

U.S. HIGH-TECH WEAPONS AND THE GULF WAR

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CERTIFICATE

Certified that the dissertation, "U.S. HIGH-TECH WEAPONS AND THE GULF WAR",
Submitted by me, in partial fulfilment of the requirements for the award of the Degree of
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TO,
MY DADI (MAI)

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Chapter 1

INTRODUCTION

On 2 August 1990, first major international crisis of the post- Cold-War period emerged when Iraq invaded Kuwait and in a very few hours conquered it. For the first time, since the formation of the United Nations, a member of it was not only invaded by another member but also completely occupied and annexed by it, though the decision to annex Kuwait was announced later by Iraq. This invasion of Iraq over Kuwait was viewed as a direct attack on the spirit of democratic revolution going on in Europe after the dismemberment of the USSR. Another apprehension which it raised was that the new consensus on collective security, howsoever fragile, which had been achieved after the end of the cold war would not survive in the face of this Iraqi aggression. Western countries' reaction to this aggression of Iraq was very swift and strong. The British Prime Minister Margaret Thatcher issued a call for , "concerted international action to force Iraq out of Kuwait."¹ Reacting to Iraqi invasion of Kuwait, U.S. President George Bush approved executive orders prohibiting transactions with Iraq and freezing of its US assets and declared a national emergency to deal with this new threat. George Bush told his advisers that this invasion of Kuwait would not be allowed to stand. "On 3 August, U.S. Secretary of State James Baker, and USSR Foreign Minister Edward Shevardnadze, issued a Joint

¹ Alberto Bin ,Richard Hill and Archer Jones:Desert Storm:A Forgotten War (Praeger Publishers ,88port road,West Port,1998) p-26

statement inviting all countries to take concrete measures to obtain the immediate and unconditional withdrawal of Iraqi troops from Kuwait.”² In the meanwhile, Arab

leaders were making efforts to seek a peaceful resolution of this crisis. Egypt and Saudi Arabia attempted to organize an Arab summit in Jeddah but the summit never took place and on 6 August, a public announcement was made canceling the proposed summit. Reacting to Iraqi aggression, the UN Security Council passed the resolution 660 which declared invasion of Kuwait by Iraq as illegal. Four days later, the UN passed resolution 661 which imposed a comprehensive international economic embargo on Iraq.

The Iraqi invasion of Kuwait gave a new justification for America's continuing leadership in world affairs. After the end of the Cold- War, USA was the only superpower and every nation was looking towards it, expecting it to assume the leadership to mount an effective response to the Iraqi aggression. The Bush administration was well aware of the responsibilities which it would have to shoulder. To fulfil its responsibility of being the world leader and to secure its vital national interests in the Gulf, On 8 August 1990, the US announced its decision to deploy troops to Saudi Arabia - only to prevent further advances by Iraqi troops. Iraq responded to the U.S. decision to deploy troops to Saudi Arabia by annexing Kuwait and declaring it as the 19th province of Iraq. This action of Iraq was a clear signal of Iraq's defiance of USA and of the U.N. Security Council. On 17 August, Saddam Hussein invited all westerners in Iraq to stay and turned them into hostages. He further linked release of hostages to US

² Ibid. P-37

force withdrawal and said that hostages would be used as humanshields to protect Iraqi facilities from possible US attack. In the meanwhile, political leaders in the U.S. , Europe and Middle East were working at the creation of an effective coalition. USSR President Mikhail Gorbachev's personal envoy Yevgeny Primakov's twice visit in early October failed to gain any concessions from Iraq. On 29 November, the U.N. security Council authorized the use of force if Iraq did not withdraw by 15 January, 1991 and on 3 December, 1990, the U.S. declared that it could not wait indefinitely for sanctions to compel an Iraqi withdrawal. In an inexplicable move, on 6 December 1990, Saddam Hussein set Western hostages free and later agreed to a meeting between Baker and Aziz in Geneva on 9 January, 1991. As expected, both sides restated their earlier positions and the meeting ended in a failure. A last minute peace initiative by U.N. General Secretary Perez de Cuellar, who traveled to Baghdad on 13 January, was rejected by Saddam Hussein. This made the war between Coalition and Iraqi forces inevitable. The coalition campaign to liberate Kuwait, known as Operation Desert Storm began with air strikes on January 17, 1991 and ended with the cessation of military operation by the coalition forces on 27 February, 1991. Iraq suffered one of the most humiliating defeat in history and Kuwait was a free nation again.

“For the United States in the post-world war II era, the war in the Persian Gulf was unique. It was short, victorious and cheap. It was waged against a patently monstrous tyrant on behalf of the United Nations and in concert with genuinely helpful allies. It occasioned but modest domestic political dissent, on the contrary, it prompted a popular (albeit short-lived) outpouring of affection and respect for the U.S. military unprecedented since V-E Day. It seemingly vindicated not only the enormous

investment in U.S. defense modernization made in the 1980s but also America's new post Cold War status as the world's only remaining superpower. It also was the only foreign conflict in American history that did not catch U.S. military forces unprepared and in which U.S. war costs were financed by foreign contributions. It was in short a 'splendid affair'.³

Every "fog of war" has inevitably been followed by the "fog of analysis" and so has been the case with this Persian Gulf war also. Like all previous wars, this war also provided several important political as well as military lessons. At the sametime, this war also raised several troubling issues that need to be explored in detail. But to understand all the lessons and to seek answers to all troubling issues of this Persian Gulf War , one would need a comprehensive degree of research and analysis which is beyond the scope of this dissertation. This dissertation primarily focuses on the role of the U.S. in this war in general, and of its advanced technologies and weapons in particular. To be more precise, the main concern of this study would be, the role played by the U.S. advanced technologies in the Persian Gulf war in providing the desired result for the America. To obtain the said objective, attempt has been made to analyse political, economic, strategic contexts of the Gulf War in detail.

For all practical purposes, Operation Desert Storm, was conducted under the leadership of the USA. It was not a war directed and controlled by the UN as many believed although USA did utilize the banner of U.N. to cover its activities in the Gulf War. The dominance of the US in the UN coalition is self evident from the duration of

³ Jeffery Record: Hollow Victory : A Contrary View Of The Gulf War(Brasseys US,Inc,Washington 1993) p-1

the war (it was a very short period war) and from the kinds of advanced technologies and weapons used during the war.

For the first time many new technologies and weapons were used which were distinctively American in their nature pointing towards the machine mindedness of the American civilization. It is clear from the American pursuit of the war, that there is reluctance or desire to avoid a long protracted war. It was clearly demonstrated during the Vietnam war. A sustained presence of sizeable U.S. forces would be politically very difficult to defend and could cause similar embarrassment and experience of Vietnam War. Another compelling priority was that there was a limited time frame in which the Bush administration had to act and achieve a favourable result as that could help in influencing the 1992 presidential election. Thus, in all fairness to the Bush administration, we can say that it did have to defend itself against a domestic constituency that would accept no justification as sufficient for the risk of war if the war prolonged sufficiently and caused heavy American casualties. The reluctance of American people to fight long-duration-wars and intolerance of heavy American casualties put heavy pressure on Bush administration. Moreover, 1992 being a presidential election year put further pressure on the Bush administration to obtain international and UN legitimation for the prospective use of force.

Having understood the domestic compulsions of Bush administration to seek the UN legitimation for the prospective use of force, we need to know the real purposes of the US administration to pursue this war. Was United States ready to fight the war and risk its international reputation just for the sake of the abstract principles of international

law or were there other motives behind this US move? Hardly can anyone disagree with the fact that after the disintegration of the USSR, USA is the only remaining superpower and hence it assumed an added responsibility for building up an international coalition to compel Iraq to follow the principle of international law and evacuate Kuwait. While Britain and France were giving prominence to international principles, we can not be so sure about US motives. The British Prime Minister, Margaret Thatcher declared that the international community must defend the principle that aggression can never be awarded for, otherwise 'the law of the Jungle would replace the law of nations.'⁴ But why did USA get so completely involved in this war? The reason is that the security of Saudi Arabia and the security of oil supplies had both been declared of vital American national interest and, by attacking and annexing Kuwait, Iraq had directly threatened these American interests. If Iraq succeeds in getting control over Saudi Arabian oil also, it would become the leading producer in OPEC and would have a strong hold on the world economy. And this is the last thing any American President would like to happen. To secure access to the oil fields of the Persian Gulf, it had prepared detailed extensive contingency plans and established the central command. But this issue needs a detailed examination.

It is to the credit of Bush administration that it was very successful in building up a very strong international coalition against Iraq, though it was helped by the fact erstwhile Soviet Union itself was so dependent on the US for financial assistance and so preoccupied with its own internal affairs as to allow the bush administration an

⁴ "The Gulf Conflict: A Political And Strategic Analysis", *Adelphi Paper*, no. 264, (Brassey's for te IISS, London, 1991) p-25

almost free hand in leading the international community. Other political aspects of the war-like issue of sanctions and the process of decision making within the Bush administration also need detailed analysis. These issues are being addressed during the course of this research work.

The strategic and military aspects of the Gulf War receive initial attention of this work. But before taking up these issues in detail, we need to keep in mind the limit of the usefulness of lessons learned to future contingencies. As a senior US commander, not without hyperbole said : “ Desert storm was the perfect war with the perfect enemy. The enemy leader was universally despised and his troops offered very little resistance. We had the perfect coalition, the perfect infrastructure and the perfect battle field. We should be careful about the lessons we draw from the war”.⁵ In spite of this limitation, strategic and military aspects of the Gulf War are instructive for several reasons. In strategic terms, it offered an early indication of the potential nature of future regional crises in which the United States might get involved. The war stressed the need to reorient America’s defense strategy and to take into account the fundamentally altered international strategic environment. This changed strategic environment can be exemplified by the fact that, perhaps for the first times since the second world war, Russia took the unprecedented step of issuing a joint statement with the United States condemning Saddam Hussein’s invasion of Kuwait. This war clearly demonstrated two major phenomena which have come to dominate the post-Cold War security

⁵ Les Aspin and William Dickinson: Defense For A New Era : Lessons of the Persian Gulf War (Brassey’s (U.S), Inc, 1992), p-3

environment for the United States. **First**, through this war America clearly realized and declared that in the post-Soviet era America would increasingly face threats to its national interests from regional powers hostile to it as opposed to global nature of threats which it faced from the Soviet Union during the Cold War period. **Second**, the American policy makers through this war have conveyed that increasingly US presumes threats to American interest will be posed by the spread and proliferation of weapons of mass destruction (biological, chemical and nuclear weapons ballistic and cruise missiles) in the developing world. Both these issues will be examined in detail.

The Gulf War was the first major military conflict of the post-Cold War era. The Gulf War showed that many of the new weapons do work and new technologies have revolutionized the nature of warfare. The new surveillance, air defense suppression, stealth and precision guided bombs gave Coalition aircrafts total command of the skies and radical new lethality against Iraqi ground forces. These superior air technologies enabled the coalitions airforces to destroy the Iraqi's equipments and morale in a 6-week air campaign without exposing them to extensive close combat on the ground. "In particular, the stealth air craft, precision guided munitions, cruise missiles and patroits can be cited as proof that high technology had been the key to allied victory. For example, statistics suggest that 10% of the munitions dropped by allied air crafts were 'smart bombs' and inflicted 75% of the damage. The F-117 stealth fighter represented only 2% of the total offensive but structure about 31% of the target."⁶ The air borne

⁶ "The Gulf Conflict : A Military Analysis" , *Adelphi Paper*, no.282(Brassy's for the IISS, London, 1993) , p - 62

warning and control system (AWACS) air craft was essential for managing thousands of simultaneous air sorties over Iraq and Kuwait. Another example is the family of new armored vehicles for tanks units, mechanized infantry and artillery. They made possible the unprecedented speed of ground operations during the Gulf War. New tank and guns with advanced ammunitions and sighting systems shocked their users with their effectiveness. The global positioning system installed in technical vehicles made high speed navigation in the desert accurate and controllable. The laser guided bombs seen on television during the war offer another example of new technology”⁷ Based on performance of above mentioned high technologies and weapons, some experts have argued that a technological revolution in military affairs is going on. This concept is of Soviet Union and its genesis is the hypothesis advanced by Marshal of the Soviet Union, Nikolai Ogarkov. According to Nikolai Ogarkov, the new generation of precision weapons, coupled with new sensors and information architectures are creating a reconnaissance strikes complex capable of generating discontinuous change in war fare, a revolution in military affairs. “According to this revolution, growing range of targets has become almost irredeemably exposed to attack by smart weapons. The protection afforded by distance, size, terrain and weather has declined, a process accelerated through the application of information technology, here as else where a dynamic and pervasive influence. As sensor and the means for data processing and its fusion and dissemination have improved, quite astonishingly so over the past decade the full potential of weapons

⁷ Lt. General William E Odom: America’s Military Revolution : Strategy and Structure after the Cold War, (The American University Press, Washington D.C, 1993), p-54.

operating over long distances with precision guidance is closer to being realised.”⁸ Based on the premise that a revolution in military affairs is going on, some experts are arguing that these new emerging technologies have the potential to eliminate ‘friction’ and the ‘fog of war’ there by transforming the very nature of warfare. “For instance, the former Vice-chairman of the Joint Chief of Staff, Admiral Williams Owens, has made the extraordinary claim that “technology could enable U.S. military forces in the future to lift the ‘fog of war’..... battle field dominant awareness, the ability to see and understand everything on the battlefield-might be possible. A publication of the National Defense University flashes out this claim. “In short”, it says, “we will move from a situation in which decision making takes place under uncertainty or in the presence of incomplete and erroneous information, to a situation in which decisions are made with nearly perfect information”.⁹ The case of the Persian Gulf War of being an example of the revolution in military affairs would also be discussed.

Another important feature of the Persian Gulf War, from military point of view, was the unprecedented low coalition loss rate. It was much lower than the most optimistic prewar fore-casts. “In less than 6 weeks, 79500 coalition troops destroyed a defending Iraqi army of hundreds of thousands, losing only 240 attackers, this loss rate of fewer than one fatality per 3000 soldiers was less than one tenth of the Israelis loss rate in the 1967 six day war or France in 1939-40.”¹⁰ This historically low Coalition loss rate has had important policy consequences. U.S. Forces are currently sized and structured against

⁸ Lawrence Freedman, “The Revolution in Strategic Affairs”, *Adelphi Paper* 318, (Oxford University Press for IISS, London, 1998,) P-6

⁹ Owens Mackubin Thronas: “Technology, the RMA and Future War” *Strategic Review*, Spring 1998, p-63

¹⁰ Stephen Biddle, “Victory Misunderstood: What the Gulf War Tell Us about the future of conflict”, *International Security*, Vol. 21, Fall 1996, p-142

this Gulf-War yard stick. But what caused this result? The most obvious explanation would be that the overwhelming superiority of coalition forces in the advanced technology fields of weaponry, command and control, communications, intelligence gathering, logistics and navigation played the key role in this low coalition casualties. In an essay titled "Victory Misunderstood", Stephen Biddle writes that it was a combination of high skills levels of allied forces and their high technology that led to overwhelming victory of allied forces and resulted in such an unprecedented low loss rate.

According to Biddle, the United States high tech weapons would not have created battle field rout had Iraqi's been better trained. Contesting this claim of Biddle, in the article "Lessons from the ground combat in the Gulf (International Security, Fall, 1997), Daryl G. Press writes that the skill and technological advantages of coalition troops were each sufficient to cause this one sided victory. Moreover, the coalition's high tech weapons would have allowed the allied forces to rout the Iraqi's even if the Iraqi's had been better trained. Focusing on the role of 'Air power' in allied victory, in the article 'What the Gulf War can and (and cannot) tell us about the Future of Warfare.' Thomas G. Mahnken and Barry D. Watts say that thirty nine days of air attack played an important role in this unprecedented low casualties the coalition forces suffered during the ground war. The Coalition air attacks completely shattered the Iraqi armed forces pre conceptions about the character and conduct of warfare and caused immense damage to morale of Iraqi forces. This relationship between U.S. high tech weapons and low coalition loss rate has been analysed in detail. Its policy consequences has been assessed during the course of this research work.

The actual conduct of the Gulf war has raised much controversy, if not within the policy makers then at least within the defense community. The most controversial part of the conduct of Gulf war is the role played by the U.S. Air Power. Some commentators believe that Gulf war has clearly demonstrated that the strategic bombardment components of the air war won the war virtually by itself and it has vindicated the long standing theories of air-power decisiveness.

