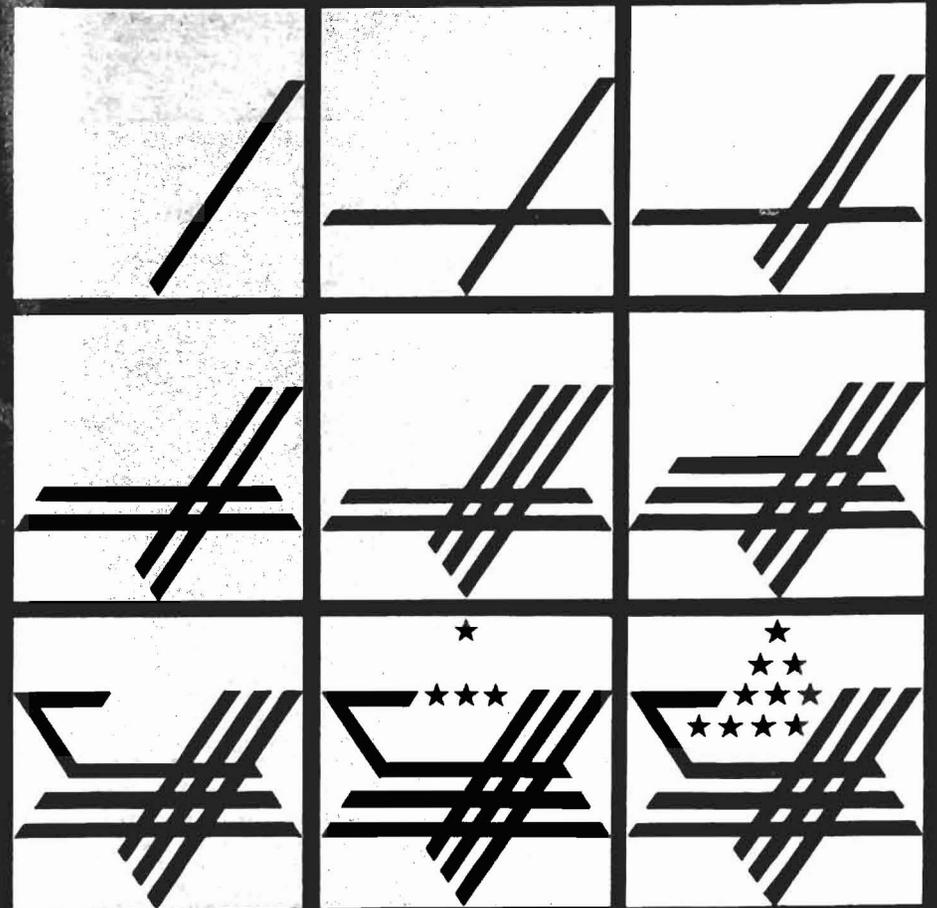


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Israel and the U.S. Air Force

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PREFACE

This is the second publication of AIPAC's new monograph series on U.S.-Israel relations, and also the second part of a thematic six-volume "series within the series" on the specific issue of the potential for enhanced strategic cooperation between the United States and Israel. The first volume on this theme, *The Strategic Value of Israel*, was devoted largely to the advantages of prepositioning U.S. *Army* materiel at Israeli facilities for possible use in a Middle Eastern crisis. The current volume deals with various forms of cooperation between Israel and the U.S. *Air Force*, and it will be followed shortly by a parallel third study on the value of Israeli assistance to the U.S. *Navy*. The fourth volume will deal with the potential use of Israeli *medical* facilities to treat U.S. casualties in the event that it is necessary to involve the Rapid Deployment Force in a Persian Gulf conflict. The fifth will deal with the potential of Israeli defense and aerospace contractors to provide *overhaul and maintenance services* for U.S. armed forces equipment. The sixth and final paper on the theme of strategic cooperation will deal with the *political and diplomatic* aspects of managing Middle East policy to derive the maximum strategic advantage for the United States.

AIPAC's series of studies ranges beyond the theme of strategic cooperation. Other papers soon to be published include topics such as anti-Israel propaganda in the United States, media coverage in Lebanon, and the impact of territorial issues on Israeli security. But we believe that the strategic importance of Israel to the United States is not well understood, and the series of which this paper is a part is intended to build the foundation for a clearer appreciation of this central issue in U.S. Middle East policy.

Publications in this series draw upon the expertise of scholars and professional analysts. Dr. Martin Indyk is a Senior Lecturer at Macquarie University, Australia, specializing in the Middle East, and is a consultant to Near East Research, Inc. He formerly served as a senior Middle East analyst in the Office of National Assessments of the Government of Australia. Charles Kupchan is a graduate student in political sciences at Oxford University doing advanced research on the Rapid Deployment Force; he is a graduate of Harvard University. Dr. Steven J. Rosen is AIPAC's Director of Research and Information, and previously served as a senior analyst of Middle Eastern political/military affairs at the Rand Corporation after a decade of teaching at Brandeis University, the University of Pittsburgh, and the Australian National University.

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Executive Summary

While the U.S. Air Force has not been permitted, for political reasons, to exploit fully the potential for strategic-cooperation with Israel, Israeli assistance has been significant in a number of areas, including:

- providing combat data on the performance of American and Soviet equipment in 1973 and in other wars, which significantly affects USAF expenditures of \$2 billion per year on conventional forces research and development and \$20 billion on nonnuclear procurement
- demonstrating the vulnerability of Soviet SAMs and interceptors in Lebanon, which may force the USSR to divert large sums from force expansion to force renovation and replacement
- contracting to overhaul and maintain engines and components for USAF aircraft in some of the world's most advanced facilities, helping to raise USAF operational readiness
- exchanging intelligence about Soviet and Soviet-allied forces in the Middle East and the Mediterranean

However, the potential for future cooperation is considerably greater, including:

- use of Israeli ports and airfields as offered by Prime Minister Begin, access to which is much less likely to be denied abruptly than facilities in countries like Oman and Somalia
- providing deep cover for USAF military transport aircraft, which could be vulnerable to attack while moving vital equipment and supplies through the Mediterranean and the Middle East in a crisis
- providing secure and reliable storage facilities for USAF fuel and supplies which must be prepositioned in peacetime to support rapid deployment of large numbers of tactical aircraft in a crisis
- substantially greater use of Israeli contract maintenance to improve readiness at reduced costs.

Use of Israeli facilities could be particularly important to USAF as part of an overall Middle Eastern basing mix, for which prudent planning requires at least one facility as a reliable and secure "fall-back" position in the event that access to other, less reliable sites is denied.

Curiously, the failure of the Air Force to exploit these opportunities seems to have more to do with political objections than with defense effectiveness issues per se. Specifically, some fear that closer relations with Israel would impair ties with Arab countries, and would be inappropriate because some of the policies of Israel differ from those of the United States. But these objections, which seem to have great intuitive appeal in some quarters, have not been subjected to careful analysis. For example,

- close relations with Israel has not in the past prevented increased American influence in the Arab world, and may have enhanced that influence;
- our relationship with Israel is based on an enduring affinity between the peoples of the two countries, and any agreement between the two countries is likely to be respected by any future Israeli government;
- American arrangements with other countries in the region are often made with unpopular elites, who may not remain in power or who may feel forced to abrogate agreements with the United States during periods of crisis;
- while there may be differences between the United States and Israel, the two countries have much more in common than exists between the U.S. and Oman, Somalia, or Saudi Arabia, not to mention Korea, Pakistan, and the Philippines. It is not necessary for a reliable ally to agree on every point.

