Logistics in Grenada: Supporting No-Plan Wars

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This article analyzes the logistics of Operation Urgent Fury, the 1983 American-led military intervention in Grenada.[1] The article is not written for logisticians but for senior national security leaders such as the warfighting commanders-in-chief. These are the personnel who will make the essential multidimensional logistic decisions, either by design or omission.

Logistics is as essential to the successful accomplishment of no-plan low-intensity conflicts as it is to any other military operation. "No-plan" operations are those in which a contingency plan may not exist or where the exigency of the situation, coupled with a requirement for stringent operational security and a prompt response, precludes actions to refine general war plans into detailed operations orders. The quick response may be necessary to meet operational needs as well as to appease domestic political pressures. Graham Allison is unfortunately correct in his observation that "the American public will accept big, fast, and inefficient operations such as the Mayaguez Raid as long as they are successful, but the small, slow, and efficient operations will try the American patience."[2]

No-plan operations such as Urgent Fury should not be confused with elaborately pre-orchestrated interventions such as Operation Just Cause, the US decapitation operation against Panamanian dictator Manuel Noriega in December of last year. In this latter case, we had the luxury of detailed advance planning and preparation. We had a sizable contingent of SOUTHCOM forces already in place in the target area, forces with long-established lines of supply. We had reinforced the local US forces with Stateside units several months before the event, and provided for their logistical needs. In Grenada, however, we started virtually from scratch.

The high probability of US involvement in future operations like Urgent Fury is well accepted.[3] While the majority of the world has been at

peace since World War II, violence has been the norm in the Third World, where more than 30 conventional and 60 unconventional conflicts have flared and ebbed over the past 40 years, at an estimated cost of 16 million lives.[4] The recent history of Great Britain's involvement in the Falklands or US actions in Lebanon, the Dominican Republic, Grenada, and the Persian Gulf foreshadow US involvement in future low-intensity challenges in the Third World. (I will use the sanctioned term "low-intensity conflict," though I prefer retired General Fred F. Woerner's alternative "high-probability conflict.")

In Operation Urgent Fury, US forces successfully overcame tremendous operational and logistic challenges. Urgent Fury, however, illustrates a best-case rather than a worst-case example. Grenada is relatively close to the United States. There were no significant enemy air or sea forces, and enemy ground forces were not well-trained regulars. The population was friendly and the environment forgiving. Even so, US forces struggled to provide adequate logistic support, and in many instances inadequate logistic preparation was overcome only by extraordinary efforts of American soldiers.

Our armed forces demonstrated the capability of deploying, fighting, and winning on short notice, but whether we are capable of repeating this success in a future no-plan operation under less favorable conditions is dubious. The lessons of Grenada suggest we are not thus capable, and that our warfighting commanders underestimated the critical importance of logistics in planning and conducting the operation.

Strategic Importance

Grenada is the smallest independent territory in the Western Hemisphere, with a population of only 112,000; yet its location at the southern tip of the Leeward-Windward island chain curving down from Puerto Rico toward Venezuela is of critical strategic significance to the United States. On 13 March 1979 the New Jewell Movement led by Maurice Bishop seized control of the government of Grenada. Within three weeks the 1974 constitution had been suspended and arms and ammunition were being received from Cuba.[5]

Cuba also agreed to underwrite almost 40 percent of a $71 million project to construct a 9700-foot airport runway at Point Salines. The reported purpose of the airport was to revitalize tourism.[6] However, it was the airport's

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ability to accommodate military transports and fighter aircraft that concerned US strategists. An air base in an unfriendly Grenada would constitute a threat to vital sea lines of communication through the Gulf of Mexico and could be used as a way station to support Marxist insurgencies and Cuban forces in Latin America and Africa. General William H. Nutting, former Commander of US Southern Command, summarized these concerns as follows:

> When MIGs can operate out of Grenada and Nicaragua as well as Cuba, it will enable someone to cover most of the oil production facilities in the Caribbean, all oil refineries there, plus the sea-lanes through which crude moves to the US and through the Panama Canal. That is a major potential threat to the US.[7]

Despite US concerns, Mr. Bishop continued to improve relations with both Cuba and the Soviet Union. In 1980 he signed a mutual assistance agreement with the Soviets, granting them landing rights for long-range reconnaissance aircraft. Grenadans also participated in combat operations in Nicaragua.[8] In April 1982 President Reagan, while visiting Barbados, said that Grenada had joined the Soviet Union, Cuba, and Nicaragua in attempting to spread Marxist doctrine throughout the region.[9]