Pentagon action officers joked that, “the Air Force would so totally dominate future wars that the ground forces should only be funded for a humvee for the victory verification squad.”¹¹ However, critics of the role played U.S. air power in the Gulf-war do concede its dominating role in Operation Desert storm but contend that the nature of the enemy, terrain and weather in the Kuwaiti theater of operation (KTO) was unusually favourable to the application of air power. Hence it cannot be made the yard stick for the measurement of role of air power in future warfares. They further point out that Iraqi forces in Kuwait were finally defeated by the coalition’s ground forces and Air Forces on its own would not have been able to liberate Kuwait, no matter howsoever damage, it might have caused to Iraq’s economic infrastructure and forces. An important question that needs to be probed in this regards is : “was victory through air power alone possible”?

If victory through air power alone was not possible then what were the contributions of other forces? Some experts have hailed this Persian Gulf war as an excellent example of the success of Air-Land Battle doctrine of the U.S. forces, For the first time, since the

¹¹ Alan D. Zimm, “ Desert Storm, Kosovo and Doctrinal Schizophrenia” *Strategic Review* Winter, 2000, p-33

formation of Air-Land battle doctrine in the aftermath of the Vietnam war many aspects of it were put into practices during the land-war. The Air-land battle was a demonstration of the value of many changes in the art of operations. However, after a careful analysis of the actual conduct of the ground war one finds that it was not an 'Airland' battle but rather an 'air and land' battle and was only marginally integrated. Many times army commanders complained that Air force planning group was a closed cell and many targets nominated by corps head quarters were not struck by Airforces. The applicability of 'Air Land' battle doctrine would be also discussed in detail.

Inter-service rivalry on the battle field was one of the major causes of the defeat of the American forces during the Vietnam war. Not only inter service rivalry but also a lack of unity of command were major weakness of US forces operations in Vietnam war. To overcome these problems on the battle field, the Gold water-Nichols Department of Defense Reorganization Act was passed in 1986 which provided for joint military approaches to warfare by increasing the power of the joint combat commander in chief. It made the chairman of the Joint Chief of Staff singularly responsible for developing doctrine for the joint employment of the armed forces. The main purpose of this Act was to yoke the different services to a common doctrine and avoid interservice rivalry on the battle field. There is hardly any doubt that Gold Water-Nichols Act paid off handsomely at the operational and tactical levels of command in the Gulf War. Unlike the Vietnam War, the Gulf War was a single war and not a collection of individual service wars and there was a single command authority that counted. It was in pursuant of the Gold water-Nichols Act that general Schwazzkopf; and not the Joint Chief of Staffs, controlled operations in the theater. During the war, this act did succeed in resolution if not in

termination of the inter service disagreements. Example can be given of the CINC decision not to conduct an amphibious landing contrary to the views of some subordinate marine commanders. In the absence of Gold Water-Nichols Act of 1986, this would almost have been an impossible decision to make stick. But problems of inter service coordination, if not rivarly, still exists as exemplified by the Marine's unwillingness to have all their fixed wing air craft at the disposal of the JFACC staff for use in the Air Tasking Orders. This aspect is examined in detail in the relevant chapter.

The Gulf War has vindicated the assumption of U.S. defense policy makers that in this changed, unpredictable, international strategic environment, U.S. is increasingly likely to face threats to its national interests from regional powers hostile to it as opposed to global powers, if they really exist and are in a position to challenge it globally. Bush administration attempted to build a new world order on the back of its military victory in the Persian Gulf War. This conception of New World Order, which was based on the premise of a functioning collective security system under the leadership of the USA, was shortlived for both domestics and well as international reasons. "Indeed Bush himself dropped the phrase from his vocabulary in the run up to the 1992 presidential elections. The concept was criticized variously for being dangerously open ended, new imperialist, based on a misunderstanding of the implications of the Persian Gulf War and above all else as being of questionable value and relevance to the United States in the 1990s."¹² Bush's vision of establishing New World Order based on the experiences of the Gulf war might have failed but military experience of the war have provided valuable lessons

¹² WynQ. Bowen and David, H. Dunn: American Security Policy in the 1990s: Beyond Containment (Aldershot, Dartmouth Publishing Company, 1996) p-11

which are likely to affect future U.S. defence policy in a significant way. The future forces are being sized and structured upon the experiences of the Persian Gulf War. The success of the U.S. high technologies and weapons are providing many new insights to defense policy makes. An attempt would be made to evaluate the impact of Gulf War in general and of advanced technologies and weapons in particular on the U.S. defense policy and on U.S. defense budget also.

Before moving on to the next chapter, it is desirable to clarify the focus and scope of this dissertation and its limitations. This research work focuses primarily on the strategic and military as opposed to the political dimensions of the Gulf War. The prime concern of this research is to evaluate the role and effectiveness of the U.S. advanced technologies and weapons during the Persian Gulf War and their consequent impact on the U.S. defense policy and budget. The strict political dimensions of the war will not be discussed in detail and their treatment will only be to the extent that they affected broader military objectives. The decisions and actions of the United States are primary focus of this work and other actors and factors will be examined to the degree that they influenced the decisions and actions of the United States. With these limitations in mind, some of the important questions which this research work attempts to address apart from others identified are as follows:

- Why the Bush administration was disposed to react as it did ?
- What was the role of the UN during the crisis?
- Would sanctions have worked?

- What were the domestic compulsions of the Bush administration?
- To what extent legacy of the Vietnam war was a guiding factor during the Gulf War?
- What were the dynamics of decision-making in the pentagon well as in the high echelons of the Bush administration?
- What was the rationale behind the use of high-technology weapons?
- How effective were these high-technology weapons in achieving their objectives?
- Was low Coalition loss rate due to high-technology weapons only?
- Was victory through Air Power alone possible?
- What were the respective roles of the Air, Armed, Naval and Marine Forces?
- What are the impacts of these high-technology weapons on the U.S. defence policy?

Chapter 2

PURSUIT OF GULF WAR: DYNAMICS OF DECISION- MAKING IN U.S.

The story of the Gulf War is not the focus of this dissertation. As already discussed, this dissertation primarily deals with the use of high-technology weapons in the Gulf War. However, an understanding of the political dynamics of the use of these weapons is very necessary here. For then only we would be able to understand and assess the future impact of these weapons on the United States' defence policy. And for this, we need to analyze the Gulf War in its wider context. Some questions need to be answered here. For example, why the Bush administration was disposed to react as it did? Whether the United Nation's use was made by the Bush's administration to claim international or domestic support or both? Would sanctions have worked? Or, how much time might have been required for them to work? This chapter seeks to answer these questions. Further, this chapter deals with the pursuit of the Gulf War through its different phases i.e. the Air-Campaigns, Naval blockades and the Ground War. The treatment of the different phases of the war is brief, just to have an understanding for analyzing the effectiveness of weapons used in the War.

As expected, the Bush administration's reaction to Iraq's invasion of Kuwait was very strong and unequivocal because U.S. policy makers perceived

that Iraq's occupation of Kuwait threatened vital American national security interests. President Bush, declaring national emergency on August 2, said, " I find that the policies and actions of the Government of Iraq constitute an unusual and extraordinary threat to the national security and foreign policy of the United States and hereby declare a national emergency to deal with that threat".¹ What were those vital American national interests that were threatened from this Iraqi aggression? The official explanation could be obtained by the perusal of President Bush's speech of 8 August, 1990, addressed to the nation for announcing the deployment of United States armed force to Saudi Arabia. In this speech, President Bush said, "the stakes are high. Iraq is already a rich and powerful country that possesses the world's second largest reserves of oil and over a million men under arms. It is the fourth largest military in the world. Our country now imports nearly half the oil it consumes and could face a major threat to its economic independence. Much of the world is even more dependent on imported oil and is even more vulnerable to Iraqi threats. We succeeded in the struggle for freedom in Europe because we and our allies remain stalwart . Keeping the peace in the Middle East will require no less."² Indeed, the stakes were high and it needs no further elaborations. The security of the oil supplies from the Gulf had become the most important national security interest, outside of containing Soviet Expansion in Europe since the time of Iranian revolution of 1979 and its importance increased further after the Soviet occupation of Afghanistan in 1980. Since then the United States had augmented its military capabilities to meet with

¹ Alberto Bin, Richard Hill and Archer Jones, Desert Storm: A Forgotten War (West Port, Praeger Publishers , 1998) p - 32

any challenge in the Gulf. On 23 January 1980, U.S. President Carter stated: “Any attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States and will be repelled by any means necessary, including military force”³. This public assertion was referred to as the Carter Doctrine. After the announcement of the Carter Doctrine, in March 1980, a joint services rapid deployment task force was established to protect U.S. national interests.

This Rapid Deployment Task Force was re-christened as the U.S. Central Command, which was to control U.S. forces in the Middle East. Additional enhanced profiles for American troops were given by President Reagan when he stated on 6 April 1984: “Given the importance of the region, we must also be ready to act when the presence of American power and that of our friends can help to stop the spread of violence.”⁴ During 1988 and 1989, Central Command planners revised their plans for the Middle East specifically to address the U.S. capability to counter an Iraqi attack on Kuwait and Saudi Arabia. On 17 January 1989, the U.S. Secretary of Defense defined maintaining access to regional oil supplies and promoting the security and stability of friendly states to be U.S. regional goals in the Middle East planning priorities. Thus, we see that the United States had prepared itself extensively to meet any such threat in the Gulf region. And by attacking Kuwait and occupying it, Iraq had not only challenged the principle

² President Bush’s speech on 8 August, 1990

³ Alberto Bin, Richard Hill and Archer Jones, Desert Storm: A Forgotten War (Westport, Praeger Publishers, 1998) p - 34

⁴ Ibid, p - 34

of sovereign equality of nations, but had also threatened U.S. national interests. To meet this aggression became more a matter of personal American concern and less of defending the principles of International Law. President Bush demanded total withdrawal of the Iraqi forces from Kuwait. On 8 August 1990, through his address to the nation, President Bush announced the deployment of American forces to defend Saudi Arabia against possible Iraqi attack. In this speech, Bush announced 4 principles to guide his future policies. He said; "Four simple principles are to guide our policy. First, we seek the immediate, unconditional, and complete withdrawal of all Iraqi forces from Kuwait. Second, Kuwait's legitimate government must be restored to replace the puppet regime. Third, my administration, as has been the case with every president from President [Franklin D.] Roosevelt to President Ronald Reagan, is committed to the security and stability of the Persian Gulf. And fourth, I am determined to protect the lives of American citizens abroad".⁵

Now, after committing U.S. troops to defend Saudi Arabia, Bush administration had to defend its actions against a strong domestic constituency that would accept no Justification as sufficient for the risk of war. In order to enlist the support of domestic constituency, Bush administration had to build up an effective 'International-Coalition'. Experiences of Vietnam War also might have been a factor in Bush administration's decision to obtain U.N. legitimation for the use of force against Iraq. Making an effort to convince American public, President Bush sought to Justify his commitment to deploy American forces by projecting Iraqi challenge as a global problem threatening world



peace and emerging new world order. He said, "we agree that this is not an American problem or a European problem or a Middle East problem. It the world's problem and that's why soon after the Iraqi invasion, the United Nations security council, without dissent, condemned Iraq, calling for the immediate and unconditional withdrawl of its troops from Kuwait".⁶ The speech clearly shows that Bush administration decided to project Iraqi aggression as an international problem and U.S. being the most important leader of the world, had a moral duty to repel such Iraqi aggression. Having projected this as an international problem, building up a broad international coalition became the U.S. administration's first task. To Bush administration, the united Nations provided the umbrella under which the U.S. could forge an international coalition to preserve its national objectives in the Gulf. Enumerating the advantages of an international coalition under the banner of the U N., president Bush stated; "The coalition became essential from the very first days. Unilateral U.S. response to Saddam's invasion could well have gotten us crosswise with the Soviet Union, with other Arab countries, and even with Europe. It was essential that other countries joined in, and that the United Nations be involved. The aggression was so clear, and contravened so directly the U.N. purpose, the UN's stated objectives, that we felt we could and must get the U.N. to pass a resolution. In doing so, not only could we bring together the coalition that would commit forces, but major powers such as China would be committed."⁷ Bush administration was highly successful in building up an effective international coalition which freed Bush

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⁵ President Bush's speech on 8 August, 1999

⁶ Ibid

⁷ Alberto Bin, Richard Hill and Archer Jones, Desert Storm: A Forgotten War (West Port, Regur Publishers , 1998) p - 31

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administration from the pressures of the domestic politics. This forging up of an international coalition under the banner of the United Nations served the purposes of Bush administration in two-way-international commitments encouraged domestic commitments and this, in turn, encouraged international commitments.

The Bush administration's position increasingly became hard as the months passed by. As the autumn wore on, President Bush became more determined to force Saddam Hussain's withdrawal and was in no mood to give sanctions a chance to have their effects. An important question that needs to be examined here is that were sanctions deliberately not given enough time to have their effects, or, Bush administration was convinced that sanctions had no chance of success against Iraqi regime? Arguments are in plenty supporting both the questions. Some writers think that sanctions were not given sufficient time to have their effects, while others argue that sanctions would not have been successful in this case due to a number of factors working against them.

First, let us examine the factors which help to argue that sanctions might have worked. Factors supporting the case of sanctions were as follows :

- (i) Iraq was highly dependent on imports. It needed oil revenues to pay its import bills.
- (ii) Second, embargo was almost total. In this case, it had a very little chance of being violated due to total international consents. Previously, when sanctions were imposed (such as on Italy in 1935, Cuba in 1959 and South Africa in recent

past) allies of those countries openly violated international sanctions and helped these countries to overcome the effects of sanctions. This was not the case against Iraq as the Soviet block had collapsed and hence sanctions had a very bright chance of success.

(iii) Iraq was a small customer in global terms and the embargo did not threaten to create problems for special interest groups in Western countries which generally start raising voices against sanctions.

Commentators argued that above mentioned factors, in their combination, would have compelled Saddam Hussein to fall in line, only if Bush administration had waited for some more time. However, others argued that no matter how much time had been given for sanctions to succeed, these would not have succeeded due to their weaknesses. The most important weakness of embargo was that it had no control over Iraqi army's energy sources. In other words, it would not deprive Iraq of its oil supplies. Thus, 2 most important energy sources – electric power generation and refineries – did not appear threatened. Moreover, "If sanctions were maintained without a military option, US Forces would still be in Saudi Arabia during 1991 and perhaps 1992, a presidential election year. A sustained presence would be politically very difficult to defend as would be the embarrassment that after all this time, the Kuwait crisis had still not been resolved. The sense that there was a limited time-frame in which to act was given additional support by the military assessment that February to March 1991 was the optimal period for initiating an offensive. By that time all ground troops would be in place and they would be able to avoid the problems of fighting during Ramadan and it

would also be possible to avoid the political difficulties of maintaining a large-scale deployment of non-Muslim force during the 1991 Hajj pilgrimage”⁸. Another consideration, which went against sanctions was that international community could not be a mute witness to Iraq’s plundering of Kuwait, just to give sanctions a chance to succeed or due to fear of going to war against Iraq. Furthermore, with the passage of time, there was a risk that Coalition would not hold and this was something which Bush administration was hardly prepared to risk. After examining cases for and against sanctions for giving enough time to succeed, one finds that Bush administration had a very limited time frame to decide its course of action and, due to this time-constraint, it decided not to give sanctions a chance to have their effects. As the U.N. deadline of 15 January approached, the collision became inescapable. Although support of allies varied in degree over President Bush’s decision to go for war, none of them thought it necessary to oppose it. Weighing all these options, Bush gave the tentative go ahead for the attack on 11 January but reserved the final decision until last minute.