At a minimum, the potential costs and benefits of enhanced strategic cooperation with Israel need to be systematically compared with other policy options available to the United States, before arriving at a final judgment. This has not been done.

Table of Contents

	Page
SECTION I:	
Areas of Israeli Assistance to the U.S. Air Force	1
SECTION II:	
An Example: Logistical Support for RDF Tactical Airpower	7
SECTION III:	
Why Exclude Israel?	21
APPENDIX:	
Cost Comparison	25
FOOTNOTES	27
GLOSSARY	33

Section I
Areas of Israeli Assistance to the U.S.
Air Force

The purpose of this paper is to examine the potential contribution of Israel to the missions and requirements of the United States Air Force (USAF). Defending American interests in the Middle East and the Persian Gulf has not been a major concern of USAF since World War II. However, recent events in the region—particularly the fall of the Shah of Iran and the Soviet invasion of Afghanistan—have caused a reordering of priorities and USAF must now plan for Middle Eastern contingencies. Yet in its recent analysis and planning, USAF has not taken full account of the potential contribution of Israel and the benefits of such cooperation, as well as the implicit costs of non-cooperation, are neither well-studied nor well-understood.

In fact, Israel has already developed a cooperative military relationship with the United States from which USAF has derived considerable benefit. In recent years, this has included Israel's provision of combat data on the performance of American and Soviet systems in the 1967 Six Day War, the War of Attrition, and the 1973 Yom Kippur War. Some data gleaned from the 1982 Lebanon campaign has already been provided by Israel and it has offered to do more. This data is worth a great deal to USAF because the operation of weapons under battle conditions often differs importantly from the assessments of military intelligence and from the results of tests and simulations conducted "on the village green". Israel has provided USAF with captured Soviet equipment, post-combat damage assessments, performance data, electronic intelligence and other war evaluation information and all of these have had an important, though often indirect, impact on USAF expenditures of billions of dollars for research and development and acquisition.¹

Beyond this, the Israeli Air Force (IAF) has indirectly assisted USAF by proving the superiority of American aircraft over both Soviet fighters and Soviet air-defenses. The IAF's successes against the Syrians during the 1982 Lebanon war, in which over 80 Syrian MIGs and 30 surface-to-air missile sites in the Bekaa Valley were destroyed at the cost of a single Israeli aircraft, dramatically exceeded the expectations of American experts (and probably Soviet observers as well). USAF gains from this because Israel has demonstrated the vulnerability of the Soviet air-defense system. In the European theater, the Soviets depend on a MIG-21, -23, SAM-2, -3, -6, -8, -9, ZSU-23 air defense combination only marginally different from the Syrian air defense array that the Israelis defeated. The Soviet Union will therefore now have to devote large financial resources to replacement and renovation of the systems which have proven vulnerable.

This, in turn, diverts Soviet military expenditures from force expansion to force replacement, from offensive systems to defensive ones. It is worth noting that the Soviet Union spends more on surface-based air defense alone than it does on its entire "Strategic Rocket Forces" (land-based nuclear weapons). If expenditures on interceptors are added, Moscow spends more on combined air defense than on its entire Navy,² so renovation will be costly.

The military result of Lebanon is thus a huge implicit gain for USAF, in undermining the value of tens of billions of rubles in Soviet air defense expenditure.

However, these examples of the past value of Israel to USAF, while significant, are limited in comparison with the potential contribution that Israel could make to the missions and requirements of the Air Force in the Persian Gulf, the Middle East, and the eastern Mediterranean. Until now, however, these opportunities have not been recognized. Indeed, Israel has been virtually excluded from USAF planning for access arrangements and defense cooperation in the Middle East because of a belief in the minds of many responsible officials that the political costs of cooperation with Israel would outweigh the strategic gains and economic savings which could be achieved. This consensus against cooperation with Israel, however, is based more on intuitive impressions and casual discussion than hard analysis. In fact, no systematic effort has been made to draw up a balance sheet of the costs and benefits of cooperation with Israel compared to alternative means for achieving USAF objectives, nor have the intuitive political objections to cooperation with Israel been subject to close scrutiny.

In a recent publication, we presented a cost/benefit analysis and comparison of alternatives on the subject of prepositioning materiel in Israel for the U.S. Army.³ In what follows, we will present such comparisons for the requirements of the U.S. Air Force in the Middle East, examining the potential for utilizing Israeli air bases and airpower, Israeli aircraft maintenance facilities and—in a more detailed case study—jet fuel prepositioned in Israel. In the concluding section we deal with the political objections to cooperation with Israel and argue that they provide insufficient reason for overlooking the one reliable strategic asset available to the United States in the Middle East.

POTENTIAL ISRAELI CONTRIBUTIONS TO USAF

The current Defense Guidance instructs the Services to make maximum use of Host Nation Support,⁴ in their efforts to project American power abroad. Israel is particularly well-suited to assist USAF in this way because of its ideal geo-strategic location at the Middle Eastern crossroads, its sophisticated basing infrastructure, its advanced maintenance facilities and—in the last resort—its powerful Air Force. The "menu" of potential forms of Israeli support to USAF is therefore substantial, covering areas of need for the Military Aircraft Command, the Strategic Air Command and the Tactical Air Command.

i) Air Bases and Air Forces

A Persian Gulf or Middle Eastern contingency requiring the prompt introduction of the ground force component of the Rapid Deployment Joint Task Force (RDF),⁵ would place a heavy responsibility on the Military Airlift

Command to mount an enormous airlift over intercontinental ranges. Under present arrangements, the strategic airlifters operating out of the Continental United States—C-5s and C-141s—would have to refuel over the Atlantic, transit the Mediterranean and off-load the troops and equipment at staging areas in the Middle East. As they reach the eastern Mediterranean, these transport aircraft, upon which the viability of any RDF operations so crucially depends, would be potentially vulnerable to interdiction attacks by Soviet-allied or Soviet-manned interceptors operating out of Syria and Libya. Since USAF lacks a strategic escort capability, it will have to deploy its tactical fighters to provide deep air cover over the eastern Mediterranean and secure the air lines of communication. For this purpose, USAF will need access to an air base on the eastern Mediterranean littoral.

Moreover, in the contingency of a Soviet invasion of the Persian Gulf via Iran, which is the canonical scenario for Middle East defense planning, USAF will also be required to sustain heavy air-to-ground interdiction raids against Soviet armored columns moving through northern Iran and the Zagros mountains. This effort to slow the Soviet advance, pending the arrival of U.S. ground forces in the region, and to drive up the cost of a Soviet offensive, will require the use of the Strategic Air Command's B-52Hs, carrying conventional munitions, as the main "workhorses".⁶ These aircraft require runways which are unusually wide, long and capable of supporting heavy loads, such that relatively few of the world's airfields can be employed for take-off and landing. In addition, as General Richard Ellis, former Commander in Chief of SAC, has noted, "B-52s seem to have a stigma" and many countries are reluctant to provide basing for them.⁷ According to the press, airfields in Diego Garcia and Morocco will be available for RDF B-52 use. However, the distances separating these sites from the presumed target area in northern Iran are quite substantial, and reliance on them would severely limit the number of sorties that could be flown, while placing considerable stress on "strategic projection force" operations.

