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**Operation Allied Force**  
**Golden Nuggets for Future Campaigns**

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Maxwell Paper No. 27

MAXWELL AIR FORCE BASE, ALABAMA

August 2002

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## ***Foreword***

In this discerning assessment of Operation Allied Force (OAF), Lt Col Michael W. Lamb Sr. examines the myriad of lessons learned that have been written, and debated, from this campaign and synthesizes them into some golden nuggets for strategists and campaign planners. Indeed, there is much to be learned. From the beginning of the campaign, the military logic of OAF has been a matter of intense, even bitter debate. The problems and questions that arise from OAF are numerous and cut across the spectrum of military operations.

Colonel Lamb's examination of some key lessons learned provides nuggets that airmen need to remember in future campaigns. From the coalition operations and organization to targeting, from logistics to rapid response contingencies, these lessons are essential elements to be remembered in future campaigns. Each of these nuggets suggests discussion points for war fighters and planners. They are not intended to be critical, but to raise questions and suggest areas that should be examined and debated as part of the campaign planning process. The questions are the end items of an analysis of the lessons derived from OAF. Many of the lessons raised in this analysis are tough ones, but they should frame the strategic and operational issues to pursue during the course of any postconflict examination. All persons involved in this process must put aside parochial differences and personal pride, and answer the questions honestly. Duty to our nation demands nothing less.

Each war is different, and OAF was especially so. While it was chiefly an operation conducted from air and space, that does not mean that ground forces have now been relegated to secondary status or rendered obsolete. Hardly so. One must be cautious not to draw the wrong conclusions, particularly as the Department of Defense undergoes transformation.

OAF was successful largely because of the flexibility and training of a well-disciplined and joint team of soldiers, airmen, sailors, and marines. Though successful, enough uncomfortable lessons turn up from the OAF experience to

suggest that instead of attributing the success of OAF solely to airpower's solo performance, students and practitioners of air and space warfare should give careful thought to the hard work that lies ahead to bring to fruition air and space power's fullest potential in joint and combined warfare. The experiences in OAF indicate the need to continuously improve our strategy development and campaign planning. When one takes a look back at the OAF campaign, its most notable and distinct accomplishment was not that Slobadon Milosevic finally withdrew his forces from Kosovo, but rather that air and space power prevailed despite senior leaders' reluctance to take major risks and the North Atlantic Treaty Organization alliance held together.

As with all Maxwell Papers, we encourage discussion and debate of Colonel Lamb's important lessons--golden nuggets--from Operation Allied Force.



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## ***About the Author***

Lt Col Michael W. “Chox” Lamb Sr. is currently the commander of the 66th Mission Support Squadron at Hanscom Air Force Base, Massachusetts. His Air Force career includes tours in space and missile research and development engineering, technical engineering, flight-test engineering, intelligence operations and assessments, the National Intelligence Council, and the Air Force Doctrine Center and as an executive officer. Colonel Lamb has participated in or launched some 86 missile systems for research tests, including Atlas, Thor, Minuteman I, Minuteman II, Minuteman III, and Peacekeeper. He is the Air Force’s only fully qualified technical engineer on Minuteman I, Minuteman II, Minuteman III, and Peacekeeper missile systems. While attached to the 410th Bombardment Wing, he performed duties as a flight-test engineer responsible for developing new operational tactics for the B-52 Stratofortress and saw action in Operation Desert Storm. As the director of the Defense Intelligence Agency’s (DIA) Science and Technology Advisory Board, his hallmark performance on time-sensitive critical national intelligence issues was recognized with DIA’s highest award, the Director’s Medal. As chairman of the Science and Technology Intelligence Committee for Collections, National Intelligence Council, he published the “Science and Technology Gaps Study” and created an interactive database that provided analysts up-to-date databases for detailed intelligence assessments for which he received the Director for Central Intelligence Medal of Merit. Colonel Lamb is uniquely qualified to write on the lessons from Operation Allied Force due to his deployment to Joint Forge where he authored the report to Congress and subsequently incorporated many of the lessons learned into joint and Air Force doctrine publications. He also coauthored the White Paper on “Effects Based Operations” as part of the 2001 CSAF Billy Mitchell Doctrine Symposium. He has a master’s degree from West Coast University in astronomical engineering and from the Air War College (AWC) in national security studies. He is a graduate of the AWC Class of 2002.

# **Operation Allied Force**

## **Golden Nuggets for Future Campaigns**

*Operation Allied Force was a conclusive NATO and American military success.*

—Gen Henry H. Shelton  
Chairman  
Joint Chiefs of Staff

Operation Allied Force (OAF) provides the United States and our allies an opportunity to glean valuable insights about military operations as this century unfolds. As Secretary of Defense William S. Cohen stated, “Kosovo . . . illuminates in many ways how America and our allies and adversaries are going to approach the art of war well into the next century.”<sup>1</sup>

OAF was a successful undertaking. In fact, it was an extraordinarily successful military campaign by almost any measure. The operation achieved its stated strategic, operational, and tactical objectives and more. It has been called the “most precise and lowest collateral damage” air campaign in history. A total of 38,004 sorties were flown with all but two aircraft returning safely during 78 days of around-the-clock operations.<sup>2</sup> It is not difficult to argue that OAF was successful. The Serbs left Kosovo and the killing ended, North Atlantic Treaty Organization (NATO) forces are enforcing the peace, and refugees eventually returned to their villages and towns.

However, like any military operation, there are many lessons—golden nuggets—that need to be learned and applied to future campaigns. Of note, each war is different, and OAF was especially so. While it was primarily an air campaign, that does not suggest that land forces, “boots on the ground” will now be relegated to lesser status or rendered out of date. After OAF ended, airpower’s detractors lost no time in seeking to denigrate NATO’s achievement. For example, Lt Gen William Odom, USA, retired, charged that “this war didn’t do anything to vindicate airpower. It didn’t stop the ethnic cleansing, and it didn’t remove Milosevic”—as though those were ever the expected goals of NATO’s airpower employment to begin with.<sup>3</sup> Yet, because of the air war’s ultimate success

in forcing Slobodan Milosevic to yield to NATO's demands, the predominant tendency among most outside observers was to characterize it as a watershed achievement for airpower. One needs to be cautious not to draw the wrong conclusions, particularly as the Department of Defense (DOD) and its services embark upon a new round of transformation, shifting from a threat-based planning model to a capabilities-based model.

NATO proved to be flexible and adaptable during one of the most challenging times in its history. Despite the pronouncements of skeptics and critics, the alliance held together and proved its unity, resolve, and ability to defend its interests and values. Despite domestic pressure, geopolitical concerns over relations with Russia and China, refugee problems, and collateral damage, the nations of the alliance held firm and saw the operation through to a successful conclusion. Furthermore, 14 of 19 alliance members contributed forces to the operation, totaling 305 aircraft that flew more than 15,000 sorties.<sup>4</sup> Just as important, the alliance demonstrated the dramatic ability to quickly transform from the role of the war fighter to the role of the peacekeeper with the rapid implementation of the Kosovo Peacekeeping Force (KFOR) immediately following the cessation of hostilities.

There is much to be learned from the operation. The problems and questions arising out of OAF are many and cut across the spectrum of military operations. The efforts of OAF were successful primarily because of the flexible application of joint doctrine and training by a well-disciplined and cooperative team of soldiers, airmen, sailors, and marines.

### **The Campaign**

The OAF campaign was not a traditional military conflict. There was no direct clash of massed military forces. President Slobodan Milosevic of the Former Republic of Yugoslavia (FRY) was unable to challenge superior allied military capabilities directly. Therefore, he chose to fight chiefly through indirect means by

1. use of terror tactics against Kosovar civilians,
2. attempts to exploit the premium the alliance placed on minimizing civilian casualties and collateral damage,

3. creation of enormous refugee flows to create a humanitarian crisis, and
4. the conduct of disinformation and propaganda campaigns.

Milosevic's military forces were forced into hiding throughout most of the campaign, staying in caves and tunnels and under the cover of forest, village, or weather. He was forced to conserve his anti-aircraft missile defenses to sustain his challenge to our air campaign. He chose his tactics in the hope of exploiting our legitimate political concerns about target selection, collateral damage, and military operations against enemy forces intermingled with civilian refugees. His ultimate goal was coalition disunity; however, he failed despite all these efforts.

