regional centre for technology transfer and new product development. The Park will provide business start-up units (workshops for light engineering or offices for services such as software development), a training unit, a technology transfer unit (including technology transfer networks), an enterprise innovation support unit, as well as other facilities such as meeting rooms, dining rooms, etc. Also, in Lancashire, Blackburn Borough Council has been working together with a local R & D company to produce civil electronic and electrical products at ROF Blackburn.

One other development that should be mentioned is the establishment of a Joint Diversification Committee in Royal Ordnance, in which management and trades unions will join efforts in developing diversification strategies, and in particular drawing up project proposals to be submitted to Konver. This is something that defence trades unions have campaigned for several years.

Regional plans do offer the best prospects for conversion. The problem with company-based conversion or diversification plans is that they are still caught in the 'spin-off'

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[46]Barrow has been surprisingly successful in attractive visitors to a remote industrial town. In 1992, receipts from tourism amounted to £100 million. See "Barrow Tourism Booms with help from Mr Toad" The Guardian 18 September 1993.

[47]Vickers Combine Shop Stewards Committee, Alternative Employment for Naval Shipbuilding Workers: A Case Study of the Resources Devoted to the ASW Cruiser, Vickers (Barrow), 1977.

[48]Barrow Alternative Employment Committee, *Oceans of Work, the case for non-military research development and production at VSEL Barrow*, Barrow, 1987.

approach that characterised Defence Technology Enterprises and also alternative plans. Companies are organised round defence technology and the number of viable commercial applications are, in fact, rather limited, precisely because of the 'culture' of the companies and the specific development of military technology. A report undertaken for the Government on this question concluded that less than 20% of defence technologies were likely to generate civil spin-offs. [49] Even with government assistance of the kind proposed by the Labour and Liberal Democrat Parties, the risk is that diversification could turn out to be a mechanism for propping up defence companies, encouraging spin-off sectors which resemble the defence sectors and thus preserving a mini-command system.

It may be that slimming down and even closing defence companies is more efficient method of restructuring, *provided* those skills that have potential value can be re-deployed before they are lost. It is people rather than companies that have the versatility to respond to new markets or needs. Hence what is required are market or need-led plans in localities where skills are concentrated. Retraining schemes and science parks provide a basis for re-deploying defence skills that may be more appropriate than company-based diversification. However, in a recession, it is extremely difficult to envisage how these new enterprises so created can break into existing high tech markets, which are dominated by firms who have accumulated considerable experience. In so far as they do succeed, the main effect in the current climate could be labour displacing. It is already possible to observe that displaced defence workers take jobs in low-technology sectors, especially services, thereby displacing less qualified workers. Without new markets, there is a risk that these imaginative regional schemes will fail, compounding the current disillusion.

Environmental projects, transport and communications projects are particularly appropriate because they do utilise similar skills. And, unlike consumer markets, they are not yet saturated. At present, Britain's spending on environmental R & D for example, is a fraction of what is spent on military R & D and low compared with other countries. There are companies, in Britain, at the forefront of new environmental technologies, like building controls for regulating and conserving energy or small energy efficient power plants; however, they have difficulty in achieving sufficient economies of scale because of low domestic markets. An increase in expenditure on alternative energy provision or building controls for hospitals, schools and other public buildings could be one way of building up a comparative advantage in these areas and utilising valuable skills in the defence sector.

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[49] Advisory Council on Science and Technology (ACOST) *Defence R & D: A National Resource*, HMSO, May 1989.

What this suggests is that micro-economic adjustment cannot be treated separately from macro-economic adjustment. Reductions in defence expenditure needs to be accompanied by increases in other forms of public expenditure, especially expenditure on environment, transport, health or education, if regionally-based conversion efforts are to succeed. Moreover, public expenditure needs to be geographically redistributed.

Conclusion

The main conclusion of this case-study is that any security policy has to take into account economic realities. The unimaginative approach to security policy by the current British government is untenable in the long run. The escalating costs of high technology, the restructuring of the defence industry, and the economic burden of military spending mean that it is no longer feasible to maintain a comprehensive national capability for high intensity warfare. Successive reports from the House of Commons Defence Committee warn against further cuts in defence spending. In the case of the Royal Navy, for example, one report has argued that 'in the event of war, (it) would be incapable of defending our sea routes on which we depend both for trade and the movement of our armed forces'.[50] Yet even if there were an identifiable threat to Britain's sea routes, it is almost impossible to suppose that Britain could or would have to defend its sea routes single handedly in the traditional manner. Small countries like Denmark or the Netherlands have always recognised their limitations and have sought alternative mechanisms to assure their security. In the current context, a continued emphasis on a future high-intensity war of the World War II type is actually a handicap, absorbing resources that might contribute more constructively to immediate security concerns in the post-cold war world, e.g. peace-keeping or economic assistance.

On the other hand, an alternative more internationalist security policy in which defence was a less important component and in which defence was more oriented towards peace-keeping and peace enforcing could only be introduced in the context of appropriate economic adjustments. Otherwise, defence cuts will merely contribute to recession. There would have to be increases in civil public expenditure, especially in areas such as environment and infrastructure, and there would have to be constructive regionally-based conversion initiatives. One of the most positive findings of this study has been the grass-roots development of local and regional diversification plans, which are often supported by the European Community and which offer the prospect of breaking out of the defence dependence of the British economy.

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[50] See *Jane's Defence Weekly* ,30 October 1993.

Unlike the countries of Eastern Europe, the British policy-making elite has not yet absorbed the full implications of the end of the cold war. The main public criticisms of the government have been directed against the consequences of defence cuts. Yet a much more radical adjustment of the scale and orientation of Britain's defence posture will have to take place sooner or later. The current anachronistic posture is likely to lead to both economic pain and political confusion over the next few years - a 'sour and sunken island' adrift in the new post-cold war world.