

Militarism, the UK Economy and Conversion Policies in the North

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Today's militarism has historical roots. This chapter looks briefly at the historical background to militarism and its role in the UK economy. It focuses on the importance attached to technological capabilities as well as attempts to reorientate government industrial policy and research priorities from the military to the civil. It is this legacy that points to a paradox facing the UK at the end of the Cold War. Despite some demilitarization of civil society, reflected in opinion polls which show defence as an issue of declining importance, an elite military/industrial network of defence planners, politicians and industrial interests continues to exert considerable influence over important resources of technological expertise and capabilities – to the detriment of the UK economy.

Only by recognizing the continuity of militarism as an important influence on industry and technology can we begin to appreciate the significance of the end of the Cold War. For a large proportion of the population it represents the opportunity for a peace dividend and the transfer of resources from defence to the pressing needs of the civil economy, public infrastructure, education and the welfare state. For a military/industrial elite, however, it represents nothing more than a period of retrenchment in an attempt to ensure that cuts are kept to a minimum. As a result, military preparations will continue to make excessive demands on scarce industrial and technological resources and the UK will make no real contribution to disarmament and common

security, despite the unprecedented opportunity offered by the end of the Cold War. On the contrary, the UK represents a major force in the new militarism underpinning the new world order.

Change is possible, however, through adoption of conversion policies. The second part of the chapter looks at conversion policy in the US and former USSR, assesses the potential for similar policies in the UK and EC and suggests what a comprehensive conversion policy should include.

WHAT IS MILITARISM?

Defining militarism is not an easy task. One definition confines the term to those sorts of ideologies which actively glorify warfare, for example fascism. *War preparation* which does not actively promote war itself is not, in these terms, militarist.¹ Militarism, though, can be related to all industrial society when defined as an excessive reliance on war preparation involving social, economic, political and ideological mobilization. Some argue that in Western liberal democracies a policy of defence and deterrence does not constitute militarism because it is a legitimate and realistic stance in a world of competing nation states, and, during the Cold War, between competing superpowers and their allies. However, while militarism has shed the overt ideological or imperial baggage of the past, it still depends on the contemplation of, and preparation for, massive destruction through the use of military force.

A crucial issue here is the importance attached to the technology of war in advanced industrial societies. Smaller armed forces have a range of sophisticated equipment such as fighter aircraft and missiles at their disposal which gives them increased capabilities compared to the much larger armies of the past. Therefore, it is entirely possible to have increased war preparation (including nuclear weapons) since 1945, but to see demilitarization take place in civil society.² This distinction is extremely important for our analysis. Essentially, the militarization of government industrial and technology policy can be contrasted with the partial demilitarization of society. As defence and military concepts of security decline in importance for civil society it should be possible to raise the profile of common security with its emphasis on environmental and developmental priorities, coupled to a programme of arms conversion with which to maximize the potential for the release of resources from the military to the pressing needs of civil economic reconstruction.

TECHNOLOGICAL MILITARISM

The idea that, historically, UK government policy can be characterized by a commitment to this form of technological militarism is a highly controversial one. The common perception remains that establishment culture was anti-industrial. Successive governments showed disdain for the northern metropolitan industrial bourgeoisie as opposed to support for a southern, finance-dominated, land-owning aristocracy; this was reflected in the composition and orientation of the British civil service. The most well-known illustration of this argument is that the UK was unprepared for conflict in the 1930s, especially in comparison to the fascist war machine.³

Recent work has questioned both this specific case and the underlying assumption of anti-industrialism. There is powerful evidence that government, in partnership with key industries, had a clear strategy for industrial and technological capabilities with which to wage modern warfare. Production figures show a sustained growth throughout the 1930s, especially in aircraft production:

The RAF, centred on Bomber Command, its huge industrial base employing over one and a half million people, and its massive numbers of largely non-combatant personnel, some one million, represented a technological way of warfare.... Contrary to myth, the average English serviceman had at his disposal a much greater quantity of material than did his German enemy, or his Soviet ally, though less than his American cousin.⁴

