

# IRAQ:

## Consequences



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# Iraq: Consequences of a War

Professor Paul Rogers

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## **Executive Summary**

The commitment of the Bush administration to regime termination in Iraq is so strong that a war with Iraq early in 2003 is now highly likely. Regime termination is thought necessary, in part, because of Iraq's likely development of weapons of mass destruction, but the control of the region's oil resources is also a major factor.

Although the regime is weaker than eleven years ago, it is probable that most of its elite forces will resist attack. The regime will seek to draw foreign forces into a war in the greater Baghdad region. US war plans are expected to focus on destroying Iraq's military and administrative infrastructure, denying the regime access to its energy supplies and drawing out the elite forces so that they can be subject to intensive air attack.

Conflict in Baghdad will involve the use of area-impact munitions as well as precision-guided munitions and the civilian casualties will be high. A civilian death toll of at least 10,000 should be expected but this may be a low estimate, given the experience of urban warfare in Beirut and elsewhere.

Evidence from the 1991 war indicates that it is highly likely that the regime will use all available military means, including chemical and biological weapons, if its very survival is threatened. Such weapons may be used in tactical warfare to hinder invading forces but may, in extreme circumstances, be used strategically against forces in other countries.

In such circumstances, and especially if high casualties result, there is a possibility of a nuclear response. The British Government, in particular, has been candid in conceding this as a potential response to CBW use by Iraq.

The United States has sufficient forces to ensure regime destruction but the regime's replacement by occupying forces or by a client regime, even if the war is not greatly destructive, should be expected to increase regional opposition to the US presence. It is likely, in particular, to increase support for organisations such as al-Qaida and to prove counter-productive to peace and stability in the region.

Given these major consequences of a war – high civilian casualties, risk of the use of weapons of mass destruction and post-war regional instability – alternatives to war should be sought as a matter of urgency.

## **Introduction**

While there are still indications of differences between some of the senior US military and the civilian security establishment in the Bush administration, it is clear that it is the latter who are dominant in the argument over how to handle the Saddam Hussein regime. For them, it is not sufficient for the UN inspectors to be allowed back into Iraq, even without restrictions – they believe US policy should be clearly to terminate the regime.

There is thus a very firm determination in Washington to change the leadership in Iraq, replacing it with military occupation or a pro-western regime. Indeed, it is even believed in some circles that the removal of Saddam Hussein would actually improve the prospects for a peace process between the Israelis and the Palestinians.

The timing of that intervention or forced regime change remains unclear, and is dependent to an extent on attitudes and resolutions at the United Nations, but substantial military action is most likely in January or February 2003 if Saddam does not accept unfettered and coercive inspections.

In the face of a potential new Middle East war, there are a number of key questions to ask. Why is the United States determined to destroy a regime that has already been weakened by eleven years of sanctions, what form would the attack take, and how might the regime respond to its imminent destruction?

A reasonable prognosis for the conflict can be developed based on the war aims of both parties and their levels of military capability. This can be further aided by examining relevant elements of the 1991 war, how the Iraqi regime acted in relation to the UN inspection process during the 1990s, and how other conflicts have been fought, not least elsewhere in the Middle East and South Asia.

This briefing addresses these issues but its principle aim is to make an assessment of the possible consequences of a war in terms of three issues – civilian casualties, the risk of escalation to the use of weapons of mass destruction and the state of the region should

the regime be terminated and replaced with a regime acceptable to Washington.

The briefing seeks to avoid what are often termed “worst case scenarios”. Some of these are discussed briefly in one section of the paper, but it aims primarily to concentrate on probable rather than possible outcomes.

## **Why Attack Iraq Now?**

It is first relevant to examine the reasoning behind the intended US action. Clearly it is not just about the UN inspection process, for there is a palpable sense in Washington that full access for the inspectors is just about the last thing that is wanted. Part of the reason for this is that the security community in the Bush administration does not believe that inspections can uncover everything and that the Iraqi regime is so determined to develop and deploy weapons of mass destruction that it will eventually hinder the inspection process.

In this respect, timing is crucial. Military action against Iraq intended to destroy the regime could take up to three months and needs to commence before the end of next February in order to avoid combat under markedly adverse climatic conditions. If the war is not started by then, the US would have to consider a delay until the autumn, and this presents three serious problems.

One is maintaining substantial forces in the region throughout the summer months and a second is being engaged in such a war as the 2004 Presidential elections get under way. Perhaps the most substantial problem is that President Bush and his associates have been unequivocal in the need to deal with the Saddam Hussein regime. Any substantial delay would look like political ineptitude by the Bush administration and would allow time for domestic opposition to develop.

There are other issues that go well beyond the timing of an attack, and some relate to the experience of the 1991 war, a war that appears to have ended in a complete victory for the coalition but is viewed in a rather different light in security circles. There remain powerful memories of that war in that it was known that the Iraqis had chemical and

biological weapons and were ready to use them if the regime was threatened with destruction. The view by the hard-liners in the Bush administration is that the Iraqis either have such weapons now or will have them very soon, so early pre-emption is essential.

Those memories of 1991 are also relevant in two other ways. One is that what appeared to be a total victory was achieved partly because the Iraqis did not even commit their best troops to the war zone, regime survival being their primary goal. Those troops were then available to destroy the Shi'ite and Kurdish rebellions.

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A second aspect is that the missiles fired against Israel and Saudi Arabia in 1991 were a damaging diversion for the US. It is recognised, in particular, that the missile that just missed an ammunition depot at Jubayl during the closing stages of the war could have caused a catastrophe (1). The Iraqi policy of withholding its best troops in 1991 supports the idea that its military have a fair degree of tactical competence and could therefore be a threat in the future. This, along with the effect of the Scuds, and Iraq's possession in 1991 of CBW systems, does appear to demonstrate the capacity of relatively weak states to deter even a superpower, an entirely unacceptable situation for the United States.

The Bush administration is particularly firm when it comes to international security, and this has been much strengthened by the 9/11 attacks and the consequent and crucial need to regain control of a volatile international system after such a shock. The unilateralist outlook places US security interests at the

forefront of foreign policy (2) and it is simply not acceptable to have rogue states in an axis of evil that are able to develop weapons of mass destruction that might deter the US from necessary interventions. It is implicit in the new security posture that such circumstances may need to be dealt with by pre-emption. Moreover, in this respect, terminating the Saddam Hussein regime would set a very firm example to other regimes, not least Iran. As one influential Republican with impeccable oil links put it: "If we sort out Iraq right we may not even have to go for Iran". (3) A further factor is the political utility of "going to war". It demonstrates taking the battle to the enemy, mobilises the population and distracts the public from domestic worries.