At the outset of the air campaign, NATO's mission statement was to "conduct air operations against military targets throughout the Former Republic of Yugoslavia to attack Serbian capability to continue repressive actions against ethnic Albanians in Kosovo."<sup>5</sup> From this mission statement, NATO set specific strategic objectives for its use of force in Kosovo that later served as the basis for its stated conditions to Milosevic for stopping the bombing. These objectives were to

1. deter Milosevic from continuing and escalating his attacks on helpless civilians and create conditions to reverse his ethnic cleansing and
2. damage Serbia's capacity to wage war against Kosovo in the future or spread the war to neighbors by diminishing or degrading its ability to wage military operations.<sup>6</sup>

At the outset of the campaign, Milosevic was not deterred from escalating the ethnic cleansing. Although there were expectations on the part of some that this would be a short campaign, the United States made clear to our allied counterparts that OAF could well take weeks or months to succeed and that the operation should only be initiated if all were willing to persist until success was achieved. Alliance leaders agreed in advance that if the initial strikes did not attain NATO's goals, NATO would have to persist and indeed expand its air campaign.

Originally, OAF was planned to be prosecuted in five phases under NATO's operational plan, which had been in development since the summer of 1998.

- Phase 1 – Deployment of air assets.
- Phase 2 – Establish air superiority over Kosovo and degrade command and control over the whole of the FRY.
- Phase 3 – Attack military targets in Kosovo and those FRY forces south of 44 degrees north latitude, which were providing reinforcement to Serbian forces into Kosovo. This was to allow targeting of forces not only in Kosovo but also in the FRY south of Belgrade.
- Phase 4 – Expand air operations against a wide range of high-value military and security force targets throughout the FRY.
- Phase 5 – Redeploy forces as required.<sup>7</sup>

A limited air response relying predominantly on cruise missiles to strike selected targets throughout the FRY was developed as a stand-alone option and was integrated into phase 2. Within a few days of the start of NATO's campaign, alliance aircraft were striking both strategic and tactical targets throughout Serbia as well as working to suppress and disrupt the FRY's integrated air defense system.

During OAF, US diplomacy had several objectives. The first was to ensure that NATO remained united and firm. To this end, the president, the secretary of state, and other US officials spoke almost daily with NATO counterparts throughout the 78-day campaign. NATO unity and resolve not only remained firm but also strengthened overtime. At the NATO Summit in Washington on 23 April 1999, alliance leaders approved intensifying the air campaign; allowed the target set to include military-industrial infrastructure, media, and other strategic targets; and announced the deployment of additional aircraft.<sup>8</sup> The alliance also clearly outlined its political conditions to end the operation. As proclaimed in the NATO Statement on Kosovo, President Milosevic had to

1. ensure a verifiable stop to all military action and the immediate end of violence and repression in Kosovo,

2. withdraw his military, police, and paramilitary forces from Kosovo,
3. agree to the stationing of an international military presence in Kosovo,
4. agree to the unconditional and safe return of all refugees and displaced persons, and unhindered access to them by humanitarian aid organizations, and
5. provide credible assurance of his willingness to work for the establishment of a political framework based on the Rambouillet accords.<sup>9</sup>

The second US diplomatic objective was to help directly effected countries deal with the humanitarian crisis and to prevent the conflict from widening. To this end, the secretary of state was in regular contact with her counterparts from the region. The United States, its NATO allies, and, in fact, many other countries and nongovernmental organizations from around the world contributed immense amounts of emergency assistance to help meet the needs of the tide of refugees then pouring out of Kosovo into neighboring countries.<sup>10</sup>

The third US diplomatic objective was to work constructively with Russia. History will show that, after a somewhat rocky start, the relationships between the United States and Russia, and between the NATO alliance and Russia, over the issue of Kosovo were maintained effectively over the course of operations. While there continued to be sharp differences with Russia over the conflict itself and the kind of international presence that would be required in Kosovo after the conflict ended, these differences did not preclude agreement on the conditions that Belgrade would have to meet to bring an end to the air campaign or indeed on the roles for Russian army units in the NATO-led KFOR.<sup>11</sup>

In the end, NATO proved to be flexible, effective, and ultimately successful during a uniquely challenging time in its history. Despite domestic pressures in many NATO nations, an enormous humanitarian crisis, and isolated instances of unintentional collateral damage, the nations of the alliance held firm and saw the operation through to a successful conclusion.

Some say that working within NATO unduly constrained US military forces from getting the job done quickly and effectively. It was no surprise that conducting a military campaign through an alliance would be a challenge. Nevertheless, OAF could not have been conducted without the NATO alliance or without the infrastructure, transit and basing access, host-nation force contributions, and, most importantly, political and diplomatic support provided by the allies and other members of the coalition. These immense contributions from NATO allies and partners, particularly those nations near the theater of conflict—Hungary, Macedonia, Bulgaria, Romania, Albania, and others—were in large part a dividend of sustained US and NATO engagement with those nations over the previous few years. This engagement, including vigorous participation in Partnership for Peace activities, helped to stabilize institutions in these nations so they were better able to withstand the tremendous burden inflicted upon them by the humanitarian crisis and the conduct of the operation itself.

Admittedly, gaining agreement among the 19 NATO nations was not easy and was achieved only through considerable dialogue and diplomacy. After the air war ended, Secretary of Defense Cohen conceded in a statement to the Senate Armed Services Committee, “It was very difficult to take 19 different countries and get an effective campaign under way without some bumps in the road.” Cohen concluded the alliance was “slow, in some cases too slow, to achieve a consensus” and labeled the problem as “self-inflicted wounds in asymmetric warfare.”<sup>12</sup> However, NATO held together and that became its greatest strength. It is true that there were differences of opinion within the alliance, and this is to be expected in an alliance of democracies. But building consensus generally leads to sounder decisions. If NATO—as an institution—had not responded to this crisis, it would have meant that the world’s most powerful alliance was unwilling to act when confronted with serious threats to common interests on its own doorstep.

It is important to remember that the alliance had been addressing this crisis through diplomatic activities and military planning for some time before the onset of the military campaign itself. Because NATO had been engaged in

trying to settle this conflict before military operations commenced; because it had conducted planning for the operation itself; because of its member nations' respect for differences of opinion and the need for consensus; and, simply, because the alliance is the most effective existing means for addressing European security issues; it was both natural and inevitable that the United States would work through NATO. Without the direct support of our NATO allies and key coalition partners, the campaign would not have been possible. There are, of course, golden nuggets to be found for our decision-making processes during crises and for alliance capabilities, but we must not forget the fact that NATO stood up to the challenge and succeeded.

Lessons learned from OAF will be gleaned for several years to come. The golden nuggets that follow are just a few, but they will be vital to our success in future crises, especially those that include coalition operations. Some of these lessons we may have forgotten from previous operations, and we must relearn them; others will carry us forward into this new century and help us to meet future challenges.

### **Golden Nuggets**

*It will be virtually impossible to use the devastating power of modern military forces in coalition operations to the fullest extent.*

—Gen Klaus Naumann  
DSACEUR and  
Chairman, NATO Military Committee

This section discusses 13 lessons learned from Operation Allied Force in detail. For the reader's convenience, the golden nuggets and the discussion are summarized in the appendix to this paper.

#### **1. Alliances and coalition forces are only as strong as their weakest elements.**

Having to get approval for targets from 19 different nations with varying levels of commitment to the operation made targeting difficult. The varying levels of commitment to the operation also led to security concerns that drove

the implementation of parallel NATO and US-only planning and air tasking order (ATO) processes.

OAF was a comprehensive coalition effort. Although the US contribution constituted the vast majority of the effort, 14 nations contributed forces to the effort, providing 305 aircraft that flew more than 15,000 sorties.<sup>13</sup> Furthermore, allied support was critical regarding host-nation support for basing and overflight access. The alliance sustained 78 days of around-the-clock operations, with 38,004 sorties flown while losing only two aircraft to hostile fire.<sup>14</sup> Both pilots were successfully rescued. The campaign achieved the most precise targeting results with the lowest collateral damage in history. OAF was a success; it met the campaign objectives of the commander in chief (CINC) and the joint force commander (JFC).