By the summer of 1983 Bishop began to lose control of the government. On 25 September he agreed to share power with Bernard Coard, but on 13 October, Bishop was placed under house arrest.[10] He was executed on 19 October. A 24-hour curfew was imposed, entrapping approximately 1000 US citizens. A military council headed by General Hudson Austin assumed control of the government.[11] In response to the situation, on 23 October, the Organization of Eastern Caribbean States formally requested US assistance in a combined effort to restore order and democracy in Grenada.[12]

Planning

Urgent Fury was unquestionably a no-plan operation. The staffs of the deploying units had insufficient time to adequately plan and coordinate their efforts. Additionally, the course of action approved for the operation did not resemble any of the concept plans then in existence, even though the concept plan exercised during Joint Exercise Solid Shield 83 was viable.[13]

The ad hoc plan was flawed; participants would not fight as they had trained. Caribbean Command in Key West, Florida, was not included in the operational chain of command, ostensibly because it was not prepared to handle the mission. Caribbean Command's primary area of responsibility was the Caribbean Basin; as recently as May 1983 the command had successfully led joint operations in Exercise Universal Trek on the island of Vieques.[14]

The XVIII Airborne Command headquarters with its Corps Support Command (COSCOM) was also excluded from the operation, thus severing the

habitual relationship between the COSCOM and the 82d Airborne Division's Division Support Command (DISCOM). The Division Support Command would have to shoulder complete responsibility for loading and sustaining the deploying force, although the impact of this violation of doctrine was somewhat alleviated by the initiative and unselfish support shown by the Corps Headquarters and the COSCOM on an "out-of-channel" basis. In the aftermath of Operation Urgent Fury, the XVIII Airborne Corps Commander, Lieutenant General Jack Mackmull, observed:

> Every time we violate doctrine, we find ourselves in difficulty. Leaders generally rise to the occasion, overcome the results of not following doctrine, and by their performance get the job done. However, we should not purposely handicap leaders by willfully neglecting doctrine.[15]

Strict operational security limited the number of people involved in the planning, and logisticians were among those excluded. Incredibly, the acting J-4 of the Organization of Joint Chiefs of Staff, Major General Click Smith, did not become aware of the operation until Monday morning, 24 October, less than 24 hours prior to execution, when he was first asked for a logistic assessment.[16]

On 18 October 1983, the day before Bishop's assassination, then-Vice President Bush convened a special situation meeting in the White House,[17] and General John W. Vessey, Chairman of the Joint Chiefs of Staff, issued a warning order to Admiral Wesley McDonald, Commander in Chief, Atlantic Command, to prepare a military operation to evacuate American students and designated foreign nationals from Grenada.[18] On 21 October, a naval task force with a Marine contingent en route to Lebanon from the Caribbean was diverted and ordered to turn south.[19] Admiral McDonald's military mission was expanded to include combat operations and peacekeeping duties.[20] These tasks exceeded the capabilities of the available Marines; it would take at least eight days to alert and deploy sufficient additional Marines to accomplish the mission. As a result the operation was expanded to include Army forces and the Air Force.

The first planning session was held at Atlantic Command headquarters on Saturday morning, 22 October. According to one attendee, no joint logistic planning took place.[21] On 23 October the President approved the Atlantic Command plan and gave full authority to General Vessey to implement it.[22] Vice Admiral Joseph Metcalf III, Commander of the US Navy's Second Fleet, was designated Commander, Joint Task Force 120, which would execute the operation. The Navy, Marine, and Ranger task groupings were officially activated and the 82d Airborne Division was officially alerted at 2100 hours on 24 October.

On Monday 24 October a final planning meeting was held at Atlantic Command. Again, there was no substantial joint logistic planning.[23] At the request of General Cavazos, Commander of US Army Forces Command,

Major General Norman H. Schwarzkopf, Commanding General of the 24th Infantry Division, and two assistants attended the meeting to assist Vice Admiral Metcalf. As a commander of a joint task force, Vice Admiral Metcalf was authorized additional staff augmentees from the other services. As a Navy Fleet Commander, his staff did not have a logistic planner as would normally exist in an Army or an Air Force staff. Despite these facts, he disregarded doctrine and did not augment his staff since in his opinion each service would be supporting its own forces.[24] As a result, he was not able to institute measures that would optimize the logistic efficiency of the joint operation or gain the advantage of interservice support.

There was no joint logistics plan that coordinated and gave priority to logistic efforts on a joint level. This omission did not pose a major problem for the Navy component or the Marines, who had already been provisioned for their transit to Lebanon. The Air Force component was also not seriously affected, since it operated from fixed bases outside Grenada. In contrast, the Army component, specifically the 82d Airborne Division, faced some unprecedented logistic demands.