Set against the staple diet of post-war films, which concentrate on epic struggles like the Battle of Britain with all its imagery of individual heroism, the reality was technological warfare through massive offensive bombing against civilian targets. As Edgerton says:

To think of the English state as incapable of planning, of investing in science and technology, or of appreciating scientists and engineers is to misunderstand it and to absolve it from the responsibility for its actions.⁵

This commitment to war preparation has been an enduring feature of post-war UK policy, despite the initial run-down of defence spending at the end the Second World War and the successful conversion back to civil production. After falling to one-seventh of its wartime peak in the late 1940s, the onset of the Cold War, signalled by the beginning of hostilities in Korea in 1950, saw the Labour government expand defence

spending from 6.5 per cent to 10 per cent of GDP. In fact, the Attlee government planned to double defence expenditure, including a fourfold increase in defence equipment production. This proved impossible to implement because of the strain on government financing.⁶

For the first time in history, the Cold War created a permanent peacetime military-industrial capability at sustained high levels of defence spending. Even Marshall Aid, which had been instrumental in establishing European recovery, was transformed by the US from aid for civil reconstruction to aid for rearmament, before being wound down altogether.⁷

In summary, the UK has maintained a range of commitments far in excess of what one could consider normal for a medium-sized European country, despite the reduction in its global status since World War Two. These commitments include strategic nuclear forces and conventional defence of Europe, the Atlantic, the English Channel and the direct defence of the UK (including overseas commitments like the Falklands).

Since the late 1960s, half of government expenditure on research and development (R&D) and between 20–30 per cent of total national spending has gone on the military. Even allowing for statistical uncertainties, this represents a heavy burden. Apart from the US and the former Soviet Union, UK government spending is matched only by France, although the US dominates military R&D spending in absolute terms.⁸ Equipment demands to satisfy these commitments have been met mainly from UK defence companies and the Ministry of Defence (MoD) is British industries' biggest single customer. Continued spending on each new generation of highly sophisticated and specialized weapons systems across the range of requirements has meant that R&D consistently absorbed up to 20 per cent of annual procurement expenditure during the post-war era.⁹

DEFENCE SPENDING AND THE ECONOMY

Does this all matter? Would the UK, in economic terms, have been better or worse off without rearmament? A brief historical review reveals very different interpretations. For classical economists including Smith and Ricardo, the issue was very clear cut: military preparations were always a burden:

Taxes which are levied on a country for the purpose of supporting war... and are chiefly devoted to the support of unproductive labourers, are taken from the productive industry of the country. When, for the expense of a year's war, twenty millions are raised by means of a loan, it is twenty millions which are withdrawn from the productive capital of the nation.¹⁰

In 1841, Sir Robert Peel also strongly endorsed this view of the economic impact of military preparation and the need for disarmament:

Is not the time come when the powerful countries of Europe should reduce those military armaments which they have so sedulously raised?...The consequence of this state of things must be that no increase of relative strength will accrue to any one power, but there must be universal consumption of the resources of every country in military preparations.¹¹

However, the recent experience of the Second World War stood this argument on its head. For many, the demands of military production seemed to bring an end to the mass unemployment of the 1930s. One of the rationales in the US for the inevitably large military expenditures of the Cold War was that government support for military procurement, particularly high technology equipment, would be the dynamo of a successful economy – what has become known as *military Keynesianism*. Indeed, the foreign policy documents which put forward the rationale for the US's new global military presence included a specific element on the benefits to the economy.¹² The Administration's Bureau of Budget, however, argued that far from being beneficial, these expenditures may result in substantial difficulties for the economy:

security rests in economic as well as military strength, and due consideration should be given to the tendency for military expenditure to reduce the potential rate of growth, and at an advanced stage to require measures which may seriously impair the functioning of the system.¹³

The body of literature on the damaging effects of military spending has grown, with Chalmers' work in the UK and Melman's in the US being most prominent.¹⁴ In the UK, for example, the high level of military spending lowered the potential for investment in the overall economy which, in turn, contributed to the relatively poor post-war economic performance.¹⁵ Labour's National Plan of 1965 neatly reflected the dilemma posed by high defence spending: 'If we endeavour to support

too large a defence effort, it will create economic weakness which will, in the long run, frustrate our external policy as a whole no less than our internal policy.¹⁶