There is also need to examine the question whether any military offensive against Iraq required prior congressional approval. Though not admitting publicly that congress had a formal role to play in the final decision to go to war, President Bush, on 8 January 1991, decided to request Congress to authorise "use of force". However, Bush had made it public that if he had to go to war without Congressional approval, he was quite prepared to go for it. He said, “ If I have to

⁸ “The Gulf Conflict: A political and Strategic Analysis”, *Adelphi Paper.264* (London, Brassey’s for IISS, 1991) p-39

go, it is not going to matter to me if there is not one congressman who supports this, or what happens to public opinion. If it is right, its gotta be done.”⁹ Had this happened, there is no doubt that this could have led to a serious constitutional crisis. However, the mandate of the constitution is very ambiguous over this issue. According to American constitution, “the Congress has the power to declare war.” But at the same time, it also states that the “executive powers shall be vested in a President” and that “ the President shall be commander-in-Chief of the Army and Navy.” “Sir Edward M Kennedy, D-Mass, said that going to war without Congress consent would precipitate a constitutional crisis. House Majority leader Richard A Gephardt, D-Mo, had said that congress might cut off funding in an undeclared war. David R Obey D-Wis went even further raising the specter of impeachment if the president ignored Congress.”¹⁰ On the other hand, there were differences within the Bush administration over the issue of seeking congressional support for war. According to Grey, several members of the inner circle, including Cheney, Baker, Scowcroft , were against going to Congress because they feared Bush would lose such a vote”¹¹. According to Richard Cheney , “the concern was that if we went to Congress and asked for a vote and they voted no, that would weaken our position. We always believed that the President had the constitutional authority to go forward and to send the troops into combat and liberate Kuwait and that we did not need an additional vote from Congress. You had the Truman

⁹ David, Mervin, George Bush and the Guardianship Presidency (Houndmills, MacMillan Press Limited, 1996) p –193

¹⁰ Congress Quarterly Almanac, p 438

¹¹ David, Mervin, George Bush and the Guardianship Presidency – P 193

precedent. In 1950, Harry Truman committed forces to Korea, to liberate Korea after the North had attacked; he did so under the UN charter which was a treaty ratified by the US senate. The president had all the authority he needed to act in this case. There was no legal requirement for us to go to congress.,”¹² Thus, We see that Bush administration was very sure of going to war even without formal congressional authorization. What could have congress done in this case? In technical terms, the Congress could have taken any action at any time from August to January and would have constrained military deployments by cutting funds for troops in Gulf or by starting the clock on the 60 to 90 day time limit that the 1973 war power had set. But it was not ready to play a proactive role. Rather, it preferred to play safe. It decided to wait until the president took strong actions, which members of congress could then support if they proved successful and criticize if they failed. But this strategy of congress, to play safely, left little political space for it to maneuver the situation to its liking. By taking strong actions, President Bush had pushed the congress into a corner and it was left with no other option but to support the Bush’s proposals. In the end, “the senate voted 52-47 for the ‘Authorization for use of Military force Against Iraq Resolution.’ Ten democrats joined with virtually unanimous Republicans in support of the resolution. Minutes later, the House approved identical legislation by a vote of 250-183.”¹³ Thus we find that president Bush’s ability to bring international pressure and the support of public opinion for his actions force congress to

¹² Ibid, P-193-194

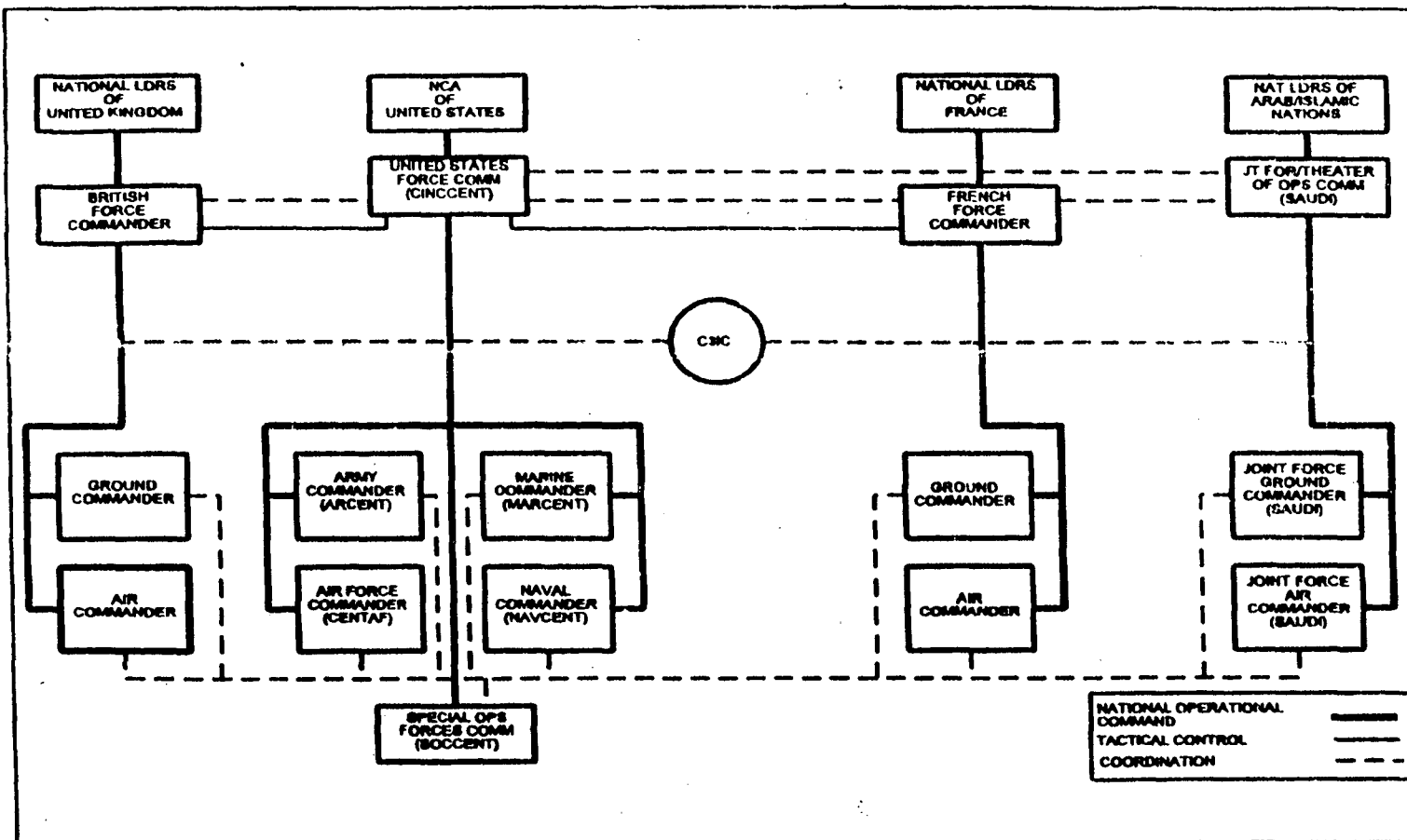
¹³ Congress Quarterly Almanac, 1991- p 437

support his proposals. “As one analyst put it; the crucial factor in the congressional vote – and indeed, in considerations from August through January-was that the President had placed congress in a corner. At every step, he first lined up international support for his initiatives and left the congress no choice but to come along for the ride. They felt boxed in the international coalition and the January deadline ... if they voted against Bush, The international condition might fall apart, Saddam Hussein would emerge victorious, the united states would suffer a devastating defeat. And who would bear the blame?.”¹⁴

The coalition war to liberate Kuwait was carried out in two stages. The first stage was called Operation Desert Shield and the second stage was named as Operation Desert Storm. Operation Desert Shield was a defensive arrangement to defend Saudi Arabia and other Gulf Countries if Iraq decided to attack any of them. It was purely a defensive measure and was not planned as a prelude to an attack on Iraqi forces. “U.S.military objective during Operation Desert Shield were to :

- ◆ Develop a defensive capability in the gulf region to deter Saadam Hussein from further attacks.
- ◆ Defend Saudi Arabia effectively if deterrence failed.
- ◆ Build a military effective coalition condition and integrate coalition forces into operational plans.

¹⁴ Andrew Bennet, Joseph Leggold and Danny Unger, Friend's In Need: Burden sharing in the Gulf War. (Houndmills, MacMillan Press Limited, 1997) P – 55



The Coalition Dual Chain of Command

- ◆ Enforce the economic sanctions prescribed by UN Security Council resolutions 661 and 665.

The objectives provided planning staff with the necessary direction to develop options and concepts.”¹⁵ As already mentioned, during the phase of operation Desert Shield, Bush administration was able to build up a highly effective coalition under the auspices of the U.N., to fight against Iraq in which 36 nations provided military support to the coalition and other provided equipment or economic assistance. Due to varied political, military and cultural difference among the participating countries, coalition forces had to evolve a dual chain of command in which Islamic forces were placed under the command of Saudi Lt. General Prince Khalid bin Sultan bin Abdul Aziz, while American and non-Islamic member of the coalition were commanded by CINCCENT, illustrated in the figure:-

Further more, a coalition coordination communications and Integration center (C³IC) was established to plan and co-ordinate the efforts of the U.S., British and French forces with those under the command of the Saudi General. By early November, when events started moving in the direction of inevitability of war, planning for an offensive to force Iraqi forces leave Kuwait became a high priority for CINCCENT. The CINCCENT planned to capitalize on coalition military strength and to take advantage of Iraqi weaknesses. Based on a four phase offensive campaign, the CINCCENT’s “concept of operation” directed the component commanders to plan their operations in the following manner:-

¹⁵ ‘Conduct of the Persian Gulf War’ P-22

- ◆ Conduct a coordinated, multinational, multi-axis air, naval and ground attack.
- ◆ Focus a strategic air campaign on enemy centers of gravity:-
 - Iraqi National Command Authority
 - NBC Capability
 - Republican guard force command
- ◆ Progressively shift air operations and conduct ground operations in the KTO to:-
 - Isolate KTO and severe Iraqi supply lines
 - Destroy the Republican guard force
 - Liberate Kuwait city with Arab forces”¹⁶

The second stage of offensive war against Iraq, launched to liberate Kuwait and known as Operation Desert Storm, started on 17 January , 1991, the deadline set by the U.N. security council under Resolution 678 which stated that if Iraq did not agree to withdraw unconditionally from Kuwait then the coalition powers were authorized to liberate Kuwait by the use of force. Operation Desert Storm consisted of one campaign divided into 4 distinct phases;

Phases of Desert Storm Campaign with Associated Targets.

¹⁶ David V. Nowlin and Ronald J. Stupak, War as an Instrument of Policy: Past, Present and Future (Boston, University Press of America, 1998), P-111

<u>PHASE</u>	<u>TITLE</u>	<u>TARGETS/MISSION</u>
I	Strategic Air	Iraqi command and control suppression of air force, Supply lines to Kuwait, NBC assets Republican Guards.
II	Air supremacy	Defeat Air force Enemy supply lines
III	battle field	Enemy supply lines, Forward deployed NBC assets Republican Guards and other forward units
IV	ground offensive	Liberate Kuwait Destroy Iraqi ground forces. ¹⁷

The Air-Campaign :-

“The air-campaign was developed to provide the president an offensive option in the early fall. It was a strategic plan designed to attack Saddam Hussein’s vital centers of gravity. The concept was designated to paralyse the Iraqi leadership’s ability to command and control its forces, to destroy known Iraqi weapons of mass destruction, to render Iraqi forces in the KTO combat ineffective to prepare the battle field for ground operations and to minimize the loss of life for coalition forces.”¹⁸

¹⁷ “The Gulf Conflict: A Military Analysis”, *Adelphi Paper*-282, (London, IISS, 1993) P-25

¹⁸ Department of Defense, ‘Conduct of the Persian Gulf War’, p – 99

Though primarily consisting of U.S. planes, warplanes from Great Britain, Canada, France Italy, Saudi Arabia, Qatar and Kuwait took part in the air war. The air campaign passed through several phases and made use of the state-of-the-art aircraft's, stealth bombers, laser guided smart bombs and high-velocity anti-radiation missiles, sophisticated electronics, and satellite data. The air campaign was developed to support the 4 phases of the war with the final effort focused on advancing the ground offensive and it achieved air superiority on very first day. The actual "by week" air-war objectives changed, as operations dictated, through the first five weeks of the offensive. During the first week the primary targets were strategic air defense and C3 networks, leadership infrastructure, NBC facilities, the Iraqi air force, electric power grid and Iraqi ground and naval forces in the KTO. Meanwhile, in order to gain support from the Arab world and to turn this war into a jihad against Israel, Iraq during the nights of 17-18 January, fired 7 Scud missiles against Israel and an additional 4 the following day. However, tremendous international political pressure (basically Bush Administration's) dissuaded Israel from directly participating in the war. To provide safety against Scud missile attacks, Bush announced the deployment of Patriot missiles to Israel. The allies diverted a significant percentage of available sorties to locate and destroy Scud launchers and United States also provided Israel with immediate satellite warning of Scud launches. Credit must be given to Israel government that despite several attempts by Iraqi regime, it remained inactive and decided not to directly participate in the war. Now coming to the week by week summary of air-attacks, "in week number two emphasis continued on strategic targets and anti

scud efforts, but the focus had already shifted to lines of communication between Iraq and the KTO, as well as to Iraqi force in the KTO. By the third week, emphasis was definitely placed on the degradation of Iraqi forces in Kuwait through direct attack and destruction of the logistics supply system. Weeks four and five saw continued emphasis placed on attacking the Iraqi ground forces, both those along the Kuwait- Saudi border and the Republican Guard in the reserves.”¹⁹ “The air campaign was continued, during the coalition ground offensive, General Collin Powell had stated that the allies would cut off the Iraqi army and kill it. Destroying its sources of supplies enabled them to cut it off and bombing Iraqi troops on the ground played a major role in killing it. Before the beginning of the ground war, allied planes and helicopters attacked Iraqi fortified positions, field works, bunkers, tanks and artillery pieces, “By the start of the allied ground offensive, the decisive nature of the air effort was clear. Coalition air forces had completed nearly 100,000 sorties and launched 323 (cruise missiles against targets in Iraq and Kuwait (Roughly 2500-3000 sorties per day). Allied planes delivered 25,000 tons of munitions on targets in Kuwait of which 6250 tons were smart bombs. The loss rate for allied aircraft was roughly two fifths of 1% of the sorties flown”.²⁰

The Maritime Campaign:-

Few observers had noted the contributions made by the Naval forces during the Gulf War, though it is true that maritime unit played a lesser role in

¹⁹ David V. Nowlin and Ronald J., Stupak, War as an Instrument of Policy: Past, Present and Future p – 114

²⁰ “The Gulf Conflict: A Military Analysis”, *Adelphi Paper-282*, (London, IISS, 1993) p -29

comparison to air and land forces. Operations Desert Shield and Desert Storm were dependent on sea lift to introduce and sustain forces. The allies had over whelming superiority at sea from the very beginning. Throughout the conflict, the U.S. Navy deployed a total of 165 ships to the Persian Gulf and Arabian, Red and Eastern Mediterranean seas. This include six carrier battle groups with their associated air-wings.

“Using an offensive anti surface warfare (ASUW) concept, the coalition naval forces were able to detect and destroy Iraqi ships well before they could employ anti-ship weapons. Infact, many of the 143 Iraqi ships damaged or destroyed were attacked in their ports, still along side their ports. Results of ASUW activity through out Desert Shield/ Storm can be summarized as follows :-

- ◆ 143 (28 Major) Iraqi naval vessels destroyed or damaged.
- ◆ All Iraqi naval bases / ports significantly damaged,
- ◆ All northern/ Persian Gulf Oil platforms searched and secured.
- ◆ No attacks by Iraqi vessels against coalition forces.

Coalition naval forces secured the right flank of coalition land forces during the ground offensive,.. this threat of an amphibious landing focused Iraqi attention on the beaches in the East rather than a coalition advance in the western desert.”²¹

²¹ David V. Nowlin and Ronald J., Stupak, War as an Instrument of Policy: Past, Present and Future

The Ground Campaign :-

The 4th phase of Operation Desert Storm, also known as Operation Desert Sabre (Ground offensive), was the final phase of the Operation Desert Storm. It was one of the most anticipated and planned, events in the history of modern warfare. Operation Desert Sabre was based on the Air Land battle doctrine developed in the 1980s to combat a potential Soviet invasion of Europe. This doctrine relied on complex rapid thrusts deep inside enemy territory and coordination among the different military services. Operation Desert Sabre began about midday on 23 February. However, the most important ground combat, before Operation Desert Sabre, occurred in the Saudi coastal town of Al-khafji on 29-31 January, "At about mid-night on 29 January, an Iraqi force of approximately 4000 troops equipped with tanks and armoured personal carriers crossed the Saudi Arabian border and entered the town that had largely been abandoned by its inhabitants. The Iraqi force included leading elements of the 5th mechanised division. The attack was met by a combined force of Saudi and Qatar armours supported by US Marine artillery and extensive allied air support. Iraqi advances into the city were halted by noon on 30 January, and coalition forces launched a counter-attack that night that destroyed the remaining Iraqi force by mid day on 31 January. 20 Iraqi tanks were destroyed and 400 troops taken prisoner.²² "Prior to the final ground offensive, Schwarzkopf had ordered several actions with the deliberate desire of fooling the Iraqis into believing that the allies attack would

²² "The Gulf Conflict: A Military Analysis", *Adelphi Paper-282*, (London, IISS, 1993)- p - 42

come at sites different from where it actually took place. The final offensive had two principle components: one, the Battle for Kuwait and the other, Battle against Republican Guards. Battle for Kuwait involved a coalition attack across the entire front along the Kuwait Saudi Arabian border.