While recognizing that “gaining consensus among 19 democratic nations is not easy and can only be achieved through discussion and compromise” and that “there were differences of opinion within the alliance,” both Secretary Cohen and Gen Henry H. Shelton stressed that “the NATO alliance is also our greatest strength.”<sup>15</sup> They also noted that “building consensus generally leads to sounder decisions.”<sup>16</sup> Every alliance nation has its own interests and viewpoint based on its history, tradition, economic development, and other considerations. The key in alliance or coalition building is to find the common ground and reach consensus.

Gen Wesley Clark, supreme allied commander, Europe (SACEUR), acknowledged that “every single nation had a domestic political constituency, and every single nation had a different set of political problems. In some there were government coalitions. In others there were historic relationships. Some bore the agony of defeat in a previous conflict and the word ‘war’ couldn’t be mentioned. Others were long-standing partners with American efforts elsewhere in the world.”<sup>17</sup> However, he also noted that “despite their differences, the allies pulled together and their cohesion and resolution got stronger.”<sup>18</sup>

General Clark also noted despite differences among alliance members that hindered the conduct of “a more rapid, overwhelming campaign with more strike power,” the fact remained that “sustaining unity in the face of ef-

forts to destabilize the countries around Yugoslavia, a sustained propaganda campaign, ethnic cleansing, and the efforts of certain nations to halt our actions sent a powerful message to the international community [which was] that NATO stood together, we could win, and we would win.”<sup>19</sup>

With regard to the use of force Clark said, “Once the threshold is crossed and you are going to use force, that force has to be as decisive as possible in attaining your military objects.”<sup>20</sup> However, he also observed that with regard to OAF, the consensus of 19 nations was required to approve action, and many countries had preconceptions about how to apply force.

Gen Klaus Naumann, former deputy supreme allied commander, Europe (DSACEUR) and chairman of the NATO Military Committee, confirmed General Clark’s views stating that to conduct coalition operations one has “to accept that the pace and the intensity of military operations will be determined by the lowest common denominator and that there will be restrictions due to differing national legislation.” General Naumann also pointed out that coalitions have difficulty responding rapidly to situations when, as he put it, “The slowest ship determines the speed of the convoy.”<sup>21</sup>

## **2. Timely tactical and operational intelligence is a constant requirement.**

*There has to be a commitment to acquire aircraft which are intelligence, surveillance, and reconnaissance aircraft—the so-called ISR. We had a shortage of that capability and when you have a shortage of that capability; it also impacts on your ability to deliver precision-guided munitions. So the two act in concert.*

—William S. Cohen  
Secretary of Defense

For coercive operations to be successful, relevant, timely, and predictive, intelligence is required. Knowing what would cause Milosevic to back down was a problem right from the start of OAF. It was the majority opinion within NATO that three days of punitive strikes would be enough to force Milosevic to concede, but the majority was wrong.

Collection and battle management of air and space intelligence, surveillance, and reconnaissance (ISR) assets were extremely effective, but there were shortfalls in the number and

capability of platforms, communications, and personnel that limited intelligence capabilities. These shortfalls allowed for situational awareness but often came up short on target-level information. The coalition was largely unable to “see the battlefield” to the detail needed to impact the operations of Serb ground forces.

All US service components have shortfalls in trained intelligence analysts, particularly in imagery interpreters and linguists. These shortfalls hampered intelligence support to force protection, threat warning, targeting, battle damage assessment (BDA), and situational awareness. They highlight the need for increased theater ISR platforms, a dedicated ISR communications structure, and more trained personnel to provide intelligence support to operations across the full spectrum of conflict.

**3. Gaining and maintaining the initiative in the information operations arena, especially public affairs, are critical.**

*IO was both a “great success . . . and perhaps the greatest failure of the war.” IO is “not yet understood by war fighters [and is] classified beyond their access.” A properly executed information operation “could have halved the length of the campaign.”*

—Adm James Ellis Jr.  
Commander  
Joint Task Force Noble Anvil

Despite OAF being called one of the most precise air operations ever and having one of the lowest collateral damage to bombs dropped ratios in history, Milosevic took the initiative in the information operations (IO) arena by exploiting the few instances of collateral damage. In what might be labeled the “moral hardening of targets,” he flooded the media with pictures and information portraying the effects on the civilian populace. Public affairs (PA) needs to be part of the planning from the beginning. Commanders need to involve PA early in the campaign planning process, even before the start of the operation, and they must stay ahead of the crisis event curve by dealing with bad news openly, quickly, and accurately (e.g., the Chinese Embassy bombing).

Information operations played a major role in OAF. The Serbian “information isolation” strategy and well-practiced

propaganda campaign limited our ability to influence the Serbian population against its leadership. On the opposite side, our IO efforts maintained strong resolve within NATO and contributed significantly toward FRY capitulation.<sup>22</sup> National IO policy and resource limitations precluded a robust, continuous IO campaign in advance of hostilities. An earlier, more comprehensive IO campaign led by an inter-agency team might have contributed to earlier compliance with the March 1999 Rambouillet accord.

Information operations must be fully integrated into all theater operations and engagement plans. These need to be thoroughly detailed in deliberate and crisis action plans as well as becoming an essential part of all exercises. We must restructure our organizations to incorporate IO considerations and tactics at every level. IO should be imbedded within all campaign plans. When a crisis develops, information operations should be part of the operation in every aspect, from policy discussions to routine logistical efforts.

During an actual crisis or operation, information operations planning must be continuous. Channels of communication must be exercised daily. Constant feedback is required to determine means and methods that are having the greatest effect (i.e., a form of IO battle damage assessment). In addition, we need to address organizational structure, as these efforts will require additional permanent IO manning throughout.

A capability to intrude on the propaganda machine that holds such regimes as Milosevic's in power needs to be developed, exploited, and enhanced. Better programming that will capture an audience is required if the IO effort is to be more than a technology oddity for the targeted population. Through satellite systems, or more powerful airborne systems, this capability can be extended, allowing for complete disruption of enemy propaganda and the injection of truthful information across an entire country. Overall effectiveness of IO is difficult to assess. However, the fact that by the end of OAF Milosevic had to contend with revolt in some of his cities and discontent within the ranks of his armed forces (themes advanced by the leaflet and broadcast campaign) is impossible to overlook.

Early synchronization of alliance IO capabilities and greater alliance interoperability, combined with an established mechanism to provide a type of BDA of IO and psychological operations methods, will allow adjustments as the campaign progresses and will greatly improve IO effectiveness. We need to include IO measures of effectiveness (MOE) and IO BDA requirements during planning at every echelon and to ensure that IO MOE and BDA requirements are resourced and tasked in intelligence collection plans and tracked during execution. We should leverage existing technology and software to create unitary BDA reporting and tracking that incorporates target data, target folder, reconnaissance data, mission data and reports, and combat video.

Admiral Ellis noted, "One important lesson learned is that IO should not be confined solely to periods of crisis or conflict. Rather, IO activities should be continuous and must be integrated with campaign plans and targeting activities from their inception. The cessation of hostilities does not result in an end to IO planning and execution; rather, it simply signals the commencement of a new phase. Maintaining a robust IO during peacetime can potentially avert a crisis and the need for combat. Maintaining continuous IO ensures the presentation of a consistent message, regardless of the mode, which is critical to success."<sup>23</sup>

Thus, we should ensure all operational plans (OPLAN), concept plans (CONPLAN), and functional plans (FUNCPLAN) have a complete and integrated IO plan in their annexes. We should include IO in all exercises under various conditions that include operations under severe information degradation. Plans must include defining end-states, especially after cessation of hostilities, which in IO often will flow from the post-hostilities phase into the redeployment phase.