UK GOVERNMENTS AND TECHNOLOGY POLICY

The first Wilson government in the 1960s stands out for its remarkable and ambitious challenge to the military orientation of science and technology in the UK. Wilson's overriding policy goal was to modernize British industry – producing a new Britain forged in the 'white heat' of the technological revolution. Subsequently the term fell into disrepute, as part of the general perception of failure surrounding Wilson's first administration. But a recent re-evaluation suggests that behind the imagery not only was there a clear and coherent analysis of the failings of the UK in its concentration on defence and other prestige projects, but also a recognition of the need for a radical overhaul of government institutions to maximize the potential for technology transfer into key civil areas, namely machine tools, electronics and telecommunications. The 'white heat', therefore, can be seen as forging a new, dynamic *civil* economy in response to the long-term imbalance in British science and technology towards the military. As Tony Benn, the Minister for Technology at *Mintech* (as the department became known) said:

Having inherited the finest complex of research facilities available anywhere in the Western world, it has been my object to bring about a shift from the almost exclusive concentration of government support on defence research to more general support for civil industry.... There is no reason why in education or some other similar field of civil expenditure there should not be similar stimulation by means of public procurement in technologies associated with areas other than defence.¹⁷

Initially, Mintech had responsibility for a range of research facilities including the National Research Development Corporation and the Atomic Energy Authority, which included very large establishments like Harwell and the Atomic Weapons Research Establishment, Aldermaston. In 1967 Mintech also took over the Ministry of Aviation, which included the Royal Radar Establishment (RRE), the largest electronics research centre in the country, and the Royal Aircraft Establishment. As the Ministry of Aviation had also been responsible for a large proportion of the defence procurement budget, Mintech

could then be accurately called a super ministry, in charge of all civil industrial policy and the bulk of defence R&D and procurement.¹⁸

Mintech set about promoting technology transfer. Examples include the biomedical technology work at Aldermaston: research into the materials and design for surgical implants, components for kidney dialysis machinery, patient monitoring systems, and so on. Most publicity was given to the work on artificial limbs. The RRE did pioneering work on infra-red systems for use in monitoring processes and quality in smelting metals, particularly steel and aluminium, plastics and ceramics.¹⁹ The difficulties with technology transfer from defence R&D should not be underestimated, however. These include the different demands of civil markets, the tendency to over-engineer to solve problems without adequate appreciation of cost implications, and scepticism from industry on the merits of the exercise. Nonetheless, progress was clearly made over a very short timescale. However, after Labour lost the election in 1970, Mintech was split into various departments. The research establishments were taken into the Ministry of Defence Procurement Executive and the experiment in technology transfer effectively dropped.

Since 1970, very little has changed in the military orientation of R&D under succeeding Labour and Conservative administrations. Given the astonishing transformation in European security since the end of the Cold War, major cuts in defence spending and a renewed interest in the sorts of policies pursued under the Wilson government might have been expected. However, the gradual decline in defence spending since the peak years of 1985–86 has brought it back in real terms only to the level in 1979 – Cold War defence spending for a post-Cold War environment.

Two aspects need stressing about the historical continuity of UK militarism. First, the end of the Cold War was not seen as a signal for the fundamental re-evaluation of defence preparation and defence spending. In fact, the government's defence review in 1990, *Options for Change*, reflects the emphasis on technology, reassuring its readers that the numerical reductions in forces will be counterbalanced by improvements in equipment. The UK will play a leading role in NATO's Rapid Reaction Corps which is intended to provide for high-intensity operations around the world. In other words, military capabilities, particularly through improved technology, will remain a high priority, inevitably reflected in defence expenditure.²⁰

Also, unlike the first Wilson administration, the Conservative government sees no opportunity to re-orientate priorities for

technology policy. This is graphically demonstrated in the establishment of the Office of Science and Technology (OST) under William Waldegrave in 1992. Its remit is to coordinate the science and technology programmes of government in order to provide a clear strategic direction which, in turn, should improve industry's potential to benefit from the UK's undoubted capability for innovation. OST, however, will only be responsible for just over a fifth of the budget allocated for science and technology. Most obviously, the MoD, which still consumes 44 per cent of the government's total R&D spend, remains separate. Although there is a nominal commitment to working with the OST and liaising with other government departments, the MoD sees its main responsibility to be the procurement of weapons. Any strategic contribution to government science and technology policy is rejected.²¹ Despite some modest programmes of access to industry there remains a 'ring fence' around the MoD.