## **The Relevance of Oil**

Yet there is a further reason that receives far less attention - the regional geopolitics of oil. As an earlier Oxford Research Group briefing paper emphasised (4), the Persian Gulf oil reserves are truly staggering - twice as large as all of the rest of the world's oil fields put together, and more than twenty times larger than the dwindling reserves of the United States itself. Iraq alone has close to four times the oil reserves of the United States including Alaska.

Among the Gulf States, Saudi Arabia is by far the most important, yet there is increasing evidence of internal instability, a deep undercurrent of anti-American sentiment, and even evidence that much of the financial and other support for al-Qaida comes from within the Kingdom. Second only to Saudi Arabia as a repository of easily extracted high quality oil reserves is Iraq. Replacing the current regime with one compliant with US interests would therefore involve the substantial bonus of diminishing the importance of Saudi Arabia. This could be seen, perhaps, as the real al-Qaida link with the Iraq question

The significance of oil supplies is put in further perspective when we examine trends in US import dependency. Until just over thirty years ago, the United States was able to satisfy its substantial oil requirements from its large domestic reserves, but production has tended to decrease throughout the past thirty years

with consumption increasing. The end result has been a rapid increase in oil import dependency, with the current import requirement being in excess of 60 per cent of demand. Furthermore, there is little inclination to curtail domestic oil consumption, especially under the Bush administration, and even the North East Alaska fields would add relatively little in the face of the high level of domestic demand.

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All of this must be put in the context of world oil trends where two features are relevant. The first is that the most promising area for oil prospecting is the Persian Gulf region, and the oil that appears available there is of a relatively high quality, is easily recoverable so that production costs are low and is close to major sea-lanes. The known reserves of oil in Saudi Arabia and Iraq are both greater than they were a decade ago in spite of substantial annual production from both states - the discovery of new reserves is actually exceeding production, in marked contrast to the situation in the United States.

Secondly, new reserves being discovered and developed elsewhere in the world are most commonly expensive to extract or are of relatively low quality. Alaskan, North Sea and West Shetland oil all require expensive extraction technologies operating in adverse conditions, Caspian Basin oil requires long distance transport to sea routes and Mexican and Venezuelan oil is of relatively lower quality.

In any case, other supplies need to be put in perspective. If one adds together the entire proved oil reserves of the Caspian Basin, Siberia, Alaska, the North Sea and West

Shetland, one gets a combined total that is rather less than that of Iraq alone, and Iraq, while very oil-rich, has less than one-fifth of the total reserves of the Persian Gulf region. When we combine US unilateralism with a specific unwillingness to allow opponents to develop deterrent forces and then add in the importance of Iraqi oil, we get some idea of the reasons for the determination of the administration to go to war with Iraq. Within this outlook there lies the belief that such a war will be winnable and that a US ally in Iraq will ensure that other states in the region will acquiesce to US interests in the face of this determination. Thus the region will be made safe for the West in general and the United States in particular.

Termination of the Saddam Hussein regime is therefore central to America's evolving policy of maintaining control of a volatile region that is crucial to international energy supplies. It is also an essential part of controlling the evolution of oppositional states that might develop the means to deter the United States from taking actions considered essential to its security.

## **What Kind of War?**

In preparation for the war, the US has accelerated production of precision-guided weapons, partly to replace those used in Afghanistan but mainly to have large enough stocks for use against Iraq. Munitions plants are currently working 24 hours a day, seven days a week, and production of protective chemical and biological warfare suits has also been increased.

Supplies are already being moved into the region, a large air base in Qatar is being prepared as an alternative to Saudi facilities and the existing aircraft carrier battle group in the Gulf is likely to be augmented by up to three more by early next year before a war starts, most probably in January or February.

Many army and marine corps units are currently training for desert and urban operations, and there is a particular emphasis on special forces and the equipment needed to move them around within Iraq. In a move unreported in the mainstream media, the

United States already has repair teams actually inside Iraq, working on three airfields that are in areas in the North that are controlled by the Kurds. Furthermore, the intensity of US and UK air attacks in the no-fly zones has increased substantially.

The exact nature of the attack is beginning to become clear and looks like being a combination of the different options that have been discussed so widely in the press (5). A core component will be the massive use of air power to destroy the command and control systems of the Iraqi military, using cruise missiles, stealth bombers and strike aircraft and B-1B and B-52 strategic bombers. The latter will operate from bases that include the British territory of Diego Garcia in the Indian Ocean.

The US Air Force is currently building specialised facilities there to enable it to operate B-2 stealth bombers that currently operate only from a single base in Missouri. The B-2 would be a key component of an air assault but it has a low level of reliability, with barely a third of the force of 21 planes available for combat operations at any one time. Because of this, and the need to operate over very long distances, the B-2 was only able to be used sparingly in Afghanistan. Forward basing to Diego Garcia is a response to this predicament.

During the air war itself, air defences, air bases, army barracks and presidential palaces will all be hit, and power supplies throughout much of the country will be destroyed. Some of the cruise missiles may disperse long carbon fibre strands to short-circuit electrical switching stations, and a form of bomb first used in Serbia will have a similar function.

The experience of the 1991 Gulf War, combined with US tactics used in Serbia, indicates that the air war will extend its targeting to a very wide range of Iraqi state functions that could contribute in any significant way to the survival of the regime. Among these will be any manufacturing facility that has a defence connection, whether this is direct in the form of armaments, or indirect in terms of component manufacture. There is also likely to be a sustained

programme of the dismantling of those aspects of the state concerned with national organisation and control, including a wide range of government ministries. Especially significant will be any targets connected with the central security apparatus, including the Republican Guard, the Special Republican Guard and the five different security and intelligence organisations (see below).

Given that this war, unlike the 1991 war, has the specific aim of destroying the regime, the air war against its core infrastructure is likely to be substantially more intense than before. It will also use a range of new technologies.

A new type of weapon, a version of the Wind Corrected Munitions Dispenser (WCMD) will be used that disperses huge numbers of microscopic carbon fibres that drift in the wind. These can get into even the smallest of electrical components, damaging computers, air conditioners, communications equipment and anything else with electrical circuits. (6)

Another new type of weapon will be used extensively, the high-power microwave weapon that produces a near-instantaneous electrical pulse or “spike” that destroys computer memories and damages electrical components. Microwave weapons will be used, in particular, against sites believed to contain chemical or biological weapons in an effort to prevent these being used. (7)

## **Area Impact Munitions**

It is appropriate to emphasise the fact that area-impact munitions are expected to play a substantial role in the war, whereas the impression is frequently given that munitions will be limited almost entirely to precision-guided missiles and bombs aimed precisely at point targets.