**4. No matter how wedded to strategic targeting the combined forces air component commander is, if the CINC, president, or secretary of defense is not supportive, it will not work.**

*Once the threshold is crossed and you are going to use force, that force has to be as decisive as possible to attaining your military objects.*

—Gen Wesley Clark  
SACEUR

The combined forces air component commander (CFACC) during OAF wanted to conduct a hard-hitting strategic operation right from the start. Facing political necessity, the CINC and the political leadership constrained the CFACC. As the operation continued and it became apparent that incrementalism was not the answer, splintering appeared between the CFACC and the CINC. In the end, the CFACC, as the subordinate, must know when to salute smartly and then conduct the operation within the guidance.

It must be noted that at no time in the OAF target development process did targeting personnel shy away from selecting targets because they were considered unlikely to receive approval due to risk or political sensitivity. Under joint doctrine the target development process considers all potential facilities that meet CINC objectives and guidance.<sup>24</sup> These facilities make up what is characterized as a master target file (MTF). Following MTF development in OAF, a full workup that contained an assessment of military significance and collateral damage, including unintended civilian casualty estimates (UCCE), was done for each target. At this point, all of the MTF targets were forwarded to the JFC and ultimately to the CINC, who passed them to US, NATO, and allied political leadership for approval.

The United States needs to conduct a complete review of the benefits of effects-based operations as a method to more effectively achieve the desired outcome. No matter how quickly the military decision cycle can be completed (target approval to strike), it will always be governed by the speed of the political decision cycle. This is truer for an alliance/coalition where decisions can be cumbersome. Any future agile and intelligent enemy will understand this.

The United States must examine the targeting process and determine areas where the process can be streamlined and speeded up. This may require improving the system for target approval at the highest levels as encountered during OAF. Improvements in this process could be accomplished through preapproved target packages, essentially getting all targets identified prior to execution, or through scheduling high-level target review on a regular basis, so the operational commander would know in a matter of hours vice days whether a target was approved.

Another approach to speeding target approval would be to delegate this authority to the operational commander as much as possible. Limited target approval authority was granted to the commander in chief, Europe (CINCEUR), after two weeks of the OAF campaign. This streamlined the approval process and allowed the operational commander more flexibility on the battlefield, but it still complicated prosecution of targets.

The United States cannot limit itself in future conflicts to an air-only targeting methodology. True effects-based targeting needs to include provisions for target engagement by all available systems to preclude unnecessary lengthening of the conflict. Multiple-Launch Rocket System, attack helicopter, gunship, naval gunfire, and special operations forces all need to be included in the targeting process when available. Our goal in any conflict is to end the conflict as quickly as possible on terms favorable to the United States and its allies. Artificially limiting the resources available to the combatant commander only lengthens the conflict and makes the enemy's job less complicated.

As a final point, target approval decisions were based on an unproven method of determining unintended civilian casualty estimates that continually overestimated the number of civilians at risk. This potentially discouraged approval of valid military targets. There is a need for a formalized UCCE methodology using actual civilian casualties from OAF, along the lines of the tier analysis used for collateral damage, to allow decisions to be based on more realistic estimates.

#### **5. Proper preparation of war-fighting commanders is critical.**

“Combat is not the first time for one to train in new procedures. Training should be accomplished before engagement.”<sup>25</sup> Commanders need to be as well versed in how to conduct military operations other than war (MOOTW) as they are in conducting unlimited conventional war. The highly restrictive rules of engagement (ROE) and politically motivated targeting process implemented during OAF more closely resembled MOOTW than the level of effort otherwise indicated by the Air Force. In fact, Air Force leadership felt that the level of effort was the equivalent of a major theater war in terms of assets used.

Air Force Lt Gen Marvin R. Esmond noted, “The sum total of OAF and ongoing contingency operations equaled a Major Theater of War (MTW) level of effort for many portions of the Air Force. The combined effects of a smaller force structure, reduced forward basing, and a high level of ongoing steady-state contingency operations created severe and lasting impacts on some USAF units and personnel.”<sup>26</sup> The CFACC and the planners in the combined air operations center (CAOC) had difficulty applying their training for war, strategic attack, and effects-based operations to this MOOTW scenario. Operations in the future are more likely to resemble OAF than Operation Desert Storm, highlighting the need for more preparation.

Joint Task Force Noble Anvil was not formed around a predesignated (and trained) theater staff. In fact, our models have focused on training and planning for “three star” joint force air component commanders (JFACC) only, but major coalition operations of this magnitude require decisive and senior US leadership “(four star).” Allied Forces Southern Europe/commander US Naval Forces, Europe (AFSOUTH/CNE) was uniquely positioned to synchronize US and alliance operations in this operation, and the commander in chief, US Naval Forces, Europe (CINCUSNAVEUR) staff, largely surface-centric, formed the core cadre. This was an effective measure, even though OAF was mainly an air-centric operation, but it was not optimal and shows the need for changes in manning, infrastructure, and training.

Planning should include fully functional joint task force (JTF) and component staffs using preidentified facilities with necessary connectivity and standardized operating procedures. An augmentee database and training program should also be developed to more quickly transition into a task force and facilitate deployment schedules. One crucial factor is that these JTFs also have a predeveloped and detailed information management plan and a command, control, communications, computers, and intelligence (C<sup>4</sup>I) facility that includes the staff, components, and alliance members.

**6. Logistics is a key concern for an expeditionary force.**

*Conducting military operations in far-away places with technology and tactics that greatly reduce the potential for loss of American lives is necessary, but expensive. It consumes supplies, wears out equipment, and tests the ingenuity of even the best-trained military in the world.*

—Lt Gen John W. Handy  
Deputy Chief of Staff  
Installations and Logistics

As OAF grew in intensity and the restrictions on collateral damage became tighter, stocks of precision-guided munitions (PGM) were quickly depleted, putting a strain on the supply system. Use of older weapon systems with their higher maintenance costs also stresses the supply chain, which can impede effectiveness. An additional burden on the logistics system occurred because of the long distances tankers had to fly as well as their reliability. To ensure strike packages were supported, extra tankers had to be launched, depleting fuel and tanker parts.

Munitions supply/resupply met the needs of OAF. However, shortages were developing in precision munitions, especially with respect to joint direct attack munitions (JDAM), AGM-130s, and shipboard supplies. If the air campaign had continued for more than 30 additional days, the complete depletion of the US inventory of these munitions would have resulted.

When the in-theater requirement is expanded to what a MTW would require, resupply capability is a major concern. This issue attracted Joint Staff attention because the requirements during operations diverted PGM stocks from other CINC regions. It was also raised at the Joint Warfighting Capabilities Assessment and Joint Requirements Council reviews.

Finally, the Joint Operation Planning and Execution System (JOPES) does not currently provide inherent visibility on what capability has closed from a deploying force. When a unit line number (ULN) is used to represent a unit, the ULN does not show closed in JOPES until the entire ULN is closed. Senior leadership requires a process to rapidly determine what specific forces of a unit have closed. Such a process would allow for an exact determination of when a unit is combat ready and highlights a need for improvements in in-transit visibility (ITV) capabilities. There

are currently insufficient doctrine, policy, and plans for intratheater ITV and a lack of theater infrastructure to support ITV. Inability to capture data accurately and expeditiously at the source is a major impediment to achieving ITV and asset visibility. The lack of theater ITV doctrine and supporting policy leads to ad hoc planning that results in fragmented theater ITV. Lack of adequate feeder systems and associated communications support preclude timely capture and transmission of ITV data to the Global Transportation Network (GTN). Lack of data or delays in receiving data, in turn, adversely affected airfield and seaport planning and management.

**7. Basing is a primary concern for expeditionary forces.**

As noted by the National Audit Office, in OAF even a comparatively small force of strike aircraft—the equivalent of just two squadrons—needed a surprising number of bases. “Although each basing decision may have made sense individually, as a whole the result was to complicate support.”<sup>27</sup> Global reach can reduce the need for forward bases but not completely. Gaining access to adequate bases is a fundamental requirement for success for an expeditionary force. However, with access come potential restrictions. Host nations maintain veto power over US aircraft operating out of bases on their soil. Also, bases that the United States had access to were often far from the fight, putting a strain upon aircraft, aircrew, planners, and the logistics system.

The United States has dramatically decreased its overseas basing of military forces since the end of the Cold War. Consequently, the success of US military operations around the world often hinges on the combat capability of the few forces already in theater and on US ability to rapidly deploy forces to distant conflicts or hot spots. For very small operations, a deployment of forces from within the theater might be adequate. However, such large campaigns as OAF require deployment of military units from the continental United States (CONUS) or from other theaters to augment the forces on hand. In such situations, transportation planners must rapidly develop movement schedules for the deployment of these forces. For OAF, planners

drew upon forces deployed worldwide, including forces based in the United States. Even with an extremely compressed planning timeline for the operation and vast distances to move, the deployment of US forces to OAF was, from an overall standpoint, successful.

Bedding down and employing such a massive force were challenging. Despite Partnership for Peace, NATO, and other organizations, there were issues that, although eventually solved, initially delayed or beleaguered operations. Host-nation support is a complex, diverse, and diplomatic long term set of negotiations that, in many cases, are often never satisfactorily finalized. Avoiding these problems in future conflicts could be possible by developing appropriate checklists to ensure international agreements address critical host-nation support for military plans and contingencies. Suggestions for the content of such a checklist, though not exhaustive, include designated points of entry and departure, customs, overflight authorization, use of radio frequencies, air traffic control, blanket diplomatic clearances, basing rights, facility access agreements, coalition contracting procedures, connectivity, force protection, site surveys and update process, site explosive material handling plan, and weapon storage. Implementation of such agreements would facilitate quick access and assist in rapid deployment, rapid employment, and immediate sustainment. Each of these areas has unique challenges and some mutually exclusive areas of concern. Rapid employment and immediate sustainment necessitate more extensive efforts with customs and diplomatic clearances than do rapid deployment concepts. Base infrastructure support for rapid deployment is not as extensive as support requirements for rapid employment and immediate sustainment.

In OAF the austere transportation infrastructure—airports, seaports, roads, and railroads—in and around Albania limited deployment options and increased deployment timelines. Poor infrastructure conditions, most likely the norm in future conflicts, slowed aircraft turnaround times, limited throughput at the ports, and slowed onward movement of forces and humanitarian supplies. Such problems can be mitigated to some extent by an early assessment of infrastructure limitations. This enables proper matching of

transportation infrastructure capability to operational requirements. As a result, deployment packages can be optimized and required transportation support can be more efficiently allocated. In preparation for deployment, US Air Forces Europe (USAFE) conducted extensive beddown planning by surveying, preparing, and publishing new beddown assessments for 27 sites in 11 NATO and Eastern European countries.<sup>28</sup> These assessments were critical and allowed logistics planners from deploying units to reduce the equipment necessary for deployed operations. This, in turn, decreased the requirements for both intratheater and intertheater airlift. However, there were still instances where deploying units brought more capability than required, which needlessly increased airlift sorties. It is critical that deployment planners obtain all necessary information on potential beddown locations as soon as possible. In addition, assessment teams should be given better training and more useful tools to gather and distribute information to effected units.

In contrast, ground and sea infrastructure capabilities were not assessed until later in the operation. As a result, planners lacked sufficient information to make informed decisions about the desirability of employing additional capabilities such as Joint Logistics Over-the-Shore or strategic sea lift. Similarly, the CINC or JFC could have deployed engineers or planners to deploy things they plan and mobilized contractors to enhance the transportation infrastructure as necessary. Decisions to deploy these forces need to be made early in the operation to increase transportation throughput capacity.

**8. As technology improves, the effects of collateral damage and losses of friendly forces increase, impacting friendly centers of gravity.**

*As a cautionary note, given the severe restriction on collateral damage, it was noted that precision guided is no longer "good enough."*

—Adm James Ellis Jr.  
Commander  
Joint Task Force Noble Anvil

As the public becomes more accustomed to bloodless conflicts where no (or few) friendly personnel are lost and

the loss of lives on the enemy side, especially for civilians, is extremely low, any loss of friendly forces or collateral damage takes on greater importance. The inadvertent damage to a hospital in downtown Belgrade had the effect of stopping all bombing within the city. These restrictions make it harder for commanders to conduct reasoned campaigns to achieve desired results.

It is a major tribute to US and NATO air forces in Kosovo that there were no aircrew combat losses in 38,004 sorties, minimal casualties due to accidents, and no cases of fratricide or “friendly fire.” NATO lost only two men in a training accident during an intensive 11-week campaign, much of it flown out of austere bases, in poor weather, and in mountainous terrain.

The problem with such success is that it may help create unrealistic expectations and demands for “perfect” or “bloodless” war. It is far from clear that the US public really does demand few or no casualties: public opinion polls strongly suggest that Americans will accept casualties if they believe in the war or peacekeeping mission and the quality of its leadership, and if they believe American men and women are properly equipped and supplied. Somewhat ironically, American politicians and the media seem to be more sensitive to casualties per se than the public.<sup>29</sup> Nevertheless, there is no casual tolerance of casualties by either the American public or that of any other member of NATO.

This is not to make an argument for more casualties, but it is a strong argument for the DOD to better educate the public in the true risks of war through the use of public information campaigns that stress the real-world risk of casualties throughout any conflict. Wars like Kosovo may be training political leaders, military planners, the media, and the public to treat every casualty as a mistake and any significant number of casualties as failure. Such thinking can ultimately become a critical political and operational constraint on effective action, as well as leading policy makers to underestimate the risk of using force. The risks are obvious:

- Over commitment because risks are minimized.

- Rules of engagement that reduce losses but reduce military effectiveness even more.
- Political and strategic vulnerability to even minimal losses.
- Exploitation of the above by US adversaries.

In the specific case of Kosovo, there is also a good argument for reviewing such operational constraints as the altitude ceilings imposed during the war. Effective military planning and operations cannot simply accept some set of rules because the issue is controversial and the trade-offs are difficult to analyze. If “minimal casualties” is becoming a rule of Western-conducted warfare, planning and operations must treat the issue honestly and explicitly. These points are reinforced by the political and strategic impact of collateral damage on OAF. NATO made a detailed effort to review the range of possible collateral damage for each target and to plan its strikes so that the weapon used, the angle of approach, and the aim point would minimize collateral damage. This process was so exhaustive that NATO often had more strike aircraft available than cleared targets, and many important targets were avoided or repeatedly sent back for review.

Collateral damage presents other problems, including the issue of how to count and assess collateral damage and how to treat the issue during and after a conflict. There is no way to know how many cases occurred in which collateral damage of some kind took place by the time the war ended. Nevertheless, one lesson is that exaggerated or false claims regarding collateral damage may well come back to haunt the United States and its allies. There have already been many critical assessments of the impact of the bombing and missile strikes by those on the ground.<sup>30</sup> For example, peacekeeping forces have found numerous unexploded bomblets from US cluster munitions scattered over the areas that NATO attacked. US cluster munitions have presented this problem since Vietnam, and anyone who visited the sites of air attacks during the Gulf War saw large numbers of cluster munitions scattered about. Subsequently, the use of cluster munitions was halted during the campaign due to political pressure.

The United States and its allies will also face a climate in which wartime reporting on collateral damage can be expected to steadily improve, and in which any hostile power or movement will use collateral damage and targeting errors as a political weapon—often creating its own “myths” and false images of such damage when these are politically desirable. Like it or not, collateral damage has become a weapon of war.

**9. Commanders need to keep all options open when conducting an operation.**

*Kosovo . . . illuminates in many ways how America and our allies and adversaries are going to approach the art of war well into the next century.*

—William S. Cohen

Because the United States announced ground forces would not be used, the Serbs gained some freedom of movement they would not have otherwise had. The lack of a land component also restricted NATO’s ability to operate. Without a land component, the JFC and the CFACC did not have a viable intelligence preparation of the battlespace (IPB) capability with respect to fielded enemy forces. The Air Force provides great IPB for operational and strategic targeting but relies upon the Army to provide the tactical-level IPB. The lack of tactical-level IPB hampered the JFC’s ability to carry out the CINC’s guidance to strike fielded forces.