The contrast between the Wilson experiment and the present situation could not be clearer. As a pioneering venture, the crucial importance of Mintech in the 1960s lay in its attempts to redirect state support for R&D away from the defence sector to technologies directly needed for the modernization of the UK's civil manufacturing base on the basis of a clear and unambiguous government strategy. In contrast, Conservative policy rejects both the prospects for a substantial peace dividend and the concept of a radical re-orientation of technological priorities despite the clear need for a similar strategy of modernization in the 1990s.

ARMS CONVERSION POLICIES

Today, there is no shortage of research on the positive economic benefits of reduced defence expenditure and arms conversion. The most recent is the IMF's analysis which suggests that international trade would benefit from an internationally coordinated decrease in defence spending of 20 per cent. This is significant not only for the major defence spenders in the West but for developing countries with large military budgets that would experience a growth in tradeable consumer goods.²² Although conversion in the UK is not yet on the government's political agenda, it is an element of policy in the former USSR and the US.

The former USSR and Russia

The most comprehensive policy for conversion was begun by the Gorbachev leadership in the former Soviet Union. Two elements are central to understanding its significance: first, the sheer scale of the cuts in defence expenditure (by 1993 defence production was at a quarter of 1988 levels and defence R&D was virtually at a standstill); and second, the importance attached to the defence industries as key industrial and technological assets which would make a major contribution to the overall programme for economic reconstruction.²³

Under Gorbachev, the centralized planning structure was still intact and a top-down policy was implemented for conversion, with the various ministries responsible for implementing a national plan. Building on the experience in civil production, Gorbachev called for rapid progress to help overcome the major shortages in consumer goods. Joint ventures with Western companies were also encouraged, partly to gain assistance in technology and commercial business practice but also as a way of linkage between conversion and broader security objectives:

What is emerging in the Soviet Union is an official policy which closely links the issues of security and international cooperation in conversion. Extensive foreign involvement in conversion and the development of large-scale international projects involving the Soviet defence industry are seen as means of enhancing confidence in the irreversibility of the disarmament process.... The hope is clearly that such international cooperation will facilitate further demilitarisation of the Soviet economy and possibly also that it will make it more difficult for any conservative forces to put the process of reform into reverse.²⁴

It is generally agreed that the expectations for the economic benefits from conversion were far too high, particularly in the short time-scale envisaged by Gorbachev. Much wastage occurred because of concentration on the capabilities of defence industries rather than the needs of the markets for commercial goods and because of duplication of production across defence establishments. Nevertheless, the commitment to radical restructuring and sustained cuts in defence spending remained up to the time of the collapse of the Soviet Union.

If anything, the speed of the cutbacks under Yeltsin in Russia was even greater than under Gorbachev with the demilitarization of the economy remaining a crucial element of the new administration's policy. However, tension developed between the supporters of privatization and conservative forces in the administration and the defence industries,

who saw the latter's technological capacity as threatened. Even so, the scale of change is impressive, with 778 establishments undergoing conversion, 347 research organizations and an overall target of 900 establishments by 1993. A survey of 600 enterprises suggested that the share of military output had declined from 51 per cent in 1990 to 41 per cent in 1991 and was forecast to be only 26 per cent by the end of 1992. Over 877,000 workers left military work, with 536,000 re-hired on civil work at the same enterprises and 340,000 left unemployed.²⁵

By 1993, there was clearly a power struggle between conservatives centred around the defence industries and those supporting privatization and conversion. While radical privatization was still the official policy there was an emerging debate about the retention of a state-owned defence-industrial base and private or joint-ownership of industry to provide diversified civil and defence manufacturing groups.