“The main attack was designed to avoid most fixed defenses, drive deep into Iraq, envelop Iraqi forces from the west and attack and destroy Saddam Hussein’s strategic reserve – Republican guard armoured and mechanized infantry divisions augmented by several other Iraqi Army heavy divisions. This wide left sweep, sometimes referred to as the ‘Hail Mary’ plan emphasized the key tenets of Air land battle doctrine.”²³ Battle for Kuwait was primarily conducted by the U.S. 1st Marine Expeditionary force and the Arab and Islamic Joint forces command.

“The main coalition attack, executed primarily by the U.S. Army’s VII corps, circumvented Hussein’s fixed defensive line along the border and made a wide sweeping drive around the Iraqi right flank in the west engaging the Republican Guard, Iraq’s strategic reserves. This sweep employed the strength of Air land battle doctrine , including agility, depth, synchronization of combat power, initiative and sustainment of the forces. The threat of a marine amphibious assault along the Kuwait coast prevented reinforcement of the Republican Guards. Iraqi defensive lines in the East were ultimately breached, after which coalition forces pushed on to Kuwait city. At the same time, Republican Guard units

²³ Department of Defense, ‘Conduct of the Persian Gulf War’ p – 338

encountered on the battle field were nearly destroyed and virtually all in the KTO were cut off from retreat.

The ground offensive ended at 0800hr. on 28 February. All the CINCCENT and coalition forces objectives had been achieved:-

- ◆ Controlled the critical lines of communications into KTO
- ◆ Ejected the Iraqi forces from Kuwait
- ◆ Secured the Kuwait International Airport and cross roads west to Kuwait city
- ◆ Flanked, cut off and destroyed Republican Guard forces.
- ◆ Liberated Kuwait city.
- ◆ The final victory was one of the most one sided in the annals of warfare.”²⁴

²⁴ David V. Nowlin and Ronald J., Stupak, War as an Instrument of Policy: Past, Present and Future: p - 123

Chapter 3

HIGH-TECHNOLOGY WEAPONS

This chapter attempts to examine the role and effectiveness of high-technology weapons used by the coalition forces during the Gulf War. The geographical, economic, political and strategic contexts of the war have already been examined in the previous chapter. Experts have argued that coalition forces' superior technology helped them accomplish what they had set out to do. New surveillance, air-defence suppression, stealth and precision guidance systems gave coalition aircrafts total command of the skies and new lethality against Iraqi forces. This war provided U.S armed forces with an opportunity to silence their critics who had been criticizing U.S weapon system for being too complex and too dependent on technology. U.S armed forces have proved their high technical superiority beyond any doubt. Unlike Vietnam War, the performance of U.S equipment and forces in Operation Desert Storm exceeded even the most optimistic expectations. "A senior Army Commander commented, "Even after the cease-fire our weapons and equipments were still running at over 90 per cent operational rates." An officer with the 1st Cavalry Division attested to the reliability of their front-line equipment by saying. "ninety-eight percent of my brigade's equipment moved 300 kilometers during the first 24 hours of the ground war. That included 116 out of 117 of

our MIAIS and 60 out of 60 of our Bradley Fighting Vehicles.¹” The successful demonstration of superior technology by U.S and other coalition partners had led the strategic and military experts to argue that a revolution in military affairs is on and any nation would ignore it at its own peril. This Gulf War has been held as the first example of ‘hyperwar’- “one that capitalizes on high technology, unprecedented accuracy, operational and strategic surprise through stealth, and the ability to bring all of an enemy’s key operational and strategic nodes under near simultaneous attack”². By now, so much has been written about the Persian Gulf War being remarkable for the level of high-technology and numerous new weapons used during it that it becomes necessary to examine the role and effectiveness of these technologies and weapons. This is one of the primary focus of this dissertation also. For a better understanding and convenience, it would be useful to divide coalition’s strength into its various components. The components of coalition strength are: air-technology, ground technology, bombs and missiles technology and satellite technology. We need to examine the performance of some selected technologies and weapons of these components in details.

AIR TECHNOLOGY:-

The air-war was fought under several unique conditions. The preparation time that Iraq granted the coalition was in itself unique. The coalition commanders had more than five months to prepare themselves and plan for the air-battle. However, even after having so much enough time to prepare themselves, the coalition planners were constantly

¹ Les Aspin and Williams Dickinson: Defense For A New Era: Lessons of the Persian Gulf War, Brassy’s (U.S) Inc, 1992-p-17

² Richard H. Shulte Jr, and Robert L Pfaltzgraff Jr.: The Future of Air Power in the Aftermath of the Gulf War, Air University Press, 1992, p-79.

revising the details of the air-campaign and continued to do so even during the war. In any future war, any fighting nation or coalition is unlikely to be provided with such enough time to prepare itself. Another uniqueness was the unpreparedness of Iraq's air-forces. "Iraq was not prepared for air-force that had modern real-time targeting capability, sustained air superiority the ability to sustain massed offensive attack strength over the battlefield, modern sensors and all-weather combat systems, effective passive and active countermeasures against ground-based air-defenses and precision guided weapons capable of killing at ranges outside the coverage of Iraq's short range air defenses."³

The Gulf war is likely to be unique in other ways also. "Once the war began, the coalition could take the time to change its tactics and methods of attack and defer starting the land battle until it was ready to do so."⁴ Another unique feature was the near total international embargo which prevented Iraq from getting resupply or aid from other nations which might have given it a chance to fight, at least a token one, against coalition forces. Moreover, unlike the Vietnam war, the U.S forces did not have to attack Guerrilla forces in targets covered by forest or jungle canopy. Furthermore, coalition airforces had to repetitively attack a nearly static target base avoiding the problems of attacking maneuvering forces.

These unique features of the air-war have been mentioned with the purpose, that in any future battle these are unlikely to recur. In other words, it is unlikely that any nation is going to give a free run over its skies to its adversaries. Neither a nation nor

³ Anthony H Cordesman. and Abraham R Wagner: The Lessons of Modern War, Vol. IV: The Gulf War. (Westview Press, 1990), p-375.

⁴ Ibid, p-375.

coalition is likely to be provided with so much time to prepare itself. Therefore, it would be essential to be careful while evaluating the role and performance of high technology weapons. What would have been their effects in adverse conditions is unlikely to be evaluated with the help of data provided by this war. So, any evaluation of these weapons is bound to be partial and temporary.

The technological superiority of coalition airforce was, in fact, the superiority of U.S. airforces. It was the U.S. airforce that was a high technology force and that interpreted attack and air-defence aircraft with a complex mix of command and control, reconnaissance and targeting, intelligence, electronic warfare and refueling and support aircraft.

“The U.S. air units provided the mass and decisive force that shaped the outcome of Desert Storm. If one counts only shooter and combat support sorties for fixed wing aircraft, the USAF flew 75% of the 92,517 sorties in Desert Storm. The U.S. Navy flew 18.5%, the USMC flew 10.8% and all US forces flew a total of 86.3%. The RSAF flew 5.4%, the RAF flew 4.1%, the French Air Forces flew 1.5%, the Canadian Air Force flew 1.0%, the Kuwaiti Air Forces flew 0.8%, the Bahraini Air Forces flew 0.3%, the Italian Air Forces flew 0.2% and Qatar and the UAE flew less than 0.1%. U.S. forces flew nearly 90% of all strike attack sorties and nearly 85% of all strike, attack and air defense sorties. US airforces dominated every aspect of reconnaissance missions, 96% of all command and combat missions and 97% of all electronic warfare missions.”⁵ Thus, in every

⁵ Ibid, p-376

aspect, it was not a war of U.N coalition forces against Iraqi forces but a war between U.S and Iraqi forces.

Though it is very difficult to assess the impact of technologies used during the Gulf War, it is beyond doubt that technology played a critical role in shaping the effectiveness of coalition air power during the Gulf War. However, it is not possible to examine all the technologies and air crafts used during the Gulf War. Hence, coalition's air-capabilities has been analyzed in terms of the performance of some selected technologies and air crafts. Coalition made use of both old as well as new technologies. The coalition introduced a wide range of new technologies to air warfare during the Gulf War. For example, the US used the F-117 Stealth fighter bomber and Tomahawk cruise missiles to strike against heavily defended targets. However, efforts have been made to evaluate performance of some selected technologies and air crafts, especially of the new ones.

E-3 AWACS AIRCRAFT :-

Though not a new technology, E-3 AWACS could attack several hundred aircrafts simultaneously and they served as both an early warning system and to detect enemy jets and as a flying control tower to direct friendly planes. It provides highly mobile survivable air borne surveillance and command and control functions for tactical and air-defence forces. At least 3 AWACS were in the air at all times and each could remain air borne for 11 hours without refueling. According to the report of the Department of Defense 'Conduct of the Persian Gulf War', the AWACS missions are to detect enemy air craft, control defensive friendly fighters, control strike aircraft and

provide a long range air picture to theater commanders and other command forces. Making a comment about the performance of E-3 AWACS, the report has made following observations:

Accomplishments:-

AWACS demonstrated excellent deploy-ability , arriving in theater on 8 August 1990.

During operation Desert Storm, E-3s provided medium altitude radar coverage of Iraqi air space while operating from Saudi and Turkish airspace.

AWACS provided threat warning to all assigned strike packages inside hostile territory and provided threat warning and deconfliction of all HVAA in theater.

Issue:-

The usefulness of long distance, communications between widely separated E-3s covering related areas should be investigated.⁶

A-10 THUNDERBOLT II ATTACK AIRCRAFT:-

Affectionately called 'Warthogs', A-10 Thunderbolt IIs provided ground support on the battlefield. "The A-10s fired armor piercing shells that were used against tanks. They also employed guided bombs against enemy bunkers. These bombs had a sensor and small computer attached to the front of the bomb and fins at the rear to guide it and make connections in flight. Some A-10s fired longer range, laser guided Maverick

⁶ Department of Defense, Conduct of the Persian Gulf War, Final Report, April, 1992, P. T-43.

missiles which were used against vehicles and fortifications. The Warthogs chief virtue for ground support was its ability to fly low. Because it was built to sustain hits from enemy ground fire, it could remain longer over the battlefield.”⁷ It can strike targets ranging from armoured vehicles to artillery both near friendly ground forces and in the enemy’s second echelon. A total of 136 A 10s were deployed during the war and the aircraft flew 8017 combat sorties. Commenting on the performance of A 10s , report

‘Conduct of Persian Gulf War’ observes:

Accomplishments:-

- The A 10s performed well in a variety of missions and was particularly effective in AI and CAS roles.
- The A-10 fired 4801 Maverick missiles with a 94% reliability rate.
- The A-10 achieved an 87.7% Mc rate.

Short comings:-

- The A-10s slow speed and limited maneuverability make it susceptible to anti aircraft artillery and SAMs.
- The A-10 has limited night attack capability.

⁷ Richard Alan Schwartz: Encyclopedia of the Persian Gulf War, (McFarland and Company, Ins Publisher, 1998) p-165.

Issue :- While survivability features of the A-10 are good, future air craft should be designed with higher performance to reduce susceptibility to damage while maintaining low vulnerability.⁸

B-52 STRATOFORTRESS BOMBER:-

Primarily used for carpet bombing i.e. saturating large areas with bombs, the B-52 is a multi mission, inter continental heavy bomber aircraft. Equipped with the capability of carrying conventional nuclear ordnance, it can fly at high subsonic speeds at altitudes up to 50,000 feet, “Two types of B-52 Gs were used in operation Desert Shield and Desert Storm.

ALCM B-52 G:- Primary mission is nuclear deterrence using the air Launched Cruise Missile, Short Range Attack Missile and nuclear gravity bombs. Conventionally, the ALCMB –52 Gs has the same internal carriage capability as the conventional B-52G. however, the aircraft is limited to external carriage of up to 1000 lb class munitions.

Conventional B-52 G: 41 B-52 Gs were modified to improve their conventional capabilities. These air craft can carry a full range of conventional munitions internally and externally along with stand off munitions such as Have Nap and Harpoon. Other modifications have improved bombing accuracy and ability to conduct conventional operations.⁹ The USAF used 68 B-52 Gs in the Gulf War and they flew 1741 missions.

⁸ Conduct of the Persian Gulf War, p T-11

⁹ Ibid, p-T-24

The B-52 Gs ability to keep up a constant volume of attacks in poor weather and at nights helped to ensure that Iraqi forces were kept under pressure 24 hours a day. Summarizing the performance of B-52 Gs, the report 'Conduct of the Persian Gulf War' writes:

Accomplishments:-

B-52 s carrying conventional ALCMs flew over 14,000 miles and remained aloft for over 35 hours , representing the longest combat sorties in history. B-52 Gs flew more than 1600 sorties, dropped more than 72,000 weapons. And delivered more than 27,000 tonnes of munitions on targets in Iraq and Kuwait without a combat loss.

- The B-52 large payload allowed them to assist breaching operation through enemy ground defenses conducted by coalition ground forces.
- The B-52G although comprising only three percent of the total combat aircraft delivered 30 percent of the total tonnage of air munitions.

Short Comings :-

- Lack of available bases in the theatre caused three of the four bomber using to fly 14 to 16 hour mission routinely and thus limited combat sortie rates.
- The B-52's lack of precision guided munitions capability limited target selection to large area targets.

- The B-52's lack of stealth attributes required large force protection packages to escort or support their attacks against defended targets.¹⁰

F-15 E:-

Equipped with highly sophisticated APG-70 radar that could pick out many land targets, coupled with a LANTIRN infrared night navigation system, F-15E had some of the most advanced night attacking capabilities of any fighter in the coalition. At times, during their missions, F-15Es were assisted by Joint Surveillance Target Attack Radar System (JSTARS), that was used primarily to track to locate enemy targets on the ground and co-ordination attacks against them. "F-15 Es flew 2172 sorties during desert storm for only 2 losses. They delivered a total of 17.00 GBU-10 and GBU-12 500-pound and 2000-pound laser guided bombs. On several occasions, 2F-15Es configured with the full LANTIRN system destroyed a confirmed total of 16 armored vehicles, using eight laser guided bombs, each on a single missions. The superior all weather capabilities of the F-15 Es also made them the key fighter attacking Iraqi forces fleeing toward Basra on the so-called "road of death".¹¹

F-16:-

F-16 were used in a wide range of missions and the USAF deployed 257 F16 Falcons during Desert storm, more than any other type of aircraft. F-16 has the capacity

¹⁰ Ibid, p-T-27

¹¹ Anthony H. Cordesman and Abraham Wagner, Lessons of the Modern War: Gulf War, p-454.

to deliver unguided ordnance and air- to -surface missiles but lacked the capability of a laser designator. During the entire operations, they flew more than 13, 840 missions and struck more than 11,698 targets and had the highest use rate of among all the aircrafts in the theater. "USAF studies after the War indicated that most F-16s sorties that used unguided bombs or area munitions had comparatively low lethality and the Gulf War Air Power study noted that initial mission effectiveness, in terms of "bombs off on first pass", was less than desired. There are multiple reasons why this happened, to include the confusion in the first day of combat, and the defense maneuvers required for survival. Due to the previous low altitude training emphasis or lack of medium altitude release, few pilots were exposed to some of the associated problems, such as extremely high cross winds. It should be noted that even though there was a training deficiency, the learning curve was steep.¹²

F-117 A NIGHTHAWK STEALTH FIGHTER:-

The stealth fighter (known as Nighthawk), capable of delivering laser guided bombs and conducting bombing raids at night in any kind of weather, represents the most dramatic shift in technology of any strike aircraft employed in the desert storm. F-117As and B-52 Gs combinedly conducted the heavy bombing mission. The report 'Conduct of the Persian Gulf War' states that F-117 mission is to penetrate accuracy using conventional laser guided bombs.