Regardless of conflicting interests among alliance members, another key to success is to preserve uncertainty in a potential opponent’s mind. One way to accomplish this is to keep all options open. As noted by General Naumann, NATO did not do this. Rather, when NATO began to prepare for military options, some alliance members ruled out the use of ground forces and did so publicly. According to General Naumann, “This allowed Milosevic to calculate his risk and to speculate that there might be a chance for him to ride the threat out and to hope that NATO would either be unable to act at all or that the cohesion of the alliance would melt away under the public impression of punishing air strikes.”<sup>31</sup>

Testifying before the Senate Armed Services Committee, Admiral Ellis, commander of Joint Task Force Noble Anvil, stated that ruling out the use of ground forces “probably prolonged the air campaign.” He also noted that Task Force Hawk represented Milosevic’s “worst nightmare.”<sup>32</sup> Gen Montgomery Meigs, commanding general, US Army Europe, stressed much the same thought during his 30 June 1999 appearance on ABC’s *Nightline* when he indicated that the presence of Task Force Hawk no doubt made Milosevic reposition his forces along the Kosovo-Albanian border and rethink NATO’s intent.<sup>33</sup>

In conjunction with preserving uncertainty, another lesson learned concerning military power is that an alliance should never threaten the use of force unless fully prepared to immediately use it. In the spring of 1998, long before any consensus existed among the NATO members, NATO ministers began threatening the use of force to end the fighting in Kosovo. Unfortunately, according to General Naumann, NATO was not prepared to intervene militarily at that time, a fact of which Milosevic was well aware. Accordingly, he continued his offensive against the Kosovo Liberation Army.

**10. Expeditionary capability, power projection, lift, and sustainability are crucial to rapid response contingencies.**

OAF demonstrated that the United States and its allies have very different levels of expeditionary capability and strategic lift. The United States provided almost all of the dedicated military air and sea lift used during the campaign. It was clear that the United States had a distinct advantage in many areas of expeditionary capability, although some of its services proved more capable than others.

Further, OAF demonstrated the value of Air Force planning for rapid deployment of expeditionary packages. However, the Air Force was forced to use over 90 percent of its total expeditionary assets in a war in which it could operate securely from highly advanced friendly air bases. Serious questions exist about the size of the planned inventory of expeditionary assets. Current plans need to be reviewed to determine whether they provide enough forces and equipment. The United States needs to make a compre-

hensive review of its rapid deployment and expeditionary capabilities, and create the capabilities it needs.

There was a tendency outside the US European Command (USEUCOM) theater to view OAF as a short-duration operation rather than a full-fledged campaign. This view often caused frustration and hindered efforts to acquire the necessary assets for the theater of operations. It was noted that the requirement to adhere to the Roberts Amendment imposed significant limitations at the beginning of the campaign that hindered our ability to deploy and prepare properly.<sup>34</sup>

US ground troops were not allowed into the Former Yugoslavian Republic of Macedonia to integrate and prepare with other NATO forces. Site surveys of Albania and other countries were delayed, preventing proper transportation requirement and capability analysis. The application of peacetime global military force policy and global naval force presence levels delayed the deployment of critical EA-6Bs, joint surveillance, target attack radar system (JSTARS), and other assets. Not having a carrier battle group in the area of responsibility at the start of the campaign was particularly difficult. Given the level of effort required to successfully execute such a campaign, all wartime allocations need to be reviewed in relation to a major theater war. This is especially true of such high-demand/low-density assets as the EA-6B and carrier battle groups.

Although the Roberts Amendment was not renewed by Congress and is no longer applicable, demands placed upon the military by congressional legislation often have significant impact on our capabilities and options. It is important that the military effect of such limitations be clearly understood and articulated to national decision makers. We need to identify better “triggers” to allow a quicker transition to wartime levels. Wartime levels must be reanalyzed for adequacy, and assets must surge faster to meet theater requirements.

**11. Video teleconferencing was indispensable as a battlefield synchronization tool and greatly improved communication at the highest levels, but there are dangers in its use.**

As General Clark stated, “Used properly, video teleconferencing (VTC) is a powerful tool, one that can shorten decision cycles dramatically. During OAF video teleconferencing was indispensable as a battlefield synchronization tool and greatly improved communication at the highest levels.”<sup>35</sup> However, unwritten VTC guidance is subject to misinterpretation as information and guidance filters down to lower staff levels, and VTCs, unfortunately, draw senior leaders into lower-level decision processes. In the case of OAF, senior decision makers were involved at a level of detail normally reserved for the operators. This occurred for three reasons: the risks were high, the payoffs tenuous, and simply because they could. Discipline is required by senior leaders to ensure that they function at the appropriate level of engagement and command and control.

The management of information and the ability to rapidly exchange key information between all forces played a vital role in the execution of OAF. Connectivity within the theater was adequate to support the effort. However, the demand on the system rose as various sites occasionally overloaded, and it caused system failures. The use of web technology helped the sharing of information throughout the campaign.

NATO commanders used VTC for the first time as a major instrument for exercising command and control. Daily commanders’ video teleconferences were held to review progress of operations, coordinate future operations, and promulgate intentions. These conferences spanned the chain of command from the SACEUR to the JFC and onward to component commanders. In other words, the conferences spanned the strategic, operational, and tactical levels of command, thus greatly compressing normal command and control processes. As a result, strategic and operational commanders were able to directly influence tactical operations. Joint Vision 2020 anticipated these phenomena—from use of technologies such as video teleconferencing—by observing: “Higher echelons will use these technologies to reduce the friction of war and to apply precise centralized control when and where appropriate. Real time information will likely drive parallel, not sequential planning and real time, not pre-arranged, decision making. The optimal balance between centralized and decentralized command and control will have

to be carefully developed as systems are brought into the inventories."<sup>36</sup>

The ability of high-level commanders to influence tactical operations directly had positive as well as negative aspects. Among the positive developments was the speed with which commanders and key staff officers could perform essential coordination. One critical challenge is the timely documentation and dissemination of the most essential items of the VTC, such as the commander's intentions, to those key personnel who did not attend. A thorough review should identify improvements that can be made in the use of VTCs as a major tool for exercising command and control. Where appropriate, revisions to doctrine should be incorporated. The compression of time in exercising command and control made possible by VTC and other technologies is already a topic for joint experimentation.

**12. Coalition operations present significant interoperability problems when alliance members have disparate technological capabilities.**

"Because of the growing need to disseminate large volumes of information and data quickly, especially with regard to transmitting high-priority imagery of emerging targets, ground-based communication capabilities must be improved."<sup>37</sup> Problems with connectivity between NATO and US systems often plagued rapid effective information sharing. Improvement in sharing information requires development of a multi-level security (MLS) system that will also resolve connectivity problems and establish clear policy guidance to facilitate information sharing within the NATO alliance. At the start of the campaign there were only two fully operational Standardized Tactical Entry Point (STEP) sites within the theater that provided critical access to the Secret Internet Protocol Router Network (SIPRNET), the Non-Classified Internet Protocol Router Network (NIPRNET), the Defense Switched Network (DSN), and other essential communications. The STEP sites would have been overwhelmed if they had not been supplemented by the rapid installation of two more sites by accelerating the contracted schedule.

Expanded air operations could not have been supported without commercialization of forward bases. Commercial-

ization of communications at forward operating locations was the single biggest factor that ensured the war fighter had communications throughout the conflict. The lack of joint, secure digital communications capability was a key shortfall, which prevented “sensor to shooter” transmission of targeting data and impeded targeting of emerging, relocatable, and time sensitive targets (TST).<sup>38</sup> Surface, air, and space sensors need a capability to transmit target data in real time to platforms or PGMs poised to rapidly engage emerging targets. An example would be allied artillery radar locating enemy artillery then being able to send target coordinates directly to strike aircraft overhead.

Maintaining operational security is more challenging and complex than ever given the speed of information transfer enabled by the World Wide Web and the myriad of such 24-hour news agencies as Cable News Network (CNN), Fox News, and Microsoft National Broadcasting Company (MSNBC). Inadvertent or deliberate exposure of information in CONUS can have immediate impact on the modern battlefield.

Federated architecture and collaboration greatly contributed to the overall targeting success in OAF. Web-based technology facilitated the movement and sharing of TST data among all key nodes in the target development and exploitation federation. SIPRNET and Linked Operational-Intelligence Center Europe (LOCE) infrastructure were the primary information systems used by the US and NATO operations planning community. Many of the collaborating organizations participating in the targeting process lacked sufficient SIPRNET or LOCE terminals to engage fully in the process. Federation and collaboration could be greatly enhanced, and response time on mission essential targeting reduced, if SIPRNET and LOCE infrastructure were more robust and more terminals made available at CONUS locations participating in the federation process. An alternative is to tie SIPRNET and LOCE into other systems used for collaborative targeting. CONUS-based federated partners must ensure their locations have sufficient connectivity to support a theater’s combat operations.

**13. Shortages of preferred precision-guided munitions posed a significant threat to overall success of the operation.**

PGMs were employed in OAF at a much higher rate and in much higher proportions than previously anticipated for small-scale contingencies. Allied forces were neither as well equipped with PGMs nor as well trained to use them as were US forces. The Air Force expended more than 25,000 bombs and missiles during OAF of which nearly 8,500 were PGMs, and these became a contentious commodity.<sup>39</sup> In the end, low theater inventories threatened the OAF mission, and this in turn required resupply from other theaters, which put those theaters at risk.

Technology allowed the United States to own the night, but poor weather created sanctuaries and operational lulls. During OAF there was greater than 50 percent cloud cover more than 70 percent of the time (and it was not the worst season of the year). As General Clark noted, "Precision Guided Munitions (PGM) proved very effective and demonstrated immense potential by allowing highly accurate strikes while minimizing collateral damage and civilian casualties."<sup>40</sup> He also commented that "of particular note was the success of the Joint Direct Attack Munitions (JDAM). This low cost, highly accurate weapon provided the capability to strike during adverse weather conditions."<sup>41</sup> It should be noted, however, that the expenditure of JDAMs equaled the production rate. PGMs were indispensable in their ability to hit high-value targets in urban areas while minimizing collateral damage. Future operations will rely more heavily on PGMs. PGM stocks and funding must be increased to a level required to realistically support combatant commander requirements for contingencies, training, and MTW readiness.

OAF corroborated the requirement to maintain and fund nonprecision weapons and platforms. The accuracy of nonprecision platforms using Global Positioning System (GPS) satellites and other means has reached the point where "nonprecision" is almost a misnomer. These munitions were highly successful in attacking many high-priority targets not suitable for PGMs, such as fielded force staging areas, large military storage complexes, and airfields. This nonprecision capability was also critical during the final days around

Mount Pastrik when Serb forces massed to engage the Kosovo Liberation Army.

Deep underground targets posed a great challenge during the campaign. There were leadership bunkers that could not be taken out due to their depth, reinforcement, or location in highly populated areas. Development of better penetrators remains a priority. The success of all-weather PGMs in this campaign is well known and documented; however, a more robust all-weather PGM capability is still required to prevent weather from providing an enemy sanctuary. There is a need to continue improvement in ability to strike through bad weather.

### **Conclusion**

After full consideration at the highest levels, strikes on the enemy homeland may be inevitable and mandatory in future wars. An enemy will possess key facilities within its territory that are integral to its war effort. These targets could include political and military leadership, weapons of mass destruction (WMD), command and control nodes for operational forces, sources of national wealth, military sustainment depots, satellite ground stations, satellite tracking facilities, power projection forces (missile launch sites, bomber bases), and national information networks. Successful strikes against these targets will have a critical effect at the strategic and operational levels.

Planners should expect significant political restrictions on attacks in future conflicts. These limiting factors will derive from a myriad of world and national political concerns as well as proliferation concerns (WMD use). Planners will need to reconcile the requirement to disable strategic targets within an enemy's homeland with such restrictions; indeed, all campaign planning should anticipate such restrictions. Existing plans should be carefully reviewed in light of such restrictions and be adjusted to meet the desired strategic effects. Operation Allied Force can serve as the model for such planning given the many operational constraints placed on war fighters during the conflict.

At the same time, policy makers should not learn the wrong lessons from OAF. Although OAF was considered a successful campaign, the policy constraints placed on the

combatant commander unnecessarily lengthened the conflict. Longer conflicts mean greater risks assumed by US military personnel. Policy makers must understand that acceptance of some risk in the near term is essential to long-term success. OAF established an unrealistic standard against which to measure future conflicts: campaign, allied, and national military objectives must be defined and obtained before a policy of zero risk acceptance is adopted. To do otherwise jeopardizes the accomplishment of those objectives. The commander's intent must be up front, early, and clearly defined so as to allow for proper planning and execution to meet objectives.

There still remains the problem associated with holding TSTs or dispersed ground forces at risk. In OAF the limited effects on FRY integrated air defenses, particularly anti-aircraft artillery and man-portable air defenses, resulted in altitude restrictions throughout that hampered weapons effectiveness. Beyond analyzing tactical methods, we may find that using other weapons may prove far more effective. Non-lethal weapons should prove especially effective against massed ground mobile forces. Such weapons as high-power acoustic generators, high-power microwaves, electromagnetic pulse, anti-POL (petroleum, oil, and lubricants) agents, and antirubber chemicals applied against units in road march should cause bottlenecks and disorganized advances. Conventional attack could then inflict more permanent and serious damage. As satellites and unmanned aerial vehicles identify large logistics bases, the JFACC can task appropriate munitions and delivery platforms to strike them. Logistics may well prove to be an aggressor's greatest vulnerability. In the face of informed and precision attack, an enemy will be unable to develop sufficient logistics infrastructure for multidivisional invasion or occupation.

While many firsts occurred in information operations during OAF, there were also some areas where the United States was less successful. There were problems associated with the fusion of the data collected from all sources and subsequent distribution in a timely and filtered method to users. The United States was not successful in degrading information networks as the enemy continued to control all media internal to its populace. The United States did detect enemy intrusions in friendly information networks, but should expect

and be prepared for far worse. Indeed, the United States should expect an enemy to focus more on US deployment efforts through attacks on such information systems as the Federal Aviation Administration (FAA) network. Given the dependence on the ATO, the United States should also expect possible attacks that delay, alter, or destroy ATO data transmissions. It should also not be unexpected that an enemy would attack US logistics through the supply or JOPES networks. Information management and IO will be crucial to future successes in any conflict.

Information management and IO also include hardware and systems. OAF points to the need for more bandwidth and faster transmission paths. Such could be said for almost any operation, present or future. Platforms must have the ability to incorporate the latest information hardware and software, employ information obtained by off-board sensors, and transmit information garnered by on-board sensors to other weapon systems. Systems must also be capable of operating in a corrupted information environment. Lastly, as Admiral Ellis cautioned, “Regardless of the acknowledged benefits associated with the use of state-of-the-art technology, commanders and planners must never lose sight of the fact that *technology is only one aspect of waging a successful campaign.*”<sup>42</sup>

OAF did demonstrate new technologies, greater levels of joint and combined interoperability, and many improvements. They included

- general execution interoperability;
- precision targeting, stand-off weaponry, and massed effects;
- selective application of violence, kinetic destruction, and nonkinetic weapons effects;
- limitation of collateral damage;
- coordination and focus of joint and coalition air and sea forces;
- information processing and sharing;
- limited NATO combined force projection out of area operations;
- massing of weapons effects and not maneuver elements by land and sea-based aviation maneuver elements;

- increased exploitation of spaced-based information, guidance, and intelligence systems;
- integration, coordination, and focus of joint and combined tactical air and missile striking power; and
- efficient and effective use of limited aviation resources, precision weaponry, and aircraft in an iterative combat cycle.

The bottom line is that OAF clearly was an operational success, and this success should not be understated. It was an inherently complicated undertaking, beset with complexities brought about by the myriad of military and political constraints. Yet, more than 38,004 sorties were flown with all but two planes returning safely, and no casualties were suffered—an incredible achievement! Dr. Ben Lambeth summarized OAF as:

The most intense and sustained military operation to have been conducted in Europe since the end of World War II. It represented the first extended use of military force by NATO, as well as the first major combat operation conducted for humanitarian objectives against a state committing atrocities within its own borders. It was the longest US combat operation to have taken place since the war in Vietnam, which ended in 1975. At a price tag of more than \$3 billion all told, it was also a notably expensive one. Yet in part precisely because of that investment, it turned out to have been an unprecedented exercise in the discriminate use of force on a large scale. Although there were some unfortunate and highly publicized cases in which innocent civilians were tragically killed, Secretary of Defense William Cohen was on point when he characterized Allied Force afterward as “the most precise application of airpower in history.”<sup>43</sup>

In Operation Allied Force there were many individual areas of success, ranging from the outstanding accomplishments of our men and women in the field and at sea to the unequalled performance of their equipment, material, and technology, to name just a few. These successes do not detract from the need to critically examine the operation and glean some golden nuggets from which we must learn.

#### Notes

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32. Clark, Ellis, and Short.
33. "Apaches in Kosovo: Lessons Learned" (transcript), *Nightline*, ABC NEWS broadcast, n.d., n.p., Internet, 30 June 1999, available from [http://abcnews.go.com/onair/nightline/transcripts/nl990630\\_trans.html](http://abcnews.go.com/onair/nightline/transcripts/nl990630_trans.html).
34. Congress adopted an important amendment to the Defense appropriations bill, referred to as the Roberts Amendment. It required the president to certify to Congress by 15 May 1998 that the continued presence of US forces in Bosnia was in the national interest and why. The president had to state the reasons for deployment and the expected duration of deployment; had to provide numbers of troops deployed, estimate the dollar cost involved, and give the effect of such deployment on overall effectiveness of US forces; most importantly, had to provide a clear statement of the mission and objectives; and had to provide an exit strategy for bringing the troops home. If the president did not meet these conditions, funding for military deployment would end in May 1999. *Public Law 105-262, Sec. 8115, Department of Defense Appropriations Act, 1999, 105th Cong.*, Government Printing Office, Washington, D.C., 1999.
35. Clark, Ellis, and Short.
36. *Kosovo/Allied Force After-Action Report*, 28.
37. Cohen and Shelton.
38. JP 3-60 defines TSTs as "those targets of such high priority to friendly forces that the JFC designates them as requiring immediate response because they pose (or will soon pose) a danger to friendly forces or they are highly lucrative, fleeting targets of opportunity."
39. Lambeth, 87.
40. *Kosovo/Allied Force After-Action Report*, 12.
41. *Ibid.*, 15. See also Lambeth, 89-94.
42. Clark, Ellis, and Short.
43. Lambeth, 219.

## APPENDIX

### OAF GOLDEN NUGGETS

1. *Alliances and coalition forces are only as strong as their weakest elements.* Having to get approval for targets from 19 different nations with varying levels of commitment to the operation made targeting difficult. The varying levels of commitment also led to security concerns that drove the implementation of parallel NATO and US-only planning and ATO processes.

2. *Timely tactical and operational intelligence is a constant requirement.* For coercive operations to be successful, relevant, timely, and predictive, intelligence is required. Knowing what would cause Milosevic to back down was a problem right from the start of OAF. Most planners anticipated that three days of punitive strikes would be enough to force Milosevic to concede; they were wrong.

3. *Gaining and maintaining the initiative in the information operations arena, especially public affairs, are critical.* Despite OAF being one of the most accurate air operations ever (with one of the lowest collateral damage to bombs dropped ratios in history), Milosevic took the initiative in the IO arena by exploiting the few events of collateral damage by flooding the media with pictures and information portraying the effects on the civilian populace. PA needs to be part of the planning from the beginning. Commanders need to get PA going early, even before the start of the operation, and they must stay ahead of the crisis event curve by dealing with bad news openly, quickly, and accurately.

4. *No matter how wedded to strategic targeting the CFACC is, if the CINC or NCA is not supportive, it will not work.* The CFACC during OAF wanted to conduct a hard-hitting strategic operation right from the start but was constrained by the CINC and the political leadership. As the operation continued, and it became apparent that incrementalism was not solving the problem quickly, fractures appeared between the CFACC and the CINC. In the end the CFACC, as the subordinate, must know when to salute smartly and then conduct the operation within the guidance given.

5. *Proper preparation of war-fighting commanders is critical.* Commanders need to be as well versed in how to conduct MOOTW as they are in conducting unlimited war. The highly restrictive ROEs and politically motivated targeting process implemented during OAF more closely resembled MOOTW than the level of effort otherwise indicated. The planners in the CAOC and the CFACC had difficulty applying their training for war, strategic attack, and effects-based operations to this MOOTW scenario. Operations in the future are more likely to resemble OAF than Operation Desert Storm.

6. *Logistics is a key concern for an expeditionary force.* As the operation grew in intensity and the restrictions on collateral damage became tighter, stocks of PGMs were depleted, putting a strain on the supply system. Use of older weapon systems with their higher maintenance costs can hamper effectiveness. Additional tankers needed to be launched to ensure enough tankers were airborne to support the strike packages, adding to the burdens on the logistics system.

7. *Basing is a primary concern for expeditionary forces.* The reciprocal of this rule is that global reach can lessen the need for forward bases. Gaining access to adequate bases is a fundamental requirement for success for an expeditionary force. With access though come potential restrictions. The British maintained veto power over US bombers operating out of bases in the United Kingdom. Also, bases that we had access to were often far from the fight, putting a strain on aircraft, aircrew, planners, and the logistics system.

8. *As technology improves, the effect upon friendly centers of gravity caused by collateral damage and losses of friendly forces increases.* As the public becomes accustomed to bloodless conflicts where no (or few) friendly personnel are lost and the loss of lives on the enemy side (especially civilians) is extremely low, any loss of friendly forces or collateral damage has greater impact. The inadvertent damage to a hospital in downtown Belgrade had the effect of stopping all bombing within the city. Such restrictions make it harder for commanders to conduct coherent campaigns to achieve results.

9. *Commanders need to keep all options open when conducting an operation.* Because there was an announcement that land forces would not be used, the Serbs gained freedom of movement they would not have otherwise had. The lack of a land component also restricted NATO's ability to operate. Without a land component, the JFC and the CFACC did not have a viable intelligence preparation of the battle-space capability with respect to fielded enemy forces. The Air Force provides excellent IPB for operational and strategic targeting, but relies upon the Army to provide the tactical level IPB. The lack of tactical level IPB hampered the JFC's ability to carry out the CINC's guidance to strike fielded forces.

10. *Expeditionary capability, power projection, lift, and sustainability are crucial to rapid response contingencies.* Operation Allied Force demonstrated that the United States and its allies have very different levels of expeditionary capability and strategic lift. The United States provided almost all of the dedicated military air and sea lift used during the air and missile campaign. It was clear that the United States had a distinct advantage in many areas of expeditionary capability, although some of its services proved more capable than others.

Further, Allied Force demonstrated the value of USAF planning of expeditionary packages for rapid deployment. However, the Air Force often was forced to use over 90 percent of its total expeditionary assets in a war in which it could operate under sanctuary conditions from friendly and highly advanced air bases. Serious questions seem to exist about the size of the planned inventory of expeditionary assets. Current plans need review to examine whether they provide enough forces and equipment. The United States needs to make a comprehensive review of its rapid deployment and expeditionary capabilities, and create the capabilities it needs.

11. *Video teleconferencing was indispensable as a battlefield synchronization tool and greatly improved communication at the highest levels, but there are dangers to using VTC.* Unwritten VTC guidance is subject to misinterpretation as information and guidance filter down to lower staff levels, and VTCs, unfortunately, draw senior leaders into lower-level decision processes. In the case of OAF, senior

decision makers were involved at a level of detail normally reserved for the operators. This occurred for three reasons: the risks were high, the payoffs tenuous, and, simply, because senior leaders could. Discipline is required by senior leaders to ensure that they remain at the appropriate level of engagement and of command and control.

12. *Coalition operations present significant interoperability problems when alliance members have disparate technological capabilities.* Problems with connectivity between NATO and US systems often plagued rapid, effective information sharing. To correct this problem requires development of a MLS system that will also resolve connectivity problems and establish clear policy guidance that facilitates information sharing within the NATO alliance.

13. *Shortages of preferred precision-guided munitions posed a significant threat to overall success of the operation.* Preferred munitions were employed in OAF at a much higher rate and in much higher proportions than previously anticipated for small-scale contingencies. Allied forces were neither as well equipped with PGMs nor as well trained to use them as were US forces.