Israel and Egypt possess air bases which are both closer to the theater than Diego Garcia and Morocco for B-52 operations, and well-located for escort duties and combat air patrols over the eastern Mediterranean. However, between the two alternatives, arrangements in Israel could more reliably be counted upon for availability in a wide range of crisis contingencies. Moreover, there is a significant threat of sabotage to B-52s and tactical fighters based in Egypt emanating from fanatical Muslim fundamentalists—a threat not present in Israel. Prime Minister Begin has announced his country's willingness to host such a USAF presence and has even indicated a readiness to build a special runway at one of the new Israeli air bases strictly for American use.⁸

Such access arrangements could also be important for a number of other contingencies in the Mediterranean, southern European and Southwest Asian

theaters. Tactical fighters could operate out of Israel in defense of the Suez Canal (whose availability to the U.S. Navy and the sealift lines of communication might be crucial) and against Syrian and Libyan bases to deny them to Soviet air and airborne forces. Reconnaissance aircraft could use Israeli bases for their assignments in the eastern Mediterranean. These bases could also act as a fall-back should the Military Airlift Command discover that its other access and staging arrangements had suddenly become unavailable in a crisis. Nevertheless, the American response to Israel's several offers to negotiate USAF use of the new air bases in the Negev has been negative.

In addition to basing privileges, USAF could also gain from closer cooperation with the Israeli Air Force (IAF). The IAF could play a role in fulfilling USAF requirements by flying deep air cover and reconnaissance missions over the eastern Mediterranean. Indeed, given USAF's limited resources, coordination with the IAF would probably be essential to defend the airlift routes, regardless of political considerations. Prime Minister Begin made such an offer in a meeting with journalists in Washington in September 1981,⁹ but it was not accepted by American officials. Nevertheless, Assistant Secretary of Defense, Francis "Bing" West, has since stated that he considers insuring a secure line of communication in the eastern Mediterranean the principal area where Israel might play a role in defense of the Persian Gulf.¹⁰ Closer coordination of this kind, manifested in joint exercises, would also strengthen the West's ability to deter Soviet military action in the region because Soviet planners would then have to factor in their calculations the considerable power and effectiveness of the IAF.

ii) Aircraft Maintenance Facilities

One area of cooperation between USAF and Israel which holds great potential is Israeli depot-level maintenance of tactical fighters and attack aircraft. Both USAF and the IAF operate F-15s, F-16s and F-4s, and Israel already possesses sophisticated overhaul and repair capabilities for the airframes, engines and myriad subsystems and components that are critical to the operational readiness of these aircraft.

USAF has already begun to tap Israel's existing capability in this regard through contracts awarded to several Israeli firms for the maintenance of transport aircraft and the overhaul of fighter components.¹¹ These contracts were awarded solely on the basis of commercial considerations—Israel's costs were competitive and its quality standards and delivery schedules met USAF's requirements. However, USAF has so far avoided overhauling entire fighter aircraft in Israel, although it has awarded such contracts to Spanish and Greek firms.

It would nevertheless be a relatively simple matter for USAF to draw on the existing infrastructure in Israel to do this work on its fighter and attack aircraft. The overhaul and maintenance lines for Israeli F-4s, F-15s, and F-16s

are already operational and conform to U.S. Department of Defense military specifications. The personnel working on these lines have been trained to DoD quality standards. USAF has a contracting office in Israel and, under an agreement signed in 1979, Israel has been granted the right to compete with American companies for USAF overhaul and maintenance contracts.

Contract maintenance of USAF fighter and attack aircraft by Israel in peacetime would have several advantages for USAF's wartime Middle Eastern requirements. No such capability exists elsewhere in the Middle East so, by expanding Israel's existing system, USAF would be able to establish its only feasible regional maintenance infrastructure. It would also gain from Israel's expertise as the country with the finest record for combat repair during conflict. In addition, arrangements could be made to boost the maintenance capability in a crisis by drawing on the IAF's matching capability and its inventories of spare parts.

Most importantly, USAF's operational readiness could only benefit from access to Israeli maintenance facilities. The availability of these additional facilities could help raise USAF operational readiness rates.¹² Although USAF and IAF definitions of operational readiness differ, some idea of the capabilities of the Israeli facilities can be gained by a consideration of IAF operational readiness rates: usually above 90 per cent, and in the case of the F-16s flown in Lebanon, almost 100 per cent.¹³ The "down time" of U.S. fighters and attack aircraft represents a tremendous "hidden cost" because, hypothetically, to have available 100 operationally ready aircraft at today's readiness rate, USAF would have to deploy in theater an additional 54 aircraft costing about \$11.4 billion.

Thus additional contract overhaul and maintenance by Israel could increase the effectiveness and reduce the cost of USAF missions where large numbers of aircraft are required. It could also provide USAF with a highly reliable and efficient regional support infrastructure for wartime contingencies in the Persian Gulf and Middle East. Such contracts would represent a relatively low-level form of cooperation to which it would be difficult for others to object. They could also be instituted for a trial period and cancelled if the result was not satisfactory. Israel's maintenance facilities, however, would need to be expanded to meet USAF's requirements and this is something which could not be implemented if we wait until the crisis is upon us.

Another area of possible cooperation with great potential, but about which almost nothing has been written elsewhere, would be Israeli help to correct the severe fuel supply shortages the Tactical Air Command would face if called upon to support the Rapid Deployment Force in a Persian Gulf war. Using this example as a case study, the next section provides a detailed illustration of one of the current planning challenges before the United States Air Force and how cooperation with Israel can provide a better solution than other arrangements.

Section II

An Example: Logistical Support for RDF Tactical Airpower

Introduction

The Rapid Deployment Force is being designed to counter the basic contingency of a Soviet invasion of the Persian Gulf littoral from the Transcaucasian and Turkamen regions of the U.S.S.R. According to current Department of Defense Guidance, the tactical Air Force component required to meet this threat would be considerable, comprising five to ten Tactical Fighter Wings (TFWs), or from 360 to 720 fighters.¹⁴ The role of tactical airpower will be particularly important during the opening phase of the war, because most of the ground forces will take a considerable time to arrive from distant locations, and the Air Force, which is more rapidly deployable, will have the principal burden of slowing the Soviet advance.

A force of five to ten TFW's will require prodigious quantities of JP-4 aviation fuel, without which it simply will not be able to operate. Fighter aircraft are high energy consumers typically requiring one gallon per mile on average. A reasonable estimate of USAF's requirements for the RDF would be three million gallons per day just for tactical aircraft.

The bulk of this requirement must be *prepositioned in the region* to supply these aircraft for the first thirty days after they are deployed. The alternative of airlifting fuel from the continental United States (CONUS) would vastly exceed the current and planned capabilities of the aerial refueling fleet; fuel transported from CONUS by sea would not be available for the first month of fighting.

USAF prepositioned fuel storage facilities currently planned for the region, however, will satisfy no more than 15-30% of the requirement for the first thirty days. Host Nation Support, out of "domestic" stocks, if available at all, could supply no more than an additional 20%. *There is thus a shortfall of at least 50% of the fuel requirement for the Tactical Air Command in the first 30 days of the canonical planning scenario for conflict in the Persian Gulf.*

Correcting this deficiency by procuring strategic airlifters to transport fuel from CONUS would be prohibitively expensive. The only practical solution is the construction of additional storage on land bases in the region. Obviously, such bases must be secure from air and commando attacks. And because fuel is the *sine qua non* of USAF operations, such bases must be reliably available to the United States in the event of a crisis.

While some additional storage in Oman, Egypt and other currently planned prepositioning sites is possible, considerations of physical security and political reliability, as well as the limitations imposed by host governments, point to the need for additional locations in this most volatile and unstable region of the world.

Israel is the only country in the region which can be relied upon to be there when USAF needs it. Israel's formidable air defense capability makes fuel sites there far more secure than most other potential sites. And Israel's geographic location gives it a substantial cost advantage over most other

sites. In the more detailed analysis which follows we show just how critical the shortage of prepositioned fuel is and why prudent planning would point to Israel for expanding fuel storage facilities.