¹² Ibid, P-465

Difficult to detect on radar, it could fly closer to targets. It had been equipped with the state of the art fire control system that used two infrared radar's to detect the target and activate a laser designator to guide 'smart-bombs'. Though its stealth technology is not fool proof and it was sometimes detected by Iraqi radars from certain angles, yet it successfully attacked targets in Baghdad. "After the Gulf War, one senior USAF claimed that, "Eight F-117s with eight pilots could achieve the same results as 75 non-stealth aircraft with 100 crew members. Though the F-117s represented only 2.5% of the asset, on day 1, they flew against over 30% of the targets. The F-117s flew only about 1% of the sorties (but they) covered about 40% of the strategic air campaigns' target base".¹³ Measuring the performance of F-117A, the report 'Conduct of the Persian Gulf War' tells us that over the course of the war, the deployed F-117s flew approximately two per cent of the total attack sorties yet struck about 40% of strategic targets attacked. It was the only aircraft to attack targets in downtown Baghdad and to hit targets in all 12 target categories. The F-117 high accuracy limited collateral damage, particularly in Baghdad. No F-117s were lost or damaged due to air defense, an outcome which strongly suggests that stealth technology was effective. The Report summarizes its performance as follows:

Accomplishments:-

- The F-117 flew 1296 sorties, mostly against targets in the heavily defended areas of downtown Baghdad, without loss of a single aircraft.
- The F-117 was a weapons system of choice by planners to attack targets in downtown Baghdad. It struck targets in all 12 air target categories.

¹³ Ibid, p-459.

Shortcoming:-

- The F-117 has a slow, tedious mission-planning system.

Issues:-

- The mission planning system is undergoing complete revision to make it more user friendly and adaptable to changing conditions. The USAF also is incorporating the F-117As mission requirements into an upgraded Air Force Mission support system.
- Improving the board navigation system will improve the system effectiveness and responsiveness. The NAVSTAR Global Positioning System currently offers the most promising alternative.¹⁴

After examining some of the important weapon systems and air crafts used during the Gulf War, we need to assess the benefits which accrued to the USAF by use of these high technology weapons. It is beyond doubt that high technology improved effectiveness of the air campaign and allowed the air forces to achieve strategic and military objectives,. The two high technology with greatest impact were: precision and stealth. Precision weapon delivery was the trademark of the operation Desert Storm. “Many thousands of sorties would have been needed to accomplish what 100 or so precision sorties accomplished in the first hours of the strategic air campaign – and no air

¹⁴ Conduct of the Persian Gulf War, P, T-17

force in the world has the capability to put thousands of sorties across on entire country in a few hours.”¹⁵ Precision has enhanced the powers of penetration. The deep penetrating power of coalition forces has made almost all Iraqi targets vulnerable to air attacks which Iraq had thought of as invulnerable to anything except nuclear attacks. High technology had also enhanced the chances of air craft survivability. The remarkably high survivability rewards of air crafts are due to use of these high technologies. “High-tech helped survivability of aircrafts in three ways. The first was the suppression of Enemy Air Defenses equipment. Air craft equipped with SEAD systems were singularly effective in neutralizing Iraq’s integrated air defense network. The lack of an effective Iraqi defense network permitted coalition’s air crafts to operate at stand-off distance above intense Iraqi anti air craft artillery and infrared surface to air missiles. The medium altitude sanctuary also permitted more accurate delivery of precision guided munitions.”¹⁶ Next, the other high technology which increased the rate of air craft survivability was stealth. We have already seen that how the use of stealth fighters was crucial to the low loss rate of coalitions aircrafts. The F-117s were the only air crafts used against the heavily defended targets in Baghdad. F-117s flew over 1200 sorties yet the fleet finished the war with no losses. The third high tech contribution to increased aircraft survivability was the use of unmanned cruise missiles about which I would write later.

GROUND TECHNOLOGY:-

Advances in artillery technology, tanks and rocket launch systems enabled the coalition to fire more accurately, more quickly and more comprehensively. The ground

¹⁵ Richard H. Schultz, The Future of Air Power in the Aftermath of the Gulf War, P-79.

¹⁶ Les Aspin, Defense For A New Era, P-18.

war showed the value of advanced armors in engagements with tanks and anti-tanks weapons and it demonstrated that new fire combat systems and thermal sights could radically change rates of engagements, ranges of engagements and the ability to target and kill enemy armor at long ranges and under poor visibility conditions. The U.S army employed 1837 M-1A1 tanks and 116 older M-1 tanks. The M-1A1 had been criticized during peace time primarily for its tendency to breakdown but it performed well during the Gulf War and fought virtually all of the major engagements against Iraqi forces. “ the M-IAI enjoyed heavy armor that allowed it to survive from as close as 400 metres and a highly accurate 120 mm tank gun that could destroy enemy tanks as far as 3500 metres away. In an instance, an armor- piercing shell fired from an M-1A1 passed through the turret of an Iraqi tank and destroyed a second tank behind it. The M-1A1 used a thermal gunsight to see targets as “ hotspots” up to 5000 metres away and to positively identify targets at ranges between 1000 and 1500 metres. It was effective even in condition of poor visibility, such as in Kuwait where thick smoke from burning oil wells made visual contacts particularly difficult, or in desert sand storms and during rain storms that also limited visibility.¹⁷

The U.S army employed two new weapons during Gulf War: Multiple Launch Rocket System (MLRS) and Army Tactical Missile System (ATACMS). “The multiple launch rocket system is a long range free flight rocket system that provides general support artillery fires to division and corps level tactical units. At the division level, MLRS is organized into a nine launcher battery. At the corps level, MLRS units consists

¹⁷ Encyclopedia of the Persian Gulf War, P-171.

of one or more battalions of 27 MLRS system. ATACMS replaced the Conventional Lance missile system and is used to attack soft, stationary semi-fired (eg. Surface to surface missiles sites, air defense sites, logistics sites, and command, combat, communications and intelligence facilities. ATACMS is the operational commanders deep strike weapon system”.¹⁸ The M270 MLRS multiple long range rocket launcher could hit targets as far as 40 kilometers away. Each rocket launcher contained two canisters carrying six rockets apiece and each rocket contained 644 DPICM ‘ bomblets’ which were released in air. Furthermore, a single salvo of rocket could saturate an area approximately 700 by 100 meters.

Iraqi soldiers had little time to protect themselves after hearing the first explosion and they called these downpours from these rocket as ‘ steer rain’. ATACMS have the capacity to strike targets at a distance of 150 kilometers away. The ATACMS were reprogrammed against fixed targets located by ISIARS air craft and were capable of adjusting their altitude and direction while flight. The observations of the report ‘Conduct of the Persian Gulf War’ about MLRS and ATACMS are as follows:

Accomplishment:-

- MLRS was lethal and extremely effective at long ranges against a variety of targets.
- MLRS was responsive and delivered large volumes of accurate fires in day or night
- and during all types of weather, especially intense rain and dust storms.

¹⁸ Conduct of the Persian Gulf War, T-147-148.

- MLRS was very maneuverable and was the only field artillery system that kept up with fast paced maneuver advances.
- ATACMS accuracy met or exceeded operational requirements, and ATACMS destroyed or silenced most targets attacked.

Shortcomings:-

- Ground commander desired an ATACMS and rocket system with even greater ranges
- The M-77 rocket was not effective against moving armoured vehicles targets like tanks.¹⁹

Bombs and Missiles:-

Like coalition's aircrafts, bombs, guns and missile used in the Gulf war represent a new range of technological sophistication. However, it is very difficult to evaluate the exact effectiveness of these bombs and missile and any data can not be validated in meaningful analytical terms.

SMART BOMBS:-

This Persian Gulf war has become famous for the debut of 'Smart bombs.' Smart bombs are laser guided bombs. These LGBS are close in weapons capable of striking point targets. They come under three weight classes 500 B, 1000Lb and 2000lb. These laser guided bombs use guidance kits (which detects a target illuminated by a laser beam)

¹⁹ Ibid, p-T-150

and regular bombs Laser guided bombs proved the most successful. Its chief characteristic is that once dropped, the weapon did not need to communicate with the plane. This made it impervious to laser jamming. Often a lead airplane directed the laser beam while others dropped the bombs. LGBS are maneuverable free fall weapons that guides the weapon toward a laser illuminated targets. The range of the bombs is determined by speed and altitude of the delivering air craft. The path of flight is originally ballistic and relies on the air craft to aim the bomb in the right direction. “ Video guided smart bombs were the most precise but most complicated. A television camera in the mode of the bomb communicated with weapons-officer on board the plane. As the officer watched the bomb progress toward the target on his video screen, he could direct it by placing a cross hair symbol over where he wanted it to strike. This was most precise form of the smart bomb, and it was the kind General Schwarzkopf featured in a press conference when he showed a video-guided bomb strike with great precision against the head quarter of his Iraqi counterpart. However, because it relied on continued communication with the plane that dropped it, the bomb was subject to enemy jamming and other such problems.”²⁰ During the Gulf War, approximately 9300 LGBS were dropped. Out of those 9300 bombs, more than 4500 were GBU-p(500lb); over 500 were GBU -10 (200 lb) and over 200 were GBU 16c (1000lb) and almost 2000 GBV 24/27.M, Measuring the performance of LGBS, report ‘Conduct of the Persian Gulf War’ writes.

²⁰ Encyclopedia of the Gulf War, p -169.

Although there is a lack of comprehensive BDA data, LGBS appear to have performed well. After action reports indicate that LGBS were effective, however, while post war examination and analysis of Iraqi targets confirms the effectiveness of LGBS, battle damage assessments by reconnaissance assets.. was difficult to determine. LGBS would often penetrate into the facility, leaving only a small penetration hole. Although interiors were determined to have been destroyed or severely damaged, further data on precision guided ordnance is unavailable.

Accomplishments:-

- Demonstrated LGB accuracy was consistent with results from pre-war testing.

Shortcoming:-

- There were some shortages of LGB guidance kits in theater.

Issues:-

- Additional LGB kits are being procured to build up the operational inventory.²¹

²¹ Conduct of the Persian Gulf War T-183.

Missiles:-

Now we come to the use of missiles by coalition forces. Like laser guided bombs, many of these missiles proved to be highly lethal during the Gulf War.

CRUISE MISSILES:-

First, we take up conventional air-launched cruise missiles which were war time conversion of the nuclear armed ALCM developed to give the B-52 a stand off capability. B-52s fired 35 air launched cruise missiles against eight separate targets on the first night of the air campaign.

These missiles are designed to attack soft ground targets using a high explosive blast fragmentation war head. It is 20 feet 9 inches long and flies at 500 mph. A global positioning system aided by inertial navigation system provides it with all weather capability and directs it to its targets and it is programmed to fly at a constant altitude. All missiles launched successfully transitioned to cruise flight but no BDA data are available on their effectiveness. The report, 'Conduct of two Persian Gulf War' observes its accomplishments as follows:

- The AGM 86c ALCM played an important role in operation Desert Storm.

- All missiles that were launched successfully transitioned to cruise flight.²²

TOMAHAWK CRUISE MISSILES:-

Tomahawk cruise missiles were carried and fired from surface ships and submarines in the Persian Gulf and Red Sea against distant targets. Having a range of approximately 700 nautical miles, a weight of 3200 pounds, these missiles were usually employed against targets surrounded by heavy air defense and were, thus usually employed against Iraqi command and controls, air fields and air defense systems. It's objective is to deliver pinpoint attacks against targets in heavily defended areas where the probability of loss of manned air craft is too high. The weapon uses a guidance system that navigates by comparing stored digital ground images with actual ground points along its flight path. A radar altimeter used by TERCOM produced terrain profiles at pre selected points in flight. That data was compared with reference maps in the missiles guidance system, which programmed mid flight course corrections as needed. It had a range of greater than 500 miles and travelled at high subsonic speeds ranging from Mach 0.5 to Mach 0.75.

“There are three conventionally armed Tomahawk variants:

- i. Tomahawk Anti ship Missile (TSAM) (CBGM- 109B) contains a guidance system similar to the Harpoon anti-ship missile. TSAM uses an active radar system seeker and passive identification and direction finding equipment to seek out, look on and strike targets ranging from frigates to high value carriers. It's sea-skimming altitude

²² Ibid, P, T-180.

and evasive flight path help the missile conceal the direction of its launch and elude every defenses as it approaches the surface target.

- ii. TLAM-C (BGM 109C) can neutralize important targets ashore, such as command and control (c2) systems, airfields and air defense system with its 1000 lb war head.
- iii. Submunition T2AM –D(BGM 109D) is a variant of the T2AM-C, can strike area targets and can render aircraft and air defense sites inactive. It can attack multiple targets by dispensing 166 combined effects bomblets submunitions in partial loads which provide armor piercing fragmentation and incendiary effect.”²³

Of these 3-types only two – T2AM –C and D variants were used during the Desert Storm. T2AM missions were an integral part of the air campaign and was the only weapon used for daylight attacks against Baghdad during the entire campaign. Overall, 228 Tomahawk cruise missile were launched and 282 successfully achieved cruise flight, yielding a 98 per cent success rate. Due to the inability to distinguish between damage caused by the cruise missiles and that caused by the other munitions, damage assessment was inconclusive. Sometimes, Tomahawks were used to disrupt functions in a target facility, rather than to destroy the facility. Observations of the report ‘Conduct of Persian Gulf War’ about Tomahawk missiles are as follows:

²³ Ibid, P, T-200.

Accomplishments:-

- Tomahawk cruise missile played an important role as the only weapon system to attack Baghdad in daylight. The cruise missile concept, incorporating an unmanned low observable platform able to strike accurately over long distances, was validated as a significant weapon for future conflicts.
- The demonstrated launching system success rate was 98 per cent.
- TLAMs demonstrated accuracy that was consistent with results from pre-combat testing.

Issues:-

- Block III missile improvements, planned well before the invasion of Kuwait, are funded in the F92 budget.
- Additional improvements in the Tomahawk weapons system based upon experience gained during operation Desert Storm are under review for inclusion in Tomahawk Block III missile development.²⁴

PATRIOT AIR DEFENSE SYSTEM:-

Known as “Scud-Busters”, Patriot, the anti-missile missile provided medium to high altitude air defense of ground forces and crucial assets against air breathing threats

²⁴ Ibid, P, T-203

and tactical ballistic missiles. Patriot missiles were coalition's main defense against Iraqi Scud missiles and the effectiveness of the patriot in destroying Scud warheads had been one of the most bitter and confusing debates regarding the lessons of the Gulf War. "A patriot battery includes up to eight launchers, each with four MIM 104 missiles and support equipment, including a multi-function phased array radar, weapons control computer, electric power plant, and equipment to interface with other part of the air defense system and higher headquarters. Missiles with patriot anti-tactical missile capability (PAC-2) enhancements (warheads and fuse improvements in addition to PAC-1 software improvements) are capable of anti-tactical ballistic missile (ATBM) defense as well as defense against ABTs PAC-1 missiles are used only for defense against ABTs.

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The MIM -104 patriot fire unit consists of AN/MXS-104 engagement control system (ECS) with the computer that controls the sequence of engagements, monitors all systems for faults and controls communication between batteries. The patriot configuration provides coverage against both air-breathing and TBM threats. 21 US batteries were deployed to Saudi Arabia, 4 batteries in Turkey and 7-batteries were used in Israel.

Due to lack of credible data, it is very difficult to resolve many of the uncertainties surrounding the patriots' effectiveness. The patriot had technical problems in intercepting scud warheads. There is also a debate about the extent to which patriot

²⁵ Ibid, P, T-152.

missiles caused collateral damage. There is no way to determine exactly how many interceptors tracked the scud warheads. "Army sources indicate that they had confidence that the patriot was effective against 40-50% of the roughly 15 scuds if could engage. Israeli sources are notably more pessimistic and talk about a 40% hit rate or no kill at all.²⁶

Though there may be difficulty in measuring the effectiveness of patriots against scuds, one fact is clear; had Iraqi scuds been armed with nuclear or lethal biological warhead, they would still have done considerable damage. Next, normal peace time readiness of patriot against surprise attacks is always suspect. Nevertheless, patriot providing more political as well psychological security against scuds than military security. Despite its various shortcomings, patriot was a success which is evident by the Israel as well Saudi Arabia's decision to keep the patriot even after the war. Evaluating the performance of patriot, report conduct of the Persian Gulf War writes:

Accomplishments:-

- A system designed to shoot down aircraft was modified to provide a successful ATBM system.
- Patriot was successful politically – it helped keep Israel out of the war and

²⁶ Anthony H. Cordesman and Abraham R. Wagner, The Lessons of Modern War: The Gulf War, p -874

- strengthened coalition resolve.