Mission and Concept of the Operation

After various evolutions, the mission was as follows: conduct military operations to protect and evacuate US citizens and designated foreign nationals; neutralize Grenadan forces; stabilize the internal situation; and maintain the peace.[25] An additional requirement was that the mission be accomplished quickly while minimizing US and foreign national casualties and destruction of property. In other words, this was to be an operation the American public would accept—big, fast, and inefficient.

Vice Admiral Metcalf would command the operation from the USS *Guam*. Contrary to doctrine, there would be no unified ground force commander once the Marines and Army forces were established ashore; the component forces would continue to report directly to Metcalf. Logistically, this resulted in duplication of effort and lack of mutual support. For example, the Army asked the departing Marines to transfer common items of supplies. From the Army viewpoint it would be more economical for the Marines to be resupplied enroute to Lebanon than for the Army to fly similar items to Grenada. The Marines refused to transfer the supplies, however, until they received written confirmation through command channels that they would be reimbursed. Rather than fight the bureaucracy, the Army dropped the issue. Transferring the supplies may or may not have been the best course, but without someone to analyze the issue from a joint perspective, the decision was made for the wrong reasons. It is interesting to note that there was no problem with the Rangers transferring supplies to the 82d Airborne Division because no service boundaries had to be crossed.[26]

In both Lebanon and the Dominican Republic, a ground commander was designated with positive results. The greatest contribution of this commander was not in directing tactical operations, but in coordinating logistic operations. If the Joint Task Force staff is not able to perform this function, then a ground force commander must be designated and properly staffed to effect interservice coordination.

Intelligence

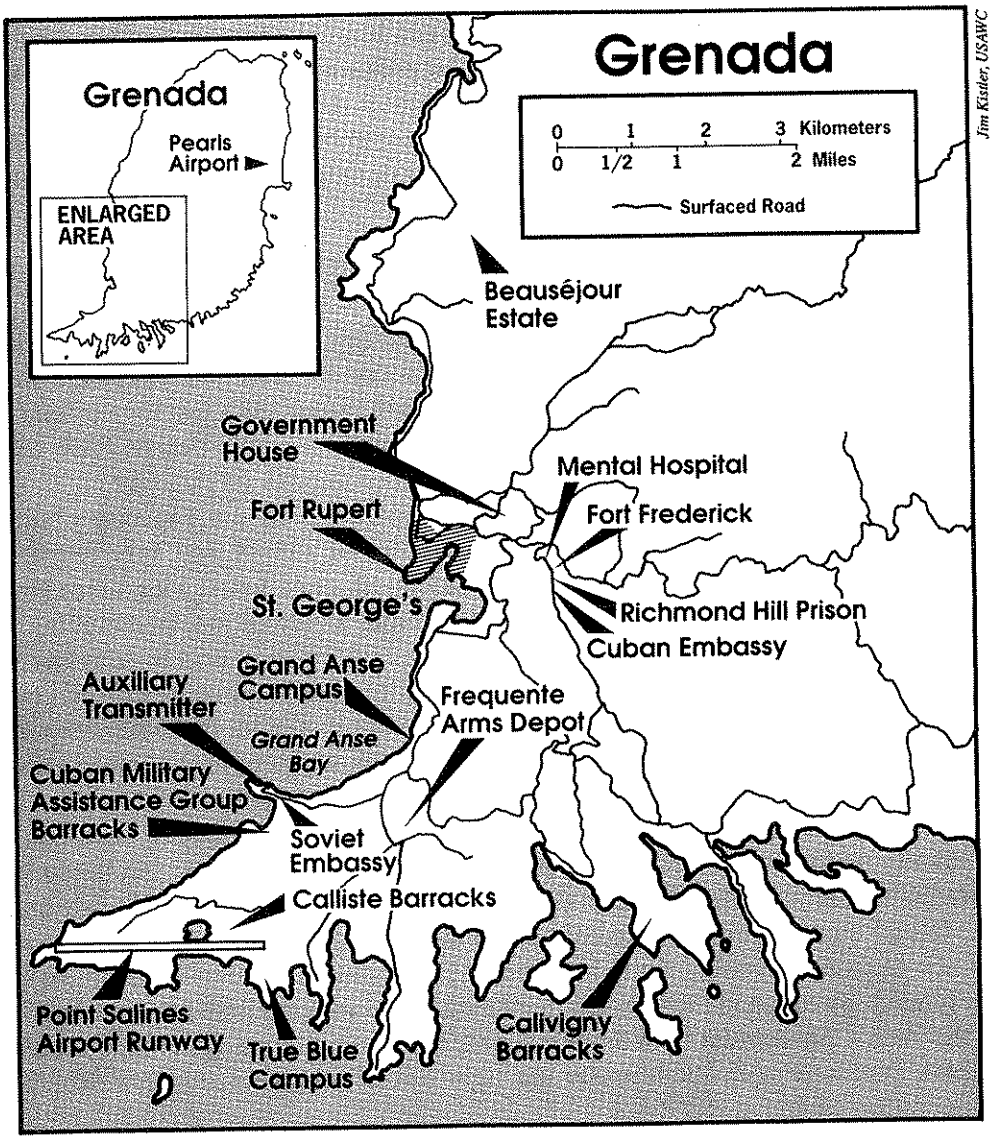
Grenada should not have surprised military planners. In addition to his public remarks in 1982, President Reagan attacked the construction of the Point Salines Airfield in a nationally televised speech in March 1983, just seven months before the intervention.[27] In spite of this signal, Operation Urgent Fury was launched with little accurate information about conditions on the island.