THE IMPORTANCE OF AIRPOWER

There are presently some twenty-two Soviet divisions on the northern border of Iran, within 900 miles of the Persian Gulf and the West's oil supplies.¹⁵ Most of the U.S. Rapid Deployment Force, by contrast, is based over 8,000 miles from the Persian Gulf in the United States. In the time that it would take the Soviet Union to occupy strategic locations in the Gulf with three armored divisions, the United States could deploy about one marine battalion and one airborne brigade to the front. Put simply, the ground force component of the RDF cannot hope to match the forces of the Soviet Union in the early stages of a Persian Gulf conflict.

This places a heavy burden on the U.S. Air Force which, by contrast, can deploy its fighters and bombers to the Persian Gulf theater in a matter of hours and days. These aircraft will have the crucial responsibility of interdicting and impeding the movement of Soviet forces as they advance through the narrow passes in northern Iran and through the Zagros mountains. They will have to compensate in the air for the absence of artillery and armor on the ground. They will also constitute an indispensable element in the defense of beach-heads and forward positions to which the U.S. ground forces can deploy, and in protecting forward air bases and other initial staging areas from enemy interdiction.¹⁶ In qualitative terms, dependence on air power makes good sense because American technical superiority over the Soviet Union is most pronounced in the field of fighter bombers.¹⁷ Moreover, from a terrain perspective, dependence upon air power takes greatest advantage of the particular conditions in the Persian Gulf and Arabian Peninsula which assist air-to-ground interdiction.¹⁸

Thus, in attempting to counter the natural advantages of Moscow's geo-strategic position in a Gulf conflict, the RDF will have to depend upon air power as both its only available opening response, and as its most effective response. For these reasons the Carter Administration assigned five Tactical Fighter Wings (TFWs) to the RDF and the Reagan Administration, in its 1982 guidance, ordered USAF to assign an additional five TFWs. In all then, some 720 aircraft are considered by defense planners to be required for tactical operations in the Persian Gulf.¹⁹

USAF's Fuel Problem in a Gulf War

Although the aircraft and crews can be moved to the region in short order, ensuring that the fuel required by the aircraft for high-intensity operations is available when needed will be a daunting endeavour. Even though the Middle East is the source of much of the world's crude oil, refined jet fuel is not likely

to be available in such large quantities from indigenous regional sources and the fuel must therefore either be transported to the region at the time of need or prepositioned before a crisis.

The normal means of moving large quantities of fuel is by sea, but even assuming that the Suez Canal can be used, fuel sealifted from CONUS will not be available in the theater for the first thirty days of combat.²⁰ During this period, operation of five tactical fighter wings will consume about 54 million gallons of JP-4 jet fuel; ten TFWs will require 108 million gallons, not to mention the requirements of SAC B-52s and other aircraft.²¹ USAF recognizes that it faces "major inadequacies in the area of fuel facilities requirements."²² and has decided to construct prepositioned storage sites at airbases in Oman and Egypt which, when completed, will provide 18 million gallons for Tacair purposes, as in Table I. But these facilities will satisfy only a third of the requirement, for a five TFW force and less than a fifth of that for a ten TFW force.

TABLE I
The Tactical Air Fuel Deficit²³

	(,000 gallons)	(,000 gallons)
	FIVE TFWs	TEN TFWs
FUEL REQUIREMENT (first 30 days)	54,000	108,000
TOTAL PLANNED STORAGE:		
Oman	12,108	
Egypt	5,460	17,640
DEFICIT	36,360	90,360
DEFICIT AS % OF TOTAL REQUIREMENT	67.3%	83.7%

If five to ten tactical fighter wings are to be available for Persian Gulf contingencies, major additional steps will be required to correct this fuel deficit. The range of possible solutions theoretically includes sealift, airlift, prepositioning on ships,²⁴ and prepositioning on land, but a comparison of these alternatives has led the Air Force to conclude that the only satisfactory option for the first month of the war is to preposition fuel on land in the Middle East.²⁵

Sealift—as already noted—would take approximately thirty days with access through the Suez Canal and much longer without it; this would impact only after the crucial first month of fighting. *Airlift* of fuel from CONUS would be impossible²⁶ because the airlifters themselves would require more fuel than they could carry to traverse the great distance from the U.S. to the

Persian Gulf. Even if it were possible, it would require up to 332 KC-10's at a procurement cost of about \$25 billion.²⁷ Fuel *prepositioned at sea* would be vulnerable to enemy strikes as it moved through the Straits of Hormuz and the confined waters of the Persian Gulf; targeting tankers would be the best way to ground the U.S. Air Force early in a war. For these reasons, among others, USAF doctrine requires that fuel be *prepositioned on land*.²⁸ For Persian Gulf contingencies, these prepositioning sites would need to be located in the Middle East region itself because ferrying the fuel from more distant sites, such as the Azores, Diego Garcia or Kenya, would be prohibitively expensive (see Appendix).

A BASING STRATEGY FOR RDF TACAIR FUEL

If fuel is to be prepositioned on land, where should the sites be located? In confronting the task of securing fuel storage locations in the Middle East, defense planners now have the opportunity to build a basing system for Persian Gulf contingencies from the ground up, since very little by way of access arrangements has been inherited from the past. This situation is quite different from Europe and the Far East, where today's basing system evolved largely from the results of the Second World War and earlier arrangements.

The fact that the region is almost a blank slate as regards access arrangements should be regarded as an opportunity as well as a burden, since the absence of past commitments leaves open the possibility of an integrated strategic approach to the problem, unfettered by tradition and vested interests. It is possible, at least in theory, to develop a coherent basing strategy to guide diplomatic negotiation and military construction activities, laying the foundations according to a rational plan. Choosing the right basing strategy for fuel is not an issue that grips the imagination as much as, say, speculating on what form a Soviet move might take. But fuel is the lifeblood of a tactical fighter force, without which it cannot operate, and a fuel basing strategy is, in fact, one of the most important challenges facing the RDF.

A strategic plan begins with an operational requirement: in the current case the necessity to preposition fuel for USAF tactical air missions in the region. It then compares systematically the options available to meet the requirements, including considerations of cost, effectiveness, and risk, to arrive at a preferred option or mix of options.

The concepts of *risk* and a *mix of options* have particular importance in a basing strategy for RDF tactical air fuel. The volatility and unpredictability of the Middle East emphasizes the risk factor: two of the four countries in which we have "access arrangements" today—Somalia and Egypt—were Soviet allies ten years ago, while two of the Soviet Union's main bases—Ethiopia and Afghanistan—were pro-Western or neutral at that time. It usually takes five to seven years to produce a completed basing facility, from inception of planning to full operational capability,²⁹ but the political orientations of many

states in this region are not visible over so long a planning time horizon. Of the 49 major USAF installations which existed on foreign soil in 1972, only 27 remained under Air Force control a decade later.³⁰ In deciding the appropriate locations for fuel storage facilities, therefore, the USAF Logistics Command must plan against the major political uncertainty that bases under construction today might not be available when we actually need them.