In practice, the remarkable improvements in munitions accuracy over the past twenty years has been paralleled by the development of area-impact munitions (AIMS), the modern-day successors to the napalm used in Korea, Vietnam, Afghanistan and elsewhere. AIMS are designed specifically to damage and destroy “soft targets” (including people) and take three main forms, cluster bombs, fuel-air



explosives (also termed thermobaric weapons) and multiple-launch rocket systems - all were used in the 1991 war and, more recently, in Afghanistan. (8)

A standard British cluster bomb, the BL755, disperses 147 bomblets over an area of several thousand square metres, with each bomblet producing up to 2,000 high-velocity shrapnel fragments. A US Air Force fuel-air explosive is the CBU-55B cluster unit containing three BLU-73B canisters, each with over 30 kg of ethylene oxide. Each canister produces an aerosol cloud about 20 metres in diameter and 2.5 metres thick which is detonated to produce blast overpressures of up to 300 psi. (9)

An even more powerful weapon is the BLU-82B ("Big Blue") slurry bomb originally developed for clearing Vietnamese rain forest terrain to create "instant" helicopter landing zones. This weapon, the world's most powerful conventional explosive, is a 6.8 tonne bomb containing ammonium nitrate, powdered aluminium and a polystyrene soap binding agent, all in aqueous solution. When detonated, the BLU-82B produces blast overpressures of up to 1,000 psi, close to those of a small tactical nuclear weapon.

The BLU-82B was used against Iraqi bunkers in the 1991 war and was used extensively in Afghanistan against cave complexes. It is likely to be used in Iraq in the event of a war, especially against hardened targets. If these are in urban areas, as is likely, the collateral damage among the civilian population may be very high.

The US MLRS is an example of a rocket launch system. It comprises air-mobile launchers that would be used in a ground war, with each launcher capable of ripple-firing a salvo of twelve missiles over a 30+ kilometre range, dispersing nearly 8,000 sub-munitions over an area of 20 hectares (nearly 45 acres), with each sub-munition dispersing large numbers of high-velocity shrapnel fragments. If these were to be used against urban targets, once again, the collateral damage would be likely to be substantial.

## **A Ground War**

The air attacks are confidently expected to do massive damage to the regime's ability to use its security forces, especially the Republican Guard, but it is recognised that this will not, in itself, destroy the regime. For that to happen, there has to be substantial US intervention on the ground, although this is unlikely to involve a major conventional assault on Baghdad until well after the commencement of the air war.

It is probable that there will be three forms of ground action. (10) One will be an intervention in the south-eastern region of Iraq, including Basra, to ensure control of the major oil fields there. This may follow the disabling of the oil production facilities by air attack, with an emphasis on the use of disabling weapons rather than the actual destruction of the facilities. A second will be a combination of air attacks together with sufficient troops to control the oil-producing regions of the Kurdish north, protect the newly established air bases and prevent any kind of Iraqi counter attack.

Operating strike aircraft and attack helicopters from within Northern Iraq is intended as a militarily useful operation but is also seen as having a strong psychological impact on the supporters of the regime.

Both of the actions, in the North-West and the South-East, are expected to be opposed, especially that around Basra, and there will be very heavy use of air strikes to limit US casualties. High levels of co-lateral damage and civilian deaths are almost inevitable, not least in and around Basra where urban conflict is possible.

The third ground action will be the use of highly mobile troops in moves towards Baghdad itself. Their primary aim will not be to destroy the regime directly, but rather to force it to bring the Republican Guard Divisions and Special Republican Guard Brigades out into the open. There, they will be exposed to the full force of US air attack, some of it operating out of Northern Iraq itself. As well as the use of precision-guided munitions, this will include the extensive use of carpet bombing with conventional bombs,

as in Afghanistan, as well as area-impact munitions such as cluster bombs and fuel-air explosives, as outlined above.

One significant point is that most of the ordinary Iraqi army units will not be subject to attack unless they appear a threat to US troops. (11) The thinking in Washington is that they will be required to help stabilise Iraq once the regime has fallen.

Within a matter of days, it is believed that Iraqi military communications will be virtually defunct, the regime will be cut off from its oil supplies and the elite Republican Guard forces will be in the process of being destroyed. Within weeks, and certainly before the summer, the regime will be finished, and will be replaced by a US occupying force, possibly using some Iraqi army elements. Acceptable leadership may eventually emerge, drawing on elements of the regular army to establish post-war stability, in a client relationship with Washington.

It hardly needs to be said that the side effects on the Iraqi economy and the well-being of its people will be devastating. One of the core US requirements will be to minimise the casualties among its own troops and this will involve the massive and continual use of air power. Experience of the tactics used in the first Gulf War and in Serbia shows that, quite apart from large numbers of civilians killed and injured directly in the attacks if urban areas are attacked with area-impact munitions, there will certainly be substantial and sustained damage to the economy as power supplies, transport and communications are destroyed.

Without electrical power, sewage and water purification plants will not operate. As bridges and other transport nodes are destroyed, the domestic economy will grind to a halt. As in 1991, the effects will be felt by ordinary people for months and years afterwards unless there is a substantial international post-war effort to revive and restructure the nation and its economy.

Even so, there is a belief that the war is a price worth paying, and that the end result will be a pliant regime, sympathetic to and dependent

on Washington for security, and controlling some of the world's richest oil reserves. The US position in the Middle East will be secure and an effective example will have been made of an unacceptable threat and an unacceptable effort to develop weapons of mass destruction. Perhaps most important of all, there is a belief among the Bush administration's security advisers that other states will have been impressed by American determination and will be far more cautious in their approach to regional security.

## **The War from Baghdad**

What of the view from Baghdad? Almost certainly, the dominant strand of thinking within the Saddam Hussein regime is the imperative for regime survival. This must not be underestimated - it transcends every other objective and was evident in 1991 when the conscript defenders in and around Kuwait were sacrificed to preserve the regime.

In recent years, Baghdad has worked diligently to improve its relations with neighbouring states. This has not always been easy, especially with Iran, but the overall effect has been to ease tensions, not least by showing evidence of support for the Palestinians that has gone down well in terms of Arab public opinion. Moreover, it has made Saudi Arabia deeply reluctant to become involved in support of the United States. Whatever else happens, their support will be at a much lower level than in 1991.

The regime has also sought to encourage opposition to the war from France and Russia, not least by offering contracts and possibly by indicating that past debts may be repaid. It has also sought Chinese aid in rebuilding its air defences, conscious of China's long-term interest in Gulf oil as its own reserves run down.

The Saddam Hussein regime has been helped in its aim to represent an attack on Iraq as an attack on the Arab world by the widely perceived support that Washington has given to the Sharon government in what is seen as a particularly hard-line policy towards the Palestinians. The fact that it is American helicopters and strike aircraft that the Israelis

use persistently in attacks on Palestinian targets lends support to this view.

Iraq will also prevaricate and procrastinate mightily on the matter of inspections, continuing to make a range of offers that attract international approval. Its aim will be to postpone a military confrontation until the autumn of next year, for reasons outlined earlier.

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There remains controversy over whether the regime really does have chemical and biological weapons (CBW), but it must be remembered that the UNSCOM inspectors only really ran into trouble in the late 1990s when they appeared to be getting close to these weapons and their production facilities. Iraq had CBW in 1990-91 and both the UK government and the CIA say they have available CBW now.

From the regime's point of view, CBW systems constituted a last ditch deterrent in 1991 and could do so again, although there would also be seen to be a military utility to their use, especially with fast-acting chemical warfare agents. The US military expect CBW use and are planning for it. If they are right that the regime has useable CBW, then full inspections by UN staff will not be allowed by the regime, even if prevarication lasts for some months.

The regime recognises that it cannot rely on the Iraqi people as a whole, only those who constitute the elite and have a vested interest in regime survival. The Iraqi army's strength is estimated at around 375,000 including recalled reserves, but the great majority of these are ill equipped and of poor combat efficiency. Six Republican Guard divisions (three armoured, one mechanised and two

infantry) numbering perhaps 60,000 troops are better equipped but may be of questionable reliability. As such, they may not be used in the core defence of the regime.

More significant are four brigades of the Special Republican Guard, five brigades of commandos and two special forces brigades, together totalling perhaps 50,000 troops. In addition, the regime maintains five different security and intelligence organisations. The general security service numbers 8,000 and works principally to counter dissent in the general population. The general intelligence service is of a similar size and concentrates on internal and external intelligence. Military intelligence, rather smaller in number performs, a more military function, and there is a separate military security service that appears to have its own brigade. Finally, there is the special security force, working with the Special Republican Guard and numbering perhaps 5,000 people drawn heavily from Saddam Hussein's own district of Tikrit, north of Baghdad. (12) These security and intelligence forces together number perhaps 30,000 people, giving a total force of reasonable reliability of around 80,000.

The regime will be broadly aware of US plans for military action and will have undertaken a full-scale process of dispersal and disguise for its elite forces. It may well have back-up communications systems hardened against precision strike and microwave attack, not least through the recently installed fibre optic underground links, and may have dispersed its CBW systems to prevent their early destruction. It may also have pre-delegated authority to use these systems to regional or local commanders. This threat is recognised in Washington and London to the extent that the US has made it clear that any commanding officer using WMD will be judged as a war criminal after the conflict.

Iraqi tactics in response to a US attack will probably have several elements. One will be to make the war as difficult and as long-lasting as possible, even if this means allowing US troops into Baghdad itself and only engaging them at close range. (13) Such an engagement may well involve CBW weapons, but there may also be delivery systems available to

direct these weapons at US bases in northern Iraq and in Kuwait and Qatar, perhaps pre-emptively, and possibly to engage Israel in the conflict.

The focus, though, will be on Baghdad, a sprawling city of nearly five million people. There will be a ready recognition that the elite armed forces and security units are the key to the conflict and that their survival will be hastened by dispersing them and drawing the US forces into urban combat. There may be limited use of chemical weapons early in this conflict, to force the US troops to fight in their restrictive CBW suits.

The extent of the fighting is almost impossible to assess, and depends partly on whether the majority of the Iraqi population supports the regime, or acts against it. The former may seem unlikely, but it is not easy to assess the ordinary people's response to what would clearly be a foreign force seeking to occupy the city. In any case, one possible effect of a war in Baghdad could be immediate and massive movements of refugees, complicating US war efforts.

What is important is that any major urban resistance would be countered by US firepower and would most likely cause many casualties. In this connection, the experience of the Israelis in West Beirut in 1982 is relevant. There, powerful and well-equipped Israeli armed forces, with complete control of the air, laid siege to a densely populated urban area defended by just 15,000 militia, mostly lightly armed. The Israeli armed forces anticipated that they could take the city within a week, but found it remarkably difficult to do so, even with the use of very heavy aerial and artillery bombardment. The siege lasted three months, some 20,000 people were killed, the great majority civilians, and the international outcry against the Israeli action was such that the PLO fighters were withdrawn under safe conduct. (14)

While the regime will seek in every way to extend the war, there will still be a quiet recognition that the United States does have the military means to destroy Iraq. Its forces and its economy are both weak after 11 years of sanctions, whereas the United States has

even greater military strength. It follows that more vigorous responses should be expected, bearing in mind the absolute requirement of regime survival. If it is clearly and unequivocally threatened, then almost anything goes.

One of the less-remembered aspects of the Gulf War was the firing of 360 Kuwaiti oil wells and the consequent destruction of five million barrels of oil and widespread environmental damage. A US invasion of the Iraqi oil fields around Basra might result in a similar sabotaging of these fields. If this was accompanied by paramilitary actions against Kuwaiti and Saudi refineries and oil fields, the effect on world oil prices would be considerable, especially if the targets could be contaminated with chemical or radiological weapons. Such contamination could be long-lasting, as could the effects on oil markets.

## **Chemical and Biological Weapons**

According to the CIA and the British government's dossier on Iraqi weapons, Iraq currently has useable chemical and biological weapons, and, in the British view, a command and control system that probably involves delegation from the command authority. How such systems would be used will depend on the course of the war, but there is much to be learnt that is relevant from an understanding of the Iraqi development of such weapons in the period leading to the 1991 war.

Following the Israeli destruction of Iraq's Osiraq nuclear research reactor in 1981, the Iraqi regime engaged in a multifaceted and dispersed programme of producing nuclear, chemical and biological weapons. (15) Particular emphasis was placed on biological agent developments in the late 1980s, and weaponisation of several agents, and of nerve agents, was underway towards the end of the decade.

Between August 1990, when Iraq invaded Kuwait, and the onset of Desert Storm in January 1991, the regime instigated the emergency completion of a limited capability for medium range offensive action with CBW

agents. This resulted in the deployment to four remote locations in Iraq of a force of missiles and bombs. 166 bombs were completed, 100 filled with botulinum toxin, 50 with anthrax and 16 with aflatoxin. 25 Al Hussein missiles were deployed, 13 armed with warheads containing botulinum, 10 with anthrax and two with aflatoxin. (16)

These, and chemical warheads, were intended for use in the event of the destruction of Baghdad by nuclear weapons during the Gulf War. This could have resulted from an unforeseen escalation of the war, possibly involving Israeli action in response to Scud missile attacks. Moreover, authority to launch the missiles was pre-delegated from Baghdad to regional commanders, an extraordinarily risky decision, giving rise to the possibility of unauthorised use of weapons of mass destruction during a fast moving and, for the Iraqis, chaotic and increasingly disastrous military confrontation.

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***Given that survival is the ultimate motivation of Iraqi regime policy, it should be anticipated that CBW systems would be used if there was an attempt to destroy the regime.***

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Perhaps the most significant aspect of this deployment is that the US intelligence community was aware of the major features of the Iraqi BW programme, including the assessment that the Iraqis were likely to use weapons of mass destruction if the survival of the regime was threatened. This was the subject of a National Intelligence Estimate prepared in November 1990, three months after the invasion of Kuwait and two months before the onset of Desert Storm. (17)

It is relevant that coalition forces did not seek to destroy the Iraqi regime in March 1991. While motives for this restraint included risk of coalition casualties and concern over the political dismemberment of Iraq, there are unofficial indications that the fear of an escalation to WMD use was also of concern.

UNSCOM investigations, especially during the period 1995 to 1998, established the extent

of the remarkably large Iraqi BW programme, and it would be foolish to exclude an analysis that concludes that CBW production has been significant since the cessation of UN inspections four years ago. Given that regime survival is the ultimate motivation of Iraqi regime policy, it should be anticipated that CBW systems would be used if there were an attempt to destroy the regime.

## **A Nuclear Response to Iraqi CBW**

To suggest the possibility of nuclear retaliation to Iraqi CBW use may seem extreme but it is relevant here to point to the unexpected outcome of the *Global 95* exercise at the US Naval War College in July 1995, which was designed to explore the development of just such a major crisis. These large “war-gaming” exercises use personnel from all the armed forces, intelligence agencies and civilian departments to create a detailed assessment of possible conflicts, and *Global 95* was based on two simultaneous crises, in Korea and the Persian Gulf.

In the exercise, the Korean crisis was terminated with difficulty but the Gulf conflict, involving a resurgent Iraq, escalated to the point where Iraq used biological weapons to devastating effect against military forces and civilians in the region. The United States responded with a nuclear attack on Baghdad, ending the war.

The development and outcome of *Global 95* was reported in some detail in a Washington-based defence journal, commenting that:

*The United States has virtually no response to the use of such potentially devastating weapons other than threatening to use nuclear weapons, a Joint Staff official said Aug. 22. But it is unclear whether even nuclear weapons would provide a deterrent, unless the US was willing to take the difficult moral step of destroying a city, he said. On the other hand, if the United States did launch a nuclear attack in response, ‘no country would use*

*those weapons for the next 100 years,' the official said. (18)*

Such a view is wrong – a more likely outcome would be paramilitary attacks, in later years, on US cities that would be far more devastating than 11 September, but the point of the Global 95 experience is that the escalation was unexpected and, within the rules of the exercise, apparently not subject to control.

There is a natural reluctance to even consider that the United States, on its own or in coalition, would consider using nuclear weapons, yet it is known that such threats were made at the time of the 1991 war. It now appears that the only circumstances in which the Iraqi regime would have considered using chemical and biological weapons was if the regime itself was faced with destruction. This is precisely the intended aim of the Bush administration, so an Iraqi use of CBW should be expected, including the possible use of biological weapons against civilian populations.

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***There is a natural reluctance to even consider that the United States, on its own or in coalition, would consider using nuclear weapons, yet it is clear that such threats were made at the time of the 1991 war.***

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It is also relevant that, since the 1991 war, the United States has developed and deployed a tactical nuclear earth-penetrating weapon intended precisely to destroy deep underground targets such as command bunkers and chemical and biological weapons stores. (19) This weapon, the B61-11, can be deployed on the B-2 stealth bomber, some of which are to be deployed to Diego Garcia for use in military action against Iraq. When Tam Dalyell MP asked the Defence Minister Adam Ingram whether the B61-11 was to be deployed to Diego Garcia, the minister refused to give an answer. (20)

Given that it appears likely that substantial UK ground forces will be committed to a war against Iraq in coalition with US forces, it is also relevant to consider UK attitudes to nuclear use. Despite their repeated negative security pledges in conjunction with the Non-Proliferation Treaty, both states maintain policies of nuclear first-use, together with a willingness to use nuclear weapons against states that have other lesser forms of weapons of mass destruction (21)

## **The British Position on Nuclear Use**

Since the 1950s, Britain has deployed nuclear weapons on many occasions outside the immediate NATO area of Western and Southern Europe and the North Atlantic. This has included the Middle East, South-East Asia, the Indian Ocean and possibly during the Falklands War. (22) This raises the question as to whether sub-strategic, or indeed strategic, Trident warheads, might be used independently.

Britain reserves this right, and one of the more detailed assessments of the range of options for sub-strategic Trident warheads was made in the authoritative military journal *International Defense Review* in 1994:

*At what might be called the “upper end” of the usage spectrum, they could be used in a conflict involving large-scale forces (including British ground and air forces), such as the 1990-91 Gulf War, to reply to an enemy nuclear strike. Secondly, they could be used in a similar setting, but to reply to enemy use of weapons of mass destruction, such as bacteriological or chemical weapons, for which the British possess no like-for-like retaliatory capability. Thirdly, they could be used in a demonstrative role: i.e. aimed at a non-critical uninhabited area, with the message that if the country concerned continued on its present course of action, nuclear weapons would be aimed at a high-priority target. Finally, there is the*

*punitive role, where a country has committed an act, despite specific warnings that to do so would incur a nuclear strike. (23)*

It is worth noting that three of the four circumstances envisaged involve the first use of nuclear weapons by Britain. There has been concern expressed in parliament that the government has not been sufficiently clear about the circumstances under which British nuclear weapons would be used in post-Cold War circumstances. For example, the House of Commons Defence Select Committee noted, in 1998:

*We regret that there has been no restatement of nuclear policy since the speech of the then Secretary of State in 1993; the SDR [Strategic Defence Review] does not provide a new statement of the government's nuclear deterrent posture in the present strategic situation within which the sub-strategic role of Trident could be clarified. We recommend the clarification of both the UK's strategic and sub-strategic policy.*

This was, in part, in response to comments made to the Committee by the then Secretary of State for Defence, Mr (now Lord) Robertson. He had told the committee that the sub-strategic option was “an option available that is other than guaranteed to lead to a full scale nuclear exchange”. He envisaged that a nuclear-armed country might wish to “...use a sub-strategic weapon making it clear that it is sub-strategic in order to show that ... if the attack continues [the country] would then go to the full strategic strike,” and that this would give a chance to “stop the escalation on the lower point of the ladder”.

This statement indicated that “a country”, such as Britain, could consider using nuclear weapons without initiating an all-out nuclear war, and that the government therefore appeared to accept the view that a limited nuclear war could be fought and won. It was evidently not the clear statement that the Committee sought, and it did not indicate the circumstances in which such weapons might

be used. In particular, it did not appear to relate to whether Britain or British forces had already been attacked with nuclear weapons, or whether nuclear weapons would be used first in response to other circumstances.

At the same time, there has been no evidence to suggest that Britain has moved away from the nuclear posture of the Cold War era that included the possibility of using nuclear weapons first. On 20 March, 2002, the present Secretary of State for Defence, Mr Hoon, was questioned by members of the Select Committee and appeared to indicate that Britain maintained this policy. In relation to a state such as Iraq he said that “They can be absolutely confident that in the right conditions we would be willing to use our nuclear weapons.”

This exchange did not make clear whether this would be in response to a nuclear attack initiated by a state such as Iraq, but Mr Hoon was questioned on this point on 24 March on the Jonathan Dimbleby Programme on ITV. He was asked whether nuclear use might be in response to non-nuclear weapons such as chemical or biological weapons. He replied:

*Let me make it clear the long-standing British government policy that if our forces, if our people were threatened by weapons of mass destruction we would reserve the right to use appropriate proportionate responses which might...might in extreme circumstances include the use of nuclear weapons. (24)*

Later in the exchange, Mr Hoon made it clear that he could envisage circumstances in which British nuclear weapons were used in response to chemical or biological weapons. He was later asked by Mr Dimbleby:

But you would only use Britain's weapon of mass destruction after an attack by Saddam Hussein using weapons of mass destruction? (25)

Mr Hoon replied:

*Clearly if there were strong evidence*

*of an imminent attack if we knew that an attack was about to occur and we could use our weapons to protect against it. (26)*

The meaning of this is clear enough - there are circumstances where Britain would consider using nuclear weapons in response to a non-nuclear attack involving chemical or biological weapons and would even consider using nuclear weapons to pre-empt such an attack. It may be argued that such a statement is intended primarily as reinforcing deterrence by making the threat more explicit. Although this may be the case, there is the remaining problem that war-time circumstances can provide highly unpredictable environments and unexpected escalations. A culture in which nuclear use is even remotely contemplated is, to say the least, unfortunate.

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***Given the widespread existing antipathy towards the United States that exists throughout the region, the idea that a client regime in Iraq would be stable is dubious in the extreme.***

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From what is known about past Iraqi CBW deployments and the likely availability of CBW systems to the regime now, these may well be the circumstances likely to arise in the event of a war.

## **After the War**

The war itself carries a range of major risks, most of them related to the determination of Washington to destroy the regime and the even greater determination of the regime to survive. Even if the US action succeeds, though, there is no guarantee whatsoever that the consequences will be as expected. Given the widespread existing antipathy towards the United States that exists throughout the region, the idea that a client regime in Iraq would be stable is dubious in the extreme.

In the very best case scenario for Washington, a quick war with few casualties and little economic aftermath terminates the regime and

replaces it with one that is acceptable. For reasons given above, this is unlikely but it is possible. But if this were to happen, it would confirm the views of all of those throughout the region who see control of Arab oil as a requirement for Washington. In the short term it might appear successful, but in the longer term it would be an utter gift to al-Qaida and similar organisations, confirming all that they have been saying for more than a decade.

Thus, a war with Iraq should be expected to be hugely costly in human and economic terms and to carry with it the greatest risk of escalation to the use of weapons of mass destruction since the Cuba missile crisis of 40 years ago. Its aftermath, even if apparently “successful” from Washington’s perspective, would entail the development of further opposition across the Middle East to what would be seen as foreign control. It would be directly counterproductive not only for the region but even for the United States itself.

A counter argument may be made that the intention of the Bush administration would be to aid Iraq in a substantial programme of state-building leading to a democratic government. This is implausible for three reasons. Firstly, the Bush administration does not, in general terms, see it as a function of government to aid state-building in the aftermath of conflict. Secondly, there is recent specific evidence of a failure of the administration to engage in such action in Afghanistan, not least in its refusal to countenance the expansion of the International Security Assistance Force outside of Kabul. Despite the rather more positive efforts of some other countries, the situation in Afghanistan is now highly unstable. Warlordism is rife, opium poppy production has increased substantially and the interim government has experienced the assassination of a cabinet minister and a vice-president and at least two attempts on the life of President Karzai himself. (27)

Finally, the fractured make-up of Iraq, with Kurdish, Sunni, Shi’ite and Christian elements make it unlikely that a stable government would form with ease, particularly one that ensured that the US had full access to Iraqi oil supplies. Such a government would necessarily be seen in the region as, at the very



least, a client regime, and more likely a puppet government.

Taken with the current and very widespread perception in the region of Israel as a client state armed largely by the United States, and of Saudi Arabia controlled by an excessively wasteful and wealthy neo-feudal elite, a further increase in the anti-American mood in the region and consequent support for oppositional paramilitaries such as al-Qaida is likely to be the longer term consequences of an enforced regime change and possibly even a military occupation of Iraq.

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***...a war with Iraq should be expected to be hugely costly in human terms and to carry with it the greatest risk of escalation to the use of weapons of mass destruction since the Cuba missile crisis of 40 years ago***

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It is also possible that a paramilitary movement could develop from within Iraq. While there is abundant evidence of the unpopularity of the Saddam Hussein regime, it is certainly possible that internal opposition to US occupation and the subsequent installing of a client regime would result in an evolving insurgency. Internal opposition to the current regime does not equate with the future acceptance of foreign occupation.

## Further Possibilities

Before drawing some conclusions, it is appropriate at least to make mention of some less likely but possible consequences of a war:

- The Saddam Hussein regime may have organised its own paramilitaries, or may assist surrogates, to conduct a range of actions against US and other coalition forces. These could well include, for example the use of chemical, biological or radiological weapons against rear supply bases in the region, or transit routes such as the Suez Canal.

- The regime may even choose to take an action from which it has so far refrained - providing a surrogate group with chemical or biological agents for use against targets in the United States, or against US facilities in Europe, or against states supporting the US in its war on the regime. In this regard, the decision of the British government to vaccinate health professionals against smallpox is an indication of its perception of the risks that might arise from the war.
- Attacks against oil tankers and other aspects of the oil and gas supply chain may be mounted, possibly using surrogate paramilitaries, with the hope of affecting the price of oil.
- The regime may choose to engage in a small-scale action against Israel in order deliberately to incite the Sharon Government to enter the war, confident that this would greatly increase regional support for Iraq.
- The Israeli government may use the cover of the war to engage in much harsher action against Palestinians in the occupied territories, including forcing many of them into Jordan.
- In such circumstances, and given that Hezbollah militia in Southern Lebanon have recently received some thousands of short-range missiles from Iran via Damascus, Israel might suddenly find its northern cities under attack and would respond with forceful counteraction against militias and Syrian forces in Lebanon.
- In the extreme circumstances of imminent regime destruction, the regime may choose to act against Israel in order deliberately to bring about Israeli retaliation with the regional reaction that this would bring.
- More generally, there is a substantial perception in western business circles that a war with Iraq could precipitate a recession. (28) This is a matter of particular concern in the civil aviation

industry where the effects of the September 2001 attacks have still not been overcome. (29)

## **Consequences of a War**

This briefing has explored the probable features of a war with Iraq, and it leads to three substantive issues that need to be taken into account in relation to such a war – civilian casualties, the risk of escalation to the use of weapons of mass destruction, and the question of regional stability following enforced regime destruction.

From what is known of the likely process of the war, one should expect that there will be a very strong probability of urban warfare, especially in greater Baghdad, and that this will involve determined efforts by the regime's elite forces to ensure that US and other troops fight in a confined environment in the midst of a civilian population.

There is credible evidence that over 3,000 Afghan civilians died directly in the war last year, besides many more thousands dying in refugee camps. The Israeli experience in Beirut in 1982 also indicates the level of likely casualties. A recent assessment by analysts at the Brookings Institute in Washington, published in *Survival*, the journal of the London-based International Institute for Strategic Studies (30) considers that Iraqi military casualties might be in the order of 10,000, with a similar number of civilian casualties. The authors do not assess this in relation to the possible use of chemical and biological weapons and do not consider the possibility of further escalation. Their assessment is in relation to a conventional conflict.

Such an assessment may well be conservative, not least in relation to some of the issues discussed here, but it is entirely reasonable to conclude that civilian casualties in a war with Iraq will be at least 10,000, more than three times greater than the number killed in the attacks of 11 September 2001.

Furthermore, this paper does not seek to examine the longer term effects of a war on the Iraqi population, although evidence gained

after the 1991 war suggests that post-war civilian deaths included 30,000 refugees, at least 4,000 non-refugee deaths and a doubling of child mortality rates. (31)

On the second issue of the use of weapons of mass destruction, this report leans to the conclusion that Iraqi use of chemical and biological weapons is highly likely given the fundamental requirement for regime survival. How such weapons might be used against a sophisticated and protected enemy and with what effect, is more problematic.

At a minimum, their use should be expected to relate to a war aim of forcing coalition troops to be encumbered by the need to fight in protective gear, but the regime may, for example, employ most of its weapons strategically, including attacks on rear bases, logistic supplies and even centres of population, with the consequent risk of heavy civilian casualties.

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***...analysis suggests that the most likely effect of a war will be to increase opposition to what will be seen as increased US control of the region.***

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If such CBW attacks were successful to the point at which they caused substantial casualties, then scenarios such as that explored in *Global 95* are relevant, including a coalition nuclear response. Any rational analysis would conclude that this should not be the outcome, and it may not be, but UK government statements, in particular, are remarkably frank in this connection. If the government is ready to embark on a war in which it is prepared to consider the use of nuclear weapons this should, at the very least, be subject to intense public discussion prior to a war.

Finally, there is the question of the aftermath, and here the analysis suggests that the most likely effect of a war will be to increase opposition to what will be seen as increased US control of the region. This is likely even in the best-case scenario of regime termination with minimal violence. The more likely

consequences of a war - substantial immediate civilian casualties and longer term socio-economic damage - are likely to increase such antagonism still further. This, in turn, should be expected to lead to an enhanced environment for paramilitary organisations to promote their policies and actions, both in the region and against the United States and its allies.

All of these issues are indicative of the dangers inherent in the decision to terminate the Saddam Hussein regime by the use of force. At the very least they demonstrate that it makes eminent sense to investigate and develop policies that present a viable alternative to war. (32)

## Notes

1. On 16 February, 1991, a missile narrowly missed a large pier complex in the Saudi port of al Jubayl. It landed in the sea some 300 metres from the US Navy's aviation support ship Wright and close to the large amphibious warship Tarawa, both of which were moored alongside a pier complex which included a large ammunition storage dump and a petrol tanker parking area. Details of this incident only entered the public domain several years later but it is credited with having a considerable impact on US military attitudes to states armed with ballistic missiles. See: John D. Gresham, "Navy Area Ballistic Missile Defence Coming on Fast", *Proceedings of the United States Naval Institute*, January 1999.

2. The development of the current US security paradigm is outlined in an earlier paper in this series: Paul Rogers and Scilla Elworthy, *The United States, Europe and the Majority World after 11 September*, Oxford Research Group Briefing Paper, October 2001.

3. Interview with member of the Bush transition team, Washington DC, November 2001.

4. Paul Rogers and Scilla Elworthy, *A Never-Ending War? Consequences of 11 September*, Oxford Research Group Briefing Paper, March 2002.

5. As well as drawing on the experience of US operations in the first Gulf War, in Serbia and in Afghanistan, this section is compiled from two principal sources. The first is a wide range of reports from *The Washington Post* and the *New York Times* and agency reports from Reuters and Agence France Presse, most of these being available at <[www.globalsecurity.org](http://www.globalsecurity.org)>. Secondly, it uses material from a range of defence publications, particularly *Defense News*, *Jane's Defence Weekly* and *Aviation Week and Space Technology*. Three articles in the last of these were of particular value: David Fulghum, "Iraq Strike Has Focus, But There's No Timetable" (5 August, 2002); David A. Fulghum, "War Planning for Iraq Continues on Target" (23 September 2002); David A. Fulghum and Robert Wall, "Oil Wells, WMD Sites Fall Off Bombing List" (30 September 2002).

6. "Wind-corrected munitions kit goes operational on F-16 and B-52", *Flight International*, 14 November 2000.

7. "Washington Outlook", *Aviation Week and Space Technology*, 2 September 2002; David A. Fulghum, "USAF Acknowledges Beam Weapon

Readiness”, *Aviation Week and Space Technology*, 7 October 2002.

8. An account of the development and deployment of area impact munitions after the Vietnam War is contained in a chapter on conventional weapons of mass destruction in: Paul Rogers and Malcolm Dando, *The Directory of Nuclear, Biological and Chemical Arms and Disarmament, 1990*, Tri-Service Press, London, 1990.

9. Further thermobaric weapons are currently under development and may be ready for deployment in a war against Iraq. See: Andrew Koch, “USA speeds development of thermobaric weapons”, *Jane’s Defence Weekly*, 28 August 2002.

10. David A. Fulghum, “Iraq Strike Has Focus But There’s No Timetable”, *Aviation Week and Space Technology*, 5 August 2002.

11. *Ibid.*

12. A detailed assessment of Iraq’s security and intelligence forces is in: Ibrahim Al-Marashi, “Iraq’s Security and Intelligence Network: A Guide and Analysis”, *Middle East Review of International Affairs*, Vol. 6, No. 3, September 2002.

13. See, for example: Michael R. Gordon, “With his army weak, Saddam might force war into the cities”, *International Herald Tribune*, 27 August 2002, and: Rajiv Chandrasekaran, “Iraqis would use urban warfare to trap U.S. troops”, *International Herald Tribune*, 28 September 2002.

14. Peter Sluglett and Marion Farouk Sluglett (editors), *The Times Guide to the Middle East*, Times Books, London, 1991.

15. Paul Rogers, “Security Consequences of the Osiraq Raid”, *Contemporary Security Policy*, Vol. 19, No. 2, 1998.

16. Most of the information on CBW development and deployment came into the public domain four years after the Gulf War with the publication of a report from the UN Special Commission on Iraq: *Report of the Secretary-General on the status of the implementation of the Special Commission’s plan for ongoing monitoring and verification of Iraq’s compliance with relevant parts of Section C of Security Council resolution 687 (1991)*, New York, UN Security Council report S/1995/864, 11 October, 1995.

17. In 1996, the US Department of Defense made available on the Internet a large number of reports and studies relating to the Gulf War. These included, by mistake, a classified report relating to

the National Intelligence Estimate of November 1990 that had concluded that moves to destroy the regime would be likely to entail a chemical and biological weapons response. This report was quickly removed from the website but not before it had entered the public domain.

18. Theresa Hitchens, ‘Wargame Finds US Short in Biowar’, *Defense News*, 28 August 1995.

19. Partly because of difficulties in destroying deeply-buried military facilities, the United States has developed an earth-penetrating version of the B61 tactical nuclear bomb, the B61-11. This can burrow 15 metres below ground before detonating, producing an earthquake effect. The B61-11 is reported to have an explosive yield that can be varied between 0.3 kilotons and 300 kilotons (the Hiroshima bomb was about 13 kilotons) and its principal delivery vehicle is the B-2 bomber. It is therefore highly flexible and fits in with the idea that small but very accurate nuclear weapons might be used in limited conflicts. See “Nuclear Bomb Passes Final Drop Test, *Jane’s Defence Weekly*, 1 April 1996, and Greg Mello, “New Bomb, No Mission” *The Bulletin of the Atomic Scientists*, May/June, 1997. The development of a more sophisticated earth penetrator, the Robust Nuclear Earth Penetrator (RNEP) is awaiting authorisation under the 2003 national defense authorisation bill, see: Eric Miller: “Bunker-Busting Nuke Expands U.S. Options”, *Defense News*, 16 September 2002.

20. Responding to Mr Dalyell’s question, Mr Ingram said:

*As he knows, it has been the practice of successive governments never to confirm or deny the presence of nuclear weapons at any particular location or at any particular time. I have no intention of deviating from that line...*

*Hansard*, Vol. 390, No. 187, column 151, Tuesday 24 September 2002.

21. The term “weapons of mass destruction” tends now to be applied in an undifferentiated manner to chemical, biological and nuclear weapons. Both of the former can cause heavy casualties, especially if used against unprotected civilian populations. Nevertheless, nuclear weapons can be hugely more destructive and their use would break a threshold that has held since the attack on Nagasaki on 9 August 1945.

22. For a discussion of UK independent targeting see, Paul Rogers, “Sub-Strategic Trident, a Slow-Burning Fuse”, *London Defense Studies No. 34*, Centre for Defence Studies, King’s College,

London, 1996. The evidence for nuclear deployments during the Falklands War is not conclusive but does come from several sources.

23. David Miller, "Britain Ponders Single Warhead Option", *International Defense Review*, September 1994.

24. Transcript from the *Jonathan Dimbleby Programme*, 24 March 2001.

25. *Ibid.*

26. *Ibid.*

27. Discussed in another paper in this series: Scilla Elworthy and Paul Rogers, "The 'War on Terrorism': 12-month audit and future strategy options", *Oxford Research Group Briefing Paper*, September 2002.

28. See, for example: Patrick E. Tyler and Richard W. Stevenson, "Iraq war could shock shaky U.S. economy", *International Herald Tribune*, 31 July 2002.

29. "CEOs Leery of Iraq War", *Aviation Week and Space Technology*, 30 September 2002.

30. Philip H. Gordon, Martin Indyk and Michael E. O'Hanlon, "Getting Serious About Iraq", *Survival*, Vol. 44, No. 3, Autumn 2002, pp. 9-22. According to this analysis: "If elite Iraqi armed forces fight, then, Iraq could suffer 10,000 or more military deaths and a similar number of civilian deaths, while US troops might lose from many hundred to several thousand soldiers in action" (p.18)

31. *Counting the Human Cost of the Gulf War*, Medical Education Trust Background Paper, London July 1991. At the time of writing this briefing, an assessment is being undertaken by the London-based non-government organisation MEDACT into the longer-term health consequences of a new war on a population already affected by a decade-long sanctions regime. This study, *Collateral Damage: the health and environmental costs of war on Iraq*, will be published in mid-November 2002 and will be available at <[www.medact.org](http://www.medact.org)>.

32. For an initial discussion on this theme, see another briefing in this series, note 29 above.

## Acknowledgements

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**Front cover:**

Photograph courtesy of David Thorpe. Patriot missile heading out across Tel Aviv during the 1991 Gulf War.

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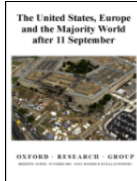
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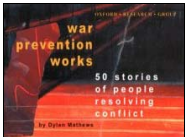
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22. *Nuclear Reprocessing, Has it a Future? Views From Inside and Outside the Industry*, Oct.1999
21. *Managing Plutonium in Britain: Current Options*, September 1998
20. *India, Nuclear Weapons & Global Security*, June 1998
19. *Proposals for a Nuclear Weapon-Free World: A Meeting Between China and the West*, Oct. 1997
18. *Next Steps in Nuclear Disarmament: No First-Use; ABMs; Fissile Material Cut-Off*, July 1997

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