Logistic intelligence was not sought, such as the capacity of the airfields, the road networks, the local sources of supply and services, the sources of potable water, and the specific health conditions. Since standard military maps were not available, several other kinds of maps, including a reprinted tourist map of Grenada with a makeshift military grid overlay, were issued.[28] As a result, the area selected as the airdrop assembly area turned out to be a lake.[29] A US-owned petroleum firm with substantial fuel reserves was not used until several days after combat operations ended. In the interim, the 82d Airborne Division used critical airlift resources to refuel the force.[30]

Such deficiencies could have been avoided if the intelligence community had been required early on to provide essential logistic intelligence. In his testimony before the Senate Armed Services Committee, Vice Admiral Metcalf lamented the absence of human intelligence, which he attributed to a lack of time.[31] However, the absence of human intelligence would not have stymied logisticians if there had been a database with logistic information on the area. Commercial data bases existed, but there was no system that could gain easy access to them under the tight operational security in which the operation was planned.

Execution

On 24 October 1983 at 2100 hours, the 82d Airborne Division was placed on full alert. Initial guidance to Major General Edward L. Trobaugh was to deploy two infantry battalions with a command and control element. These units were tasked to depart from Ft. Bragg, North Carolina, 12 hours after notification as opposed to the Division's normal deployment scenario of 18 hours' notice for the departure of one battalion to be followed by a second battalion six hours later. As we have seen, the DISCOM rather than the COSCOM was operating the issue points at the airfield load-out site, Green



Ramp. Logistics was the worst bottleneck; indeed the scene has been characterized as controlled chaos.[32]

Major General Trobaugh directed that the deploying force be prepared to airdrop rather than airland, since the Rangers had not yet secured the airfield. Parachutes were then issued and various items of equipment were rigged for airdrop. The need to tailor the force to meet mission requirements further taxed the ability of the Division to prepare automated load plans for the deployment.[33] Much to its credit, the Division met the 12-hour deadline. The force was prepared to fight, but could not sustain itself for more than one

to two days. For example, the only potable water thought to be available was that carried by the soldiers.

At approximately 0500 hours, 25 October 1983, Marine helicopters began landing at Pearls Airport on the northern portion of the island and near the town of Grenville just south of Pearls. Both groups encountered little resistance and secured their objectives by 0800.[34] Meanwhile Army Rangers began their airborne assault of Point Salines Airfield at 0537. With assistance from Air Force AC-130 gunships, the Rangers overcame resistance much stiffer than expected, and by 0850 had secured the airfield and the True Blue Campus of the Medical School, where they rescued 130 students. (Actual air evacuation of the students did not commence until 26 October.)[35] At 1400 hours, lead elements of the 82d Airborne began landing at Point Salines. As these units expanded the air head, they also encountered stiff resistance, and approximately five hours of fighting ensued.[36]

The Forward Area Support Team (FAST) that deployed with the infantry battalions consisted of an airfield control group, a maintenance detachment, and a refueling crew. They brought in only four vehicles and one forklift. Normally the FAST would have included major elements of a maintenance company, a medical company, and a supply and services company. Due to tactical considerations, however, only 35 people were expected to support the force until follow-on support forces could be deployed.

The FAST's area of operation was restricted to the immediate confines of the Salines airfield. From this base, the FAST was expected to support the force with all classes of supply except medical. Resupply was to be handled on a preplanned basis whereby logisticians at Fort Bragg would project the quantity and type of supplies needed and fly them to the island. (An intermediate support base was also established in Barbados, where supplies could be funneled and later shuttled to Grenada as the need arose.)

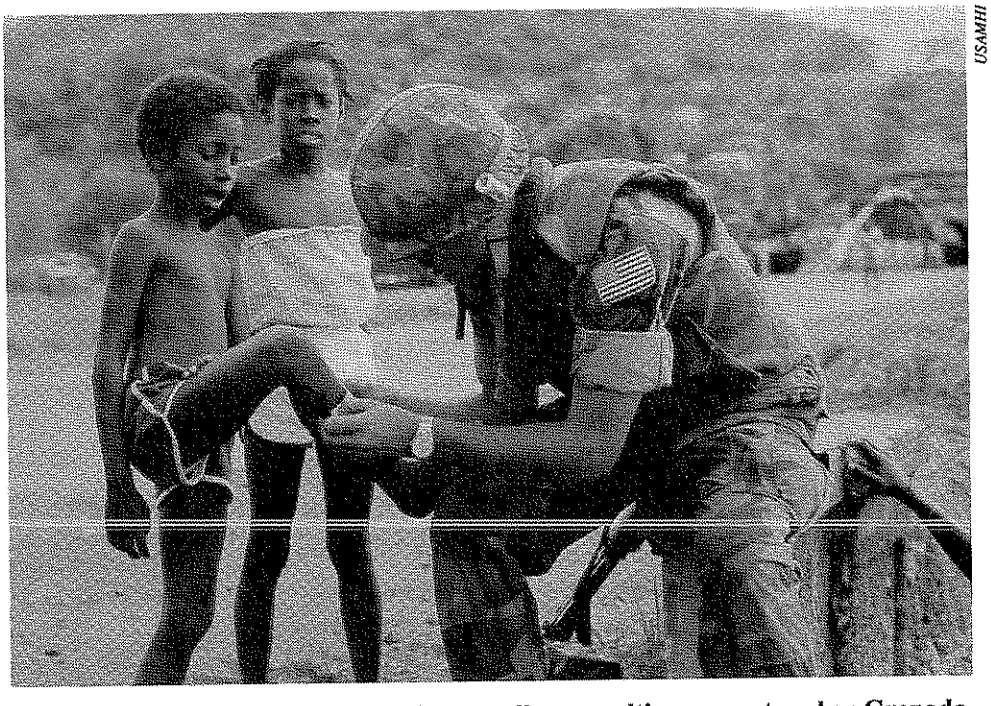
That evening, the Marines in the north brought ashore 13 amphibious vehicles and five tanks.[37] Army units brought no combat vehicles whatever.[38] The students at True Blue Campus set up a makeshift field hospital to help treat casualties and also shared their food and water with the soldiers. Meanwhile, Navy SEALS had secured Governor General Sir Paul Scoon in his residence, but were surrounded and unable to evacuate him.[39]

Early on the 26th the Marines conducted an amphibious assault near the capital of St. Georges and, with the SEALS, evacuated the Governor General. This action was followed by a Ranger assault in Marine helicopters to rescue 426 students at the Grand Anse Campus of the Medical School. By the end of the day, most students had been rescued, and the Marines had captured Fort Frederick, a major command and control center.[40]

Combat operations were basically concluded on the 27th, when the Marines succeeded in capturing Richmond Hill Prison, and Army elements

captured Calvigny Military Barracks. On the 28th the Rangers began redeployment, and the 82d linked up with the Marines to secure the capital of St. Georges.[41] The next few days consisted of eliminating isolated pockets of resistance, conducting reconnaissance operations, providing security for the citizens, and reestablishing a democratic government. The Marines reembarked on 2 November. All military objectives had been accomplished and hostilities were declared ended.[42]

At the onset of the deployment, Brigadier General J. D. Smith, the Assistant Division Commander for Support of the 82d Airborne, was the single point of contact for establishing priorities on incoming air transports supporting the Division. He had secure communication with Major General Trobaugh through a tactical satellite hookup, but was not initially aware that the Point Salines Airfield had room for only one aircraft on the ground. Aircraft were pushed out from airfields in the United States, but were unable to land in Grenada due to limited space at the airfield and insufficient materiel handling equipment which delayed off-loading.[43] When the decision was made to deploy six more infantry battalions, resupply of the deployed force was put on hold. Air loads had to be reconfigured; in the process, the DISCOM lost control of some of the supplies on the ground at Green Ramp. As a result, the DISCOM Movements Control Center could no longer account for the whereabouts of all air loads nor the supplies that had been forwarded.[44]



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An American soldier tends to one of the smaller casualties encountered on Grenada.