In addition, a basing strategy must contend with the physical vulnerability of fuel storage facilities to hostile action by the Soviet Union, its allies or dissidents adopting violent measures. Many of the sites contemplated at present are within striking range of enemy bases, or could be targets of commando or terrorist actions. The high flammability and bulkiness of fuel makes tank farms excellent targets for bombers, and the Allied experience in World War II demonstrates the drastic effect that fuel deprivation can have on enemy fighter capability.³¹

These risk factors also impact on cost, in two ways. First, a vulnerable site that must be protected by dedicated U.S. fighters and SAMs is considerably more expensive than one which is beyond the range of the enemy threat or can be defended by the host nation. Second, a site at a politically insecure location is implicitly more expensive than one in a reliable country, since the entire investment would be worthless if use of the facility were denied when it was needed. The principle that a low risk site is a less costly site is, as we will see, one of the major advantages of Israel in comparison with other prepositioning opportunities available to USAF in the region.

In deciding upon the most appropriate locations for fuel storage facilities today, a basing strategy must plan against political and site security risks over an extended time horizon. The NATO logistics system, which evolved largely from the conditions that existed after the Second World War rather than a coherent basing plan built from the ground up, today suffers from a maldistribution of fuel.³² We have, in the Middle East, the opportunity to build a rational basing system that will last for many years according to a more rational plan.

A key element of this plan should be a strategy to hedge against the political and site security risks by distributing critical logistic support facilities at a number of locations in different countries, i.e., a mix of options rather than putting all our eggs in one basket. This will reduce the likelihood that unfavorable political changes or successful enemy strikes can deprive the tactical fighter force of fuel. The heart of a basing strategy, then, is to choose from among the access sites available today a basing mix that puts fuel where we will need it while hedging against risk.³³

Hedging Against Risk—Israel as a Fuel Site:

In pursuing this basic mix, defense planners have a range of prepositioning locations in the Middle East to choose among: air bases in eastern Turkey and

northeastern Saudi Arabia provide possible close-in alternatives, while Somalia, Egypt, Oman, Jordan and Israel are possible regional locations. In choosing a mix of these sites, a strategy which sought to hedge against risk would require at least one location which provided USAF with the certain knowledge that prepositioned fuel would be available when needed, regardless of the circumstances. In the reasonable worst case, when other sites became unavailable (due either to enemy interdiction or political contingencies) this “fall-back” site would be capable of providing the essential requirements for keeping USAF’s tactical air power operational. In the best case, fuel from this site would be available to complement stocks prepositioned elsewhere, giving USAF a valuable margin of flexibility.

Israel is the ideal location for such a strategic reserve because it offers the crucial combination of physical security, political reliability and cost-competitiveness.

Jet fuel stored in Israel would enjoy the protection of Israel’s formidable air and ground defenses. Israel’s Air Force is recognized as one of the most capable in the world and its primary task is to ensure that the country’s airspace is impenetrable. The IAF has repeatedly demonstrated its superiority over neighboring Soviet-equipped air forces, and even over Soviet-piloted aircraft.³⁴ Israel’s thirty-year experience in combatting guerrilla operations makes it equally capable of ensuring perimeter security. In short, Israel is eminently qualified to provide a secure defense umbrella over the fuel site and it would do so as a natural extension of its own defense effort.

Israel also provides a politically secure fuel site. Israeli governments harbor no sensitivities toward overt strategic cooperation with the U.S. because such policies enjoy the overwhelming support of the people of Israel. Israelis share with Americans a common culture, common values and common democratic institutions. A strong alliance with the U.S. is also the central tenet of Israel’s foreign policy—regardless of the coalition in power. This stems from the basic convergence of American and Israeli strategic interests which has created an “organic” alliance: one based on the innate values of the two peoples rather than a temporary convergence of interests. Accordingly, USAF can have confidence that any arrangement made with one Israeli government regarding prepositioning of fuel will be kept by its democratic successors.

This combination of political and physical security is particularly important when compared to the combinations offered by the other Middle Eastern states prepared to offer their facilities to the U.S. All of these countries are physically vulnerable to enemy attack or internal sabotage. None of their regimes can be said to have strong popular support, and in no Arab country does public opinion endorse a military alliance with the United States. Most of the Arab states profess nonalignment as the foundation of their foreign policies. All are extremely sensitive to the charge of cooperating with American “imperialism,” and most seek to limit their involvement accordingly.

While some are more stable than others, none can be relied on in all circumstances to make facilities on their soil available to USAF. In these circumstances, as we shall see, none of the alternatives to Israel can qualify as a high-confidence "fall-back" option for storing jet fuel.

COMPARING OTHER SITES TO ISRAEL

i. Turkey

Turkish authorities have consistently refused to provide basing and access arrangements for Persian Gulf contingencies in which the United States might become engaged, in spite of repeated entreaties from American officials. In the words of Defense Minister Haluk Bayulken, "It is out of the question for Turkey to take part in a rapid deployment force being established by the U.S."³⁵

As the only Moslem member of NATO, Turkey is particularly sensitive to domestic and regional opposition to American military intervention in the Persian Gulf. Ankara is depending on Arab states, including Libya, to support its economic recovery; the regime is sensitive to domestic opposition from Islamic fringe groups, the strong Turkish left, and Kurdish dissidents; and it is attempting to pursue a policy of accommodation with the Soviet Union, with which it shares a long border.

Turkish sites are also vulnerable to air strikes from the numerous bases in the southern U.S.S.R.,³⁶ against which Turkish air defenses could provide only token resistance. In addition, while Turkish access arrangements would be useful for contingencies in northern Iran and the Soviet Transcaucasus, contingencies elsewhere in the Gulf would require flying through potentially hostile airspace over Iraq, Iran, or Syria, across distances which are in any case beyond the combat radius of tactical aircraft. Aerial refuelling from Turkish bases would be still more vulnerable.

This is not to argue that fuel stored in Turkey would not be valuable for certain contingencies. If Turkey lifted its opposition, fuel at bases in the eastern part of the country could be particularly important in a northern Iranian contingency. But the political uncertainties, site vulnerabilities, and contingency limitations rule out principal reliance on Turkish bases for fueling RDF tactical airpower.

ii. Saudi Arabia

Saudi Arabia's Dhahran air base is, in theory, an ideal location for fuel prepositioning. From here, tactical fighters working in conjunction with aerial refuellers could fly missions across the Persian Gulf and Iran to the borders of the Soviet Union and Afghanistan. However, Saudi Arabia has consistently rejected American efforts to acquire basing privileges and has opposed the concept of an American presence in the Gulf, arguing that such a presence

could provoke the Soviet intervention it is designed to prevent. The Saudi regime is particularly sensitive in this regard because it must contend with the anti-American hostility of all its important neighbors.³⁷ These pressures serve to heighten an already profound sense of insecurity generated by the combination of vast oil wealth and a grossly inadequate defense capability. The result is a deeply ingrained policy of placating the bear by keeping the bear-keeper at bay.³⁸

For the Saudis, therefore, American intervention is an option of last resort. They want an American "over the horizon" capability to be there when needed, but they will not host an overt presence beforehand. USAF planners could surmount this problem—and indeed may already have done so³⁹ by entering into a covert arrangement for Saudi Arabia to "overbuild" jet fuel storage facilities at some of its eastern air bases. But given the political crosspressures on Saudi Arabia, these cannot be considered high-confidence arrangements.⁴⁰

They could be further jeopardized if the Saudi regime itself becomes destabilized over time, as the full impact of the contradiction between rapid modernization and rising Islamic fundamentalism begins to be felt. An increasingly threatened regime cannot be expected to risk criticism by cooperating with the U.S.; indeed, it might dramatically reduce such cooperation exactly to placate and appease growing opposition. The tacit alliance with the United States, though it may reduce the risk of invasion, increases the more visible threat of subversion, and too close a relationship with the U.S. may raise the specter of an upheaval like that which occurred in Iran. Politically, Saudi Arabia cannot afford to be, or be seen to be, the linchpin of U.S. military capabilities in the Persian Gulf.