These structural changes to conversion policy since Gorbachev reflect broader policy debates on the transition to a market economy, the scale and speed of change, and in particular, as far as the defence industries are concerned, the continued role of the state in areas of strategic importance. As the defence industry has been run down, conservative forces have, unsurprisingly, rallied round the concept of a defence-industrial base and the retention of state ownership in order to protect themselves. Clearly, at a time of considerable economic disruption, there is a real danger that these forces could instigate a re-militarization of the economy.²⁶

Nevertheless, considerable efforts have been made to sustain the momentum of reductions in defence expenditure and conversion despite the overarching problems of transition to some form of market economy. In the absence of financial support from central government it is not surprising to see new organizational structures emerging, including increased emphasis on city, regional and republic conversions programmes.²⁷ Perhaps the future for conversion lies, on the one hand, in this greater emphasis on local initiatives and, on the other, in support from the West through financial aid, management and industrial expertise and so on, as part of what should be a comprehensive programme of assistance by Western governments.

The US

During the 1992 presidential election campaign, Bill Clinton stated clearly that he saw the end of the Cold War as an opportunity for the US to refocus on international economic rather than military challenges into the next century: 'I know the world's finest makers of swords can and will be the world's finest makers of plowshares',²⁸ he said,

advocating an arms conversion policy as an important element of the broader strategy to help restore America's international competitiveness in civil markets. The policy would focus on retraining, technology transfer, R&D and community assistance with federal agencies taking a pro-active role in encouraging private sector initiatives.

During the election, he had called for cuts of \$60 billion in defence spending over five years. Although only a relatively modest cut in real terms, leaving the budget at \$274 billion in fiscal year 1993 – around 95 per cent of the Bush administration's planned spending – it would still have a considerable employment and economic impact. According to the National Commission for Economic Conversion and Disarmament, those facing redundancy included 290,000 military personnel and Department of Defence (DoD) and Department of Energy (DoE) civilian staff; 75,000–100,000 civilian defence workers and 250,000 others because of the lost spending power of defence workers.²⁹

A variety of federal departments and programmes will be used to compensate for reductions in defence spending by investment in new infrastructure and high technology. The Advanced Research Projects Agency (ARPA), which has dropped Defence from its title in recognition of the changed emphasis, has a \$400 million budget to encourage defence companies to adopt dual-use technologies which have applications in the civil as well as the military sector. However, ARPA's primary responsibility remains as a defence agency to meet military needs.³⁰

Allied to stimulation of dual-use capabilities is a policy to re-orientate R&D from military to civil work. This includes the largest government R&D institutions such as the nuclear weapons laboratories Lawrence Livermore, Los Alamos and Sandia. These laboratories face considerable reductions in nuclear work, although various activities in weapons' safety and environmental clean-up will continue. The laboratories also have an extensive range of capabilities which can be applied to civil research. Some question how effective the laboratories can be in responding to new challenges and the need to streamline bureaucratic procedures for commercial work. They argue that the laboratories should be run down and new institutions given the responsibility for civil research.³¹

The Office of Technology Assessment (OTA) has outlined how the federal government can provide a clear strategic lead through new national programmes in areas like pollution-free transportation systems and fuel-efficient cars. Such a 'national needs' agenda would create a new vision for science and technology policy that would galvanize the research establishments in a way that only defence research could do in the past. However, defence R&D, despite its reduction to a target of 50

per cent of federal R&D, will still retain a major role and doubt must exist as to the scale of the restructuring that can be achieved.

Support to the Office of Economic Adjustment (OEA) in the Pentagon, in existence since the early 1960s to assist communities faced with base closures, has also been increased. Finally, there is an extensive programme of assistance mainly for military personnel and DoD/DoE civilians through early retirement, job retraining and so on.³²

The role of state administrations acting independently of federal government is another important element of conversion policy in the US. For example, Connecticut, which is the most dependent of all states on private defence industries, has a package of financial aid including loans and investments in new product development. This is mainly targeted at smaller industries but a grant of \$1 million was also provided to the Electric Boat Company, builders of the Trident submarine.³³ In California, an organization called Calstart made up of 40 public and private bodies is investigating options for using the state's aerospace expertise in new urban transport systems.³⁴ Many other examples could be cited, suggesting that, as the pace of defence restructuring accelerates, the role of the states and regional initiatives will be of increasing importance.