Additionally, each service requested strategic airlift directly from the Military Airlift Command. Since the Atlantic Command J-4 had been circumvented, no one had control over the airflow. Aircraft from both DOD and non-DOD agencies departed from several different Stateside airfields (Pope AFB, North Carolina; Norfolk, Virginia; McGuire AFB, New Jersey; and others), but landing in Grenada was first-come, first-served. The FAST did not know what cargo was on incoming aircraft; as a result, flights with staff officers from Atlantic Command headquarters were accorded the same priority as logistic aircraft carrying essential supplies. Aircraft with insufficient fuel to stay in the queue had to be diverted to the intermediate support base at Barbados or to other airfields. Dwindling fuel aboard the aircraft, not the criticality of the cargo, dictated these decisions.

The airlift problem was compounded as jet fuel reserves at Seawall International Airport in Barbados were depleted. The Air Force elected to reduce the maximum allowable load from 50,000 to 35,000 pounds so aircraft could fly round-trip from Fort Bragg to Point Salines and not need to refuel at Seawall. The Army was apparently unaware of this decision.

Non-divisional units faced an almost impossible task in attempting to get into the airflow. For example, the COSCOM's graves registration team cooled its heels at Green Ramp for 48 hours after it had been called forward, while the 5th Mobile Army Surgical Hospital was alerted on 25 October but spent five days waiting to deploy.[45]

Such confusion could have been reduced had existing logistic doctrine been followed. All requirements for airlift should have been forwarded to the Atlantic Command J-4. There the requests would have been reviewed and validated before being forwarded to the Military Airlift Command. Additionally all outbound flights to Grenada should have been scheduled and coordinated through the J-4, including those involving non-DOD personnel. Less critical flights could have been scheduled into Barbados to further reduce the congestion.

Interoperability problems became apparent in trying to coordinate medical evacuation between the Army forces ashore and Navy vessels. The FAST had trouble communicating medical evacuation requests to the USS *Guam*. Army helicopters were initially denied permission to land on Navy vessels because the pilots were considered unqualified for ship landings.[46] Army helicopters were also unable to refuel aboard the USS *Guam* because the fuel nozzles on the vessel were not compatible with Army aircraft.[47] These problems were eventually resolved, and fortunately no American soldiers died because of improper medical care.

Until COSCOM logistic assets could be deployed, the DISCOM could focus on providing only the basics: ammunition, fuel, food, and water. Ammunition resupply proved to be only a minor problem. Through a combination of the

units' basic loads and preplanned resupply packages from Fort Bragg, the 82d Airborne Division never experienced a significant ammunition shortage.[48]

Fuel presented a more formidable challenge. The Division deployed few vehicles, but managed to commandeer large quantities of Eastern bloc vehicles that had been abandoned on the island. These assets were sustained from on-board gasoline-filled bladders in C-141s until local sources of fuel were found. Aviation fuel for Army helicopters also had to be delivered by air until the service interoperability problems were resolved.[49] The FAST was equipped to download the bladder birds into 500-gallon collapsible fuel tanks on the ground; thus fuel was made available, but not without initial difficulty.[50]

In the succinct words of J. D. Smith, the 82d Division's Assistant Commander for Support, "Water is a war-stopper."[51] The Division had deployed to Grenada with the notion that quality rather than quantity of potable water would be its biggest challenge. Once again, logistic intelligence proved to be inaccurate. As inhabitants of a tropical island, the Grenadans relied extensively on cisterns for collecting rain water. The majority of the available cisterns were low on fresh water, and the water system in St. Georges was rendered inoperable early in the fighting.

The Division issued additional water to individual soldiers, but it did not deploy any additional assets that could have alleviated a water shortage. For the first three days, water was resupplied by air in five-gallon cans and augmented by whatever local sources could be exploited. Subsequently, the division received four water purification units, which provided a capability to desalinize sea water.[52]

Food for the Division consisted primarily of Meals Ready to Eat (MREs). These rations were augmented by fresh fruits and vegetables from the local economy. However, an urgent requirement for the resupply of rations occurred when the Division landed and was almost immediately confronted with supporting 600 detainees and several hundred refugees.[53] Many of the soldiers had discarded rations in order to carry more ammunition, so they had only one or two days' rations with them.[54]

Nonetheless, the mission was accomplished. All students were rescued and a civilian government was established. Eighteen American service members died in action and 116 were wounded. Over 700 Cuban and Grenadan soldiers were captured, approximately 70 were killed, and more than 400 were wounded.[55] Both Bernard Coard and General Hudson Austin were captured. Elements of the XVIII Airborne Corps, under the command of Major General Jack Farris, would remain on the island to assist in peacekeeping duties.

Conclusion

Operation Urgent Fury was a success, but, as with other no-plan operations that preceded it, logistic support was unwieldy and inefficient.