Issues:-

Shortcomings have been identified and continued to be addressed through software changes and funding for improvements. Two major software changes were made during Operation Desert Storm that greatly improved patriot's capability to identify and destroy the scud warhead. Funding has been appropriated for near and mid-term upgrades, which will let patriot engage TBMS at a higher altitude and greater range.²⁷

Satellite Technology:-

The Gulf War was the first war in history to be fought using modern space systems for intelligence and targeting. The key space systems used included Global Positioning System (GPS) navigation satellites, the Defense Meteorological Satellite Programme (DMSP) and US land satellite (LAND SAT) for multi spectral imagery. The GPS system helped free coalition land units from being land bound and enabled troops to accurately ascertain their position in the desert without having to rely on compasses. About 45000 GPS receivers were used in the war. The multi spectral imagery satellites were used to provide updated maps of the region, track Iraqi troop movements and prepare military operations. The use of the satellite technologies has become compulsory for any force in the world which wants to have an edge over its enemies.

²⁷ Conduct of the Persian Gulf War, P, T-154.

The above mentioned high-technologies and weapons gave manifold advantage to coalition forces during their ground campaign. The increased mobility and maneuver, precision navigation, stand off and night vision capabilities of ground forces highly enhanced the effectiveness of the ground campaign. The 'Left Hook' movement of coalition ground forces was successful due to the increased high mobility and maneuver capabilities and due to the precise and navigation owing to the use of the global positioning system. The successful application of 'Air Land battle' doctrine was possible only due to use of these high-technologies. The increased target acquisition range and more effective fire enabled ground forces to fight with the enemy from distances beyond its ranges of sensors which allowed U.S forces to operate safely with lethal effectiveness. The night vision capability permitted relentless around the clock attack for Armed ground forces, though Marines lacked this capability. Moreover, thermal sensors fitted on M1 tanks and Bradley fighting vehicles and the sensors on Army AH-64 helicopters allowed US Armed forces to pursue relentless day and night attack even through the thick smoke of the battle field and oil well fires. This war was an excellent example of well executed maneuver tactics. "With the start of the ground war, entire divisions sliced across the Iraqi desert at sustained high rates of speed. Some travelling 100 kilometers within the first 24 hours. Massive columns of armour and mechanized infantry eventually sealed off escape routes and pressed in on enhanced Iraqi units, systematically defeating them. Operation Desert Storm will likely serve for generations as the text book example of what well executed maneuver tactics can accomplish." ²⁸

²⁸ Les Aspin, Defense For A New Era P-20.

The global positioning system helped coalition ground forces to move with unprecedented speed and precision in the featureless desert, which Iraqi forces, despite their superior knowledge of desert and its difficulties, were unable to achieve. According to many ground commanders, it was only due to the use of global positioning system that 'Left Hook' maneuver was possible. Otherwise, it was almost an impossible thing to attempt.

Chapter 4

IMPACT OF HIGH-TECH WEAPONS ON THE U.S. DEFENCE POLICY AND PROCUREMENT.

The Persian Gulf War has established a new relationship between technology and nature of warfare. We have seen how the use of technology especially advanced technology, has changed the mode of warfare. But this new relationship between technology and nature of warfare is in its infancy and it is very difficult to understand its all ramifications just as it is difficult to know that where political tensions will lead to war in the new era. In spite of this apparent difficulty, one must try to understand this inchoate relationship between advanced technology and changing nature of warfare, for only then policy-makers would be able to evolve an effective future military doctrine.

In the previous chapter we have evaluated the effectiveness of some of advanced technologies and weapons and their benefits for Air and Ground forces. Now, we need to evaluate the political, strategic and budgetary implications of these new high technologies. Some questions need to be answered. For example, how the use of advanced technologies have served the political purposes of Bush administration. We have already seen in the second chapter that how the legacy of Vietnam War has been one of important considerations for Bush administration's decision to go for a quick and decisive war. America's impatience with protracted war is well-known to everyone. The Vietnam war has proved beyond doubt America's unwillingness for a protracted war. The fear of returning "body baggage's" and their consequent domestic political repercussions must always have been troubling Bush administration. The use of

advanced technology helped to ease this pressure on Bush administration. These technologies and weapons have lessened the duration of war.

But the questions that need to be asked are : Was the use of advanced technology the only factor responsible for such unprecedented Coalition loss rate? Were there not other factors like better trained and skilled coalition forces and ill-equipped, ill-prepared and lesser skilled Iraqi forces responsible for this. This chapter seeks to answer this question. In other words, attempt would be made to examine the relationship between hi-technology and low coalition loss rate.

The use of high- technology and weapons has raised the possibility of changing the fundamental relationship among different services. For the first time in the U.S. history, the Air Force has played such an undisputed decisive role in U.S victory and Navy has seen its role getting reduced. The role played by U.S. Airforce in this victory was so decisive that some people have raised the possibility of Airforce achieving victory on its own. This possibility of 'Victory through Airpowers alone' would be examined in this chapter in detail. Furthermore an attempt would be made to examine whether Gulf War was an example of Air Land battle or Air and Land battles.

These new technologies have necessitated a greater degree of co-operation among devices. After the experience of Vietnam War, Goldwater-Nichols Amendment Act was passed to foster a new kind of 'Cooperation among services'. Efforts would be made to examine the role played by these new technologies in making Goldwater-Nichols Act a success or a failure. In other words, to what extent these new technologies have

compelled services to minimize their differences and work in unison making Goldwater–Nichols act a success, would be examined in detail.

In the article “Victory Misunderstood: What the Gulf War Tells us about the Future of Conflict”, Stephen Biddle argues that the standard explanations of the Gulf war’s outcome are wrong. According to Biddle, the one-sidedness of the Gulf War was neither due to the coalition’s possession of advanced technologies nor due to Iraqi shortcomings as have been argued by some experts. The orthodox explanation for one-sidedness of the Gulf War and historically low loss rate of coalition forces is that coalitions strength, especially its advanced technology was the decisive factor in this War. While its contending explanation relies on Iraqi shortcomings, such as their weak morale, poor training and leadership for such devastating defeat of Iraq in the war. Biddle in his article has presented a new explanation. He explains that a synergetic interaction between a major skill imbalance and new technology caused the radical outcome of 1991. “In the Gulf War, Iraqi errors created opportunities for new coalition technology to perform at proving ground effectiveness levels and sweep actively resisting Iraqi Republican Guards units from the battle field. Without the Iraqi’s mistake to provide openings, however, the outcome would have been far different in spite of the coalitions technology and coalitions casualties would likely have reached or exceeded prewar expectations. But without the new weapons, mistakes like the Iraqi’s would not have enabled the Coalition to prevail with the historically low losses of the Gulf War, Many previous armies have displayed combat skills no better than Iraq’s but without

producing resulting anything like those of 1991; only a powerful interaction between skill imbalance and new technology can explain the difference.”¹

Stephen Biddle has build up his case on the basis of two sources of information on the conduct of the War: The Gulf War Air-Power Survey and the 73 Easting Project. The Gulf War Air Power Survey (GWAPS) is an independent analysis commissioned by the U.S. Air Force. The 73 Easting Project is a joint study conducted by the Institute for Defense Analyses (IDA), the Defense Advanced Research Projects Agency (DARPA) and the U.S. Army. The purpose of the 73Easting Project was to create a database of unprecedented details and then to use the modern computer simulation technology to arrive at meaningful conclusions. Stephen Biddle has made these two reports the basis of his explanations. Biddle has first refuted the two existing explanations on the one sidedness of the Gulf War. Then he has broken the coalitions advanced technology strengths into its components. Coalition air technology, ground technology and strategy About Air-technology he writes that for new air technology to have caused an unprecedented low coalition loss rate by destroying the Iraqi’s equipment or morale before the ground war is to imply that the number of surviving, willing Iraqi weapons must also have been unprecedentedly low by February 24. This was not so’.² Hence, Biddle finds it difficult to explain the losses of material or will power of Iraqi army as a result of the air campaigns. He supports his case from the report GWAPS which states

¹ Stephen Biddle; “Victory Misunderstood: What the Gulf War tell us about the Future of conflict”, *Internatinal Security*, Vol. 21, No.2, Fall-1996, P-140.

² Ibid p - 140

that the Iraqi army did not run out of tanks, armored personnel carriers or technologies. Thus advanced air technology was not the decisive factor for low casualties. Examining Ground technologies Biddle asks question, "Could the coalition's combination of thermal sights, new armor, stabilized 120 mm guns and depleted Uranium ammunitions explain unprecedentedly low coalition loss rates? According to Biddle, if this is the case then this would mean that friendly forces in close combat without these technologies ought to have fared significantly worse than those equipped with them. But this was not the case because coalition ground force technology varied widely, but its losses did not. Biddle gives the example of two U.S. Marine Corp. equipped mainly with 1960-era M60A1 tanks with neither the thermal sights nor composite armor of the Army's M1A1s, yet the Marines suffered fewer tank losses than the Army that included Iraqi heavy divisions which fought back when attacked. Biddle has dismissed the coalitions superior strategy argument also. Then he goes on to examine the Iraqi Weaknesses arguments. The proponents of Iraqi weaknesses arguments say that Iraqi numerical inferiority and poor Iraqi troops skills and morale were responsible factors for the one-sidedness of the Gulf War. Stephen Biddle finds that in many important engagements Iraqi enjoyed favourable local force relations yet still they failed to inflict heavier losses on coalition forces. Writing further he accepts that Iraqi morale was clearly much weaker and they made many important errors in handling their forces yet for Biddle, to explain a historically unprecedented outcome this way is to imply that no prior war could have seen a skill imbalance as great. Biddle is not ready to buy this argument. He accepts that low morale and Iraqi mistakes are a part of the story but they can not explain the results by themselves. After examine all the existing explanations, Biddle has argued that a non

linear synergistic interaction between these variables caused the radical outcome of 1991. According to him, “in particular the coalitions advanced technology made it possible to exploit Iraqi mistakes with unprecedented severity, enabling entire Republican Guard division to be annihilated in close combat with minimal losses. (However), If the Iraqi’s had attained Western Standards of Organizational performance, this analysis , suggests that the results would have been radically different even given the Coalitions advanced technology and high troop skills. Without errors to exploit, modern technology can not provide anything like the lethality seen in the 1991.”³.

In the article “Lessons from Ground Combat in the Gulf: The Impact of Training and Technology’, Daryl G. Press counters Stephen Biddle’s argument that it was a synergistic combination of coalition’s high-technology and better training and skills which were responsible for Iraqi’s battlefield rout. Citing evidences from ground engagements, Daryl G. Press writes that his analysis suggests that the skill and technology advantages of Coalition troops were each sufficient to cause one sided victories. In other words, Press argues that while Biddle’s hypothesis is that technology and skill imbalance were both necessary conditions for the lopsided Iraqi defeat, while his is that each of them was a sufficient condition. Daryl. G. Press takes the example of the Battle of Al Burqan which, according to him, was fought on equal technological footings. At the battlefield of Al Burqan poor visibility had neutralised most of the U.S. technological lead. For example, the smoke and bad weather kept Coalition air power out of the battle. The flames from the burning walls degraded the range of thermal sights on low missiles. Moreover, in the smoke and fog, Iraqi troops and vehicles became

³ Ibid, P-174

intermingled with U.S. force. Yet, according to Press, results of this battle are surprising. In the fight, one regiment of the 1st Marine division destroyed more than 100 Iraqi armoured vehicles and not a single Marine was killed. Hence, Daryl Press writes that on the basis of evidence we can suggest that the Marine's superior training brought them a nearly cost less victory. Then Press delves into history and gives example of Israel's decisive victory in Sinai during the 1967 Arab-Israel war as another example of better trained army defeating its adversary despite technological equality. Press then examines the question that what if the Iraqis had been better trained. Press admits that there were no engagements in which Iraqi and U.S. forces were equally skilled but in at least one large battle the Iraqis corrected the errors that Biddle describes. But, in the end, the result was same. According to Press, in this case, Republican guards Tawakalna Division displayed greater skill than most other Iraqi forces in the theater but the result was same. This was due to better technological capabilities of U.S forces. After examining these two cases, Daryl G. Press proposes that, "the skill advantages of coalition troops were so large that skill alone would have led to one-sided battle field outcomes, even had technology been even. Furthermore, the coalitions high-tech weapons would have allowed the allied forces to rout the Iraqis, even if they had been better trained. The implication of my argument is that military forces from the developing world can not match the U.S. army by training to Western standards or by buying sophisticated weapons. An adversary who wants to compete with U.S. forces will need to find a way to neutralize or eliminate both our technological and skill advantages."⁴

⁴ Daryl G. Press "Lessons From Ground combat in the Gulf" *The Impact of training and Technology*", *International Security*, Vol -22. No.2 (Fall-1997), P-150.

Thomas A. Keaney, who played a substantial role in the study, the Gulf War Air Power Survey, writes that Biddle has derived totally a different conclusion from the survey's data. In the article. 'The Linkage of Air and Ground Power in the Future of 'conflict', Keaney says that recognizing the distinction between an isolated as opposed to a representative event is crucial. According to Keaney, in setting the stage for the grand action at 73 Easting, Biddle ignores the effectiveness of the air-attack in debilitating the Iraqi ground forces. "The GWAPS" analysis concluded that as a result of the air-attacks, the Iraqi army had not only suffered extensive destruction of its equipment but, more importantly had lost its ability to move, be reinforced or achieve even tactical success." Ignoring this factor, according to Keaney, had led Biddle to draw a different conclusion. However, Keaney admits that "Biddle might be right in concluding that the skill of ground units can offset the effects of better technology possessed by their ground opponents; those forces, however will also have to contend with another array of technologies employed by air forces. Skill in one regime will count for little if the ground forces can not at the same time contend with attacks from the air"⁵

After examining the arguments of these various experts we are still not in a position to draw a definite conclusion about the exact role of Coalitions advanced technology in its one-sided victory over Iraq. In other words we are not in a position to say that it was coalition's advanced technology which was solely responsible for such a historic Coalition loss rate and one-sided Coalition victory. Further analysis of the Gulf war is needed to ascertain the kind of role played by Coalition's advanced technology in

⁵ Thomas A. Kenney: "The linkage of Air and Ground Power in the future of conflict", *International security*, Vol-22, No. 2 (Fall-1997), p-150.

its top sided victory over Iraq.

The Persian Gulf War was a major departure in the history of warfare due to the extensive use of high-technologies in the war. The impact of advanced technologies, especially those used by the airforce, was so great that it has led some experts to argue that air power on its own could have eventually forced the Iraqi's to evacuate Kuwait and succumb to all appropriate UN resolutions. Was it really so?. In otherwords, was air force capable of winning the Persian Gulf War alone? The image of the war depicted by media has created this possibility of "Victory through air power" alone. "During the planning stage of Operation Desert Storm, air power supporters hoped that a concentrated strategic air campaign against Saddam's political, economic and military centres would force Iraq to withdraw from Kuwait and eliminate the threat to the region posed by both regimes without resorting to ground warfare. These were hoped for achieved results, never official objectives and they were not achieved.⁶ The air campaign did not and could not have forced Saddam Hussein to withdraw from Kuwait. Several arguments can be given in support of the above mentioned conclusion. "First, air attacks that focussed solely on military targets might not have forced Saddam to retreat, especially if he could counter with scud attacks against Saudi Arabia and Israel no matter how ineffectual such assaults might be. Attacks on Iraqi civilian targets were also unlikely to endanger the type of social upheaval that would unsettle the Iraqi regime.⁷ Moreover, if the allies had decided to achieve "Victory through air power alone" and decided to deploy a smaller land force to Saudi Arabia, this would have given Saddam

⁶ Les Aspin and William Dickinson: Defense For a New Era : Lessons of the Persian Gulf War, Brassey's (US) Inc. 1992, P – 8.

⁷ The Gulf conflict: A Military Analysis", *Adelphi Paper*, no 282, 1993, p- 64.

Hussein a chance to extend the war or to attempt to assume the initiative on the ground which would have created greater trouble for coalition. Furthermore, data from the war operations do not give a definite answer to this question. Preparing a database on the basis of number of tanks, artillery and infantry vehicles destroyed as the war progressed from the air phase to the land- air- phase in Kuwait, William E. Odom in his book "America's Military Revolution- Strategy and Structure After the Cold war" writes that "precisely how many enemy weapons were actually destroyed by ground combat and how many were destroyed by close air support remains open question, but clearly ground forces destroyed the majority."⁸ Thus it is difficult to evaluate the role of air force and ground forces in comparison to each other "No single service or nation won the Gulf War on its own,"⁹ tells us the book "Certain Victory", the official U.S. account of the role of the U.S. Army in the Gulf War, making an indirect comment on the respective role of air and ground forces. "Certain Victory" tells us that "regardless of our estimates of how successful the fire power system has been in weakening the physical strength and breaking the psychological will of an enemy, decisive victory – the achievement of the given objectives to destroy the Iraqi army – was only achieved when the enemy was engaged in ground combat."¹⁰ Thus, we can say that 'victory through air power alone' was at least not possible in the Gulf War, though about future we may not be sure. The Gulf War has definitely led to the change in the relationship of air and ground forces. This is the conclusion drawn by Gulf War Air Power Survey also:-

⁸ Lt. General William E. Odom: America's Military Revolution : strategy and structure After the Cold War, The American University Press, Washington D.C. 1993, P-57.