There are two broad interpretations of the significance of the Clinton conversion policy. One sees it as too little in the context of major restructuring at the end of the Cold War and, therefore, a missed opportunity. The other, despite defence spending remaining at historically high levels, sees the Clinton administration as having put together a comprehensive and realistic programme which, although modest, recognizes the major cultural changes that have to take place in the defence sector. These changes cannot be achieved overnight.

Despite concerns over the relatively small scale of resources and the emphasis on dual-use technology, the administration has addressed many of the areas that conversion advocates stress are vital in creating a positive institutional relationship between government and industry. Above all, the Clinton administration has tried to stimulate a political climate that is conducive to conversion. It treats conversion as a serious element of an overall economic and industrial policy that aims to raise the technological capabilities of US industry at a time of intense international competition. A new national agenda for civil R&D is a significant element of this effort.

However, the federal structure is not comprehensive and state initiatives are still peripheral given national policies stressing the maintenance of a defence-industrial base and dual-use capabilities within

a large military budget. Generous assistance to retraining and other programmes for defence personnel may actually be counter-productive if it reinforces a pattern of consolidation around defence contracting. Sustained, deep cuts in defence expenditure remain the most important prerequisite for a comprehensive conversion policy.

The UK and Europe

The Conservative government in the UK has an explicit policy of leaving defence restructuring to market forces. In practice, this has resulted in significant reductions in employment and industrial capacity. Cuts in employment were actually *larger* in proportional terms than overall defence procurement reductions as companies anticipated deeper cuts in the future.³⁵

Some defence companies have achieved notable successes through diversification into civil production (while retaining their defence work). Examples are Dowty Aerospace in producing landing gear for Airbus and a GEC-Marconi subsidiary which successfully moved into the production of TV satellite dishes. But the general trend has been one of rapid rationalization with the prime contractors running down and closing large sites.

Recently industry itself has called for government to take a more proactive position. They fear that reductions in defence expenditure could seriously jeopardize the UK's position in leading sectors such as aerospace and electronics. For example, several industrialists from the defence sector argued in their evidence to the House of Commons Select Committee on Trade and Industry that government should develop a long-term strategy for technology acquisition across government departments with increased support in areas like R&D to maintain the UK's capabilities in key industrial sectors.³⁶ Lord Weinstock, the Chief Executive of GEC, also endorsed the setting up of a Defence Diversification Agency. This has been official Labour Party policy for many years, re-affirmed in the 1992 election manifesto, with the aim of assisting defence companies.³⁷

In the absence of any central government policy, local authorities have been the focal point for conversion activity in the UK. These have been mainly local studies of defence dependency but in some cases there has been practical help through EC funding. In contrast to the UK, the EC has seen the run down of defence industries and the impact on employment as a serious problem on a European scale and one requiring support from EC structural funds, in much the same way that basic

industries such as coal and steel have been supported in the past. The first programme of EC support, called Perifra, was established in 1991 to assist defence-dependent areas hit by major job losses. Local authorities in north west England, for example, received a one million ECU grant for a technology centre in Preston to provide a focus for local innovation as some compensation, albeit very modest, for the closure of British Aerospace's military aircraft factory there, while the Wirral authority's successful bid for funds was used to set up an employment advice centre for redundant workers from the Cammell Laird shipyard, which had closed due to the run down of defence work.³⁸

The EC has recently initiated the more ambitious Konver programme to assist regions with problems of defence adjustment. The budget is made up of 85 million ECU from the European Regional Development Fund and 45 million ECU from the European Social Fund. Bids have been invited from local authorities and the UK has been allocated about £15 million, to be matched by private funding. The level of funding still remains modest but there are clear similarities with programmes run by the OEA and the state authorities in the US, and scope exists for future development.³⁹

Overall, though, the scale of cuts in European defence spending remains modest despite the wide variations across countries. In general, European governments have left adjustment to industries themselves, resulting in large job losses, declining industrial capacity and very limited compensation through company-led diversification, although there are national variations with German companies such as Deutsche Aerospace (Dasa) having made strenuous efforts to reduce their level of defence dependency. Opposition parties like the Labour Party in the UK and the SPD in Germany have called for greater assistance, and, with the Konver programme now underway, debate on a European conversion policy is likely to intensify.