Inadequacies identified in similar previous operations had not been addressed, with senior military leaders simply assuming that the nation's overwhelming resources meant that logistics would be plentiful in the area of operations. Consequently, old mistakes resurfaced in Grenada. The principal leaders in the operation acted in accordance with their training and experience, which deemphasized logistics, especially joint logistics. These systemic failings were compounded by promulgation of a joint logistic doctrine that in 1983 was at best vague and contentious.

Since then, much work has been done. The Department of Defense Reorganization Act of 1986 has placed new emphasis on joint assignments and has given the combatant commander authority over subordinate commands in all aspects of logistics. Joint doctrine is being revised accordingly.[56] Force modernization has significantly improved our ability to deploy and sustain the force. Still, such improvements will be of little consequence unless logisticians are fully involved in the planning process.

The curricula of military schools still give scant attention to logistics and low-intensity conflict. The two-week General Officer Joint Warfighting Course at Maxwell Air Force Base has only two hours specifically devoted to logistics.[57] The Director of Logistics, Joint Staff, now addresses students attending the General Officer Joint Warfighting Course and the Industrial College of the Armed Forces, but was not invited to address National War College students until April 1989.[58] Furthermore, little has been written about joint logistics in our military journals.[59]

Our joint exercise program is much improved since 1983. The Joint Staff now conducts two no-notice exercises annually, and each CINC is encouraged to establish a separate program.[60] The stated objective of these exercises is to "practice and evaluate US capability to react to small-scale regional crises that require close-hold, no-notice planning."[61] The program is relatively new. To date, exercises have focused on interoperability and on command, control, and communications rather than logistics, although recent initiatives have been taken to lengthen the exercises in order to test the sustainment system.[62]

Recommendations

In retrospect, Urgent Fury—not Just Cause in Panama—continues as a vivid example of the most likely scenario that will confront US military forces. Like the interventions in Lebanon and the Dominican Republic, Urgent Fury was not an aberration. The recommendations that follow are not new, but neither have they been adopted. Unless they are fully implemented, future military leaders may learn the importance of logistics only through operational failure. Specifically:

- Joint commanders should be provided with an appropriate staff to recognize and react to logistic requirements of all services.

• The study of the art of logistics, including joint doctrine, should be an integral part of the curricula of all staff colleges and senior service colleges.

• Logisticians should be integral actors in the planning process from the very beginning, including no-plan operations.

• A collective logistic intelligence data base should be established on a geographic basis by the theater unified commanders to improve accessibility of information on transportation capabilities, locally available resources, and unusual logistic requirements.

• The writing of clear and comprehensive joint logistic doctrine should be expedited, and the doctrine should then be widely and energetically promulgated.

• Joint experience should become a prerequisite for command of a joint task force, and of course joint experience should continue to be a prerequisite for promotion to flag rank.

• The No-Notice Interoperability Exercise Program should continue to be a top JCS priority, and the program should be expanded to fully test logistics.

The study of Urgent Fury indicates that neither logistics nor the conduct of low-intensity/high-probability conflict received adequate attention in training and doctrine during the 1980s. Limited war in the Third World is doubtless the most likely challenge to US security interests during the 1990s. In preparing for such war, we must understand that sound logistics can indeed be a combat multiplier, but that unsound logistics can be a war-stopper in and of itself.

NOTES

1. This article is based on the research paper "Grenada: Logistical Insights for No-Plan Operations," coauthored with National Security Fellows Colonel Jerome G. Edwards, Lieutenant Colonel Michael A. Anastasio, and Lieutenant Colonel Michael E. Simmons for the National Security Program, John F. Kennedy School of Government, Harvard University, Academic Year 1988-89.

2. Graham Allison, Jr., former Dean of the John F. Kennedy School of Government, Harvard University, personal interview, 6 December 1988.

3. Commission on Integrated Long-Term Strategy, *Discriminate Deterrence* (Washington: GPO, January 1988), p. 3.

4. Ibid., p. 3.

5. Peter M. Dunn and Bruce W. Watson, ed., *American Intervention in Grenada: The Implications of Operation "Urgent Fury"* (Boulder, Colo.: Westview Press, 1985), p. 153.

6. "High Anxiety and a Fear of Runways," *Newsweek*, 11 April 1983, p. 51.

7. "How Oil Fueled the Invasion of Grenada," *Business Week*, 7 November 1983, p. 42.

8. Dunn and Watson, p. 154.

9. "Reagan, in Caribbean, Links Grenada to Moscow," *The New York Times*, 9 April 1982, p. A-6.

10. Dunn and Watson, pp. 157-60.

11. Ibid., p. 160.

12. "Grenada: Collective Action by the Caribbean Peace Force," *Western Hemisphere*, December 1983, p. 67.

13. Jack Mackmull (Lieutenant General, USA Ret.), personal interview, 27 October 1988. Exercise Solid Shield was a biannual JCS exercise involving Atlantic Command and its Army, Navy, and Air Force components in a small Caribbean island scenario.

14. "Joint Command in Key West Ignored in Grenada Planning," *The New York Times*, 9 November 1983, p. 14.

15. The Joint Staff, Joint Unit Lessons Learned System, Finding #31739-86431 (00195). Unclassified extract.

16. Click Smith (Major General, USAF Ret.), personal interview, 24 January 1989.

17. "D-Day in Grenada," *Time*, 7 November 1983, p. 27.

18. Wesley McDonald (Admiral, USN Ret.), personal interview, 9 February 1989.

19. Ronald H. Spector, *US Marines in Grenada, 1983* (Washington: US Marine Corps, History and Museums Division, 1987), p. 1.

20. Ibid.

21. Jack Crabtree (Lieutenant Colonel, US Army), personal interview, 26 October 1988.

22. "The Invasion Countdown," *Newsweek*, 7 November 1983, p. 75.

23. McDonald interview.

24. Joseph Metcalf III (Vice Admiral, USN Ret.), personal interview, 23 January 1989.

25. Joseph Metcalf III, "Decision Making and the Grenada Rescue Operation," *Ambiguity in Command*, ed. James G. March and Roger Weissinger-Baylon (Marshfield, Mass.: Pitman Publishing, 1986), p. 281.

26. Crabtree interview.

27. Reynold A. Burrowes, *Revolution and Rescue in Grenada* (New York: Greenwood Press, 1988), p. 41.

28. "Looking Back at Operation URGENT FURY: Army Aviation in Grenada," *Army Aviation*, 31 December 1983, p. 22.

29. Stephen Silvasy, Jr. (Brigadier General, USA), personal interview, 14 December 1988.

30. William F. Daley (Colonel, USA Ret.), personal interview, 25 October 1988.

31. "US Admiral Defends Dual Command," *Current News*, 4 November 1983, p. 2.

32. Daley interview.

33. Edward Honor (Lieutenant General, USA Ret.), letter to the author, 13 April 1989.

34. "Urgent Fury," *All Hands*, May 1984, pp. 21-22.

35. David C. Isby, "Military Lessons of the Grenada Campaign," *Jane's Military Review 1985* (London: Jane's, 1985), p. 48.

36. "The Battle for Grenada," *Newsweek*, 7 November 1983, p. 68.

37. "Urgent Fury," *All Hands*, p. 23.

38. Silvasy interview.

39. "Battle for Grenada," *Newsweek*, p. 69.

40. Isby, pp. 46-48.

41. "Urgent Fury," *All Hands*, p. 26.

42. Stephen Harding, *Air War Grenada*, (Missoula, Mont.: Pictorial Histories Publishing, 1984), p. 50.

43. J. D. Smith (Major General, USA), personal interview, 24 October 1985.

44. Honor, letter to the author.

45. James D. Starling (Major General, USA), personal interview, 24 October 1988.

46. Thomas E. Broyler (Major, USA), *A Comparative Analysis of the Medical Support in the Combat Operations in the Falklands Campaign and the Grenada Expedition* (Ft. Leavenworth, Kans.: US Army Command and General Staff College, 1987), p. 103.

47. Edward L. Trobaugh (Major General, USA Ret.), personal interview, 8 February 1989.

48. Crabtree interview.

49. "Looking Back at Operation URGENT FURY: Army Aviation in Grenada."

50. Daley interview.

51. Smith interview.

52. Crabtree interview.

53. News Conference by Admiral Wesley L. McDonald at the Pentagon, 28 October 1983, 1600 hours.

54. Silvasy interview.

55. US Congress, House of Representatives, Committee on Armed Services, *Full Committee Hearing on the Lessons Learned as a Result of the U.S. Military Operations in Grenada*, 98th Cong., 2d sess. (Washington: GPO, 1984), p. 2.

56. Honor, letter to the author.

57. Silvasy interview. Logistic considerations are also woven into a Southwest Asia-based campaign discussion-exercise that spans the two-week course.

58. Honor, letter to the author.

59. Edward Honor (Lieutenant General, USA Ret.), personal interview, 8 March 1989.

60. The no-notice exercises are officially titled the No-Notice Interoperability Exercise Program, or NIEX.

61. The Joint Staff, J-7 Fact Sheet (undated).

62. Honor interview.