⁹ Robert H. Scales Jr.: Certain Victory : The U.S. Army in the Gulf War, Brassey's, Virginia, 1994, P-1.

¹⁰ Ibid, p – 366.

“The GWAPS study did not conclude, based on the Gulf War evidence, that air force could defeat armies, but it did suggest that the relationship between air and ground forces could be changing”.¹¹

We have examined the argument that whether ‘Victory through air operations alone’ was possible. After careful examination, it has been found that air force on its own could not have won the Persian Gulf War. Rather, it was an excellent combination of air and military power that was responsible for such a spectacular victory. Based on this, many experts have held operation Desert Storm as a classic example of the Joint Air-Land battle doctrine developed by the U.S. during the preceding decades. Throughout the history, U.S. had always placed emphasis on combined operations yet many operations in Vietnam did not properly integrate combined arms. Till that time, inter service training in combined operations was limited and more than that air operations were not properly integrated into land operations. After the Vietnam War, the US placed far more emphasis on combined arms and combined operations and it strengthened combined operations training and career rotations into joint commands. To strengthen combined U.S. operations, it developed tactics that closely integrated air and land operations into what is came to call as the Air Land Battle. The planning to conduct Operation Desert Storm was prepared according to this Air land battle doctrine. How far was it successful?. Was operation Desert storm conducted according to Air land battle doctrine or was it got separated into Air and land battles with only marginally integrated? Let us examine this question in detail. As already mentioned, planning to conduct the

¹¹ Thomas A. Keaney: “The Linkage of Air and Ground Power in the Future of Conflict” *International Security* Vo. 22, No.2 (Fall-1997), p-150.

operation. Desert storm was prepared according to Air Land battle doctrine and it was put into practice during the land war. "The coalition battle plans called for "initiative", "agility", "depth", and "synchronization", and all four were achieved.

The key tactics in Air Land battle were to avoid battles of attrition, attack the enemies vulnerabilities, keep the battlefield fluid, force the enemy to move in the desired direction, maintain continuous operations, optimize all capabilities and maximize night limited visibility operations. The key sustainment goals were anticipation, integration, responsiveness and improvisation. These goals too were met."¹² But this is only partially true. The actual conduct of the Persian Gulf War tells us that application of Air Land battle doctrine was only partially made and it was not as successful as it should have been. This is evident from the following official account of the U.S. army: "The ATO with its characteristic 72 hour cycle seemed unresponsive to battle field commanders, particularly to corps. Commanders, in both the early air operations and in frustrating last day efforts to destroy the Republican Guard inside Kuwait ... General Luck and Franks were continually frustrated by their inability to influence target selection for the ATO. Frank in particular was concerned because he had developed an elaborate programme for attack in depth. He intended airpower to play a key role by destroying operational reserves that might strike his corps in the flanks before it closed on the Republican Guard. As the ground war drew nearer, Franks received more sorties and managed indeed to crush the "go-away brigade" with concentrated air power. Nevertheless frustration with the rigidity of the air support system increased as the war of movement

¹² Anthony H. Cordesman and Abraham R. Wagner: The lessons of Modern War, Volume IV: The Gulf War, Westview Press, Colorado, 1966, p-555.

began. The 20-grid-line restriction improved by CENTCOM air planners kept 11th Aviation Brigade helicopters from preventing the escape of Iraqi armor. As a result, the Coalition was unable to exploit the synergy of deep attack with the unique ability of Apache helicopters to kill large numbers of moving targets at night in congestion with integrated air power attack”¹³ Thus, we see that many targets nominated by corps headquarters were not struck and Army found that Air Force planning group was a closed cell. (Often called the Black Hole). Moreover, as the ground forces moved into Kuwait and Southern Iraq, in many stances ground commanders waved off close air support for the fear of friendly casualties and the lack of effective control in directing close air attacks. Hence, we can say that it was not a classic example of the application of Air Land battle doctrine. Nevertheless, it was surely an advancement in the successful combined operations between Air and Land forces over previous wars. Though it may not have been as successful as desired by its planners, yet the application of Air and Land battle was doctrine was a great success.

The evaluation of the application of Air Land battle doctrine during the Gulf War immediately reminds one to have a look at the success or failure of the Goldwater-Nichols Act of 1986. The Gold water-Nichols Department of Defense Reorganisation Act of 1986 sought to foster joint military approaches to warfare by increasing the power of the Joint Combatant – commanders-in-Chief (CINCD), streamlining their chain of command to the President and strengthening the role of the Chairman of the Joint Chief of staff. In other words, this Act attempts to reduce inter-service rivalries and seeks to promote a feeling of jointness among them. It was in the pursuant of Gold water-Nichols

¹³ Robert H. Scale Jr. Certain Victory: The U.S. Army in the Gulf War, p – 368.

Act that General Schwarzkopf and not the Joint Chief of Staff controlled operations in the theater. Unlike Vietnam, whereas many as four independent air chains of Command operated autonomously, General Schwarzkopf established a highly effective joint chain of command for air operations. This was made possible due to this Act and it was a great success. Reflecting on the importance of this legislation for the conduct of the Persian Gulf War, Secretary of Defense Richard Cheney said: "I am personally persuaded that Gold Water Nichols was the most far-reaching piece of legislation affecting the Department, since the original National Security Act of 1947..... clearly, it made a major contribution to our recent military success."¹⁴ Had it not been for the Gold Water Nichols Act, it would not have been possible for CINC to make the decision not to conduct an amphibious landing contrary to the strongly held views of the some subordinate. Marine commanders. Indeed, it would have been a very difficult decision to make stick prior to Goldwater Nichols. It was due to powers vested in CINC by virtue of Goldwater-Nichols Act that unlike past, it also exercised overall control of logistics support in his theater of 'operations and of' deployment priorities for bringing troops and equipment into the theater. General H.T. Johnson, Commander of the Transportation Command said that his command had many requests to ship weapons and equipment throughout the build up during the conflict. He told his staff, "Go to the Unified Command. If it is a requirement, we will move it. And that is the only way we get this to move"¹⁵ But the problem of inter services rivalry remains, though may be in a lesser degree. We have already seen that, at times, Army found that Air force planning group as was a closed cell and many targets nominated by Corps headquarters were not struck.

¹⁴ Les Aspin and William Dickinson: Defense For a New Era, p-42 .

¹⁵ Ibid, p – 42-43.

Similar views were expressed by Marines when they expressed their concerns that battle field preparation was not adequate and inconsistent with the ground commanders 'targeting priorities. "At first, the Marines took matters into their own hands by routinely and systematically diverting sorties from their preplanned targets to 'more urgent' targets or stuffed the ATO with "dummy" sorties to put extra air craft in the air. As time went on, the main marines began removing their air crafts from the pool of assets available to the JFACC. They withdrew approximately half of their F/A-18S so they could concentrate on preparing the battle field in the Kuwaiti theatre of operations. By the time the ground campaign began, they had taken back almost the rest." ¹⁶ This inter-service rivalry was also evident at the time of preparation of the Pentagon's Final Report on the War. The Portagon's preparation of the Pentagons' Final Report on the War. "The Portagon's Final Report on the war was delayed for weeks because of bitter inter services bickering over the report's wording and each of services' relative contribution to the outcome of the War."¹⁷ However, despite these differences, the services attitudes about combined operations have improved.

Having examined political utility of advanced technologies and weapons and their impact on nature of warfare and on inter-services relations, we now come to evaluate their impact on U.S. defence policy as a whole. For that the question we need to ask is : In what ways experiences of the Gulf War, in General and performance of high-technologies in particular have helped in restructuring U.S. defence policy ? After the demise of global soviet threat, US defence strategy has been re-oriented to focus on

¹⁶ Ibid p-10

¹⁷ Jefferey Record: Hollow Victory: A contrary View of the Gulf War, Brassy's (VS) Inc. 1993, p-129.

threats posed by regional forces hostile to American interests like Iraq and North Korea and threat posed by the spread of unconventional weapons like chemical biological weapons and ballistic missiles. The Persian Gulf war has vindicated the perception of U.S. defense policy makers that U.S. might become involved in such regional crises. How have U.S. decision-makers responded to these new emerging challenges? The first comprehensive response of Bush administration after the Gulf war experience was the announcement of Secretary of Defense Dick Cheney's Regional Defense Strategy of January 1993.

Though Regional Defense Strategy was the result of a 3 year evaluation process of U.S. defence policy after demise of U.S.R.R, It is distinctly clear that experience of the Pearsian Gulf War played a very important role in its formulation as is evident from its basis tenets. The tenets of Regional Defence strategy are as follows :

- (i) To ensure that no region critical to America's interests could become dominated by a hostile power.
- (ii) To evolve a counter proliferation policy of weapons of mass destruction.
- (iii) To provide assistance to the former Soviet republics in their democratic reforms and
- (iv) To contribute in humanitarian operations.¹⁸

¹⁸ Wyn Q. Brown and David H. Dunn: American Security Policy in the 1990s: Beyond Containment, (Dartmouth, Aldershot, 1996), p – 43.

Overall, the strategy identified the need to reduce American force levels in Europe since the threats to American security concerns have reduced after the disintegration of USSR. But presence of U.S. forces in Europe was justified to ensure the rapidness reinforcement of Europe should a new threat arise. However, RDS stressed the need for increasing the relative contributions and responsibility of American allies in the light of reduced external threat and increased strength of allies. The essential elements of RDS were as follows:

- (i) Strategic Deterrence and Defence – Due to the continued existence of strategic nuclear forces in Countries like Russia, RDS recommended the continued maintenance of ‘survivable and flexible’ nuclear forces. This will also provide security to USA in the possibility of emergence of an ‘ unforeseen global threat’, Furthermore, RDs emphasized the need to develop and to deploy defence against the accidental, unauthorized or terrorist launch of ballistic missiles against American interests. The so called active missile defence such as ATBM systems were valued because they provided protection for American forces, allies and regional interests and could also help to dampen a potential aggressors incentives to acquire ballistic missiles capabilities.

- (ii) Forward Military Presence :

The RDS expressed the need for the continued forward military presence of American forces in various sensitive regions of the Worlds. It is beyond doubt that American experiences during the Gulf War played a major role in providing the justification for continued forward military forces particularly because of the

important role that American troops based in Europe and around the Persian Gulf had played during the initial response to Iraq's invasion of Kuwait.

- III. Crisis Response : RDS stressed the importance of maintaining high readiness force and sufficient supply of equipments to ensure that U.S. forces were able to respond on short-notice to various types of regional crisis.
- IV. Reconstitution : RDS identified the need for maintaining the capability of force reconstitution including regeneration assets, technology assets and manpower assets so that US would be in a position to defer or defend against any future global military threat to American security interests.

After examining the RDS in detail, we find that major emphasis has been placed on continued forward military presence and to the maintenance of capabilities to respond to a regional crisis in a swift and decisive manner which can be attributed to America's experiences of the Persian Gulf War. The next significant review of America's defence policy was made during Clinton's administration when secretary of Defence, Les Aspin released the Bottom UP Review in September 1993 " Bottom-UP Review: Forces for a New Era" identified 4 fold dangers to America's Security interests:

1. Threat posed by the proliferation of weapons of mass destruction (WMD)
2. Larg scale aggression by major regional powers with interests anti-thetical to U.S.
3. Threats to democracy and reforms in the former Soviet Union and

4. Economic threats which could result if the U.S. were to fail to build a strong competitive and growing economy ¹⁹

While identifying nature of dangers to American security, the Bottom-up Review also identified new opportunities which USA could utilise to improve the external security. The disintegration of USSR has provided USA a chance to expand its security alliances around the world and to promote American style of democracy to new nations. Others opportunities included the prospect of continued strategic nuclear reductions with Russia and the chance to improve American defences against potential regional aggressors.

Having evaluated all kinds of threats likely to be faced by America in changed new international security environment, Les Aspin believed that America could secure its interests with reduced defence budget and recommended cuts in all services, except the US Marine Corps to be effected by FY 1999. The primary criterion utilised by the BUR to determine the future size and structure of American forces was the assumption that the US must be capable of fighting and winning two nearly simultaneous major regional conflicts. While planning for such major regional conflicts, the scenarios which Aspin envisioned were a repeat of Operation Desert Storm with remilitarize Iraq and war against North Korea."The two MRC basis for force structure was decided on ,not because two such conflicts are expected to erupt simultaneously ,but because should the U.S. embark on one conflict, it must have sufficient force available to deter a second breaking out. The major savings resulting from implementing the review will be achieved

¹⁹ Ibid, p – 62-63.

by cutting two active and one reserve army divisions; three active and four reserve for Air Force wings, 55 surface ships and submarines; one aircraft carrier ; and one active and one reserve naval air wing.

Procurement projects cancelled included the Advanced Fighter experimental (IA/FX), the Multi-Role Fighter, and the production of F-16 aircraft after FY 1994 and F/A 18 CD naval aircraft after FY 1997. Emphasis and increased priority has been given to :

Prepositioning Army equipment (in the same way as the US Marine Corps prepositions equipment packs at sea);

- increasing the readiness of a proportion of the Army National Guard;
- Providing additional air and sea-lift:
- Improving precision- guided weapons and Command, Control, Communications and Intelligence (C³I) assets: and
- For the first time for several budget requests, the Defence Department recommends developing the V-22 Osprey tilt wing tactical transport aircraft for the US Marine corps. (previously this project, not backed by the Defence Department, was reinstated each year into the defence budget by Congress.)²⁰

A deep perusal of “Bottom-up Review: Forces for a New Era” Clearly tells us that experiences of Persian Gulf War have played a very important role in formulation of this

²⁰ Robert L. Goldich and Stephen Daggut ; ‘Defence Policy : Threats, Force Structure and Budget issues ; CRS Issue Brief, The Library of Congress, May 3, 1996, P 9

review. Placing emphasis on providing additional air and sea lift facilities and improving precision-guided weapons and C³I assets can directly be attributed to experiences of the Gulf War. Furthermore, Iraqi missile attacks on Israeli civilian and on American forces have made American defence policy makers aware of the direct threat that the proliferation of weapons of Mass destruction (hereafter WMD) and ballistic missile capabilities in the developing world could pose to American forces. However, the successful use of ATBM system to defend against Iraq's missile attacks during the Gulf war clearly demonstrated both the political and military importance of possessing a defence capability to counter the threatened or actual use of ballistic missiles and WMD.

But, patriots missiles were not as successful as claimed by its makers and this led to a rethinking on the part of policy makers to counter the threat of WMD and ballistic missiles. Besides improving the capabilities of Patriot-missiles, the Clinton administration announced counter proliferation Initiative (CPI) to meet the threat of ballistic missiles and WMD. The Clinton administration's strategy has been identified by the Department of Defence as consisting of eight elements four preventive and four protective ;

(i) Discussion; in order to convince potential proliferators that their security interests are best served by not proliferating. This will be reinforced through security alliance, security assistances and so on.

ii. Denial, through strengthened multilateral export controls and the building of a new regime to replace the coordinating Committee on Multilateral export controls

(COCOM) which had been designed to prevent Soviet bloc countries from obtaining weapons and technology.

- iii. 'Arms Control' through the reinforcement of the NPT, the biological and chemical weapons conventions, and confidence and security building measures.
- iv. 'International pressure' by punishing violations with trade sanctions and publicizing and exposing proliferation.
- v. 'Defusing to reduce the threat posed by WMD already in the developing world. For example, through agreements to destroy, inspect, convert, monitor or even reverse certain status capabilities.
- vi. 'Deterrence; to persuade proliferaters that risk of using WMD is too great in terms of American retaliatory capabilities.
- vii. 'Offence, to protect American forces and allies, by preparing for the need to destroy disable or seize WMD in time of conflict.
- viii. 'Defence' both active and passive, against potential ballistic missile and WMD use against American forces in order for them to be able to perform effectively, even on contaminated battle fields.²¹ Thus, we see that after the Gulf War American policy has moved from simple emphasis on defence and non-proliferation to a broader policy approach aimed at fighting proliferation. This priority accorded to proliferation also reflected in the Clinton administration's

²¹ Wyn Q. Brown and David H.Dunn; America's Security Policy in the 1990s: Beyond containment, p-135.

Bottom-UP Review of 1993 and stemmed from the perceived increased vulnerability of American forces to unconventional weapons attack in several regions of the world since the Gulf War.²²

After examining the defence policies of both Bush and Clinton Administration, we can say that “a premise of both Bush and Clinton Administration defence policy has been that it is better to maintain a smaller, well-equipped, well trained and highly qualified force than to have a larger, less capable force as a means of trimming the budget. Clinton administration officials have especially stressed a commitment to maintain high levels of military readiness. Administration officials have also emphasized their commitment to pursue weapons modernizations especially the development of new generations of advanced precisions - guided ammunitions as a key component of force enhancements designed to allow a smaller force to carry out a two-war strategy.”²³

In recent years, much of the current debates over defence policy has been driven by budget constraints. Reduction in the defence budget has been achieved by reducing the size of the forces. Defence spending and personnel have been cut by about one-third since 1990 yet the scale of military capability has been maintained by striking a balance between exploiting advanced technologies to

²² Ibid, P-136.

²³ Robert L. Goldich and Stephen Daggrt ; ‘Defence Policy: Threats, Force structure and Budget Issues’, CRS Issue Brief, the Library of Congress, May 3, 1996, p – 9.

enhance capabilities and maintaining a sufficient number of active forces and logistic supports.

On 20 May 1997, Secretary of Defence, William Cohen presented Quadrennial Defence Review which has three elements. ;

- Preventing or reducing conflicts and threats and determining coercion and aggression on a day-to-day basis in key regions of the world.
- Continuing to develop ability to respond rapidly to a spectrum of crisis from concurrent small-scale operations to winning two major regional conflicts; and
- Developing and implementing advanced technologies to defend against future threats and deter prospective rivals from entering into a conflict with the U.S.²⁴

The next conceptual framework to restructure future U.S. forces and the way they will fight is expressed in 'joint vision 2010' which is based on the ability of U.S. forces to collect, process and disseminate information essential to it while, at the same time denying opponents the opportunity to gain and use intelligence. 'Joint Vision 2010' has emphasized to accelerate the acquisition of new command, control, communications, computers, intelligence, surveillance and reconnaissance capabilities which will enable military commanders to direct forces and transfer information more effectively. The 1999 defence budget has placed emphasis on funding relevant new technologies. Expressed in "Joint Vision 2010, Some other advanced technologies and weapons funded by 1999 budget are :

²⁴ The Military Balance, 1998-1999, p-12

- Key surveillance assets, such as unmanned aerial vehicles and more wide spread use of navigation aids such as the global positioning system. Substantial provision for improvements in precision – guided ammunitions for all services, including the Anti Tank Army Tactical Missile System/ Brilliant (ATACMS/BAT), longbow Hell Fire, search and destroy armour ammunition (SADARM) and Javelin for the Army: the sensor fused weapon for the air force and the Joint Stand Off Weapon (JSOW), joint Direct Attack Munition and Advanced Medium Range Air to Air (AMRAAM) for both the Air force and Navy. The Navy will continue to improve its inventory of Tomahawk missiles and convert antiship Harpoon missiles to SLAM-ER land attack missiles.

- Continued development of the ability to project forces over long distances, including the continuation of the air lift and sea lift improvements from previous years. Some 12 C-17 long rung transport air crafts are expected to be in services by 2003 and all KC-135 air-to-air refueling tankers will receive major avionics upgrades. Sea lift procurement in 1999 includes the last of the transport system needed to more easily-deploying Army divisions.²⁵

If we look at the U.S. defence spending for last few years then we find that U.S. defence spending has declined by some 35% since 1985, with most of the fall since 1990. We have already seen the kind of restructuring U.S. forces are undergoing and the kind of technologies and weapons being developed and procured by U.S. forces.

²⁵ The Military Balance, 1998-99, p-12

What are the conclusions which we can draw we can draw from these analysis ? some of the important concluding which we can draw are as follows:

- The disintegration of the USSR has led to rethinking in U.S. defence community about the threats to be faced by the USA in future. The new threats to U.S. security concerns are likely to come from hostile regional forces.
- The success of U. S. advanced technologies and weapons during the Gulf War has vindicated the decision of U.S. defence policy makers to invest more in these areas.
- Overall, there has been a sharp decline in U.S. defence spending which can be attributed to disintegration of USSR and consequent reduction in threats to U.S. security interests.

Chapter 5

CONCLUSION

The present study reveals that the Gulf was an unique war, especially for the Americans.. As Jeffrey Record has put it, 'for the United States in the post-world War II era, it was a splendid affair'. In near future, it is highly unlikely that the US will be again involved in such a battle with ideally all favourable conditions in its favour. Yet, as they say 'history repeats itself', if not all then many aspects of the Gulf War are likely to be repeated in future conflicts. Especially, if US decides to fight a war against any third world nation then many aspects of this war are likely to be repeated.

The political dimension of the Gulf War has been very revealing. The Gulf war has proved that some options were evolved by major global powers as an effective response to the end of the cold-war tensions and hopes for a new era of co-operation after the rigidities of East-West confrontation had not been belied. Had it not been for the end of the Cold War and disintegration of the USSR, the USA would not have been able to build up such an effective international coalition to fight against Iraq. The conduct of the Gulf War clearly established the fact that the US was the only remaining Super power and only it had the power to define, orchestrate and lead the 'New World Order. On the international front, the Soviet Union, China and France realized that they could only protect their distinctive foreign policy approaches and interest only when they conceded and to a large degree, submitted to US leadership of the anti-Iraq

coalition.¹ An important point to consider here is that how did U.S. use this opportunity to define its position as the leader of the new emerging world order. Nevertheless, the experience of the Gulf War tells us that U.S. had to concede certain degree of restrictions on its behaviour. It was pursuing unrestrained political and military objectives – the defence of Saudi Arabia, the liberation of Kuwait and Iraq’s future containment as a threat to its neighbours—and including overthrow of the Iraqi regime. The U.S., inspite of its Supreme Power and all possible actions so far has not been able to overthrow or remove Saddam Hussein. This must be frustrating experience for the supreme power i.e the U.S. At the domestic level, this war again proved the fact that it was the President who was the ultimate authority to decide about the use of force inspite of the War Power Resolution which sought to limit the President’s autonomy in this sphere. The present study clearly indicated that how President Bush utilized international support to win domestic support and domestic pressures to win international support. The Congress, by deciding to play it safe, lost the advantage to lead or determine its war power and had to play a second fiddle in the authorization of the use of force.

The military dimensions of the Gulf War appears to be more instructive. One of the most important impacts of the Gulf War has been that it has been an moral booster for the American forces. The Gulf War has helped American forces to overcome their ‘Vietnam Syndrome’ To quote President Bush, “They set out to confront an enemy abroad and in the process, they transformed a nation at home.”² The spectacular

¹ “The Gulf Conflict: A Political and Strategic Analysis”, *Adephi Paper*, No. 264, 1991, p-72.

² “A Force Reborn”, U.S News and World Report, March 18, 1991, P-30

coalition victory and the successful demonstration of US technological supremacy did help Americans to come over their two decades of self-doubts.

In terms of strategy, the Gulf War clearly proved the continuing importance of traditional concepts like taking initiative, forging deceptions and Controlling the time. In this war, the coalitions had the time on its side and in future no nation is likely to repeat this mistake. If a nation decides to give as much time to its adversaries as Iraq did, it would have to pay the same price. By giving enough time to coalition forces to prepare themselves fully for the war, Iraq lost the initiative and the war.

The Gulf War reveals a need to collect accurate military intelligence which was central to the decision-making process throughout the Gulf War. Once Iraq attacked Kuwait, the ability of the United States to insert strategic intelligence gathering systems (AWACS and Satellites) into the region quickly was of tremendous importance and remains a valuable (If not vital) capability for the future. The other coalition members, however, were solely dependent on strategic information provided by the American satellites and advanced surveillance air craft were the only means by which to obtain accurately timely data. Consequently, some European states (eg. France) believe that the lack of national strategic intelligence gathering assets was the most important lesson glanced from the war, and a deficiency they will Seek to rectify.³

The Gulf War has shown the importance of establishing an effective system of command and control at all levels for achieving success in the modern battlefield. The

³ "The Gulf Conflict: A Military Analysis", *Adelphi Paper*, no. 282, 1993, p -- 57.

Gulf War was fought under the most unified multilateral military command and was highly successful. Although CENTCOM did not have direct operational control of Islamic forces, which were controlled by the Saudis, General Schwarzkopf did direct the formation of an informal planning group (the coalition coordination, Communication and Integration Cell, or (C³ IC) to ensure close co-operation between CENTOM and the Saudi General Staff. This unity of command enabled CENTCOM staff to use data from US intelligence to formulate plans which was crucial to its success. However, the command structure was lacking in several aspects, like each member of the coalition retaining its national prerogative to define the rules of engagements for its forces which enacted many difficulties for coalition forces themselves. This model needs improvements and cannot be taken to be a model for the future.

The high technologies and weapons used during the Gulf War have clearly demonstrated their potential to change the nature of forces and future war-fares. It is significant to observe how the use of AWACS aircrafts, precision guided munitions and stealth aircrafts had changed the importance of Air Force vis-à-vis Armed and Naval Forces. The role of the Air force has been so dominant that it has raised the possibility of victory through Air power alone. Indeed what the Gulf war has done is that it has definitely fitted the balance in favour of Air Forces.” the decisive factor in the war with Iraq was the air campaign, but ground forces were necessary to eject the Iraqis from Kuwait”, concludes Les Aspin and William Dickison in their book “Defence for a New Era : Lessons of the Persian Gulf War”.

After the experience of the Vietnam War, the US decision to place emphasis on technology intensive combined operations to integrate air and land operations, known as

'Air Land battle', has been crucial to the success of the ground battle. Operation Desert Storm has been a witness to the transplant of this 'air land battle' plan from the plains of Europe (this doctrine was device to maximize NATO's technical advantages to counter Warsaw Pact's numerical superiority) to the deserts of Kuwait and Iraq. But even in this area problems remain. In the last chapter we have already discussed the problems hindering the successful operation of this 'Air Land battle' doctrine. The failure of air force commanders to respond to the requests of the army commanders, and fear of suffering casualties from friendly exchanges of fire, are some of important short comings of this plan which need sufficient attention to avoid future problem. The development of technologies have not been able to overcome this problem totally.

As far as Gold Water-Nichols Act is concerned, it has certainly improved the relations among services and did ensure that all the services were fighting the same war. But as we have seen, problems of joint operations still remain: for example, in the withholding of some combat air assets from the overall plan of the air campaign.

The issue whether the Gulf War introduced a "revolution in military affairs" must await the judgement of history. The Gulf War has proved beyond doubt that any military force that can have major advantages in the integration of new tactics, technologies and training methods, that can operate on Air-land battle doctrine, and that can deploy C4I/BM capabilities, will have an overwhelming superiority over an adversary that cannot do these things. But to pronounce judgement in favour of a revolution in military affairs, it would be a mistake to focus only on weapons technology as evidence and we must await the judgement of history.

The benefits accruing to U.S. armed forces due to use of high technologies and weapons have been too many and far reaching. It would be enough to mention the findings of Les Aspin and William Dickinson in this regard. According to their findings; The effective use of high-technology was a key reason for both the high-level performance of air and ground forces and the minimization of allied casualties.

- ◆ A new precision in the delivery of weapons made them more effective than in the past and reduced collateral damage.
- ◆ Survivability of aircraft and aircrews was enhanced by stealth, defence suppression, increased use of pilotless weapons and stand off range weapons, High availability rates for air-crafts were promoted by maintainability in new systems. These factors, in term, increased sorties rates and allowed the air campaign in particular to develop and sustain a devastating momentum.
- ◆ Greater target acquisition ranges and more effective fire enabled ground forces to engage enemy forces at distance beyond the range of enemy sensors.
- ◆ Night vision devices enabled around the clock operations for Army ground forces, but Marine lacked this capability.
- ◆ Land Navigation through the use of the Global positioning system enabled commanders to execute the so called “Left Hook” through open, nearly featureless desert with unprecedented speed and precision.⁴

⁴ Les Aspin and William Dickinson : Defense For A New Era : Lessons of the Persian Gulf War, p – XX .

Where as the impact of these high-technologies and weapons on U.S. defense budget and policy is concerned, it has been quite significant. The present study has observed the aspect how the successful performance of high-technologies and weapons have led to rethinking in U.S. defence establishment . Some of the important tenets of present U.S.defence policy which can be attributed to the experiences of the Gulf War in general and to performances of high-technology weapons in particular are as follows :

- ◆ Since the Gulf War major emphasis has been put on meeting the challenges of regional powers hostile to American interests. The basic assumption of all the defence policies-‘Base Force Restructure’, ‘Bottom-Up Review’, ‘Quadrennial Defense Review’, ‘Joint Vision 2010’ – has been to make U.S. capable of prevailing in two nearly simultaneous regional conflicts.
- ◆ After the Gulf War, U.S. defense policy makers have relied on developing and implementing advanced technologies to defend against future threats and deter prospective rivals from entering into a conflict with the US.
- ◆ The Quadrennial Defense Review’s decision to strike a balance between exploiting advanced technologies to enhance capabilities and maintaining a sufficient number of active forces and logistic support, the 1999 defence budget’s funds for provision to provide funds for the accelerated acquisition of new command, control, communications, computers, intelligence and surveillance and reconnaissance (C4ISR) capabilities, substantial provision for improvements in precision-guided munitions for all services, continued development of the ability to project forces over long distances, including the continuation of the airlift and sealift improvements from

previous years, are all the results of the successful performance of the high technologies and weapons during the Gulf War.

- ◆ Overall, there has been increased reliance on high-technology weapons and this has led to reduction in U.S. defence budget.
- ◆ Since the end of the Cold-war and after the spectacular performance of advanced technologies during the Gulf War, the U.S. defence policy makers have decided to place emphasis on development of new technologies and weapons because they are more than enough to meet the challenges of regional powers. The disintegration of USSR has reduced the threat of global confrontation and U.S. forces are quite capable of meeting challenges of third world nations. Otherwise, the decline of defence spending by 35% since 1985, with most of the fall since 1990, has no other justification.

However, the decline in U.S. defence spending and reduction in U.S. armed forces have raised alarm in some quarters. The reduction in armed forces is being attributed to over confidence of policy makers due to overwhelming victory by U. S. forces in Desert Storm. Iammes F Dunnigs and Ramond Macedonia call this the “Victory disease”: The Gulf war rarely reinforced the feeling that America did not need such large forces, they write, “Moreover, it was a surprise to most Americans to find out how competent their armed forciers were. So when victory celebrations were staged, the cheering crowds could not help but think”, we do not need as many of the really dynamite troops now that peace has broken

out”. Indeed, this has happened. There have been continuous decrease in the size of US armed forces and defence budgets since the Gulf War.

Finally , the present study found the issue of low casualties suffered by coalition forces during Operation Desert Storm very striking. From the beginning priority in planning Operation Desert Storm had been for minimising allied casualties. The successful use of high technologies and weapons did play a very crucial role in minimising allied casualties. Due to the speed of the conflict and the relatively low coalition casualties, some experts believe that this has raised the prospects of war without casualties. The arrival of nonlethal or disabling technologies have led some experts to argue that future war will be a massive video game, and can be undertaken surgically. But herein lies the most dangerous legacy of the Persian Gulf War: The belief that in the post-Soviet World with less threat of nuclear war, western military power can be used as an instrument of state policy. To some extent, this has been the case in Bosnia-Herzegovina and Kosovo. But casualties are casualties, however small. To draw the lesson that war without casualties has become possible and it must be used as an instrument of state policy is highly immoral. “Such a conclusion or lesson would not be supported by those who lost loved ones (on other side during the wars) or suffered grievous wounds.

Their deaths and sufferings were neither less painful nor was the sorrow of their families reduced because the war was technologically sophisticated. Nor would those who underwent the psychological stress of combat or suffered as an

indirect consequence of the war find complete solace in the stunning victory. Such a conclusion about future war would not only be military incorrect but also morally bankrupt”.⁵

⁵ “The Gulf Conflict: A Military Analysis”, *Adephi Paper*, No. 282, p - 82

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