To some extent industry itself is beginning to respond with requests for greater government assistance but the scale of continued defence procurement is a major motivation to consolidation around defence work.

A comprehensive conversion policy

The critical element for comprehensive conversion, and one generally ignored, is a clear relationship between disarmament and economic policy. Conversion is not simply a technical exercise but one that

fundamentally links new concepts of common security, stressing environmental and developmental priorities, to the irreversibility of transition from military to civil economy.

Governments, using the peace dividend, could give a clear lead through a new national agenda for civil investment and R&D in areas like environmental protection and infrastructure investment. Not only would this stimulate economic development, it would also give a clear political signal that conversion should be a significant element of policy. A clear *political* objective should be for defence industries to reduce their level of defence dependency and, in the longer term, to normalize industrial structure so that, instead of a permanent specialized defence industrial base, we have predominantly civil industries that also supply the declining need for defence equipment. In other words, the end of the Cold War should be treated as the end of every other major conflict in the past whereby the traditional industrial structure is restored.

A crucial element is the reorientation from military to civil R&D, which requires research laboratories to enter into new civil contracts with private industry. All countries such as the US, UK and France with large military R&D outlays need to consider the range of programmes necessary for moving to civil R&D, linked again to support for qualitative disarmament that will reign in the technological arms race.

Regional initiatives to help defence-dependent communities are also required so that, as with the successful examples of the OEA in the US, local economies can create a diversified and stable economic base. Assistance to defence companies would also be crucial in the transitional phase between defence contracting with all its attendant requirements and the different needs of the civil sector. The expansion of public programmes would be a major stimulation in itself but further assistance specifically to defence industries would be required in R&D, product development and marketing in order to overcome the strong preference to continue with specialized defence contracting. A Defence Diversification Agency, as supported by the Labour Party, would be one way of providing institutional support but it would need clear powers to coordinate programmes between the Department of Trade and Industry (DTI) and the MoD.

A final element in a comprehensive conversion programme would be assistance to the East. Some joint agreements have been signed between western companies and former Soviet defence manufacturers and research establishments but they are still relatively few in number. Without western assistance, conversion could falter and pressure grow for a remilitarization of the economy.

CONCLUSION

The paradox of the UK's situation is the continuing process of demilitarization in civil society with expectations of a major peace dividend at the end of the Cold War, alongside the consolidation of a permanent peace-time war machine. Historically, there has been a long-term technological militarism with the aim of sustaining the UK at the forefront of military capabilities. Relative economic decline has been the consequence of this pattern of government expenditure.

At an international level, when comparing conversion policy in the East and in the West a further paradox is that the nearest to a model of comprehensive conversion, linking progress on disarmament to an irreversible programme of demilitarizing the economy, occurred in the Soviet Union at a time when the benefits were least likely to manifest themselves because of the overriding problems of transition to a market economy and the lack of support and assistance from the West.

In contrast, the West has carried out, in the main, only modest cuts in defence expenditure. Restructuring of the defence industries has been left to market forces in many countries like the UK, with the inevitable consequence of consolidation around defence work as the dominant pattern. While the Clinton administration's policies on conversion are a welcome contrast to the lack of support elsewhere, they are still relatively modest. It remains to be seen if they will form the basis of a more ambitious programme in the future but the overall trend in defence spending suggests only moderate cuts in comparison to the ones that could be made to the end of the century.

In this context, the stress laid on dual-use technologies needs to be carefully considered. If defence remains an important element of government spending, dual-use could reinforce rather than reduce the trends towards defence consolidation and bring increased demands on the civil sector to satisfy the needs of the specialized defence manufacturers. Only through a clearly articulated and implemented national policy of comprehensive conversion can we expect to see a normalization of production along traditional peacetime lines with predominantly civil manufacturing industry and research institutions providing what remains of the declining need for defence equipment. Demilitarization of the economy is as important for the 1990s as disarming the military.