Finally, facilities in eastern Saudi Arabia are vulnerable to Soviet or Soviet-allied air strikes from bases in South Yemen (PDRY) and from bombers operating out of the six new Soviet airbases constructed in southern Afghanistan,⁴¹ against which Saudi Arabia's own air defenses are not likely to be effective. Sites elsewhere in Saudi Arabia could be vulnerable to commando operations.

iii. Oman

On the face of it, Oman appears to be another attractive prepositioning site. Although its air bases are some distance from the primary theater of operations, aerial tankers could operate out of them in support of Tacair mission in the Persian Gulf. Sultan Qaboos is more willing than Saudi Arabia to be overtly involved with RDF force projection planning. For this reason, USAF has already decided to preposition some jet fuel in Oman. But facilities in the Sultanate face problems of physical vulnerability and political reliability and while they are an important component of a basing mix, they cannot substitute for a "fall-back" arrangement.

The storage tanks at Masirah, Seeb and Thumrait are all within strike-range of Soviet medium-range bombers operating out of southern Afghanistan. They could also be hit by aircraft operating out of Soviet-built air bases across Oman's western border in the PDRY (South Yemen). The facilities at Thumrait, in particular, are less than ninety miles from the PDRY border. The Omani air force is incapable of providing an adequate air defense, and the Sultan is not prepared to have USAF deployed on Omani soil in peacetime.⁴² Thumrait would also be accessible to commandos or guerrillas operating out of Aden.⁴³

The stability of the Sultan's regime also raises questions about the wisdom of over-dependence on storage facilities in his country. Qaboos has no son and there is no clear hierarchy which would provide for orderly succession. Like other producers in the Gulf, Qaboos faces the problem of meeting the rising expectations of a people only recently reconciled to his rule. Unlike the other oil producers, however, Oman's oil reserves are limited and, at a time of falling oil prices, his lavish expenditures and ambitious development plans cannot be sustained for long. In this context, the Sultan's reliability might also become questionable. His overt cooperation with the U.S. has placed Oman in an exposed position among the Gulf states. He has already come under heavy pressure from the Gulf Cooperation Council to deny Oman's facilities to the U.S.⁴⁴ Kuwait, in particular, has mounted a campaign to change the Sultan's mind.⁴⁵ Meanwhile the overt hostility to the United States expressed by neighboring PDRY and Iran provides a constant reminder of the dangers involved in his present course. The Sultan has resisted these pressures so far, but in more dire circumstances he might well be persuaded to change his orientation.

On balance, Oman cannot be considered a high-confidence, secure and reliable location for the prepositioning of jet fuel. A basing strategy which sought to spread the risks would include Oman but avoid too great a dependence on it.

iv. Egypt

Prepositioning sites in Egypt will be less vulnerable to enemy air strikes than those in Turkey, Saudi Arabia and Oman. The RDF facilities in Ras Banas are beyond the range of Soviet aircraft operating out of anywhere but Libya, and Egypt's own refurbished air force would probably be capable of dealing with any threat from that quarter. However, given Ras Banas' location on the Red Sea, facilities there do face a serious threat from naval commando operations. Moreover, sabotage operations by internal dissidents also presents a formidable problem—a fact which must have been driven home to the then Commander of the RDF, Lt. General Robert Kingston, as he watched from the reviewing stand the assassination of President Sadat by Muslim fanatics. Nevertheless, USAF planners have already decided to store

some fuel at Ras Banas for Tacair use.

Yet, to make up the considerable shortfall that USAF faces in its tactical fuel requirements by extending facilities at Ras Banas would increase both the physical and political risks involved in prepositioning in the Middle East. This is particularly the case because of the new uncertainties emerging in Cairo.

Under President Sadat, Egypt was careful to place a strict ceiling on the level of strategic cooperation with the U.S., refusing to grant basing privileges or to sign a formal agreement. This reflected Sadat's understanding of popular Egyptian opposition to a foreign presence. The former British and Soviet bases in Egypt produced bitter memories for most Egyptians and the occasions of their removal are still celebrated as national triumphs.

In the wake of Sadat's assassination by Moslem dissidents opposed—among other things—to his association with the United States, the Mubarak regime must act even more cautiously. It now faces a serious challenge from Islamic fundamentalists whose anti-American message strikes a sympathetic chord in the hearts of the Egyptian masses.⁴⁶ This message is reinforced by Egypt's intellectuals and leftist opposition parties who argue that the U.S. is an imperialist power intent on dominating Egypt.⁴⁷ The sense of frustration felt by all Egyptians as they come to terms with the reality of Egypt's economic plight makes them increasingly receptive to opposition arguments that they should blame and turn on their latest great power patron in the same way as they have turned against all previous ones.

In these circumstances, Mubarak and the Reagan Administration have apparently reached agreement that an enhancement of the strategic relationship would not serve the interests of stability in Egypt at this juncture. The United States is instead seeking to lower its profile in the country. Accordingly, the second round of joint maneuvers between the Egyptian armed forces and the RDF, which were scheduled for late 1982, have been cancelled.

Just how reliable access arrangements with Egypt remain will therefore depend on circumstances beyond Washington's control. For example, in deference to the mounting criticism of Egypt's association with the United States, a cautious Mubarak might consider it wise to deny access to USAF. Similarly, the regime in Cairo might be unwilling to jeopardize its chances for rapprochement with other Arab states by supporting American military actions which were controversial in the Arab world. In the worst case, the Mubarak regime might itself be overthrown by a coalition of fundamentalist and leftist forces united in their opposition to his economic and foreign policies.

In short, the jet fuel already prepositioned in Egypt is at risk. Expanding the fuel facilities at Ras Banas will only increase that risk. Thus while Egypt is a necessary component in any USAF basing strategy it is not a sufficient component since it cannot meet the requirements of a "fall-back" facility.

v. Somalia

Situated some 1,600 miles from the Persian Gulf, Somalia is the least attractive of all the regional prepositioning alternatives. Not only is it poorly located for USAF's purposes, but its facilities at Berbera are also vulnerable to attack by aircraft operating out of neighboring Ethiopia or the PDRY across the Gulf of Aden—both Soviet allies. Indeed, Ethiopia has already threatened to employ its own air force against the existing U.S. facilities at Berbera. Somalia is incapable of providing an air defense umbrella for such highly vulnerable sites nor perimeter security against infiltrators operating out of the strife-torn Ogaden.⁴⁸

Beyond these physical problems, Somalia's President Siad Barre is the least reliable of America's Middle East clients. He turned to the United States in the expectation of financial gain and demanded a "king's ransom" for access to Berbera. He is engaged in a war of his own making with Ethiopia and presides over a bankrupt economy. His revolutionary socialist regime is both corrupt and unpopular. Accordingly, Somalia could only be regarded as a site of last-resort for jet fuel prepositioning.

vi. Jordan

While in theory Jordan might appear to be a possible prepositioning alternative, King Hussein has rejected the idea of hosting RDF facilities in peacetime. USAF cannot resort to covert "overbuilding" of Jordan's own fuel facilities because its air bases are too small to camouflage such large scale construction. Moreover, King Hussein has already apparently agreed to a controversial proposal for American training of his elite troops as a rapid intervention force⁴⁹ and it would therefore be unwise to jeopardise his exposed position in the Arab world by further raising the profile of his cooperation with the RDF. Accordingly, Jordan should not be included in the fuel-basing mix.

COMPARISON IN TERMS OF COST

Thus a comparison of the political reliability and site security of the major land prepositioning options available to USAF for fuel storage facilities in this region points clearly to Israel as the one high-confidence option for a "fall-back" supply that will be there when needed. Some might argue, nevertheless, that the costs involved in airlifting fuel from Tel Aviv to air bases in the Gulf make closer sites more attractive. As Table II shows, however, airlifting fuel from Israel is as cheap as Egypt, where USAF has already decided to construct storage facilities, and one-third cheaper than Somalia.

This simple comparison, however, overlooks the other costs involved in prepositioning.⁵⁰ First, there is the cost of protecting the fuel site. In the case of both Israel and Egypt, the savings which result from their locations beyond

TABLE II
Costs of Airlifting Fuel to Dhahran (Saudi Arabia) for one Tactical Fighter Wing

PREPOSITIONING SITE:	(\$ Millions)
Somalia	454
Israel	302
Egypt	302
Oman	227

Source: See Appendix.

the range of Soviet aircraft together with their possession of indigenous capabilities to defend the fuel sites from air attacks, more than balances the transport costs incurred. Conversely, the vulnerability of sites in Turkey, Saudi Arabia and Oman to Soviet bombers and the inability of these countries to mount an effective defense, cancel the savings involved in their proximity to the area of Tacair operations.

Second, there is the implicit cost involved in the risk that a site might not be available when needed, rendering the entire investment worthless. According to this criterion, a site which has a 100 per cent probability of being available is half as expensive as a site which has a 50 per cent probability. These implicit costs are highest in Turkey and Saudi Arabia because of their reluctance to be involved in RDF planning and their acute sensitivity to hostile pressure. In Oman and Egypt the implicit costs are slightly less—as we have argued—though they remain high. Israel, however, incurs negligible implicit costs because of its inherent stability and reliability. The comparative savings which result from Israel's low-risk, low-vulnerability profile thus more than outweigh the transport costs involved in prepositioning jet fuel there.

CONCLUSION—THE IDEAL BASING MIX

Clearly, the United States cannot protect its interests in the Persian Gulf without depending heavily on the tactical power of USAF. And USAF cannot project its power into the Persian Gulf without access to huge quantities of jet fuel prepositioned in the Middle East. At best, fuel storage facilities already planned can cover only one-third of the requirement, and USAF must now decide on a basing strategy for additional facilities to meet the shortfall. In making its decisions, USAF must come to terms with the political uncertainties and physical vulnerabilities inherent in the Middle East region. Its only recourse is to a basing mix which hedges against risk both by prepositioning in a number of countries and by building a "fall back" strategic

reserve in one dependable location. Turkey, Saudi Arabia, Oman and Egypt have advantages as prepositioning sites because of their proximity to USAF's likely theater of operations. But all of these sites are burdened with problems of political uncertainty and/or physical vulnerability. Only Israel is both well-located and offers the essential combination of reliability and site security. Thus, while it makes sense to preposition some fuel in Oman, Egypt, Saudi Arabia, and Turkey, the ideal basing mix would seek to compensate for the risks involved by storing a good deal of USAF's fuel requirements in Israel.

Building this strategic reserve in Israel would also serve other USAF purposes beyond its role in RDF tactical air operations in the Persian Gulf. Under present arrangements, the Military Airlift Command depends upon en-route refuelling facilities for C5As transporting military equipment from CONUS to the Gulf. KC10s operating out of Israel could refuel the transport aircraft using the jet fuel stored there. Similarly, USAF might have a need in some contingencies for refueling facilities for Tacair or Strategic Projection Force operations in the Eastern Mediterranean. Again, jet fuel prepositioned in Israel would be available for such purposes. In short, tank farms in Israel would give USAF both a "fall-back" facility for Persian Gulf operations and a "swing" facility for Mediterranean contingencies. Prepositioning in Israel can give USAF confidence that its fuel requirements for operations in the Middle East will be available regardless of whether other countries decide to cooperate. A basing mix that excludes Israel will not provide this assurance.

Section III

Why Exclude Israel?

Enhanced strategic cooperation between the United States and Israel could result in some very tangible gains for the United States Air Force, in such areas as intelligence sharing, bases, air defense for military airlifts, improved maintenance to raise operational readiness rates, and reliable fuel facilities for tactical fighter operations. Yet the Air Force has not strongly supported efforts to improve strategic cooperation with Israel, neither during the 1981 negotiations over the Memorandum of Understanding for strategic cooperation,⁵¹ nor since that time in efforts to bring cooperation back to life following the suspension of the MOU. Indeed, USAF has virtually excluded Israel from the access sites under consideration in this region.

What accounts for the lack of interest of the Air Force in exploring arrangements that could have a substantial positive impact on its ability to perform its mission? Curiously, the answer seems to have more to do with political objections than with defense effectiveness issues *per se*. Indeed, the perceived political problems are considered to pose such an obstacle that, according to reliable sources, no serious effort has been made within the Air Staff even to compare political considerations with the value of the military advantages that are being foregone. The result is that the military/strategic potential of cooperation with Israel has been neglected.

The political objections themselves boil down to two central arguments: first, that closer relations with Israel would impair ties between the United States and the Arab countries; and second, that closer cooperation with Israel would be inappropriate because the policies of Israel differ from those of the United States.

The belief that closer relations with Israel would impair U.S. ties with the Arabs is not a new one; in fact, it has been the main theme of a minority within the U.S. government since 1949. What is new is the spread of this conception from a few limited agencies, such as the State Department's Bureau of Near East Affairs, to new quarters.

The main attraction of this conception is its simple logic: as the Arabs say, the friend of my enemy is my enemy. But this Arabist formula is also almost completely at odds with the history and experience of the United States in this region for over thirty years, where a deepening relationship with Israel has not hindered a steadily improving friendship with a widening circle of Arab countries. This has been particularly true since 1973, when the U.S. has given unprecedented levels of arms and aid to Israel while substantially improving relations with Egypt, Saudi Arabia, and the states of the Arabian Peninsula. Indeed, even Syria and the PLO now recognize Washington as the most important outside actor in the Middle East, exactly because the United States has an intimate relationship with Israel. The simple truth is that, at a time when the United States enjoys a strong and close relationship with Israel, it has achieved an unparalleled position of influence in the Arab world.

In some critical cases, the close relationship with Israel has even been a

direct asset in building closer U.S. ties with Arab states. The most recent example is Lebanon, where Israeli action has severely reduced the influence of two Soviet allies (Syria and the PLO) and brought about the installation of a pro-American government there. Earlier examples include Jordan, where Israeli action in 1970 helped to save the government of King Hussein from a challenge by the PLO, and Egypt, whose new relationship with the United States was fostered by Israel's willingness to surrender the Sinai. In short, it is neither self-evident nor true that close cooperation between the United States and Israel hinders the improvement of relations with Arab countries.

Indeed, to the extent that there is tension between America's ties to Israel and its relationship with the Arabs, the principal Arab objections are to the things that the U.S. does for Israel, such as arms supplies and aid, rather than the things Israel does—and could do—for the United States to promote the stability of the region. In any case, the Arabs assume that we are already engaged in strategic cooperation with Israel. In effect, we are paying the cost of the alliance while depriving ourselves of much of the benefit.

Moreover, the areas of strategic cooperation proposed in this paper—bases, maintenance facilities, fuel prepositioning and deep air cover—could not reasonably be regarded by the Arabs as threatening to them. Their very purpose is to bolster USAF's "over the horizon" capability to defend the Arab states.

Beyond this, sacrificing the objective American national interest to satisfy the prejudices of some Arab states against Israel, even if it did earn praise in some quarters, would be a form of appeasement. The conservative Arabs are saying, in effect, that they want us to defend them, but not from bases on their territory, and not from facilities provided by Israel either. A responsible power cannot let its policy be dictated by this kind of logic.

The second class of political objections standing in the way of USAF cooperation with Israel is the perception that closer ties would be inappropriate because the policies of Israel differ from those of the United States. This reflects the fact that, in recent days, greater attention has been paid to the points of disagreement between Israel and the United States than the wider underlying areas of agreement. While there are, inevitably, some differences between the two countries on the complex issues of the region, Israel remains the one country of the Middle East which does not profess neutrality but considers its fate inextricably bound up with that of the Western world. It is also the country with the most democratic institutions, the country with the most advanced economy and most capable armed forces in the region, the country most willing to engage in strategic cooperation with the United States, and the country most likely to remain an ally of the United States over an extended period of time. The United States has more in common with Israel than, say, Somalia or Oman, and fewer areas of policy difference than with, for example, the Philippines or Pakistan, but an image is being created

that these countries are better allies than Israel. Even major allies like Germany and Japan pursue policies with which we do not agree, but there is no suggestion that these differences should stand in the way of strategic cooperation.

Those who have had long experience with alliance politics recognize that we cannot expect every policy of our allies to reflect our wishes. Strategic cooperation with a particular country is not meant as an endorsement of each and every action it may take, but rather is a means of coping with national security challenges within the limited means that are available to the United States.

Some who recognize that Israel can make a substantial contribution to the extension of these limited means but are cowed by the perceived political objectives, seek to resolve the tension by arguing that since Israel will be there when needed, it is unnecessary to take any action beforehand. The problem with this argument, however, is that access arrangements and facilities need to be established well in advance of a conflict. In the case of prepositioned fuel it could take as long as five years to construct the facilities.

Finally, the Air Staff cannot be expected to devise an entire diplomatic strategy for all aspects of a problem. Its responsibility is to advise the President on the specific needs of the Air Force in fulfilling its missions and assignments. Once the potential costs and benefits of strategic cooperation with Israel are systematically tabulated and compared with other policy options within the framework of the military requirements of the United States, it will be possible to broaden the agenda to take account of political factors. We should at least know what we are giving up. As yet, this tabulation has not been undertaken.

Appendix

Cost Comparisons

COMPARING THE COST OF STORAGE SITES

Although the *construction* costs of fuel storage sites in different countries may vary marginally, the major difference in the direct costs of the available locations is likely to be the *size of the aerial tanker fleet* that is necessary to move the fuel from the prepositioning sites to forward operating bases or "marry-up" points with the fighter aircraft that the fuel is intended to support. In general, a more distant site will require a larger number of aerial tankers to deliver a given volume of fuel to a particular marry-up point than a closer site.

To devise a common unit of measure for such a comparison, the following analysis uses these assumptions:

transport aircraft: KC-10 aerial tanker

forward operating air base: Dhahran, Saudi Arabia

fuel volume: the amount required to keep one Tactical Fighter Wing (TFW) of 72 F-15s operational on a two-sortie per day basis for 30 days.

1. KC-10 data:

Cargo fuel capacity	30,854 gallons
Average Speed	480 knots
Utilization Rate	12.5 hours per day
Unit Flyaway Cost	\$74 million (FY'82 dollars)
Unit Operating Cost per flying hour	\$4,232 (FY'82 dollars)

2. Fuel volume was calculated as follows:

F-15 consumption per sortie = 2,500 gallons (to and from northern Iran)
TFW consumption per day = 2,500 x 2 sorties x 72 aircraft
= 360,000 gallons per day.

3. The number of KC-10s required was estimated by determining the number of cycles per day that one KC-10 could complete, including loading fuel at the prepositioning location, flying to Dhahran, unloading the fuel and then returning to the original site for reloading. Cycles per day were determined using the following formulae:

$$FH_1 = \frac{\text{Distance One-Way}}{\text{Average Speed}} + LT$$

$$FH_2 = 2 \times FH_1$$

$$CD = \frac{UTE}{FH_2}$$

where

FH = Flight Hours

CD = Cycles per Day

LT = Loading Time (25 minutes)

UTE = Utilization Rate (12.5 hours per day)

FOOTNOTES

4. The number of KC-10s required to transport enough fuel to keep one Tactical Fighter Wing operational was calculated using the following formula:

$$KC = \frac{\text{TFW fuel consumption/day}}{\text{KC-10 cargo fuel} \times \text{CD}} = \frac{360,000}{30,854 \times \text{CD}} = \frac{11.67}{\text{CD}}$$

where

KC = number of KC-10s required

CD = Cycles per day

5. Operating costs were determined by the following method:

$$O_c = U_c \times UTE \times 30 = \$1.59 \text{ million per KC-10}$$

where

O_c = Total operating costs for the supply period (30 days)

U_c = Unit operating cost per flying hour (\$4,232)

UTE = Utilization rate (12.5 hours per day)

Table III
TRANSPORT COSTS FROM PREPOSITIONING SITE TO DHAHRAN, SAUDI ARABIA

Site	(n. miles) Distance	Cycles/day-	KC10s/TFW	(\$ million)	(\$ million)	Total
				Cost	Operational Cost	
United States	9,000	0.32	36	2,664	57	2,721
Azores (Lajes)	3,674	0.77	15	1,110	24	1,134
Diego Garcia	2,566	1.08	11	814	17	831
Kenya (Mombasa)	2,080	1.32	9	666	14	680
Somalia (Berbera)	1,244	2.08	6	444	10	454
Israel (Tel Aviv)	894	2.75	4	296	6	302
Egypt (Ras Banas)	795	3.01	4	296	6	302
Oman (Masirah)	660	3.49	3	222	5	227

SOURCES:

Jane's All the World's Aircraft, New York, Franklin Watts Inc., 1978-1979.

Department of the Air Force, *USAF Cost and Planning Factors, AF Regulation 173-13*, Washington, D.C.: Headquarters U.S. Air Force, February 1, 1982.

Defense Marketing Service, *Rapid Deployment Force*, Greenwich, CT, 1980.

1. In fiscal year 1983, for example, the Air Force will spend \$2.2 billion on research and development for tactical programs, and \$20.6 billion on general purpose (nonnuclear) forces procurement, operation and maintenance. If Israel's combat experience—the major "testbed" of state-of-the-art systems in the world—affected 10% of this activity on the average, the "saving" to USAF, in the form of replacing ineffective programs and systems with proven alternatives, would be about \$200 million per year in R & D and a larger amount in procurement operation and maintenance costs.
2. In 1977, the most recent year for which an unclassified breakdown is available the Soviet Union spend 12% of its defense budget for National Air Defense (SAM's, anti-aircraft artillery and related systems) compared to 8% for the Strategic Rocket Forces (ICBM's, IRBM's, and MRBM's—i.e., land-based nuclear weapons). Adding in the MiG-21s and -23s, which comprise perhaps a third of Soviet Air Force expenditures (22% of the budget), the air and ground systems that Israel defeated in Lebanon corresponds to about 20% of Soviet military investment. This is equal to the entire expenditure on the Soviet Navy. Data from Central Intelligence Agency, *Estimating Soviet Defense Expenditures: Trends and Prospects*, June 1978, p. 3.
3. Steven J. Rosen, *The Strategic Value of Israel*, AIPAC Papers on U.S.-Israel Relations #1, October 1982.
4. The current Defense Guidance instructs the Services that,

The U.S. will rely, to the extent feasible, on assured host nation logistics support in . . . Southwest Asia. Assured host nation support is the preferred means for meeting logistics support requirements. