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PEACE GATE: A CASE STUDY

OF F-16 FMS MANAGEMENT

THESIS

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AFIT/GSM/LSY/84S-13

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PEACE GATE: A CASE STUDY
OF F-16 FMS MANAGEMENT

THESIS

Presented to the Faculty of the School of Systems and
Logistics of the Air Force Institute of Technology
Air University

In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Systems Management

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Acknowledgements

The authors would like to extend their sincere appreciation to the following people whose valuable assistance and program insights were instrumental in completing the body of our thesis: Lieutenant Colonel Douglas A. Shale and Major Les Ferguson from the F-16 International Programs Division, Peace Gate program; and Mike Brock and Captain Joseph Rine from the International Logistics Center, Far East programs.

The authors would also especially like to thank Dr. Leslie Norton, our thesis advisor, whose expertise and guidance were always made available and enabled us to focus continually on our purpose.

Arthur Greenlee
Michael O'Neill

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Abstract

The sale of 40 F-16 Multi-role fighter aircraft to the emerging nation of Pakistan not only encompasses a variety of geo-political, economic, and military consequences for the country itself but subsequently creates unique challenges for USAF foreign military sales program managers. This thesis examines the managerial challenges and program management performance during the acquisition and logistics support phases of the Peace Gate program. By first analyzing Pakistan as an emerging nation and recipient of F-16 aircraft under the Zia dictatorship, the thesis then discusses program management impediments and consequent management action taken by the USAF, Pakistan Air Force, and contractor management teams. Managerial decisions and strategies applied during the sale and support phases are assessed in light of accomplishing Peace Gate program objectives. Conclusions regarding the contribution of specific management techniques toward program success are made.

PEACE GATE: A CASE STUDY OF F-16 FMS MANAGEMENT

I. Introduction

Overview

American arms sales agreements have reached unprecedented amounts. This point is well illustrated by the fact that such agreements amounted to only \$1,183,723,000 in 1969, while in 1982, sales agreements peaked at \$19,040,937,000 (11:1, 12:3). Also in every year since 1964, foreign military sales (FMS) agreements have surpassed military assistance programs (MAP) in dollar value amounts (34:6-3). Finally, from 1950 through 1983, a grand total of FMS agreements had been concluded which were valued at \$131,902,552,000 (12:3).

The corresponding workloads and challenges for USAF program managers of these agreements have created a very complex and challenging management environment. The sale of 40 F-16 Multi-role fighter aircraft to Pakistan under the PEACE GATE program, presented herein, is just one example of the current Reagan administration's foreign policy as it relates to the American trend in arms transfer. Because the President is ultimately responsible for the implementation of security assistance programs, these trends are likely to continue to the benefit of friendly and allied countries.

The current American arms transfer policy was clearly expressed by President Reagan on July 1981:

The United States . . . views the transfer of conventional arms and other defense articles and services as an essential element of its global defense posture and an indispensable component of its foreign policy.

The realities of today's world demand that we pursue a sober, responsible, and balanced arms transfer policy, a policy that will advance our National security interests and those of the free world. Both in addressing decisions as to specific transfers and opportunities for restraint among producers, we will be guided by principle as well as practical necessity. We will deal with the world as it is, rather than as we would like it to be (34:6-2).

Trends in Arms Transfers. One major trend in arms sale agreements already mentioned has been the increase in FMS programs as opposed to military assistance programs to recipient countries. From 1981 to 1982, U.S. FMS agreements went from from \$7.2 to \$19.0 billion compared to military assistance programs in the same years which went from \$250 million to \$260 million (12:3, 50). In 1983, FMS agreements continued at \$17.56 billion compared to \$84 million in MAP (12:3,50). The U.S. presently is the second largest supplier of conventional arms next to the Soviet Union, but leads the Soviet Union in the increase in sales (53:10).

The qualitative changes in arms sales are just as significant as the quantitative changes. No longer is the U.S. supplying clients and purchasers from their obsolete and surplus stocks. Instead, the U.S. defense inventory's most

sophisticated weapon systems, such the Air Force's F-15, F-16, and AWACS are being made available (34:6-1,2). Occasionally, for compelling reasons, foreign orders have even been given priority over domestic requirements (53:11).

A third major change in the sale of arms has been the direction of arms flows. As opposed to previous mutual defense commitments, primarily to NATO, the U.S. has expanded its range of arms sales to emerging nations such as Saudia Arabia, South Korea, Israel, Egypt, Venezuela and Pakistan. Transfers to the Third World are viewed by some foreign policy analysts as the most sensitive element in the arms transfer process (23:35). In terms of political legitimacy, many of these countries are often both unstable and undemocratic. Political legitimacy and authority are often measured by the brute force of the ruling government. Also, sales could provoke country and regional arms races. Further, most emerging nations have social and economic problems which have made the purchase of arms a luxury that cannot be afforded. Many times the sale of arms has contributed to the further impoverishment of Third- and Fourth-world countries (23:35,36).

Although such negative consequences might cast doubt on the continuance of such sales, the overriding justification for sales to lesser developed countries has been the deterrance of Soviet communist imperialism. The sale of F-16s to Pakistan under the PEACE GATE Program is one such

demonstration of the U.S.'s attempt to deter Soviet influence in this volatile region of the world.

Peace Gate (Pakistan)

The Soviet invasion and occupation of Afghanistan has cast a long and ominous shadow over the Middle East, and constitutes a serious challenge to American interests in this region. Consistent with United States foreign policy requirements, 40 F-16 aircraft, valued at \$1.1 billion have been sold to Pakistan under the PEACE GATE I (PG I) and PEACE GATE II (PG II) programs.¹

The following two sections provide a summary of the program definition and program status of PEACE GATE.

Program Definition. The Foreign Assistance Act of 1961, an amended; the Arms Export Control Act of 1968; and the International Security Assistance Arms Export Control Act of 1976 grant express legal authority for the sale of arms to foreign countries. Standard USAF FMS procedures, as established in USAF Regulation (AFR) 400-3 and Volume IX, USAF Manual (AFM) 67-1 provide the necessary program guidance for the USAF to carry out the duties and responsibilities of this FMS program (42:1-3).

The PG I Letter of Offer and Acceptance (LOA) specifies the production of six F-16 aircraft (4A and 2B [2-seater] models) from July through November 1982 with an in-country

¹The term "PEACE GATE" or "PG" refers to both PG I and PG II.

delivery date of December 1982, 12 months after LOA signature. General Dynamics' Contractor Initial Support (CIS) will provide the needed technical services from December 1982 through February 1984. The total estimated LOA value for PG I is \$241.4 million (37).

The PG II program calls for the production of 34 F-16 aircraft (30A and 4B models) from December 1983 through September 1985 with the initial in-country delivery in February 1984. Subsequent deliveries will continue quarterly through July 1985. CIS will last from February 1984 through May 1985 (38). The total estimated value for PG II is \$958.0 million (1:9). Pilot and maintenance training for the PEACE GATE program will be conducted primarily in CONUS (40).

Program Status. As of May 1984, 15 aircraft have been delivered (six from PG I and nine from PG II); the entire program cost for PG I has been paid by the Government of Pakistan (GOP); and ten PAF pilots and over 100 maintenance technicians have been trained in CONUS. CIS work for PG I has been completed and PG II CIS work has begun (19).

Statement of Purpose

The purpose of this thesis is to identify and analyze the managerial problems, both at the acquisition and logistics levels, which have been encountered in implementing the PEACE GATE program. In support of this analysis, the progress made in managerial problem solving will be noted. This analysis should result in a better understanding of

the unusual difficulties which are sure to arise with the introduction of a complex weapon system into the inventory of an emerging nation. The analysis will also present theories and practices that can be used by future F-16 FMS program managers at both the Systems Command (AFSC) and Logistics Command (AFLC) levels.

Research Objectives

The objectives of this thesis are to

1. Briefly analyze Pakistan as an emerging nation and receipient of the F-16 weapon system under the PEACE GATE program.
2. Examine the program management performance and problems encountered throughout the acquisition and logistics support phases of the PEACE GATE program.
3. Assess program management decisions, policies, and strategies implemented relative to meeting PEACE GATE objectives.
4. Apply specific program lessons learned by PG I and II to other F-16 FMS Third World programs.

Research Justification

With the increase and acceleration of F-16 sales to emerging nations such as Pakistan, a comprehensive study of the program management phases of PEACE GATE is warranted. As of this date, sufficient research has not been accomplished documenting overall program management performance of both

the sale and logistics support of a major weapon system to an emerging nation. Because of Pakistan's present geo-political, military, and economic circumstances as well as the program's current status, PEACE GATE provides a good example and opportunity to examine a past and current FMS program management approach. The product of such an examination could be a useful guide for future FMS program managers.

Primary Research Questions

The following research questions will guide the analysis of specific program areas.

1. What are the overall program objectives of the PEACE GATE program?
2. How have the social, economic, geo-political, and defense issues affected the accomplishment of PEACE GATE objectives?
3. What have been the major acquisition and logistics program management problems in the implementation of the PEACE GATE program?
4. What policy and program strategies have been implemented to overcome the acquisition and logistical support challenges?
5. What understanding has been gained from the PEACE GATE program?

Data Sources

Data for this thesis has been derived from program documents, government reports, and news releases along with written communications and unstructured interviews with key PEACE GATE managers and decision makers. Congressional testimony as recorded in the Congressional Record, and policy statements as recorded in the Department of State and Department of Defense documents have been used to establish the current political environment relative to the PEACE GATE program.

Directives and Regulations from the Department of Defense and Headquarters USAF have been used to establish the formal procedures and guidelines for decision making. Also, articles from journals such as National Geographic Asian Survey, and International Affairs were used to characterize the major economic and political issues surrounding the nation of Pakistan. Other periodicals such as Aviation Week and Space Technology, Asian Defense Journal and Military Review were used to document on-going progress of major PEACE GATE events.

Theses and reports from the Air Force Institute of Technology and the Defense Institute for Security Assistance Management have been used to identify management issues and procedures affecting FMS program management. Contractual documents, status reports, and other office correspondence

have been used to identify specific management issues problems, and decisions.

Unstructured interviews with PEACE GATE program managers from the F-16 System Program Office (SPO), and the International Logistics Center, and contractors were used in the final phases of analysis to obtain a better insight into the historic program decision-making process, the identification of current management challenges, and the strategies which have been employed.

Methodology

The analysis will be conducted in three phases. The first phase will consist of a review of available literature and program documents with the objective of an outline of program objectives, key environmental factors, and principle management issues. Strategies planned and implemented by program managers will also be identified.

The second phase of the research will consist of informal interviews of key PEACE GATE decision makers. The interviews will be based on an analysis and synthesis of phase one findings and will be aimed at confirming the conclusions and identifying remaining management challenges and proposals for their resolution. The analysis of management strategies will focus on their relationship to program objectives and management criteria.

The final phase of the research effort is designed to integrate the first two phases and, using both follow-up interviews and literature review, arrive at specific conclusions about the PEACE GATE program. Finally, the authors will attempt to extend these findings and make more general observations about the management of a F-16 case to an emerging nation.

Scope and Limitations

This thesis will be limited to the analysis of unclassified sources. While this will limit the completeness of the analysis, the researchers believe unclassified sources are adequate to support the research and its conclusions. AFR 400-3, Foreign Military Sales (FMS), and applicable public laws constitute the highest level of policy documents to be used. Only sources published after 1980 will be included--except where their exclusion would be detrimental to the analysis.

Because gaining insight from written communications about value-laden processes such as decision making and planning is difficult, the research must depend on informal interviews. However, the researchers realize that the interview process is uncertain. It assumes control over the fragile communication process and depends largely on the verbal behavior of the respondent. The merit and sufficiency

of the information provided by the respondent, and hence, the research conclusions may be somewhat distorted.

The most significant hurdle associated with the selected methodology is the requirement to correctly link significant management issues and action to their effect(s)--and, thus, make some judgement about the merit of program management performance.

Plan of Presentation for the Thesis

Chapter I: Introduction. This chapter begins with an overview describing current policies and trends in FMS sales and the subsequent program management environment. The chapter continues by focusing on PEACE GATE by briefly summarizing program definition and status. Chapter I also includes the statement of purpose, research objectives, justification, methodology, and data sources. After a discussion of research scope and limitations, the chapter concludes with a plan of presentation for the remaining chapters.

Chapter II: Pakistan and South Asia: The PEACE GATE Environment. This chapter's primary focus is on Pakistan as a country, customer, and recipient of U.S. arms. By considering such aspects as its demographic, cultural, economic, geo-political, and military characteristics, the chapter depicts the in-country environment which the U.S. in general

and the USAF in particular will encounter with the sale and support of F-16s to this emerging nation.

Chapter III: PEACE GATE Acquisition Management. This chapter examines the major events of PEACE GATE during the acquisition phase. As background, the chapter summarizes the PG acquisition elements then describes the acquisition management structure among USAF, PAF, and contractor organizations. Primarily, the chapter is a synthesis and discussion of the acquisition strategy pursued by the implementing agency--the F-16 International Programs Division, Aeronautical Systems Division (ASD/YPXI). The chapter includes an examination of unique program management issues and problems encountered early in the program (prior to LOA signature); and discusses how strategies were implemented to assure that schedule, financial, and configuration requirements of the program were met. A key focus of this chapter is its examination of how the international sales peculiarities and organizational imperatives within the acquisition process have created significant management impediments for program managers--and how ASD/YPXI has responded to these challenges.

Chapter IV: PEACE GATE Logistics Management. Chapter IV begins by identifying the objectives and logistics program requirements of PEACE GATE. The formulation of logistics support arrangements and key variables in the support phases are analyzed. The chapter outlines the initial and follow-on support packages, infrastructure requirements and shortfalls,

and training programs implemented to support aircraft maintenance and operations. The chapter concludes with a discussion of the decisions, plans, and strategies which have been implemented by program managers at the International Logistics Center (Air Force Logistics Command) and in the Pakistan Air Force.

Chapter V: Conclusions and Recommendations. This chapter summarizes the major findings of the research effort. The research questions initially set forth are answered. Conclusions, presented as "lessons learned," are derived from specific managerial action discussed in the previous chapters. The relevance of these lessons to other F-16 FMS programs is also discussed. Finally, the chapter concludes with recommendations for future research regarding PEACE GATE and other foreign military sales case management analysis.

II. Pakistan and South Asia: The Peace Gate Environment

Because the economic, political and military elements of the Peace Gate environment determine, to a large extent, the potential for program success and the character of program decision making during the life of Peace Gate, this chapter attempts to provide some insight into the program's operating environment.

Geography

Pakistan's world position and perception of international events is largely determined by its strategic location. The Islamic Republic of Pakistan, a South Asian Third World country approximately the size and shape of California, is surrounded by either historic or current adversarial nations. Pakistan has four neighboring states: Iran to the southwest, Afghanistan to the north and west, China to the northeast, and India to the east; all of which play an important part in determining its security requirements (14:680). Pakistan is a country of considerable environmental variety. The northern border of its 1100 mile expanse is comprised of the Hindu Kush mountains--the greatest concentration of high peaks in the world. Hundreds of miles of rugged rocky terrain extend southwestward generally

establishing the disputed border with Afghanistan. Within the interior, the mighty Indus river flows the length of the country, spilling into the Arabian Sea. Pakistan's southern border is delineated by just over 500 miles of Arabian Sea coastline--ranging from the Iranian border to India (26:46). Figure 1 illustrates the geographic boundaries of Pakistan.

Industrial Capacity and Economic Base

While Pakistan aspires to achieve industrial maturity, it is without the technical and scientific resources even to begin serious competition with its regional rival, India (8:94). Although Pakistan has fairly large reserves of natural gas, limited supplies of petroleum and some poorer quality coal and iron (9:885), it has not reached the point where it can pursue a highly industrial or technology-oriented defense program (13:39).

The Pakistani economy remains agrarian. Direct agriculture accounts for nearly 40 percent of the gross domestic product (35:269) and employs about 58 percent of the work force (28:1369). Unlike many Third World nations, Pakistan can feed itself. Despite this distinction, however, the marginal state of agricultural development in Pakistan remains a potentially insurmountable roadblock to significant industrial and technological progress. Pakistan is classified as a "subsistence level" country (35:295) and the diet of its citizens is well below World Health Organization (WHO)



Figure 1. Map of Pakistan

minimums (28:1375). Because of Pakistan's tenuous agricultural and industrial development, it is one of the 49 United Nations (UN) designated "low income countries of the world" (28:1367). Its low per capita Gross National Product (GNP) of about \$300 (70:128) is aggravated by its 3.2 percent population growth rate--one of the highest in the world (66:37). The full extent of Pakistan's economic plight is perhaps best expressed by the tragic fact that 34 percent of its population is still classified as "living in a state of absolute poverty" (28:1367).

Although starting at nearly the nadir of economic development, Pakistan is making progress. Since President Zia-ul Haq's program to "Islamize" the economy and also correct the effects of previous erratic and restrictive policies, moderate but sustained improvement has been achieved (28:1370). The GNP has grown 6 percent per year for the past five years, and agricultural output has expanded at 4 to 5 percent each year in the same period. In addition, Pakistan's industrial sector has expanded at a rate of approximately 10 percent per year (70:129). Less favorable economic trends are reflected in Pakistan's persistent foreign exchange and debt difficulties. Its trade gap with the world caused its trade deficit to pass the \$3 billion mark in 1982 (70:128). Also, according to the Organization for Economic Cooperation and Development (OECD), Pakistan's total debt is now well over \$11 billion. Servicing this debt

costs Pakistan over \$725 million annually (22:167). Because it is hard pressed to pay, Pakistan's economic survival largely depends on the continuing support of its Western creditors and the International Monetary Fund (IMF) (67:80).

Furthermore, the persistence of questions about the continuing political viability of the Zia regime acts as a disincentive to further gains in economic growth. Paradoxically, however, a continuing climate of economic stability is considered an essential ingredient for President Zia's political success (70:130, 71).

Needless to say, the industrial capacity and economic base of Pakistan are of great concern to American Foreign Military Sales decision makers (66:41). Pakistan lacks the industrial capacity to sustain a technical defense program without substantial support. Additionally, economic conditions have led a number of U.S. government officials to question Pakistan's ability to afford a major military modernization program, either in the short run or long term (67:80).

National Character and Government

Many of Pakistan's 87.4 million inhabitants (14:680) are either immigrants or refugees (26:31). Pakistan's refugee population, now considered the largest in the world (68:6), has been fueled by the arbitrary British partition of Punjab in 1947, providing an estimated 20 million from India

(74:31), and more recently, the Soviet invasion of Afghanistan which has left Pakistan to cope with a wave of nearly three million refugees--at a cost of about one million dollars per day (70:129; 68:6). Like Israel, the Islamic Republic of Pakistan was formed to protect and advance a particular religion--in this case the right of 85 million Muslim citizens to pursue an Islamic way of life (14:680). Islam provided the ideological basis for a state that lacked any of the usual prerequisites for a nation state--territorial integrity, sense of national community, or linguistic unity (15:197).

Nevertheless, Pakistan's relationship with Islam has been ambivalent. While Islam has provided some common ground for national identity and offered Pakistan an alternative to superpower alignment, significant sectarian and theological differences among Pakistani Muslims have limited Islam's strength and contribution to national identity (33:118). Pakistan's nonaligned political position and religious ties to other regional Islamic nations have made possible the important economic and military relationships with oil-rich nations of the Middle East. Even so, Islamabad has been unable to achieve any consensus (in either theory or practice) regarding the true nature and character of Islam relative to the state. Indeed, "Pakistanis have found it easier to rally under the umbrella of Islam in opposition

movements . . . than to agree upon what Islam and an Islamic state are" (15:219-220).

Much of the ambivalence with Islam is derived from Pakistan's cultural heterogeneity, created by the 1947 partition of British India--"a makeshift hastily improvised response to a year of uncontrollable Hindu-Moslem rioting" (66:148). What emerged was an artificial political entity; both a hodge-podge of disparate ethnic and religious groups as well as the largest tribal society in the world (8:94) with the Islamic state serving as a vague rally point (33:163). Thus Pakistan's society is enormously complex and diverse, with an amazing number of ethnic and linguistic divisions--most of which have close ties to related groups in neighboring nations (8:94; 35:147). The Pakistani social structure is dominated by loyalties to family and tribe--as evidenced by separatist movements in Baluchistan and the Northwest Frontier Province (NWFP) along with underlying regional tensions between Baluch, Pushtun and Sindhi minorities and the dominant Punjabis (66:95).

As in other South Asian nations, the high social status and economic power of the noble landed families of the British colonial era is largely intact in contemporary Pakistan (35:150). The elite has endured, in large part, because of Pakistan's discriminating education system. Despite government programs to improve public education, nearly 70 percent of Pakistanis have absolutely no education.

Only 8 percent or so have achieved a secondary education, mostly from prestigious private schools (35:150). This may be partly due to the fact that secondary schools conduct their lessons in English (28:1372-1373). English, the language of the bureaucracy and elite, is spoken by only 2 percent of the population (28:1361).

Governing this complex heterogeneous culture has been difficult for Pakistan. Few countries have had greater difficulty in establishing a viable political system. Although officially listed as a democracy, none of its three constitutions have lasted longer than seven years and no Pakistani political leader has ever voluntarily relinquished the position of power. Since its independence, Pakistan's political history has been marked by alternating cycles of repressive control and violent upheaval (66:95).

Pakistan is currently being ruled by a military dictatorship. The present leader, General Zia-ul-Haq, took power from Zulfikar Ali Bhutto in a 1977 coup d'etat. President Zia is widely respected as a shrewd political tactician of unquestioned integrity (66:122) and support for his rule is largely drawn from the military establishment, the bureaucratic elite, large landowners and religious groups that endorse the Islamization process (66:100).

Since coming to power, President Zia has declared state of emergency and martial law and suspended fundamental constitutional rights. Also, President Zia dissolved the

major political parties and restructured the judicial system, "abrogating the rule of law" in Pakistan (66:248). The scope and depth of Zia's suppression of political participation, media censorship and manipulation of the judiciary since seizing power, has led many analysts to conclude that the "prospects for long-term stability are not bright" (66:99).

Pakistan's heavy refugee burden, its cultural heterogeneity and extra-political tribal links with neighboring states, its weak basis of national identity, and continuing rule by a minority elite create an unsettling picture of domestic instability--sufficiently unsettling to bring notice and concern to Western leaders and managers contemplating the transfer of advanced military equipment. In addition, the large dependence on a very small part of the population for technical support raises the issue of Pakistan's ability to support a large scale infusion of technology. The statistics that only 8 percent of the population have a secondary education and that only 2 percent of the population can speak the language of the bureaucracy compels the conclusion that the steps to technical maturity must be small.

Military Preparedness

President Zia-ul-Haq is absolute commander of all Pakistan's armed forces (70:125). Pakistani military forces, divided into Army, Navy and Air Force, perform three basic missions: internal security, border patrol and expeditionary

tasks (8:103). The Pakistan Army is by far the largest component with approximately 400,000 men (8:103). Its 20 divisions are organized into six corps--one each for Pakistan's six major regions.

Even after the Soviet invasion of Afghanistan, 18 of the 20 Pakistan Army divisions face east. Most of the Pakistan Army's strength, including virtually all of its 600 tanks, are dedicated to the long border with India. Only one Army corps, with two divisions based in Peshawar, is positioned toward Afghanistan (20:8). The troops that patrol the border with Afghanistan are not part of the regular army, but rather local tribesmen led by regular Pakistan Army officers. While small in numbers, units such as the Mohmend Scouts, Pishin Scouts and Khyber Rifles have reputations as capable military units. They are well suited to the rugged terrain and "effectively combine romance, firepower and mobility" (8:104).

The small Pakistan Air Force (PAF) (about 18,000 men) (69:24) has become vulnerable to surprise attack from Afghanistan since the Soviet invasion (8:104). This vulnerability has led the PAF to schedule deployment of its F-16 aircraft for three widely separated air bases: one located in the south near Karachi, another in the geographic center of Pakistan, and the third near Peshawar close to the Afghan border (68:15).

The competence of the Pakistani military seems to be a well established fact. The Pakistan Army has been called,

"one of the world's toughest armies" (8:95) as well as, "first rate, smart, and professional" (72:593). The Pakistan Air Force is considered, "one of the most professionally competent in both technical and operational aspects" (69:24).

This competence has permitted the Pakistan Air Force to compensate somewhat for the technical obsolescence of its equipment. The PAF aircraft are largely based on 1950s American and Chinese technology (20:7) and are seriously in need of replacement (68:13). The PAF has been able, through the export of military expertise, to obtain a few modern aircraft such as the Mirage III and Mirage V. In 1976, Abu Dhabi funded the direct purchase of 32 Mirage Vs at a cost of \$330 million, and in return, contract for Pakistani crews to operate an additional 24 that were bought for the Abu Dhabi Air Force. A similar arrangement--the exchange of military manpower for economic assistance--has been made with Libya (72:594). All in all, the Pakistan Air Force has provided training and aircraft operations to the armed forces of eight Middle East nations (68:13; 62:89).

Thus, unlike many emerging nations of Asia and the Middle East, there are a number of indications that the PAF may not require extraordinary assistance in learning and managing the F-16 technology. Largely because of good PAF performance while operating "high tech" equipment for other nations (72:595), the Reagan administration believes that, "the Pakistan Air Force will have relatively few problems in

effectively absorbing the F-16. Despite the quantum leap in technology that the aircraft represents over other planes in its present inventory, the proven competence of Pakistani pilots and maintenance personnel indicate a high likelihood of relatively quick and effective utilization" (68:15).

Legacy of Ambivalent Relations

The Peace Gate management environment is, to a large extent, shaped by a history of ambivalent political relations between Pakistan and the United States. The spectrum of the relationship has been variously characterized as "inconsistent" (20:1), "volatile," and "ambiguous" (67:67,72). Often highly emotional, Pakistan's relations with the United States declined from its zenith in the mid-1950's to its lowest point in April 1979 when the United States suspended all military and economic aid in an effort to enforce its nuclear nonproliferation policy (20:21).

The most cited cause of declining relations with the United States is apparent divergent Pakistani and U.S. perceptions and, thus, differing interpretations of the 1959 bilateral security agreement between them (67:67;68:33). Pakistan was disappointed on several occasions when they believed the agreement's conditions for emergency U.S. military aid were met and yet the United States did not. This agreement, still in force, pledges the United States to safeguard the "national independence and integrity of Pakistan" (68:45) (text is at Appendix B). At major points of

crisis for Pakistan, the agreement was interpreted differently and the United States refused to support Pakistan in a recent war against India. The position of the United States was that the agreement only applied to threats from Communist neighbors (72:589). Pakistan, on the other hand, saw the agreement as a broad U.S. commitment to aid Pakistan, "against threats from any source, including what they have perceived as past Indian aggression" (68:33). (Major David Smith suggests that the Pakistanis always regarded "Godless Communism" as more of a value-based ideological threat than an immediate threat to its physical security [61:46].)

The Pakistanis were particularly exasperated with President Carter's proposed response to the December 1979 Soviet invasion of Afghanistan (20:25). Islamabad was "bitterly disappointed" with Brezinski's offer of \$100 million in military aid during his February 1980 visit (62:100). Islamabad rejected it as "insufficient and provocative" (21:10) and President Zia-ul-Haq called it "peanuts" (72:588), pointing out that it could not meet Pakistan's security needs or justify an alteration of Pakistan's carefully cultivated nonalignment (67:73, 21:10). Beyond the strategic calculus, the Pakistanis were aware that the level of the U.S. aid offer was small because of fears of antagonizing the Indians. The "virtual veto" by the Indians over ten years of U.S. military aid to Pakistan was a dig at their national pride. Francis Fukuyama, a researcher with Rand

Corporation, reported that Pakistan, "would rather go their own way than to accept what was left over from American largesse after the Indians had had their say" (20:26). Thus, the "substantial animosity" toward the United States among many of the Pakistani ruling class is the result of a "widespread feeling that Pakistan's friendship has been betrayed over the years, and that the country has not received as much as it has given in its bilateral relations with the United States" (20:23).

Perhaps the most important factor in the Pakistani rejection of U.S. aid, however, was the overall perception of a lack of American reliability toward Pakistan and other allies. "Years of difficulty over arms sales, a deep sense of betrayal at the imposition of arms embargoes, 'heightened by what was perceived to be hypocrisy in U.S. nonproliferation policy' (in view of U.S. benevolence toward the Indian nuclear program) had caused a questioning of U.S. reliability in all matters" (62:100).

Pakistani Regional Relations and Security Concerns

The Soviet invasion, along with the installation of the Karmal regime and the continuing Soviet military occupation of Afghanistan have made Pakistan a potential target of further Soviet expansion and destabilization efforts (67, 21, 68, 72, 8). In particular, Pakistan believes the Soviet Union has moved into Afghanistan to extend its security perimeter and to prevent further "erosion" of Marxist-

Leninist ideology. Of special concern to Pakistan is the Soviet Union's alleged urging of India to increase the level of tension or otherwise make trouble for Pakistan. Such Soviet overtures have reportedly been publicly confirmed by officials of the previous Indian Government (68:8).

This Soviet maneuvering aggravates the already strained relationship between Pakistan and India. In reporting his 1980 conversations with the planning staff at Pakistan's Joint Staff Headquarters, Francis Fukuyama noted their conviction that regardless of what happened on their western border, Pakistan's major security concern was--and would remain--India (20:4).

Pakistan's most immediate threat, however, stems from the continuing territorial encroachments from Afghanistan. These violations, which involve both Afghan and Soviet forces, threaten to widen the conflict and involve Pakistan military forces. There have been increasing reports of strafing and rocket attacks on refugee camps in Pakistan by Afghan helicopter gunships (72:597). Also, in September 1981, Afghan troops with armored vehicles allegedly crossed the border into Pakistan's Baluchistan province (72:597).

Pakistan is likely to remain vulnerable to threats and pressures from the Soviets and Indians for some time. The military disparity, small level of indigenous defense production, and the adversarial relationship with India and the Soviet Union places Pakistan at a distinct security

disadvantage. "The unreliability of its professed friends and weapons suppliers, the incumbent fragile and superficial stability--nursing a resuscitated internal threat--and the uncertain resilience of a heavily strained economy" exacerbates the Pakistani position (7:64). It is the recognition of this strategic vulnerability that led President Reagan to propose a six-year \$3.2 billion military and economic aid package for Pakistan to Congress.

Common U.S. and Pakistani Interests - Basis for the Sale

The Reagan aid package, including the 40 F-16 aircraft, is consistent with the American effort to construct a new security regime in the Southwest Asia--Indian Ocean region (72:609). "The economic, ideological and strategic imperatives that brought the United States and Pakistan together in the 1950s" are the same ones "that are bringing them together with renewed force once again in the 1980s" (72:608). Both Pakistan and the United States, for their own reasons, have an enormous stake in the stability of the Gulf area and an immediate interest in undermining Soviet efforts to consolidate political and military authority in Afghanistan. Section 736 of Public Law 97-113 (at Appendix C) formally expresses the United States view that the military and economic aid package is an essential demonstration of the seriousness of U.S. purpose and commitment to the security of Pakistan (64:75).

While analysts have expressed some concern about the willingness of the United States to confront the "heavy political baggage" associated with the new relationship, the Reagan program is generally accepted as meeting "Pakistan's immediate security needs without necessarily upsetting Indo-Pakistan relations, or driving a permanent wedge between India and the United States, or doing irreparable damage to other (non-security) American interests in the area" (72:609).

Even though there is a strong consensus in Washington that the United States should respond to the military and economic needs of Pakistan, there is also strong disagreement on whether or not the F-16 aircraft should be included (64:4). During initial Congressional hearings, testimony by nonofficial regional and defense specialists ran strongly against selling the F-16 to Pakistan (65:108). The Pakistani military, however, have supported the F-16 choice with a clear, logical analysis. With their 40 Korean War vintage F-86 aircraft literally falling apart (they were grounded when wing failure resulted in two pilot fatalities), the Pakistani military planners' search for a substitute concluded that the F-16 was the best replacement aircraft for the F-86 (68:12). First, because of their financial constraints a single aircraft was required--one that could effectively perform both the ground support and air superiority roles for many years. Second logistics considerations

also argued for a single aircraft that would simplify the installation and operation of the all-important logistics support system. Also, a relatively stable configuration and large numbers of identical aircraft within the U.S. Air Force was considered important for guaranteeing a secure source of spare parts (68:14). The F-16 met these criteria.

Other aircraft such as the F-18, F-15, and F-5 figured in the analysis as well, but were ruled out for one reason or another. The F-18 design was believed to be too dynamic. The F-15 was considered too expensive (and probably not politically possible), and the F-5 was assessed as "old technology" and inadequate to support Pakistani needs over the long run. The F-5G or F-20 was still a prototype and ruled out as an unknown when the analysis was conducted. Finally, the F-16 fitted with the J-79 engine was evaluated. The Pakistani analysts believed that its performance was inferior to the F-16A in the air superiority role and, because of its "nonstandard" engine, logistically unique. Thus, the F-16/J-79 was rejected as inadequate to support the long-term needs of the PAF (68:15).

The Reagan administration's arguments also support the F-16, stressing that the F-16 is essential for rebuilding America's security relationship with Pakistan. In their testimony to Congress, however, official administration representatives did not rely on its military value to support their arguments. Instead President Reagan and his

representatives emphasized the "key symbolic value of the aircraft" (65:108). Thus President Reagan's response appears to be particularly sensitive to President Zia-ul Haq's need for a dependable and reliable American commitment to Pakistan's security.

The character of the new relationship between Pakistan and the United States is by no means firmly established. While broad common interests provide a firm basis for the sale of F-16 aircraft, there remains an uneasiness and tentativeness to the new period of friendship. The administration's emphasis on the F-16's symbolic importance, in light of the tentative "feeling out" between the two states seems appropriate. A Congressional staff trip report noted "an overwhelming symbolism far beyond the aircraft's actual numbers or capability." "As seen by the Pakistanis, the aircraft are the keystone of the U.S. aid package" (68:12). The Congressional staff study concludes that, "U.S. willingness to provide them (F-16s) in the numbers and scheduled time frames specified is a litmus test of U.S. credibility. In short, Pakistan's image of U.S. trust and reliability hinges primarily on the F-16" (68:12).

Important Issues Affecting Peace Gate Management

The Peace Gate environment is thus a complex network of economic, ideological and strategic imperatives. Management must consider the unique pressures and sensitivities

generated by the new relationship between Pakistan and the United States. Pakistan feels substantial pressure from its economic dilemma. Solving the problem of how to fuel a large military modernization program without injuring the meager economic improvements of the past few years is essential for President Zia. Pakistan is walking an economic tightrope and President Zia's tenure depends on continued economic growth, among other things. Thus, political ties with regional Muslim nations such as Saudi Arabia, are an economic necessity. Without Saudi assistance, the accelerated package of six aircraft from the USAF would either not have happened, or represented a gift, and political sellout to American strategic intentions. Pakistan's nonaligned strategy and position of leadership in the Islamic world would have been seriously jeopardized without Saudi financial backing.

The impact of Islam on Pakistan's purchase of F-16 aircraft cannot be measured or even estimated from the literature. It appears that, given the questionable application of the Islamic code, the effects of Islam may be minimal on the management environment. The values and procedures inherited from the British military are likely to have more of an impact on the administration of the Foreign Military Sales program. While it appears that the PAF have an easy time mastering much of "modern technology," it is not clear that their British heritage also translates into an equal ability to absorb the level and volume of technology

represented by the F-16. Specifically, how the culture of Pakistan affects U.S. managers in their day-to-day problem solving will be investigated in subsequent chapters.

Clearly, however, political imperatives shape the manager's working environment. The many political analyses establish a strong reason for uncertainty and wariness. In Pakistan's eyes, the U.S. has never come through in the clutch. America has always let Pakistan down. In addition, the newly developed nonaligned status and Muslim community links represent a sensitive demonstration of political independence for Pakistan. On the other hand, many American political leaders have referred to Pakistan as unpredictable and liable to embroil American reputation in regional disputes--disputes only thinly linked to the strategic plans of the Western alliance. Pakistan is sensitive to American misgivings as well as its own precarious political position.

Such a tenuous political friendship cannot avoid influencing the management environment, especially considering the strong symbolic emphasis President Reagan has placed on the F-16 sale. The fact that the sale's framework represents a litmus test of American political intentions must influence the manager and his approach to problem solving. In this context, the Congressional staff study's conclusions that follow imply that the uneasy political relationship will bring many constraints and dilemmas to the Peace Gate management team.

Given the highly emotionally charged animosity between Pakistan and India and other political factors, the proposed aid to Pakistan presents the United States with narrow margins of decision and difficult dilemmas. Amid these problems there is no clear and unencumbered foreign policy advantage for the United States. In fact, unless the program is carefully managed and consistently directed toward its stated goal of offsetting the Soviet threat through Afghanistan, it could turn to the disadvantage of the United States (68:3).

Progress toward program objectives depends on a stable political relationship between Pakistan and the United States. Because even a minor deviation from the political status quo could be enough to upset the precarious balance, each Peace Gate management decision must be sensitive to its potential political effects.

Peace Gate Environmental Issues to be Examined

This analysis of the Peace Gate environment leaves several questions unanswered.

1. To what extent does the Peace Gate manager feel pressure to restrict program changes so that economic pressures are not increased?
2. To what extent does the Pakistani's particular, non-western culture impact the path and pace of management strategies?
3. To what extent does the Peace Gate manager feel constrained by the sensitive political relationship between Pakistan and the United States? Is there an increased pressure to make good on commitments? Does the Peace Gate

manager sense a "test" of commitment when solution strategies are proposed? What impact does the political environment have on the Peace Gate manager's freedom to make optimistic schedule projections?

How the Peace Gate environment affects the path chosen and pacing toward program objectives will be examined as part of the analysis of acquisition and logistics program management.

III. Peace Gate Acquisition Management

Overview

Having analyzed Pakistan as a developing nation and recipient of U.S. arms, this chapter focuses in greater detail on the acquisition portion of the PEACE GATE program. USAF, PAF, and contractor organizations are examined with emphasis on their duties and responsibilities to the program. Next, system acquisition; financial and configuration management strategies are discussed. One primary objective of these discussions is to illustrate how PEACE GATE acquisition requirements prior to LOA signature have created inherent management impediments for USAF program managers and how strategies have been implemented in an attempt to resolve such barriers. A critical section of the chapter examines three key program issues: organizational relationships and authority, accelerated delivery of aircraft, and the PAF configuration, and contains a summary of the implementing Command's management actions taken to minimize further problems. The chapter concludes with a recapitulation of the main points presented.

Before discussing the management structure of PG, a summary of important aspects of the PG systems acquisition program should be highlighted. The acquisition phase of the

program begins with the initial Planning and Review (P&R) estimates and extends to the transfer of title upon delivery of aircraft. The delivery of F-16 aircraft in-country is the ultimate objective of the acquisition phase. After such time the PAF, in cooperation with the Air Force Logistics Command (AFLC) is responsible for all support requirements. Air Force System Command (AFSC) is responsible for managing the total PG acquisition package which includes 40 F-16 Multi-role Fighter aircraft together with training services and equipment; technical services; support equipment; initial spare and repair parts; retrofit kits; alternate mission equipment (AME); long leadtime hardware and related data (1:i). Government contractors and USAF organizations provide the needed products and services.

The program requirements established in the LOAs for both PG I and II were used as the program baselines to develop the acquisition strategy. As noted earlier, PG I program definition includes production of six F-16s (2A and 4B models) with planned delivery 12 months after LOA signature. Contractor Initial Support (CIS) for PG I will take place from December 1982 through February 1984. The approximate program cost for each PG I aircraft is \$40.2 million (1:9). PG II includes production of 34 F-16s (30A and 4B models) with planned deliveries beginning 27 months after LOA signature. CIS will last from February 1984 through May 1985. Deliveries are to be completed 42 months (June 1985)

after LOA signature (44:7). Normal USAF support (CLSSA) will begin after June 1985. The approximate program cost of each PG II aircraft is \$28.2 million (1:9). The price differential of \$14.1 million is due to the peculiar requirements of PG I to be discussed.

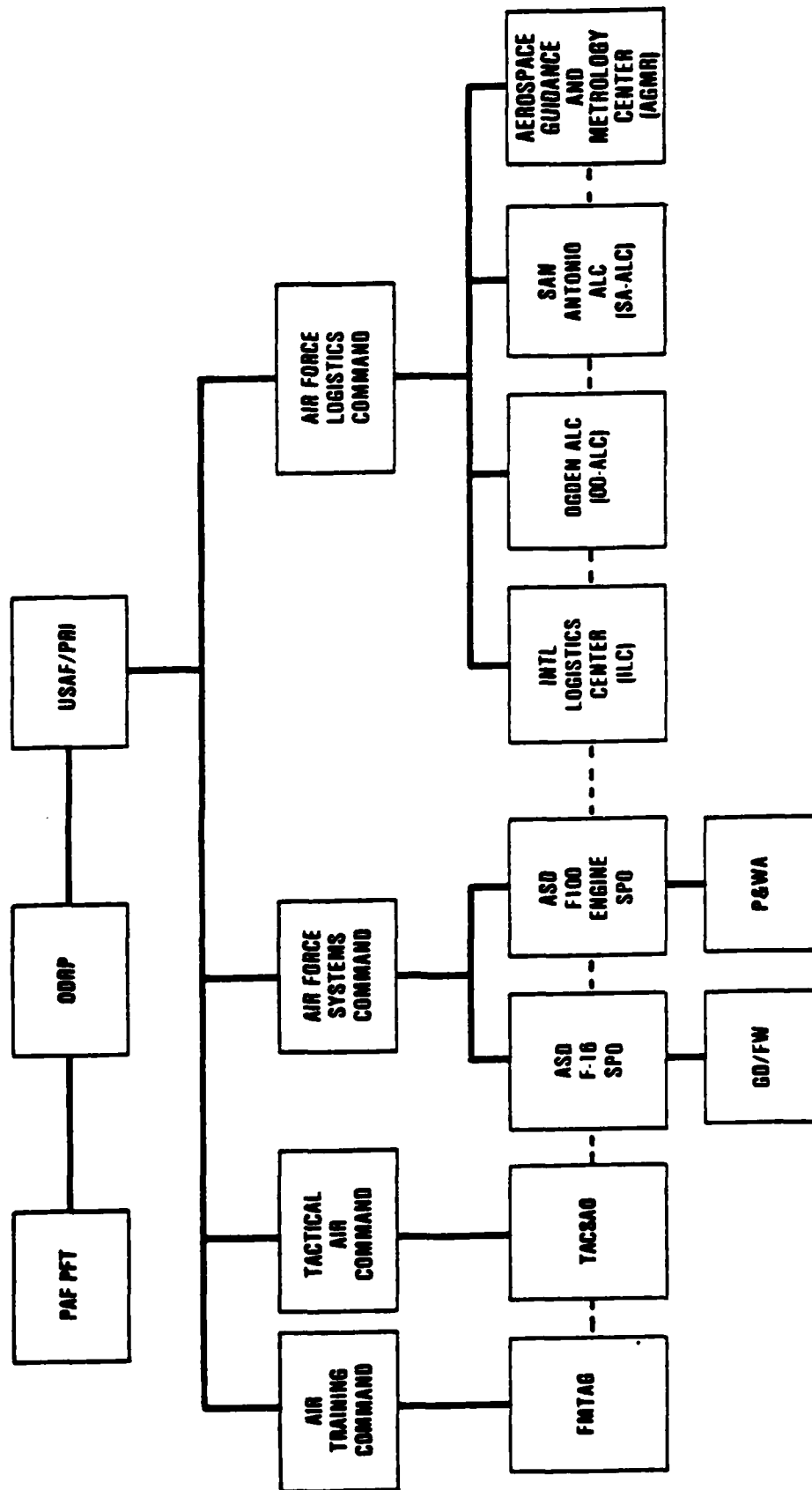
The acquisition phase of both PG I and II has included peculiar program requirements such as an accelerated delivery, extraordinary contracting agreements, heavy organizational interactions, and several PAF specific configuration changes. All these aspects of the acquisition approach are to be discussed in this chapter.

Program Management Structure

Figure 2 illustrates the formal program management structure of PEACE GATE.

Headquarters USAF. The Director Of International Programs, HQ USAF/PRI, a subordinate for the Deputy Chief of Staff, Programs and Resources (USAF/PR), is the office of primary responsibility (OPR) for the central management, direction, guidance, and supervision of the Air Force portion of the Military Security Assistance Program (MSAP) for foreign nations and international activities (34:5-2). The subordinate division of PRI, USAF/PRIE (Asian Programs), initiated the action for the implementation of the PEACE GATE program to the USAF Commands through the issue of Case Directives for both PG I and II (42:1-3). Presently, PRIE provides executive management and policy guidance for PG (42:3-4,5).

Figure 2. Peace Gate Program Management Structure



Air Force Systems Command (AFSC). Implementation of PEACE GATE is the responsibility of AFSC. The Aeronautical Systems Division, F-16 SPO (ASD/YP) has overall integration responsibility for the acquisition of the F-16 weapon system. ASD/YP's responsibilities include the management of contracting, manufacturing, engineering, testing, configuration changes, and initial deployment phases for the program. Within the F-16 SPO, specific responsibility for the planning, controlling, and executing of PG I and II system acquisition and delivery rests with the International Programs Division, ASD/YPXI, under the Directorate of Multinational Programs (YPX) (42:1-4). YPXI serves as the primary SPO focal point for Pakistan matters. YPXI communicates program plans, policies, decisions, and strategies with other USAF Commands and government contractors through the implementation of the Management Action Team (MAT) (42:3-5,6). The MAT serves as a primary vehicle for pursuing solutions to ongoing action items and other internal management issues (42:3-12,13) and will be discussed at length later in this chapter.

Air Force Logistics Command (AFLC). The Commander of the International Logistics Center (AFLC/ILC) has overall integration responsibility for logistical support of all FMS programs. This responsibility includes the management of follow-on support including spares, equipment, publications, munitions, maintenance, etc. The Asian/Far East Programs

Office (ILC/SRM-3), serves as the primary focal point for F-16 logistical matters for PG. ILC/SRM-3 is also responsible for implementing the CIS cases in-country (42:1-4).

Air Training Command (ATC). The services of this major command occur throughout the acquisition and logistics support phases of the program. The Foreign Military Training Affairs Group (FMTAG) acts as the central manager for all PAF pilot, maintenance, and munition training, interfacing with both HQ Tactical Air Command (TAC) and HQ ATC to develop and execute training programs (42:3-9).

Office of the Defense Representative-Pakistan (ODRP). The ODRP, located in Islamabad, provides in-country liaison with the PAF regarding FMS policy issues as they relate to PG and assists in timely transmission of correspondences between USAF, PAF, and contractor personnel (42:3-8).

Pakistan Air Force (PAF). The PAF's management structure is less complex than the USAF's counterpart. Subordinate to the PAF Assistant Chief of Staff, Operations, is the Pakistan Air Force Project Falcon Team (PAFPFT). The PAFPFT's primary purpose is to act as the central working group in-country to assure that F-16 weapon systems are acquired, delivered, and supported at the designated Pakistani air bases. The PAFPFT is comprised of six high-ranking PAF officers (USAF Lieutenant Colonel equivalent and above) of various functional backgrounds (e.g., engineering, supply, avionics, etc.). The PAFPFT communicates its program

concerns through the ODRP and in some cases directly to USAF and contractor personnel. The project director up until January 1984 was Air Commodore (Brig General equivalent) Hakimullah Khan (19). Figure 3 shows the PAFPFT members and their PAF position on the program. The establishment of the PAFPFT has provided direct accessibility to Pakistan's chain of command (Chief of Staff PAF up to General Zia) on major program issues and decisions (42:3-13). At the SPO level, the PAFPFT has also provided liaison support. The present Senior National Representative (SNR) is Wing Commander Mushaf Ali Mir (48:5).

<u>Name</u>	<u>PAF Position</u>
Air Commodore Hakimullah Khan	Chief Project Director - Falcon
Wing Commander Niaz Husain	Duputy Projector Director (Avionics)
Wing Commander Khalid Jalik	Deputy Project Director (Supply)
Squadron Leader Shaukat Zafar	Assistant Project Director (Engineering)
Squadron Leader Shahid Hamid	Assistant Project Director (Weapons)
Squadron Leader Altaf Malik	Assistant Project Director (Administration)

Figure 3. Pakistan Air Force Project Falcon Team (PAFPFT) Members.

Government Contractors. Along with its normal USAF production requirements, the General Dynamics (GD) Corporation/

Forth Worth Division provides F-16 production planning and management for all PG aircraft (42:3-9). GD's responsibilities also include the incorporation and verification of approved configuration changes to production line hardware and subsequent support of retrofits to system already in the field (42:3-9). Both PG I and II programs rely on GD's logistics and maintenance support in-country until full USAF (CLSSA) is available 42 months after LOA signature (44:71). Other defense contractors include Pratt and Whitney Aircraft (P&WA) (F-100 Engine), Westinghouse (Fire Control Radar), and Singer (Inertial Navigation System).

System Acquisition Strategies

The system acquisition strategy for any major weapon system contains schedule, cost, and technical performance parameters. These parameters are not exclusive; however, one parameter (e.g., schedule) may take precedence over the others. This was the case in the PEACE GATE program. Since GD's normal production delivery lead time for FMS programs is 36 months after LOA signature (59), both PG I and II delivery schedules of 12 and 24 months, respectively, were "dynamically time compressed" (42:3-10). A schedule emphasis has thus guided the entire acquisition approach on the program. Frequency of meetings, organizational relationships, configuration changes, and overall PG management decisions have all been influenced by this dominant parameter (6).

Because of such a critical schedule emphasis, diversion, reallocation, and other workarounds were necessary. In early September 1981, Under Secretary of State James Buckley, during his visit to Islamabad, assured the Government of Pakistan (GOP) that the U.S. government was committed to providing the initial delivery of six F-16s in December 1982 (16:25). To service this commitment HQ USAF/PRI decided that the following workarounds would be required:

1. USAF dedicated aircraft already on the GD production line would have to be diverted to Pakistan.

2. The six TAC aircraft would be replaced by six aircraft from the European Participating Governments (EPG) production line. Replacement of USAF aircraft would take place in CY 84, and EPG replacement would be at the end of current EPG production (59).

As a result of these decisions for PG I aircraft, extraordinary contracting arrangements during the acquisition phase were initiated among USAF SPOs, GD, and P&WA in the spare parts and support equipment areas (1:8). Contractor and USAF personnel met in planning meetings in late September 1981 to discuss the minimum essential support equipment and spares needed for both PG I and II (2:1). Although it was determined that both GD and P&W had been gearing up for another FMS program (PEACE DELTA-Venezuela), they both had to require their vendors to commit to long lead procurement of components and spares (59). These commitments were

made at the risk of GD and P&W (1:8). Also in some instances, GD and P&WA had to acquire nonstandard support equipment (SE) to achieve the needed workarounds for both programs. Also, for some common SE vendors were asked to accelerate their delivery dates through increased production rates (59). Of the approximately 15,000 required line items (spares and SE) to the total acquisition package, it was estimated that about 500 would require some type of work-around action (2:2).

Another acquisition strategy applied to the PG program has been the extensive involvement of both the PAF and contractor personnel on program issues and decision making. Because communication, coordination, and cooperation are so vital amongst the responsible managers in a weapon system acquisition, organizational responsibilities had to be established early in the program. Direct communication links among key designated representatives from respective offices were and have been a critical factor of success thus far throughout the acquisition phases. From the contractors' side, GD and P&WA have used their past experience with FMS programs to enhance USAF program managers' performance. For example, the CIS package was written and suggested for implementation by the present PG program manager at GD (6). Contractor support has been invaluable in providing cost estimates to the program office (YPXI) during the initial planning and pricing phases. From the PAF's side, PAFPFT has

shown an exceptional level of understanding of U.S. DOD system acquisition management philosophies (19). The competency of an individual such as Air Commodore Hakimullah, Chief Project Director - PAFPFT, with his ability to take responsibility, and be decisive has enabled the PG program to progress through program phases (19).

While key organizational involvement has contributed to program success, the lead command authority was not well defined early in the program (19). Because of the discussed political and military sensitivities surrounding the PG sale, HQ USAF/PRIE wanted to manage the program from its inception (19) and thus deviate from the AFSC lead command philosophy (19, 10:7-2). As a result, breakdowns in communication between USAF, PAF, and contractor personnel over program requirements were quite common early in the program (6).

Management Action Team. In an effort to prevent further communication gaps, adverse working relations, and a complete deviation from normal implementation procedures, the Management Action Team (MAT) concept was established by YPXI (19). MAT members include representatives from all major USAF commands, contractor personnel, and invited members of the PAFPFT (42:3-12) (see Appendix D for a listing of MAT members). With PRIE chairing all MAT meetings, the MAT approach has given HQ USAF adequate visibility over internal program management action, problems, and decisions (19). YPXI still has the primary responsibility of scheduling MAT meetings;

documenting, coordinating, and tracking MAT decisions and action items (42:3-12,13). Thus, the MAT concept has helped to differentiate between staff and implementing command authorities and responsibilities in the accomplishment of program requirements.

A final aspect of the acquisition strategy covered in this section has been the management review process for PG. Program Management Reviews (PMRs) have been conducted quarterly, mainly in CONUS, and began in March 1982 (43). Deployment Status Reviews (DSRs) were held semi-annually, concurrently with every other PMR, for the first two years of the program and have been held in Pakistan at Saragodha Air Base. The first DSR was held in June 1982 (44). PMRs/DSRs have augmented the monthly MAT meetings and have been used by the MAT to present to the customer, represented by the PAFPFT in attendance, program status, problems, and strategies during the sale and support phases of PG. Attendance by USAF, PAF, and contractor personnel has been mandatory.

Because of the PG program peculiarities, the frequency and importance of PMRs and DSRs have increased. With the accelerated delivery schedule of PG I, four PMRs and two DSRs were conducted in CY 82 (42:3-10). Thus far, eight PMRs and four DSRs have been conducted (49:19). Also because of the major PAF aircraft modifications, to be discussed, some means of change control and status accounting at an elevated level needed to take place. PMRs/DSRs have

met this requirement by being the primary vehicles for decision-making sessions and coordinating managerial actions between the MAT and PAFPFT (42:3-10).

The cost and technical performance aspects of the acquisition strategy are to be covered separately in the financial management and configuration management sections, respectively.

Financial Management Strategy

Prior to LOA signature in December 1981 for both PG programs, major contracting arrangements discussed significantly impacted the total cost of the 40 F-16 aircraft. This section examines the financial management approach taken on the program and includes pricing guidelines, cost breakdowns, and a discussion of the payment schedule for PG.

Financial management planning and tracking of implementation activities have been accomplished by the F-16 program control directorate, YPPI (42:3-6). Financial management functions include (1) the administration and monitoring of funds for implementing PG cases assigned to AFSC, (2) the coordination of all actions affecting LOA sub-case values or payment schedule changes, and (3) the initiation of action to develop and procure items under cognizance of AFSC (42:3-6). As early as June 1981 P&R estimates were established for the entire program (37). From this time up until LOA signature, pricing guidelines were developed for both LOAs, and a

determination of which program elements should be a part of PG I or PG II was made (32). Cost and item breakdowns of government furnished equipment (GFE) and contractor furnished equipment (CFE) were made as early as September 1981 (2:1). Also in September 1981 the first Price and Availability (P&A) estimates were completed for both programs (37). However, after the Site Survey revealed that the PAF's Main Operating Base (MOB) at Saragodha was in "better than anticipated" conditions pricing assumptions had to be revised (32, 60).

Although the PAF's operational capability minimized some LOA sub-case values, the accelerated delivery and payback cost requirements impacted PG I unit cost significantly. The pricing assumptions that drove the financial management strategy were based on the following guidelines:

1. Replacement costs for substitute spare parts, support equipment, and other long lead procurements for all PG I aircraft.
2. Increased direct and indirect costs (e.g., labor rates) from the EPG production line.
3. Estimated replacements costs of manufacturing six new aircraft at the end of EPG production and associated inflation rates.
4. Costs to modify USAF aircraft baseline specifications (with normal FMS security deletions) and the costs to modify EPG configured aircraft to USAF configuration.

5. Any additional costs associated with the replacement aircraft, such as the cost to ferry EPG aircraft to CONUS (59).

Also since USAF paid for its six EPG replacements with reimbursable funds, any additional cost to replace EPG aircraft into their respective inventories would be charged to the Government of Pakistan.

The GOP has responded to these high payback costs for PG I aircraft by placing an additional amount of funds in the PG I account (19,32). In July 1983 HQ USAF/PRIE decided that in the event of an excess of uncommitted funds in the PG I account, a direct transfer of funds to PG II would be permissible (32). The GOP has requested a transfer be made if there remains any additional amount of funds (19). However, payback costs from PG I have still been an ongoing concern (6) and the transfer of funds has not yet been made (32).

In summary, because of the accelerated delivery, replacement and payback costs, PG I aircraft unit cost was considerably higher, approximately \$17 million, compared to the PG II price of \$14 million per aircraft (19). The total number of sub-cases for PG I was 26 and the total number for PG II was 40 (36). Figure 4 shows the cost breakdown for PEACE GATE as outlined in the Determination Findings report completed in December 1981:

	<u>GATE I</u>	<u>GATE II</u>
F-16A Aircraft	\$ 35,662,000	\$410,310,000
F-16B	74,688,000	56,504,000
Other Cost	<u>122,591,000</u>	<u>452,894,000</u>
Estimated Cost	\$232,941,000	\$919,708,000
Estimated Packing, Crating and Handling Cost	75,845	414,949
Estimated G&A	6,817,200	27,427,050
Non-Standard Items	285,050	273,650
Estimated Supply Support Arrangement	-0-	-0-
Other Estimated Cost	<u>1,095,758</u>	<u>958,084,594</u>
ESTIMATED TOTAL COST	\$241,214,853	\$958,084,594

Figure 4. Peace Gate Cost Breakdown.

The payment schedule for the PG I program began with the initial deposit at LOA signature of \$1.1 million and continued with quarterly payments for eight payments until December 1983 (36). The GOP had experienced some problems early in the program with making its payments but has corrected its deficiencies and has met all its obligations for PG I (32).

The PG II payment schedule began with an initial deposit at LOA signature of \$22.2 million. Payments began in June 1982 and are to be made quarterly until 15 December 1985 (36).

The next section examines the configuration management approach applied to the program.

Configuration Management

In both the PG programs, acquisition managers have had to contend with significant PAF configuration modifications to the F-16 aircraft. Configuration Management (CM) consists of four key activities: configuration identification, change control, verification of change incorporation, and status accounting. Through CM the air vehicle, components, and associated equipment are identified by means of specifications and drawings, and other engineering documents to establish its production fabrication baseline (17:29). CM also provides a formal change-control process, verifies by inspection the incorporation of authorized changes and enters data into a status accounting computer-file data base which tracks "as built" and "as designed" F-16s for the life of the contract (17:4,29). CM identifies configuration by part number and provides reports of change status and present configuration.

Formal change management and control for PG aircraft began with the established production baseline at LOA signature. Any changes to this baseline have been and will be reviewed by the F-16 Multinational Change Control Board (MCCB) which is made up of representatives of USAF and a PAF representative (17:29). The MCCB determines the type,

impact, need, and feasibility of the change. An Engineering Change Proposal (ECP) is the response to requests for changes to PAF F-16 air vehicle and associated items (support training equipment, and software). Class II modifications are the most common ECPs and affect changes to the already accepted baseline (42:5-7). Class II modifications have been processed through the local USAF Plant Representative Office (AFPRO) for concurrence as to the change classification prior to MCCB review. Upon review, Class II changes have been processed, released, incorporated, and verified at first incorporation by final inspection at the GD plant (42:507).

PG I and II F-16 A and B models are being produced and delivered in the USAF approved FMS Block 15 Multinational Staged Improvement Program (MSIP I) base line configuration with PAF modifications (42:5-3). Block 15 is the standard F-16 A/B aircraft configuration from the GD production line for FMS programs, and contains normal FMS security deletions (1:2).

PAF peculiar modifications for PG I aircraft were defined in ECPs 0715R1 and 0794. ECP 0715R1 is a Class II change which included the modification of Block 15 fire control radar, replacing the radar computer, digital signal processor, and low power radio frequency with Block 5 radar components (43). The FMS configuration Block 15 radar and associated avionics were retrofitted in July 1983 under ECP 0891 (42:5-3). PG II aircraft were built and delivered

with FMS Block 15 radar configuration under ECP 0715R1C1 (42:5-3). ECP 0794 incorporated the digital C-9492 cockpit controller for the ALQ-131 Electronics Countermeasures (ECM) pod (42:5-3). PG II aircraft included the C-9492 controller during production (48:4).

The most controversial configuration change was the inclusion of the ALR-69 RWR in the PG aircraft. Since USAF aircraft normally contain the ALR-69 RWR, when aircraft USAF were diverted, GD had to remove the ALR-69, and eventually replaced it with the ALR-46(V)-9 (59). The PAFPFT took exception to this proposal and continually pressed for the ALR-69 (19). After a series of technical discussions and political pressures by the Government of Pakistan, the ALR-69 was finally approved for PG aircraft on 24 November 1982 (42:5-3). PG I aircraft have been retrofitted with the ALR-69, incorporated under ECP 0936, by the second quarter of CY 1984, and the ALR-69 will be incorporated in PG II before delivery under ECP 0715R1C1 (42:5-3). Although minor software anomalies continue to be an open time for resolution between PAF and USAF (19) the decision to release such sensitive technology to the PAF has not compromised USAF security.

The final section summarizes three major acquisition management issues affecting USAF program management.

Major Program Issues and Management Action

The following issues provide the basis for a concluding analysis of the PEACE GATE acquisition program.

Organizational Relationships and Authority. With political, military, and economic factors surrounding the program, there has had to be extensive and competent program performance from the entire PG management team. From program inception, USAF program managers at the SPO level have had to plan well and to rely on the needed support of the PAFPFT and contractors to meet program milestones. Both parties have proved themselves to be responsible by displaying exceptional levels of technical and managerial competency at MAT meetings and PMRs/DSRs. PAFPFT leadership has used full decision-making authority delegated by the Chief of Staff of PAF (39). GD and P&W have also helped considerably by complying with initial support requirements through its CIS arrangements (to be discussed further in Chapter Four).

The MAT concept has also proved invaluable and enhanced program progress. Although an attempted deviation from normal lead command philosophy was attempted early in the program, the MAT approach has resolved this early impediment and has been able to minimize other internal conflicts among USAF and contractor personnel. Candid and frank disclosures of facts of MAT meetings has led to timely problem solving (39). Finally permitting the Senior National Representative of Pakistan to attend MAT meetings has provided valuable

insights for USAF and contractors to make critical program decisions (19). Thus, with the entire PG program being schedule driven, the PG team have had to work "hard and fast" together toward common and concrete program goals (39).

Accelerated Delivery. The accelerated delivery issue has lead to diversions, reallocations, and other workarounds for both PG I and II. Major diversions included the six PG I aircraft from USAF inventory, 42 MAU 12 bombracks (30 for PG I and 12 for PG II), and 21 LAU 117 Maverick missile launchers (47:4). EPG aircraft are to be replaced in their respective industries at the end of EPG production. Diversions have led to unique payback requirements which have caused unique contracting agreements to be made among USAF program managers. In addition, the accelerated delivery requirement has caused the PAF to pay premium prices on standard and nonstandard support equipment and spare parts (1:2). These arrangements along with the payback costs have significantly increased the program unit cost of F-16s, especially under PG I. Finally, an accelerated delivery has increased managerial control as seen in the frequency of meetings during the first two years of the program.

PAF Modifications. With major configuration changes for PAF being (1) the FMS AN APG-66 Fire Control Radar, (2) the ALR-69 RWR, and (3) C-9492 ECM Pod Controller, (4) FMS A6Q-131 ECM pod; operability and supportability factors were impacted. The delivery schedule slip from 7 December 1982 to

25 January 1983 was directly attributable to the RWR issue being left unresolved (19). PG I aircraft have only recently (April 1984) obtained ALR-69 capability because of required retrofits (19). Also, with introduction of modification to PG aircraft, the PAF have introduced an element of technological risk and aircraft performance may be impacted (1:2).

The F-16 SPO has responded to these changes with strict configuration control. Associated ECPs define specific configuration changes and retrofits required. Mutual agreements on required 'fixes' between the PAF and USAF as in the case of the AN APG-66 Radar and in the recommendation to go sole source on the ALQ-131 ECM Pod Controller from Westinghouse have minimized further schedule slips.

Summary

The political nature of the program combined with the desired military capabilities of the PAF have led to the managerial problems encountered and the strategies applied by the MAT during the acquisition portion of PEACE GATE. To service an accelerated delivery schedule requirement, diversions and reallocation of aircraft and support equipment had to take place. Extraordinary contracting arrangements also had to be made. High payback cost requirements have caused the program cost of PG I to be relatively higher than F-16 FMS programs of comparable size. Frequent meetings and heavy organizational interactions among responsible managers

throughout the acquisition phase were needed, and finally PAF configuration changes requiring state-of-the-art technology to be transferred, have deviated from the standard FMS security deletions. All in all, the sale of F-16s to Pakistan has caused significant managerial issues and problems to surface which have collectively influenced the acquisition parameters and strategy of the PG program.

The next chapter focuses on the logistics support portion of PG and takes a similar approach by focusing on the managerial problems encountered and strategies implemented in the operation, maintenance, and supply of PG aircraft delivered in-country.

IV. Peace Gate Logistics Management

Introduction

In addition to guiding the Peace Gate program through the acquisition phase, the Peace Gate Management Action Team (MAT) must also build a strong foundation of logistics support--a foundation defined by the extent and nature of planned aircraft operations. The PAF concept of operations, designed to accommodate the small number of aircraft and lean measure of financial support (18:53), called for the establishment of a main operating base (MOB) at Sargodha Air Base, which was located 100 miles west of Lahore and, as mentioned earlier, eventually the establishment of two forward operating bases; Masroor Air Base in Karachi and Kamra Air Base just southeast of Peshawar. The Pakistan Air Force concept is for two squadrons, flying an average of 15 hours per month, per aircraft, to operate from Sargodha, occasionally deploying up to ten aircraft for a two- to four-week period at either of the forward operating bases (42:2-3; 51:II-1).

The purpose of this fourth chapter is to examine the progress made by the Management Action Team toward meeting the Peace Gate logistics challenge--in order to identify and analyze the important managerial problems related to the logistics effort. The chapter identifies the logistics

objectives of the Peace Gate program as well as the major strategies that have been used to resolve the logistics problems encountered.

Objectives

The principle logistics objectives of the Peace Gate management team were, first, to establish the necessary facilities and services required to support the planned PAF F-16 operations beginning in December 1982; and second, to build the establishment required to accommodate the larger number of aircraft planned for Peace Gate II. The ultimate logistics objective was to complete the tasks necessary to achieve PAF self-sufficiency and a continuous reliable supply of spare parts (42, 63).

The Peace Gate management team thus, in the short run, needed to develop and implement a strategy that assured sufficient competent Pakistan Air Force pilots and maintenance technicians would be available to operate and repair the initial six PG I aircraft. The management team also needed to find a way to get the necessary equipment and lay-in of spare parts to Sargodha Air Base in time to meet the anticipated December 1982 demand. Additionally, the Peace Gate management team needed to develop procedures and support systems that would provide for interim support, CONUS support, and "workarounds" that compensated for equipment shortfalls. This short-term strategy also needed to consider

the ultimate PAF requirements for maintenance self-sufficiency, depot support, and follow-on spare parts (63).

Management Structure

Several USAF organizations represented on the Peace Gate Management Action Team play an important part in managing the logistics effort. The key US logistics organizations include those listed below. Figure 2 of Chapter Three gives their relationship to the overall Peace Gate management structure.

ASD/YP. While primarily involved in the acquisition of aircraft for the PAF, as described in Chapter Three, this F-16 system program office (SPO) is also responsible for assuring supervision of logistics projects as well as logistics management performance throughout the Peace Gate program (41:II-1).

ASD/YZ. Logistics responsibilities of the propulsion SPO are primarily associated with managing the development and implementation of the support program for the F-100 engine used by the F-16. ASD/YZ is also partly responsible for oversight of Pratt and Whitney Aircraft (P&WA) Peace Gate contract performance (42:3-9).

AFLC ILC/SRM-3. This branch of the International Logistics Center (ILC), Asian/Far East Programs office, is responsible for managing the follow-on support phase of Peace Gate. The International Logistics Center is responsible for overseeing most of the development of Peace Gate logistics

capabilities--much of which is accomplished by air logistics centers, and is singly responsible for the transition to and operation of the cooperative logistics supply support arrangement (CLSSA) with Pakistan. Because of its experience with spares demand, the ILC is also involved in assisting the PAF in identifying and acquiring key elements of initial logistics support (42:3-9).

AFLC ALCs. Three air logistics centers (ALCs) of the Air Force Logistics Command (AFLC), with guidance and direction from the ILC, are involved in the management of Peace Gate logistics support. Ogden ALC (OO-ALC), as the F-16 system logistics manager, is responsible for managing the planning, procurement and contracting actions needed to ensure that all spares, repair parts, and common support equipment are available in sufficient time and quantities. Ogden ALC also negotiates the support contract given to General Dynamics. (The Air Force Contract Maintenance Center [AFCMC] and the GD Air Force Plant Representative Office [AFPRO] administers the contract.) San Antonio ALC (SA-ALC), as the USAF F-100 engine system manager, oversees P&WA acquisition of engine spares, spare parts, accessories, support equipment spares, as well as engine and engine support equipment maintenance required during the initial support period. In addition, SA-ALC is responsible for assisting the PAF task of defining engine support requirements for the follow-on support period and oversees the

acquisition of base support equipment such as LOX plants, refuelers, and barriers. All ALQ-131 electronic counter-measures pod support equipment issues are a SA-ALC responsibility. Warner Robins ALC (WR-ALC), however, is responsible for all other electronic warfare (EW) hardware and software support (ALR-69, ALE-40, ALQ-131) and thus acts as the focal point for all EW support matters (42:3-9).

ATC/FMTAG. As Chapter Three points out, the Foreign Military Training Affairs Group (FMTAG) of the Air Training Command acts as the central manager for all PAF operations and logistics training. The FMTAG coordinates the many simultaneous training courses conducted by USAF and contractor instructors in the United States (42:3-10).

Contractors. General Dynamics Corporation, Fort Worth (GD/FW) and Pratt and Whitney Aircraft Division of United Technologies Corporation (P&WA) are also important members of the management action team. Through contracts with the USAF, General Dynamics/Fort Worth is responsible for implementing most of the initial logistics support plan including on-site personnel support services, maintenance support equipment and training, initial supply support and management of all non-USAF Peace Gate transportation requirements (42:3-10).

P&WA has the responsibility for determining F-100 spares requirements and furnishing all facilities, labor and equipment necessary to perform repair/overhaul of engines, along with their modules, accessories and support equipment. P&WA

is also responsible for all CONUS repair activities, including engine transportation to GD, provisioning, scheduling and reporting (42:20-10). Finally, P&WA is responsible for engine maintenance training in the United States as well as augmentation of the General Dynamics managed maintenance team in Pakistan (42:3-10).

In addition to the U.S. management team, the Pakistan Air Force Project Falcon Team is an important part of the Peace Gate logistics management structure. Each member of the Project Falcon Team listed in Chapter Three is vitally important to the success of the Peace Gate program (42:3-13). The Project Falcon Team, working together with the USAF Management Action Team, is responsible for developing the logistics strategy and managing the course of its implementation--both in the United States and Pakistan. This strategy and many of its specific logistics tasks are described in the next section.

Peace Gate Logistics Strategy

Because the United States agreed to deliver the first aircraft to Pakistan within a year, the normal FMS logistics support planning procedures could not work. Under normal foreign military sales procedures for acquiring a new USAF aircraft, aircraft would be delivered as they became available from the production line. The lead-time associated with a normal F-16 FMS program is usually long enough for the

System Program Office and the International Logistics Center to obtain enough logistics support to underwrite the initial period. This period, running at 42 months during logistics strategy development (5), is needed to accommodate the long lead times associated with many items of support equipment and critical spare parts. Thus, in establishing the logistics strategy, Peace Gate managers considered two questions: First, under what conditions would it be possible to support PAF flying operations so quickly? Second, what management procedures would be the most effective--given the severe constraints of time, money, and equipment lead time?

The answer to the first question depended on the amount of degradation the customer was willing to accept, their ability to pay, and the measure of effort available from the seller. The Peace Gate management team concluded that "small numbers" of aircraft could be marginally supported provided that (1) the PAF could accept a 30 percent out of commission rate for their aircraft along with high cannibalization rates, (2) the PAF could provide sufficient capable people for training, (3) an extraordinary management effort was planned and executed, and (4) the primary contractors were allowed to "move out quickly with procurement" (50). The answer to the second question--how to do it--was largely determined by the time constraints. Contractor Initial Support (CIS) services from General Dynamics and Pratt & Whitney Aircraft seemed the only reasonable means to meet the

first logistics goal--support of PAF F-16 operations in December 1982 (42:10-2).

During the initial strategy development, General Dynamics indicated that the specified program requirements left them with little room to maneuver (50) and pressures from the contractor to get underway quickly were put on the USAF program managers early on. GD/FW indicated they could only support two FMS programs per year and that any delay in the planned support program (from any source) would put either their commitment to protect USAF F-16 programs or the Peace Gate effort itself in jeopardy (56).

Program managers also had to contend with the concerns of the USAF Tactical Air Forces (TAF). Pressure from the operational commands to limit the impact of accelerated delivery on the USAF F-16 logistics support program came quickly. During the initial discussions, TAF briefers noted that there were over 200 spare parts identified as long lead (11-39 months) late-to-activation items--many of which were "grounding-type" parts. TAF representatives expressed the concern that these support requirements, because of their importance to Peace Gate success, might be diverted from scheduled USAF deliveries or provided through "adjustments" to USAF delivery dates. The level of TAF concern was due in part to the fact that two other accelerated F-16 FMS programs were also in-progress (2:2).

Thus, at the outset, Peace Gate managers faced pressures to both satisfy the needs of the FMS customer and protect USAF F-16 logistics capabilities--without the benefit of either adequate resources or sufficient latitude for work around design (63). Within this environment, the Management Action Team faced the task of developing a strategy that would support F-16 operations in December 1982 and, ultimately, carry the PAF to a point of self-sufficiency and a continuing and permanent source of supply. Applying the logistics strategy of using Contractor Initial Support until long-lead items became available, the Peace Gate management team developed concepts for maintenance, resource management, training, and infrastructure development.

Maintenance Concept. After some discussion, the traditional USAF three-level maintenance structure, modified to meet the management constraints imposed by the Pakistani environment, was selected by the Project Falcon Team to serve as the centerpiece for the development of its maintenance. Concept. It was agreed that through joint management, the PAF and USAF would pursue the logistics goal of ultimately developing the PAF ability to perform the two lowest levels of maintenance. The USAF program managers also acknowledged PAF desires to develop the capability to perform depot-level maintenance, but put off consideration of its pursuit until the initial support and continuing follow-on support arrangements at the organizational and intermediate levels could be developed and stabilized (63).

The Peace Gate maintenance plan emphasized that the burden of performance would be on the Pakistan Air Force. Contractor technicians would only provide general maintenance consultation, intermediate-level maintenance, diagnostic assistance, and initial cadre training (41:V-1). The cadre of CONUS-trained PAF technicians (under the guidance of contractor technicians) would be responsible for servicing, inspection, troubleshooting, removal, and replacement of components, operational checks, and weapons loading as soon as the aircraft arrived. Because little time was available for dealing with problems such as communication, culture, or management miscues, this plan placed considerable pressure on the PAF to perform extraordinarily well.

Peace Gate logistics managers acknowledged that, at least during the initial support phase, intermediate-level maintenance was going to be a problem. The scope of maintenance performed in Pakistan, necessarily, would be limited to a level defined by the availability of spares, support equipment, and trained PAF personnel and that in order to minimize aircraft groundings, "workarounds" would be necessary (63). The flow of spare parts in the initial provisioning period (before CLSSA), was a special concern for logistics planners. Because support equipment such as the avionics intermediate shop (AIS) and the electrical standards set (ESS) were clearly not going to be available in time (not to mention long-lead spare parts), the logistics planners

felt compelled to include procedures for CONUS-based contractor assistance in their maintenance plan. Thus, repair-and-return requirements were to be integrated into the existing GD/FW facility--a facility developed to support other accelerated F-16 programs. While Peace Gate managers anticipated that the procedures would be used often, PAF technicians were still expected to conduct as much testing, diagnosis and repairs as possible (41:V-1).

Logistics managers also considered the ultimate objective of PAF self-sufficiency in intermediate-level maintenance. The transition strategy, developed primarily by General Dynamics and ILC managers, considered the limits imposed by the management environment. The factors most affecting the strategy were management and budgetary constraints, lead times for the critical resource elements (support equipment, spares, training), and the PAF ability to plan and construct the necessary facilities. Peace Gate managers planned the drawdown of contractor support to begin in the initial stages of the follow-on support phase--to coincide with the expected increase in PAF ability to support maintenance requirements (42:14-6).

Peace Gate managers developed several techniques to measure the progress of the maintenance effort. A subjective General Dynamics assessment of the PAF maintenance capability was to be used during the initial stages of the program. This measurement device was to be supplemented later with an

account of the number of CONUS repair-and-return items--as an indicator of PAF maintenance self-sufficiency (42:14-7, 14-8).

Resource Management Systems Concept. Both PAF and USAF Peace Gate managers recognized that if they wanted to minimize the risk to PAF flying operations from miscues in provisioning the 14,000 or so F-16 line items, their logistics strategy needed to include an effective and efficient automated logistics system (45:20). In early strategy discussions, US managers stressed that in-country supply resource management was the most critical variable for meeting the support demands of the initial PAF flying program (41:12). The Project Falcon Team agreed, stating that "modern complex, sophisticated weapons systems such as the F-16 demand a corresponding modern, responsive logistics system" (25:1-4).

Thus the condition of the PAF resource management system was an important concern for Peace Gate logistics managers as they developed their concept for the resource management system. Although PAF documentation and control of supply activities used several computer products, these documents were usually out of date and required manual updating. The USAF logistics survey team called the PAF system "basically manual" (25:3-1). The level of General Dynamics concern regarding the importance of supply--and the inadequate condition of the PAF system--was sufficiently high to induce

General Dynamics to strongly recommend the incorporation of an autonomous computer-based supply system--both equipment and procedures--into the Peace Gate resource management plan (55, 42:17-3).

As with the other logistics plans, the Project Falcon managers were expected to exercise final authority throughout the development of Peace Gate resource management system. But, because it was considered critically important to limit program risk--through reliable and consistent system operation--General Dynamics was given virtually complete responsibility for performing resource management tasks during the initial-support phase (while spares asset management would be carried out jointly, the management concept made it clear that General Dynamics would be responsible for this function) (42:11-3).

Training. While the management team considered the expected increase in trained manpower requirements Peace Gate II, the emphasis in developing the training plan was clearly on meeting the first hurdle--developing a cadre capable of supporting the first aircraft in December 1982. Because PAF F-16 configuration modifications were limited, few changes to the standard F-16 FMS training programs were needed. Also, because the standard courses did not require more time than available, the Peace Gate logistics strategy was able to call for their use to support training of initial cadre personnel.

Course start dates were defined by the initial delivery date (41:III-1).

Peace Gate managers designed the FMS operational training program to sufficiently prepare ten Pakistan Air Force pilots to serve as in-country flight instructors and crew members. The commander of No. 11 squadron--first with the F-16--developed the PAF plan to convert the ten CONUS-trained initial cadre into two fully manned squadrons (48:14).

The first six pilots designated to support the initial aircraft deliveries were to be trained at Hill AFB, Utah and General Dynamics/Fort Worth. At Hill, they would undergo transition and advanced fighter training in USAF configured aircraft. At General Dynamics before their flying activity associated with the initial aircraft deliveries, they were scheduled to receive training in Pakistani peculiar equipment operation (in particular the use of the "block 15B" radar scheduled for PAF F-16s) (42:7-13). Three of these pilots were also to receive electronic warfare operations and tactics training in-country through the USAF Tactical Air Warfare Center's (USAFTAWC) Mobile Training Team (MTT) (42:7-11). The plan called for PG II pilots to receive training at Luke AFB, Arizona (43:3). The training plan assumed PAF pilot competency--experience in high-performance jet aircraft and an English comprehension level (ECL) of 80 (42:7-4, 43:8).

The objective of planned maintenance training was to provide PAF technicians the organic capability to conduct organizational and intermediate level maintenance and develop an FTD-based training program at Sargodha Air Base (42:7-3). Logistics training planners calculated the training course requirements and then programmed 126 personnel for maintenance training at General Dynamics and vendor locations throughout the United States (43:3).

The training plan designated General Dynamics to provide the bulk of maintenance training because of their highly qualified instructors, the availability of training equipment and facilities at GD/FW, and the minimal limiting effect of the plan on USAF training programs (18:106). Discussions of Pakistani peculiar concepts such as logistics "trades" versus USAF AFSCs was to be incorporated in the General Dynamics maintenance courses. In addition, the training management team called for OJT training at Hill AFB, McDill AFB, and Luke AFB to be developed specifically considering the desires of the PAF Project Falcon Team (43:10).

Infrastructure. Perhaps the most significant decision affecting the Peace Gate infrastructure plan was the selection of Sargodha Air Base by the PAF for F-16 operations (60:3). Unlike many sites chosen by other Third World FMS programs, Sargodha was a functioning air base capable of supporting high performance jet aircraft such as the French-built Mirage III and V (51). From a logistics per-

spective, the effect of this decision was to limit the range of necessary tasks to manageable proportions--even considering the short time available until F-16 operations were to begin. Had another location such as one of the planned forward operating locations been selected for F-16 basing the dimensions of the effort needed to create a suitable operational environment for the Falcons would have, in all probability, been too large for the ambitious time schedule.

The Peace Gate plan for infrastructure development was based on the results of the site survey conducted at Sargodha Air Base from 3 to 13 October 1981 (46:ix). The site survey team identified and prioritized the necessary facilities projects. The facilities plan outlined 19 essential construction projects including modification/construction of engine, avionics, electronic countermeasures and munitions maintenance facilities, training facilities and munitions storage areas (42:8-5, 8-6). While ASD/YPD was ultimately responsible for technical analysis and recommendations, the responsibility for all the necessary construction and facility modification belonged exclusively to the PAF (42:8-3).

An important management tool for managing the infrastructure development effort was the use of deployment status reviews (DSR) (42:8-5). These reviews formally established a forum where construction status was periodically assessed--

resulting in the documentation of potential areas of concern and planned strategies for resolving them (42:8-5).

Thus the logistics managers, using the advice and assessments of qualified experts, developed the Peace Gate logistics strategy--and promulgated it to all participants through distribution of the program Management Plan (PMP). The PMP was to serve the management team as the baseline, the common path designed to achieve the agreed logistics support objectives (41:II-1).

Analysis of Peace Gate Logistics Management

At the time of this writing, managers on the Project Falcon Team and the US Management Action Team have successfully guided the Peace Gate program to its first logistics goal--the ability to effectively support operations of the initial six aircraft (48:3). The character of the Peace Gate logistics management effort--its pace and direction--has been affected by a combination of what can be called infrastructure, interpersonal, and technical issues (29). This section looks at what the logistics problems affecting these areas were and how the Peace Gate management team successfully managed them. This analysis is conducted with the hope that it will allow us to make some general conclusions about what it was that made, at least the Peace Gate I logistics effort, a success.

Infrastructure Issues. Pakistan's current industry and technical support structure is incapable of efficiently supporting sustained F-16 operations over the long run without outside assistance (55). Building up this infrastructure, however, was not an important issue for the initial provisioning effort. The management team, rather, looked exclusively at those infrastructure deficiencies that could jeopardize December 1982 operations (42:8-5). The fact that the Peace Gate management team successfully met the requirements of initial operations was largely the result of their clear focus of effort, their awareness of the primary and immediate logistics goal and their common commitment to reach that goal (5).

The infrastructure improvements associated with the critical mission essential elements (mission essential for initial operations) received the special attention of Peace Gate managers (44:27). Improvements necessary to accommodate such follow-on logistics support elements as depot maintenance were deferred--virtually dismissed from the attention of the management team (51:III-1). Given the slim margins of time and resources, without this focus of attention and the resulting strict prioritization of infrastructure projects, the Peace Gate management team would not have been able to meet their first objective (55).

The Project Falcon Team shared this focus of effort and understood the urgency required. The PAF immediately began

work on the highest priority projects, translating the facility requirements and design criteria from the site survey report into actual projects through in-house design efforts and close management (44:29). The MAT noted at the second program management review (PMR) that the PAF had shown an "uncommon ability to cut bureaucratic red tape and time in pursuing critical facility construction projects . . . under an extremely compressed schedule for aircraft arrival and CIS support" (44:34). Without this extraordinary PAF effort the Peace Gate infrastructure would not have been ready to meet the December 1982 deadline (46:18; 55).

Another equally important reason for Peace Gate's initial success was management's use of a "hands-on" approach. Early on, General Dynamics stressed the necessity to have a personally involved site activation manager at Sargodha Air Base (44:144). GD's proposal for a site activation team emphasized that an on-site manager could solve most facilities problems quickly, either on-site or through rapid, direct communications with CONUS-based managers. In addition, GD cited the tendency for an on-site manager to become intimately involved and personally committed to the success of the project (44:155).

The use of an on-site manager proved to be an important element in the management success of Peace Gate. In addition to personally resolving numerous infrastructure issues at Sargodha, the on-site manager gave the Peace Gate management

team an early visibility and understanding of logistics trends and potential support problems while still in their development. This advantage gave the management team time--allowing them to remain flexible in their thinking and to deal with the many support issues before they evolved into larger, more difficult problems (5).

Despite deferring consideration of follow-on requirements, the Peace Gate management team remained well aware of the many serious infrastructure deficiencies, especially those needed for intermediate-level maintenance support. The managers were reminded of these shortcomings throughout the initial support period. The logistics computer system and support equipment systems such as the AIS and PMEL were plagued by frequent, unscheduled interruptions and surges in the electric power supply (55). While the Peace Gate management team attempted to develop workarounds and additional support systems to insulate these support systems, the MAT acknowledged that nothing short of resolving the basic infrastructure deficiency and developing a dependable, consistent source of electric power will give the PAF sufficient reliability to support an efficient follow-on capability (55).

Because of the pressure of time and the added management complexity associated with international programs, Peace Gate managers assigned in-country and to the distribution point at GD/FW need a reliable international communication system

(48:275). The arrangements for Pakistan Telephone and Telegraph (PT&T) support of international direct dial telephone service has been and continues to be a problem of sufficient concern to prompt the in-country manager to present it as a major program management review briefing item (48:22). The range of options available to management in the short run are very limited and service to and from Pakistan will remain marginal--and limit the ability to transition to a sustainable follow-on support footing--until an upgrade of the PT&T system supporting Sargodha can be completed (55).

Interpersonal Issues. Neither literature nor interviews identified any significant interpersonal issues. A combination of strong PAF-British cultural roots, a close "customer interface," small project teams, and an atmosphere of assumed integrity and trust are the reasons cited for management success in this area (73, 5). Because of the routine use of English by the Pakistan Air Force pilots, Project Falcon Team managers sought and received a waiver of the U.S. requirement to attend English refresher training (41:xi-27). Even without the refresher training, PAF pilots, according to USAF reports, had no problem with language during their CONUS training. Maintenance students encountered no language difficulties either. A USAF evaluation team noted excellent English comprehension (higher than expected) as well as the smooth cultural integration of PAF students (45:19).

Pakistan's Project Falcon Team and General Dynamics and USAF managers developed a close working relationship. An atmosphere of trust and an enthusiasm for the program evolved through the leadership of HQ USAF/PRIE and General Dynamics program managers (5). The strength of the relationship allowed frank and direct discussions at MAT meetings and program management reviews as well as the standing invitation for the Senior National Representative (SNR) of Pakistan to attend USAF MAT sessions as noted in Chapter Three (19, 5). Because of the time crunch, "management by trust" was the only method possible for Peace Gate logistics managers. The pressures of time forced managers to assume the complete integrity and commitment of all Peace Gate managers--there was no time for a "feeling out period" (5).

In addition to time pressures, the development of trust was attributed, in part, to the relatively small size of the Peace Gate management team. The small size made everyone's involvement and commitment essential--and made close interpersonal relationships the norm (5). While the Peace Gate management team was supported by experts, meetings and working groups never became a "cast of thousands." Several logistics managers stressed that this was a very important reason for Peace Gate's success. The U.S. management leadership challenged Peace Gate MAT members to represent two, and sometimes three organizations in order to keep the size down--with very successful results (5). The decision to

limit the size of the MAT resulted in a close professional relationship and atmosphere of mutual trust. It is this management environment that is credited with the prevention of many logistics problems that otherwise would have interfered with the program's success (5, 55).

Cultural effects were not a source of significant management difficulties either. The adverse effects on effective participation in modern management attributed to Islam by other sources (4, 30, 73) could not be seen. The members of the Project Falcon Team were exceptional managers, were comfortable with responsibility and, in general, made sound management decisions (55, 5, 31). Interviews with USAF managers that worked in Pakistan during Ramadan indicated that Islamic observances, while important to many PAF personnel, were not permitted to affect support of F-16 operations. Pakistan Air Force officers' performance to date reflect a mix of British and Islamic cultures, with British attributes the more visible (55).

While there is no evidence in the program literature that political pressures affected MAT decisions, several managers indicated that political pressures did exist (59; 5). They believed these pressures to be positive, however, in that they served to intensify the mutual commitment to meet the 12-month deadline for initial support availability (5). Opposing pressures to compromise the delivery date in order to accommodate funding or support capability require-

ments were dismissed in favor of other choices such as the innovative exploration of workarounds--or simply doing without (5).

Technical Issues. There were many examples of the PAF's comfortable relation with technology during Peace Gate I. The performance of both PAF pilots and maintenance technicians/instructors is excellent testimony to their ability to absorb technology. USAF managers, for example, reported that the six PAF Peace Gate I pilots "performed 'superbly' and that the 388TFW Academics Section (was) very complimentary on the PAF students' efforts and capabilities" (45:9). The USAFTAWC staff reported that the Pakistani pilots attending ALQ-131 training at Eglin AFB easily mastered the technology associated with the computer reprogramming support concept and intended to implement an aggressive training program on their return (27). Management also reported that the maintenance students did extremely well. Both USAF and contractor instructors stated that the PAF students are "of quality equal to the best of foreign military trainees" (45:9).

The extent that the PAF remains dependent on the US for support of technical equipment is, presently the product of Pakistan's small base of technical infrastructure and the incompatibility of the PAF's base-level logistics concept and the support requirements of the complex F-16 weapons system. ILC managers report that in the PAF the hierarchy of enlisted

ranks solely represents an increasing ability to perform more difficult maintenance tasks rather than a combination of technical ability and increasing level of supervisory responsibility. The top enlisted ranks apparently do not have the same level of management authority as their counterparts in the USAF. Furthermore, junior maintenance officers think of themselves more as engineers and technical experts than supervisors and, in general, have no training or experience as managers. This leaves the PAF virtually without any middle-level management to organize and coordinate the wing's maintenance and support (55).

Presently, because the PAF have a limited number of aircraft (21 as of 6 August 1984), their lack of a functioning management system has not seriously affected flying efficiency. ILC and General Dynamics managers are concerned, however, that the tasks required will soon outstrip the methods in use. One logistics manager noted that while the PAF is now able to manage their airframes, with additional aircraft arriving every month scheduling and control will become more and more difficult--if not impossible (55). Trying to avert the inevitable, General Dynamics and ILC managers have recommended that the PAF give serious attention to developing a maintenance control operation including job-control, material control, and plans and scheduling functions (55; 63).

While it appears that the PAF understand the problem and realizes that some middle level management is necessary to develop efficient maintenance procedures, it is not as clear that they are able (or willing) to transform either senior enlisted or junior officers into middle level managers. Because there appears to be a reluctance to give more responsibility to PAF technicians, the chosen course will most likely be to offer management training for PAF engineering officers (55). A quick fix is not in the foreseeable future, however. Management expertise is developed through a combination of training and years of experience and it will take more than a short course and a few months of contractor advice to solve the problem.

Arguably, this problem could be categorized as an interpersonal issue. On the basis of interviews with USAF managers, it is more likely a technical one however, in that its solution is to be found in training and experience rather than in the modification of cultural principles or values (55). Underestimating the PAF ability to solve the problem would be a mistake. The impressive bias for action and intelligence that has thus far marked the performance of the Project Falcon Team should ultimately prevail. A predilection for attacking problems, using all available management authority to try different approaches--in an atmosphere without the fear of failure--served the Peace Gate managers well throughout their initial provisioning effort and, given

the near-perfect track record, should be sufficient for overcoming the problem (5).

Summary

Thus we can say that from a management perspective, the Peace Gate logistics effort has been an unqualified success. The program has had the benefit of professional and competent managers on both the MAT and Project Falcon Team--managers who had both the authority and ability to make the right decisions at the right time. The managers had the benefit of strong leaders on the USAF, PAF and Contractor teams. These leaders successfully built and sustained a working environment highly conducive to efficient, sound management. Managers felt they could trust each other, adversarial relationships rarely affected the pace or direction of the logistics phase. Managers felt free--indeed compelled--to try innovative solutions without the fear that failure would diminish their professional stature. The Peace Gate management team shared an exceptionally strong, personal commitment to achieving the logistics objectives set out in the PMP. The clear focus and well developed plan of action, combined with the strong predilection for action resulted in extraordinary progress in the initial support phase of the program.

The ability to sustain such a pace of activity into and throughout the follow-on phase of Peace Gate will be limited

by the fundamental infrastructure and technical roadblocks discussed in the previous section. Ultimately, good management and professional attributes will not be enough to resolve the infrastructure deficiencies--problems that will continue to limit the effectiveness of F-16 support. The two challenges to sustained follow-on support presently visible to the management team include the lack of a stable source of electrical power and the limited PAF skill and experience for base-level management. As the number of aircraft requiring support grows and the burden for that support is shifted more and more to the PAF, the effects of these deficiencies will become more pronounced. USAF managers, however, impressed with PAF professionalism and intelligence, are generally optimistic. They believe that the PAF can live up to their reputation as the most competent military organization in the region and that they are able, given sufficient economic support, to resolve the basic infrastructure deficiencies as well as the present challenges to follow-on F-16 logistics support (5; 55).

In order to analyze the Peace Gate challenges to management--to summarize both acquisition and logistics management "lessons learned"--the final chapter reviews the research questions presented in Chapter One. Also, the final section of Chapter Five reflects on the relevance of these conclusions to other F-16 FMS programs.

V. Conclusions and Recommendations

Overview

The sale of the F-16 aircraft to Pakistan is an expression of U.S. determination to support Pakistan security requirements in the face of Soviet troops in Afghanistan. Peace Gate is also, to a great extent, a political expression of a renewed friendship as well as a litmus test of U.S. reliability in foreign relations--a test whose outcome is dependent on the successful management of the Peace Gate program.

The purpose of this thesis is to look at the managerial challenges presented to acquisition and logistics program managers during the Peace Gate program. The character of the Peace Gate program and the nature of the challenges facing management, especially in the early phases, were determined by the greatly accelerated delivery schedule, and the effects of the political environment.

Although not a flawless program by any means, Peace Gate (particularly Peace Gate I) has proven to be an exceptional example of an accelerated FMS program. The program has proven that through the extraordinary cooperation and management among USAF, contractor and customer, F-16s can be

delivered, supported, and safely operated under accelerated conditions and within reasonable, controllable costs.

This last chapter, through a review of the primary research questions posed in Chapter One (as well as the secondary questions raised in subsequent chapters), attempts to reach some conclusions and "lessons learned" from the experiences of Peace Gate managers. The thesis closes with the authors' thoughts on the relevance of these conclusions to other FMS programs and their recommendations for future research in this area.

Research Questions

Research Question One. What are the overall program objectives of the Peace Gate Program?

Peace Gate program objectives are naturally derived from and influenced by the strong symbolic character of the F-16. Thus the primary objective of the Peace Gate program effort was to provide two squadrons of F-16 aircraft--with the necessary support elements--as soon as possible. Although program objectives were never formally stated as such, documents such as the Program Management Plan and the Letters of Offer and Acceptance for both programs clearly defined the program goals and requirements. These included (1) the accelerated delivery of six F-16 aircraft within 12 months and subsequent delivery of 34 aircraft within 30 months--to meet a determined PAF operational concept of two squadrons

flying an average 15 hours per month, per aircraft, and (2) sufficient training of PAF pilots and technicians to operate and maintain the aircraft, along with an infrastructure and logistic support system capable of supporting the planned delivery schedule and operational concept. Other objectives included achieving the lowest aircraft unit cost possible and providing specific PAF configuration changes to the aircraft to obtain highest combat capability possible, considering FMS security deletions.

Research Question Two. How have the social, geo-political, economic, and regional defense issues affected the accomplishment of Peace Gate objectives?

Chapter Two pointed out that Pakistan is one of the many Islamic nations in its part of the world (some would even argue the leading Islamic nation). Although Pakistan has a strong cultural heterogeneity, British values have still played the significant part in forming the attitude and performance of Pakistan Air Force personnel. The observations of USAF managers support the conclusion that the British heritage of the PAF officer corps significantly affects their values and abilities relative to the Western concepts and methods within FMS programs. Strong PAF performance throughout Peace Gate I confirmed their competence and comfortable relationship with Western culture.

As mentioned in the overview, the Peace Gate program is a political expression. The geo-political issues that

brought the United States and Pakistan together also served to shape the the basic management framework and set the limits within which the Peace Gate managers had to develop their strategy. The delivery schedule--which was perhaps the most distinguishing characteristic of the program--was a direct result of the geo-political environment. The geo-political situation also resulted in the government of Pakistan viewing the F-16 in symbolic terms well beyond the military capabilities of the aircraft. This perception played a large role in determining the configuration of some avionics and electronic warfare equipment not normally offered to FMS customers.

At the program management level, the political environment served to intensify the mutual commitment of the PAF and U.S. management teams to achieve the ambitious program objectives. Without the "litmus test," the level of management's commitment to achieving the program objectives would not have necessarily been as strong as it was. The U.S. managers were anxious to demonstrate the measure of U.S. commitment. At the same time, the PAF were anxious to demonstrate their capacity to manage, operate, and support the F-16.

The economic condition of Pakistan can be described as tenuous. While the Pakistan economy has been making moderate gains over the last few years, the added burden of supporting an expensive military program (in relative terms) could

jeopardize their economic future--and hence political stability. Thus, Saudi support of the initial aircraft package as well as the approval of an American economic and military financing support program were essential elements of the Peace Gate economic environment.

Economic limits determined several important program characteristics. First, they played a large part in the selection and support of the F-16 sale (inexpensive, good logistics potential, etc.). The difficult economic conditions in Pakistan also served to define the overall size of the Peace Gate package. The Peace Gate management team also felt the effects of the economic situation as a strong incentive to efficient management. The PAF Project Falcon Team members watched their spending closely--always interested in getting the most for their dollar. thus the economic limits served to encourage efficient financial management rather than directly impeding the success of important program elements.

Because Pakistan lacks the industrial capacity to sustain a technical defense program without substantial support, the PAF will remain dependent on the United States for continuing economic and military financing aid in order that the fragile pattern of economic growth is not jeopardized. The PAF will also require depot-level maintenance support and continuing logistics supply support for the foreseeable future. Finally, the economic condition of

Pakistan means that steps toward the goals of technical maturity and self-sufficiency (such as developing a source of reliable, stable electric power) will be small.

Other than defining the immediate requirement for the renewed alliance between the United States and Pakistan (and thus the considerably accelerated delivery date), the regional defense situation had little effect on the Peace Gate program. The number of aircraft within the Peace Gate program was determined by political and economic factors rather than the military requirements. Thus, there are few links between the perceived scope or lethality of the threat to Pakistan's security and the nature of the military assistance package offered to Islamabad.

Research Question Three. What have been the major acquisition and logistics program management problems in the implementation of the Peace Gate program?

Obviously, making it happen, achieving the acquisition and logistics objectives given the pressures and resources available was the central challenge facing Peace Gate managers. The most significant problems were created by the grossly accelerated time for aircraft delivery and support. The program strategy developed by the Peace Gate management team was developed considering the particular circumstances of the program (little room to maneuver, political sensitivities, economic constraints, etc.). Since past F-16 FMS programs did not contain similar program requirements, Peace

Gate managers could not draw on past experience as much as otherwise. Thus, the management team was faced with developing a basically unique program strategy.

Major acquisition problems included the temporary deviation of the lead command philosophy, with USAF/PRIE eventually delegating proper integration and surveillance authority to the implementing agency ASD/YPXI; extraordinary contracting arrangements made at the risk of General Dynamics and Pratt and Whitney Aircraft with vendors, resulting in premium prices being paid for spares and support equipment; unique payback requirements still being negotiated among the USAF, PAF, and EPG; and PAF specific aircraft configuration requirements which have required state-of-the-art technology to be incorporated into Peace Gate aircraft.

Peace Gate logistics managers faced pressures to both satisfy the needs of the FMS customer and protect USAF F-16 logistics capabilities--without the benefit of either adequate resources or sufficient latitude for workaround design. The most significant infrastructure issues facing Peace Gate management included the lack of critical mission essential facilities at Sargodha, the main operating base and the marginal condition of utilities such as electricity and communications systems. The most important interpersonal issue revolved around the question of the PAF's ability to manage and apply the F-16 technology in general. Technical issues affecting PAF and USAF logistics managers included the

efficacy of PAF conducted operational support training and the questionable development of a base-level logistics management system.

Research Question Four. What policy and program strategies have been implemented to overcome the acquisition and logistical support challenges?

A number of preconditions helped guide the strategies toward program success. As previously pointed out in Chapters Three and Four, Peace Gate had the benefit of professional and competent managers on both the MAT and PFT. These managers had both the authority and the ability to make the right decisions at the right time. Also the mutual acceptance of program objectives was instrumental in allowing the PG team to progress through program phases together. Finally, the freedom among the program players to voice innovative procedures and techniques assured the best use of inputs would be made.

A particular strategy that has been used to overcome Peace Gate challenges has been the use of a close knit management team. Management Action Team meetings have been able to provide Peace Gate managers from the USAF Commands and contractors with monthly visibility into all elements of the program. MAT meetings have lasted an average of three to six hours in duration. With the full disclosure of facts and fingers being pointed when necessary, the MAT concept has

established itself with the common theme among its players of "lets get the job done" (63).

Together with the MAT concept being applied in the program, PMRs and DSRs have been used as final presentation of program plans and strategies to the customer in the resolution problems and other management challenges. Decisions made at the PMRs/DSRs by PAFPFT members in attendance have facilitated progress through program milestones. Heavy contractor and USAF involvement at PMRs/DSRs have also assisted in assuring that the right individual with the right information was present to close out any open action items.

A tight policy on configuration changes has also facilitated the appropriate configuration management needed on the program. The Multinational Change Control Board (MCCB) has assured the F-16 program office that all changes made to the aircraft baseline have been well documented and tracked throughout the configuration control process.

Several logistics management principles such as maintaining a clear focus of effort and emphasizing close on-site management were instrumental in resolving the most important infrastructure issues. Maintaining the close customer interface and using small project teams were important management principles used by the Peace Gate logistics team to help prevent interpersonal and cross-cultural communication problems from interfering with the program. Finally, the assignment of significant responsibilities and a com-

mensurate level of authority to the U.S. management team members, along with the team's clear bias for action were important ingredients in resolving the many technical logistics issues arising during the Peace Gate program.

Research Question Five. What understanding has been gained from the Peace Gate program?

The Peace Gate program, to date, has been very successful. The success is derived from many sources including: (1) contractor capabilities and leadership, (2) extraordinary USAF management action, (3) infrastructure status, (4) PAF technical and managerial competence, and (5) the particular pressures and consequences of the geo-political/economic environment.

One significant lesson of understanding to be gained from the Peace Gate management approach was the successful program progress in managing toward a schedule constraint over cost or technical performance parameters. With the accelerated delivery requirement predominating for the entire Peace Gate program, USAF, contractor, and PAF all seem to have a clearer grasp of their program duties and responsibilities. In the Peace Gate I program in particular, "everyone seems to have the first delivery date in mind" (63). Because of the political pressures and USAF managerial reputation being challenged, all program players could not afford to bicker with one another, table issues, or use words like "can't do" (63). The schedule nature of the program

created an extremely responsive attitude among program managers.

Another lesson acquired from Peace Gate was the positive results of an increased dependence on the contractor to perform. General Dynamic's program planning and management, CIS work, and program management inputs at management reviews, caused them to be the significant contributors to program progress and success. USAF Command program managers, although extremely involved in the accomplishment of program milestones, were able to take on more of a surveillance and integration role whereas GD's primary role was one of "execution" and "control" (63) of program requirements.

That these techniques are universally applicable to FMS programs, indeed that efficient management is necessary for U.S. FMS programs is not a clear conclusion and cannot be assumed. It may be that efficient management--the use of innovative techniques--is not always the best way of doing things. There seems to be several prerequisite conditions for efficient management to matter. There must be program constraints--a blank check, for example, is a disincentive to economic efficiencies. A lack of understanding of Western techno-based culture results in a debilitating inability to perform. Employing such management techniques as the formation of a management action team, establishing an on-site manager and coordinator, in addition to keeping the man-

agement team small is a waste of time unless the conditions are right.

Whether or not the Peace Gate "conditions" are unique--or the extent that management procedures/techniques are applicable to other FMS programs is difficult to determine. The relationship between the conditions necessary for success--the fundamental requirements such as motivation and ability of the customer--need to be more clearly identified. In addition, their relationship to the appropriate management techniques should be examined--generally.

The example of Peace Gate; the exceptional competence of the PAF, the strong leadership of General Dynamics and HQ USAF program managers, and the mutual commitment and favorable management environment, does not seem to match the normal emerging nation program (if indeed there is a norm). (Egyptian and Saudi Arabian programs come to mind in this regard. Both suffer from the near total lack of infrastructure and neither program has to content with significant economic pressures.) Peace does, however, serve as an excellent model of managing an accelerated FMS program. It defines the limit of performance and sets a standard to which other accelerated program can only hope to match.

Recommendations

We believe that this thesis has shown what management techniques worked--and their results. What the thesis does

not do, however, is examine the why. It does not look at management principles and the theories of management excellence as they apply to FMS management. Thus, the authors recommend future efforts aimed at linking those favored and proven management practices to FMS program management. Most thesis efforts in the past have concentrated on the ability of the customer nation or the decisions of State Department and Headquarters USAF managers relative to the political and military effects of an FMS program. Only a very few studies could be found that looked at the managers and how their actions in achieving the program goals were carried out. Current USAF guidance in this respect is limited and depends largely on the experience of co-workers and guidance from more experienced supervisors. While this method has proven relatively successful, it suffers from the effects of rapid turnover characteristic of military organizations. Thus it cannot but help to supplement it with studies of successful and failed management attempts. Ultimately, some general conclusions about what makes successful FMS programs and FMS program managers successful can be arrived at.

To further analyze FMS managerial problems encountered at the sale and support levels and the subsequent management action needed to respond to such challenges, the researchers recommend the following.

- (1) Since there are no specific guidelines that could be applied to every FMS program because of each programs

unique characteristics, additional general guidelines on successful managerial techniques need to be researched and disclosed. Since the F-16 FMS programs have increased under the current administration, a relatively large program data base is now available to make general comparisons possible among these programs. Such program comparisons would benefit the direction of future F-16 FMS managerial strategies taken: (a) acquisition and logistics planning efforts prior to LOA signature, (b) the financial arrangements established under each program (c) the specific aircraft configuration for each country, (d) basic program management approaches established between USAF and government contractors considering contractor and respective customer involved, and (e) logistics assessments, plans, and management.

(2) Since the country's ability to absorb the technologies and acquire a self-sufficient capability plays a key factor in the ultimate success of a FMS program between both the United States and recipient country, a greater emphasis needs to be placed on developing a "transition" or "self-sufficiency" plan for each customer country. (In the case of Peace Gate, having such a plan with objectives and prioritized steps for achieving them, was an important element of success.) Such a plan developed early in the program planning stages by the recipient country would be able to enhance site survey analysis performed and address infrastructure and supply concerns with a problem solving focus.

To be of any use to program players, such a plan would have to identify objective goals and management criteria which would have to be met by the recipient country or contracted technical assistance teams before progressing to the next logistical phase of the program. Without such a plan, continued in-country logistical problems will be left unchecked and will be inevitable.

(3) A final recommendation is the need for USAF program managers to comprehend the significance environmental factors such as cultural, economic, geo-political, and regional defense issues have on the urgency and peculiarities of each F-16 FMS program. A study on the effects of environmental factors on the program's management approaches and decisions could provide valuable insights to future F-16 FMS acquisition and logistics managers.

Appendix A: Glossary of Terms and Acronyms

Definitions

Accelerated Delivery. The advancing, in whole or in part, of the scheduled contractual delivery of material on order to meet emergency requirements (58:1).

Acquisition Manager. An individual charged with overall responsibility for acquisition of weapons systems, individual items of equipment, and facilities as well as planning for logistic support of these end items. The acquisition manager within the system program office is given the title of program manager (58:12).

Acquisition Phase. The period of Peace Gate which extends from the delivery of the initial planning and review (P&R) estimates to the transfer of title for last F-16 at the aircraft turnover point.

Airborne Warning and Control System (AWACS). A USAF aircraft (E-3A) capable of providing long-range detection of multiple targets and capable of controlling friendly aircraft (29:121).

Air Force Logistics Command (AFLC). Air Force major command responsible for all Air Force procurement, supply, transportation, and maintenance. AFLC provides a worldwide direct logistics support system (34:5-12).

Air Force Systems Command (AFSC). Air Force major command which insures that the technological and scientific needs of the Air Force are met. AFSC advances aerospace technology and adapts it into logistically supportable, cost-effective aerospace systems. AFSC is responsible for the design, production, and acquisition of weapons and equipment for Air Force operational and support commands (34:5-12).

ALE-40. A common tactical electro-mechanical system used by USAF and many NATO fighters to dispense chaff and flares for self-protection.

ALQ-131 Pod. A first-line electronic countermeasures (ECM) system used by the USAF and a few selected allied nations. The ALQ-131 pod uses an imbedded computer to store and manage the various countermeasures techniques required to deceive or degrade enemy radars. The C-9492 control panel is used in most aircraft cockpits to control its operation.

ALR-69. A sophisticated radar warning receiver installed in front-line USAF fighters. Using embedded computers and intelligence-based algorithms, the ALR-69 warns the fighter aircrew of radar directed threats.

Avionics Intermediate Shop (AIS). The Avionics Intermediate Shop is a collection of test equipment that provides comprehensive testing of the F-16's digital computer controlled avionic system. The avionics system elements tested include the operational flight computer program and the

stores management operational computer program in both static and dynamic conditions--either separately or integrated with other avionic subsystems. Without an operable AIS, an effective intermediate-level maintenance program cannot exist (18:97).

Bench Stock. A stock of common, inexpensive, serviceable, and expendable consumption type supplies and parts established at or near points of consumption to insure continuous and uninterrupted operations (58:94).

Case. A contractual sales agreement between the United States and an eligible foreign country or international organization documented by DD Form 1513. One FMS case designator is assigned for the purpose of identification, accounting, and data processing for each offer accepted (29:121).

Contractor Engineering and Technical Services (CETS). Services performed by a contractor which provide the necessary liaison, or advice and training to country defense personnel in the installation, operation, maintenance and logistics support of the weapon system or equipment purchased (10:A1-1).

Contractor Furnished Equipment (CFE). Item of hardware, electrical equipment, or other standard production or commercial item furnished by a contractor as designated by the contract (58:167).

Contractor Initial Support (CIS). An interim arrangement during the initial phases of Peace Gate whereby General Dynamics and Pratt and Whitney Aircraft are obligated to furnish to the U.S. Government, either from production, vendors, or from stocks maintained by them, items for support of equipment, and technical service support on an as-required basis, pending assumption of support responsibility by the government (58:169).

Cooperative Supply Support Arrangement (CLSSA). The arrangement under which long-term logistics support is provided to a foreign government through its participation in the U.S. Department of Defense logistics system with reimbursement to the U.S. for support performed (34:8-18). The Peace Gate CLSSA has not, at this time, been finalized.

Critical Item/Material. Those supplies and equipment vital to the support of operations, which owing to various causes are either not available in sufficient quantities to meet requirements or are not anticipated to be available in sufficient quantities to meet planned operations (58:187).

Deployment Status Review (DSR). The primary forum for identifying problems that could adversely impact site activation. During each DSR, normally held in-country, the construction/availability status of functional support elements is reviewed/assessed, and potential areas of concern are documented for resolution (42:8-5).

Determination and Findings (D&F). An independent assessment of the total program requirements to include the cost and schedule parameters and program risk. The D&F document is completed by the procurement contracting officer (PCO) in the same time frame as the completion of the letter of offer and acceptance (LOA). The D&F authorizes the implementing command (in this case AFSC) to negotiate a contract with the respective government contractors without using the formal advertising procedures normally required (58:222).

Electrical Standards Set (ESS). A critical element of the Avionic Intermediate Shop. Continuing AIS operation is not possible without an electrical standards set (42:12-7).

Electronic Countermeasures (ECM) Equipment. Aircraft electronics designed to prevent enemy use of anti-aircraft equipment reliant on the electromagnetic spectrum (such as missile target-tracking radars). The ALQ-131 pod is an example of USAF ECM equipment.

Electronic Warfare (EW). Military operations taken to exploit, prevent or reduce an enemy's effective use of the electromagnetic spectrum. EW includes electronic countermeasures (ECM), electronic support measures (ESM), and electronic counter-countermeasures (ECCM).

Engineering Change Proposal (ECP). A term which includes both a proposed engineering change and the documen-

tation by which the change is described and suggested (58:259).

F-100. The F-100 is a Pratt and Whitney developed series of jet engines for fighter aircraft. One model of the F-100 is used in the F-16 sold to Pakistan.

Facilities. Real property, including all buildings, land, roads, utility lines, etc., required for operation and support of the F-16.

Field Training Detachment (FTD). A detachment of a technical school permanently assigned to an air base or activity. The unit consists of a complement of technically qualified instructors, capable of providing on-site specialized technical instruction required to support systems located at the air base (58:290).

Follow-on Support. Spares and repair parts required for supporting systems and equipment during their service life (10:A1-3).

Foreign Military Sales (FMS). The selling of military equipment and services to friendly foreign governments and international organizations under the authority of the Foreign Military Sales Act of 1968, as amended (58:303).

Foreign Military Training Affairs Group (FMTAG). An executive agency of the Air Training Command (ATC) that manages FMS training programs, provides Price and Availability (P&A) data for use in the development of Letters of

Offer and Acceptance (LOA) and administers Foreign Military Training Program funds (34:13-14).

Forward Operating Base (FOB). An airfield used to support tactical operations without establishing full support facilities. The base may be used for an extended time period but support by a Main Operating Base (MOB) is necessary (58:306).

Gross National Product (GNP). The market value of the output of final goods and services produced by a nation's economy in a year. These goods and services are those not intended for resale and include those goods and services provided by the government.

Industrial Base/Industrial Preparedness. The industrial base is that part of total industrial production and maintenance capacity of a nation available for manufacture and repair of items required by the military services. The ability to immediately produce these essential items is the nation's industrial preparedness (58:343,344).

Infrastructure/Infrastructure Facilities. Infrastructure and infrastructure facilities include all fixed and permanent installations, fabrications, or facilities for the support and control of military forces (58:346).

Intermediate-Level Maintenance. Intermediate maintenance is accomplished on various aircraft line replaceable units (LRU) that have been determined to be faulty or damaged. The LRUs are removed from the aircraft and dispatched

to the appropriate intermediate-level system specialty shop for diagnostic fault isolation and repair. The LRU repair consists of removal of faulty component(s), replacement with a serviceable component, and testing before returning the LRU to spares stock. Intermediate-level maintenance personnel use prepositioned bench stock (expendable items) as required to initiate repair of LRUs. This bench stock is included as part of the spares lay-in (42:14-3).

International Logistics Center (ILC). An autonomous organization of AFLC, the ILC is chartered to establish and implement an AFLC International Logistics Program for the development, negotiation, and management of AFLC Security Assistance programs, which include support of Foreign Military Sales and International Military Education and Training (34:5-25).

Islam. One of the major monotheistic religions of the world, Islam is a revealed rather than philosophical or speculative religion. It has a prophet (Muhammad) and a complete set of God-given rules that prescribe a particular way of life. Islamic code has been interpreted in a variety of ways and various secular groups have split during its history (33).

Lay-in, Initial. The positioning of support items at user levels and at intermediate supply and maintenance levels as initial issues in anticipated support of newly deployed end items (58:348).

Letter of Offer and Acceptance (LOA). The common nomenclature for the contract agreement between the U.S. government and a foreign government for the purpose of selling a weapon system. The DOD Form 1513A provides the official document for the LOA and is prepared by the implementing agency for the purchasing country's signature. The LOA contains a listing of the items/services and applicable price estimates included in the sale. Frequently, one or more multi-page narrative attachments accompany the LOA. These spell out, in broad terms, the supplemental conditions of the sale. Since the LOA constitutes the binding contract between the two governments, it provides the most legitimate base for program planning and strategy development. The LOA often contains attached "terms and conditions" which further define program requirements (29:122).

Logistics Support. The supply and maintenance of material essential to proper operation of a fielded weapon system (58:402).

Long Lead-Time Items. Those items which, because of their complexity of design, complicated manufacturing processes, or limited production capacity, may cause production or procurement cycles which preclude timely and adequate delivery (58:403).

Main Operating Base (MOB). The primary operational and support base for the Peace Gate aircraft--located at Sargodha Air Base, Pakistan (60:1).

Maintenance/Maintenance Concept. Maintenance includes all actions necessary for retaining or restoring equipment to serviceable condition. The maintenance concept establishes the what, when and how these actions are to be accomplished. It also indicates maintenance capabilities required and provides information concerning tactical employment, maintenance environment, mobility requirements, and other operational considerations (58:409).

Management Action Team (MAT). The MAT is the USAF command--contractor management group responsible for developing and pursuing the U.S. Peace Gate program strategy. Its meetings are the primary forum for resolving the inevitable managerial and technical action items required to satisfy the Pakistan Air Force. HQ USAF/PRIE chairs the MAT and ASD/YPXI is responsible for the planning of each meeting and the closeout of each action item.

Military Assistance Program (MAP). The U.S. program for providing military assistance under the Foreign Assistance Act of 1961 as "grant aid." Because of its "free" nature, MAP excludes FMS programs such as Peace Gate (58:444).

Mobile Training Team (MTT). A MTT, in this case constituted by the USAF Tactical Air Warfare Center, consists of U.S. personnel sent on temporary duty to a foreign nation to give instruction. The mission of the team is to train instructors so as to give the foreign nation a self-training capability in a particular skill (58:455).

Moslem. A follower of the Islamic (Muslim) religion.

National Security. A collective term encompassing both the national defense and foreign relations of a nation. Security is provided by a military or defense advantage or a favorable foreign relations position (58:466).

Nonalignment. The political attitude of a state which does not associate, or identify itself with the political ideology or foreign policy objectives espoused by other states or international causes. While nonalignment does not preclude involvement, it expresses the attitude of no precommitment (58:472).

Non-Standard Item. An item not included in the USAF inventory and not procured for regular use by the USAF. Standard items modified to the extent that they no longer retain interchangeability status with USAF items are also considered non-standard (58:477).

On-The-Job Training (OJT). OJT is directed toward actual flight-line/shop student qualification training. OJT is designed to complement ATC training. It affords the trainee opportunities for maintenance task repetition for these maintenance tasks introduced in ATC courses. Peace Gate OJT is directed toward actual hands-on experience by the trainee with equipment that PAF will be required to use and maintain in-country. The objective is to provide qualification training to enable the trainee to work effectively in his assigned job task when he returns to Pakistan (42:14-3).

Organizational-Level Maintenance. Organizational maintenance is performed on the flight line or at an inspection dock and involves preventive, scheduled, and unscheduled maintenance tasks required to prepare aircraft for flight and to ensure safety and mission success. Typical tasks include servicing fuel and switching good LRUs for bad (42:14-3).

Peace Delta. The designated title of the U.S. Foreign Military Sales program providing 24 F-16 aircraft to Venezuela.

Peace Gate. The U.S. Foreign Military Sales program providing for the sale of 40 F-16 aircraft to Pakistan. Peace Gate I includes the initial provisioning effort and diversion of six USAF aircraft from the General Dynamics production line. Peace Gate II encompasses munitions training, infrastructure improvements, transition to follow-on support arrangements, and delivery of an additional 34 F-16 aircraft.

Planning and Review (P&R) Estimates. Estimates developed on the basis of available information, using standard military department factors and formulas in the absence of a pricing study. They are used for "planning" or "review" purposes only and are not considered valid for preparing DD Form 1513A.

Price and Availability (P&A) Study. The effort required to prepare P&A data estimated dollar cost and estimated

delivery dates) for a letter of offer and acceptance (58:536).

Program Management Review (PMR). Periodic reviews held throughout the Peace Gate program to coordinate customer requirements and US management strategies. Peace Gate PMRs are the primary forum for making and documenting major program management decisions (42).

Ramadan. The ninth month of the Muhammadan year. This month is observed as sacred with fasting practiced daily from dawn to sunset.

Repair-and-Return. A maintenance concept used in Peace Gate whereby a CONUS contractor-operated facility repairs a defective investment item and returns that exact item to the PAF. This is opposed to the procedure whereby the defective item is immediately replaced with an identical unit.

Resource Management System. A set of disciplines and systematized procedures for collecting and processing recurring quantitative information that (1) relates to resources in terms of men, money, equipment, materials and services, and (2) is for the use of management. The Peace Gate resource management system, while planned to expand to include such functions as programming and budgeting, operating activities management, and acquisition/disposition of capital assets, was primarily designed to serve management of inventory and similar assets.

Security Assistance. All Department of Defense activities carried out under the Foreign Assistance Act, the Arms Export Control Acts, and related statutory authorities. Security Assistance includes Foreign Military Sales as well as economic aid and training (29:124).

Sole Source. The acquisition of an item by the solicitation of a single contractor (58:634).

Spare/Spare Part. An individual part, subassembly or assembly supplied for the maintenance or repair of systems or equipment (58:637).

Support Equipment (SE). Equipment such as special purpose vehicles, power units, maintenance stands, test equipment, special tools, and test benches used to facilitate or support maintenance actions, detect or diagnose malfunctions, or monitor the operational status of systems, subsystems, or equipment (58:673).

System Program Office (SPO). An element, established within an AFSC systems division, which consists of representatives of participating Air Force commands, physically colocated to support the system program objectives (58:687).

Tactical Air Force (TAF). The Tactical Air Forces of the United States Air Force include the Tactical Air Command (TAC), United States Air Forces Europe (USAFE), and United States Pacific Air Forces (PACAF) with TAC often acting as the "lead command."

Workaround. An alternate process that satisfies customer requirements without affecting domestic USAF operations or support programs.

Acronyms and Symbols

<u>AFLC.</u>	Air Force Logistics Command.
<u>AFPRO.</u>	Air Force Plant Representative Office.
<u>AFSC.</u>	Air Force Specialty Code. Air Force Systems Command.
<u>AIS.</u>	Avionic Intermediate Shop.
<u>ALC.</u>	Air Logistics Center.
<u>AME.</u>	Alternate Mission Equipment.
<u>ASD.</u>	Aeronautical Systems Division.
<u>Avionics.</u>	Aviation Electronics.
<u>AWACS.</u>	Airborne Warning and Control System.
<u>CFE.</u>	Contractor Furnished Equipment.
<u>CIS.</u>	Contractor Initial Support.
<u>CLSSA.</u>	Cooperative Logistics Supply Support Arrangement.
<u>CM.</u>	Configuration Management.
<u>CONUS.</u>	Continental United States.
<u>D&F.</u>	Determination and Findings.
<u>DSR.</u>	Deployment Status Review.
<u>ECM.</u>	Electronic Countermeasures.
<u>ECP.</u>	engineering Change Proposal.
<u>EPG.</u>	European Participating Group.
<u>ESS.</u>	Electrical Standards Set.

FOB. Forward Operating Base.

FMTAG. Foreign Military Training Affairs Group.

FTD. Field Training Detachment.

GD. General Dynamics.

GFE. Government Furnished Equipment.

GNP. Gross National Product.

GOP. Government of Pakistan.

ILC. International Logistics Center.

LOA. Letter of Offer and Acceptance.

MAP. Military Assistance Program.

MAT. Management Action Team.

MCCB. Multinational Change Control Board.

MOB. Main Operating Base.

MSAP. Military Security Assistance Program.

MSIP. Multinational Staged Improvement Program.

MTT. Mobile Training Team.

NWFP. Northwest Frontier Province.

ODRP. Office of the Defense Representative--Pakistan.

OECD. Organization for Economic Cooperation and Development.

OJT. On-the-Job Training.

PAFPFT. Pakistan Air Force Project Falcon Team.

P&A. Price and Availability.

P&R. Planning and Review.

P&WA. Pratt and Whitney Aircraft.

PAF. Pakistan Air Force.

PG. Peace Gate.

PMR. Program Management Review.

PRIE. HQ USAF, International Programs, Asian Programs Division.

RWR. Radar Warning Receiver.

SE. Support Equipment.

SNR. Senior National Representative.

SPO. System Program Office.

TAF. Tactical Air Forces.

UN. United Nations.

USAF. United States Air Force.

YPPI. F-16 System Program Office, Program Control Directorate, International Finance.

YPXI. F-16 System Program Office, International Programs Division.

Appendix B: Text of 1959 Mutual Security Agreement
Between the United States and Pakistan

Pakistan -- Cooperation

Agreement signed at Ankara March 5, 1959;
Entered into force March 5, 1959.

Agreement of cooperation between the Government of the United
States of America and the Government of Pakistan

The Government of the United States of America and the
Government of Pakistan,

Desiring to implement the Declaration in which they
associated themselves at London on July 28, 1958;

Considering that under Article I of the Pact of Mutual
cooperation signed at Baghdad on February 24, 1955, the
parties signatory thereto agreed to cooperate for their
security and defense, and that, similarly, as stated in the
above-mentioned Declaration, the Government of the United
States of America, in the interest of world peace, agreed to
cooperate with the Governments making that Declaration for
their security and defense;

Recalling that, in the above-mentioned Declaration, the
members of the Pact of Mutual Cooperation making that De-
claration affirmed their determination to maintain their
collective security and to resist aggression, direct or
indirect;

Considering further that the Government of the United
States of America is associated with the work of the major
committees of the Pact of Mutual Cooperation signed at
Baghdad on February 24, 1955;

Desiring to strengthen peace in accordance with the
principles of the Charter of the United Nations;

Affirming their right to cooperate for their security
and defense in accordance with Article 51 of the Charter of
the United Nations;

Considering that the Government of the United States of
America regards as vital to its national interest and to
world peace the preservation of the independence and inte-
grity of Pakistan;

Recognizing the authorization to furnish appropriate
assistance granted to the President of the United States of
America by the Congress of the United States of America in
the Mutual Security Act of 1954, as amended, and in the Joint
Resolution to Promote Peace and Stability in the Middle East;
and

Considering that similar agreements are being entered into by the Government of the United States of America and the Governments of Iran and Turkey, respectively,
Have agreed as follows:

Article I

The Government of Pakistan is determined to resist aggression. In case of aggression against Pakistan, the Government of the United States of America, in accordance with the Constitution of the United States of America, will take such appropriate action, including the use of armed forces, as may be mutually agreed upon and as is envisaged in the Joint Resolution to Promote Peace and Stability in the Middle East, in order to assist the Government of Pakistan at its request.

Article II

The Government of the United States of America, in accordance with the Mutual Security Act of 1954, as amended, and related laws of the United States of America, and with applicable agreements heretofore or hereafter entered into between the Government of the United States of America and the Government of Pakistan, reaffirms that it will continue to furnish the Government of Pakistan such military and economic assistance as may be mutually agreed upon between the Government of the United States of America and the Government of Pakistan, in order to assist the Government of Pakistan in the preservation of its national independence and integrity and in the effective promotion of its economic development.

Article III

The Government of Pakistan undertakes to utilize such military and economic assistance as may be provided by the Government of the United States of America in a manner consonant with the aims and purposes set forth by the Governments associated in the Declaration signed at London on July 28, 1958, and for the purpose of effectively promoting the economic development of Pakistan and of preserving its national independence and integrity.

Article IV

The Government of the United States of America and the Government of Pakistan will cooperate with the other Governments associated in the Declaration signed at London on July 28, 1958, in order to prepare and participate in such defensive arrangements as may be mutually agreed to be desirable, subject to the other applicable provisions of this agreement.

Article V

The provisions of the present agreement do not affect the cooperation between the two governments as envisaged in other international agreements or arrangements.

Article VI

This agreement shall enter into force upon the date of its signature and shall continue in force until one year after the receipt by either government of written notice of the intention of the government to terminate the agreement.

Done in duplicate at Ankara, this fifth day of March, 1959.

For the Government of the United States of America:
Fletcher Warren.

[seal]

For the Government of Pakistan:

Sayid M. Hassan.

[seal]

Appendix C: Section 736 of Public Law 97-113

ASSISTANCE TO PAKISTAN

Sec. 736. Chapter 1 of part III of the Foreign Assistance Act of 1961 is amended by adding at the end thereof the following:

"Sec. 620E. Assistance to Pakistan. -- (a) The Congress recognizes that Soviet forces occupying Afghanistan pose a security threat to Pakistan. The Congress also recognizes that an independent and democratic Pakistan with continued friendly ties with the United States is in the interest of both nations. The Congress finds that United States assistance will help Pakistan maintain its independence. Assistance to Pakistan is intended to benefit the people of Pakistan by helping them meet the burdens imposed by the presence of Soviet forces in Afghanistan and by promoting economic development. In authorizing assistance to Pakistan, it is the intent of Congress to promote the expeditious restoration of full civil liberties and representative government in Pakistan. The Congress further recognizes that it is in the mutual interest of Pakistan and the United States to avoid the profoundly destabilizing effects of the proliferation of nuclear explosive devices or the capacity to manufacture or otherwise acquire nuclear devices.

"(b) The United States reaffirms the commitment made in its 1959 bilateral agreement with Pakistan relating to aggression from a Communist or Communist-dominated state.

"(c) Security assistance for Pakistan shall be made available in order to assist Pakistan in dealing with the threat to its security posed by the Soviet presence in Afghanistan. The United States will take appropriate steps to ensure that defense articles provided by the United States to Pakistan are used for defensive purposes.

"(d) The President may waive the prohibitions of section 669 of this Act at any time during the period beginning on the date of enactment of this section and ending on September 30, 1982, to provide assistance to Pakistan during that period if he determines that to do so is in the national interest of the United States."

Appendix D: Management Action Team (MAT) Members

<u>Office</u>	<u>Primary</u>	<u>Alternate</u>
USAF/PRIE	Lt Col Bruce Sharer	Lt Col Tom Burch
ASD/YPXI	Maj Les Ferguson	Lt. Mike Carlson
ASD/YZF-16	Robert Rice	A. Connors
AFLC-ILC/OOWS	Mike Brock	Ken Smithers
OO-ALC/MMAMI	Myron Smith	Mike Day
SA-ALC/MMPMB	Harold Foster, Sr.	Raul Solis
WR-ALC/MMRMC	RWR Jimmy Henderson	Jack Dyal
	ECM Milas Helms	Jack Dyal
FMTAG/FAP	Lt Mike Maloney	None Identified
ATC/TTYA	Stan Routin	None Identified
TACSAO	Maj Jim Johnson	Lt Col Jeff Koehler
GD/FW	Dick Steves	Harry Coffee
P&WA/W. Palm Bch	M. C. Love	Larry Ponder
AGMC/MLSS	Chuck Hiles	John Lucero

Additional personnel will attend MAT meetings as required for participation discussions on specific areas of concern:

ASD/YZFL	Ms. Susan Hurley
ASD/YPPI	Ms. Duetta Metz
ASD/YPEX	Lt Tom Solitario
ASD/YPDS	Mr. Ben Bernard
ASD/YPRA	Mr. Larry Smith
ASD/YPKK	Capt G. C. Hodge
ASD/YPCD	Mr. Bob Fellows
ASD/YPCD	Mr. Al McCoy
ASD/YPMG	Ms. Denis Minch
GD AFFRO	Mr. Jim Underwood
WEC	Mr. Seth Shiba
	Mr. Mike Desmond

T.I.

Hughes

OO-ALC/MMWMF

OO-ALC/MMADE

Mr. Mike Dougherty

Mr. Ben Ford

Mr. Roy Furr

Mr. Lee Chambers

Mr. Tim Grogan

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VITA

Major Michael D. O'Neill graduated from the University of Northern Colorado, receiving a Bachelor of Arts degree in Physics and Mathematics, in 1971. Major O'Neill was commissioned in the USAF through OTS and received navigator and electronic warfare training at Mather AFB, California, graduating in 1973. Following graduation, he served as an AC-130H electronic warfare officer at Korat Royal Thai Air Base, Thailand from June 1974 through June 1975. Following AC-130H gunship duty, Major O'Neill was assigned to the F-111F as a weapons system officer and electronic warfare officer at Mountain Home AFB, Idaho and RAF Lakenheath, England until January 1980. He then served as a tactical operations staff officer at Headquarters USAFE, Ramstein AB, Germany until entering the School of Systems and Logistics, Air Force Institute of Technology, in May 1983.

[REDACTED]

[REDACTED]

[REDACTED]

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution unlimited.		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE			4. PERFORMING ORGANIZATION REPORT NUMBER(S) AFIT/GSM/LSY/84S-13		
5. MONITORING ORGANIZATION REPORT NUMBER(S)			6a. NAME OF PERFORMING ORGANIZATION School of Systems and Logistics		
6b. OFFICE SYMBOL (If applicable) AFIT/LS			7a. NAME OF MONITORING ORGANIZATION		
6c. ADDRESS (City, State and ZIP Code) Air Force Institute of Technology Wright-Patterson AFB OH 45433			7b. ADDRESS (City, State and ZIP Code)		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION			8b. OFFICE SYMBOL (If applicable)		
8c. ADDRESS (City, State and ZIP Code)			9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER		
11. TITLE (Include Security Classification) See Box 19			10. SOURCE OF FUNDING NOS.		
12. PERSONAL AUTHOR(S) Arthur Greenlee, B.S., First Lieutenant, USAF Michael D. O'Neill, B.A., Major, USAF			13a. TYPE OF REPORT MS Thesis		
13b. TIME COVERED FROM _____ TO _____			14. DATE OF REPORT (Yr., Mo., Day) 1984 September		
15. PAGE COUNT 143			16. SUPPLEMENTARY NOTATION		
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB. GR.	Pakistan		
05	01		Foreign Military Sales		
			Peace Gate		
19. ABSTRACT (Continue on reverse if necessary and identify by block number)			Approved for public release: LAW AFR 180-17. Elyn E. WOLAYER Dean for Research and Professional Development Air Force Institute of Technology (ATC) Wright-Patterson AFB OH 45433 14 Sept 84		
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT. ☐ DTIC USERS ☐			21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED		
22a. NAME OF RESPONSIBLE INDIVIDUAL Leslie M. Norton, PhD			22b. TELEPHONE NUMBER (Include Area Code) (513) 255-5023		
			22c. OFFICE SYMBOL AFIT/LSM		

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↙ The sale of 40 F-16 multi-role fighter aircraft to the emerging nation of Pakistan not only encompasses a variety of geo-political, economic and military consequences for the country itself but subsequently creates unique challenges for USAF foreign military sales program managers. This thesis examines the managerial challenges and program management performance during the acquisition and logistics support phases of the Peace Gate program. By first analyzing Pakistan as an emerging nation and recipient of F-16 aircraft under the Zia dictatorship. The thesis then discusses program management impediments and consequent management action taken by the USAF, Pakistan Air Force and contractor management teams. Managerial decisions and strategies applied during the sale and support phases are assessed in light of accomplishing Peace Gate program objectives. Conclusions regarding the contribution of specific management techniques toward program success are made. ↗

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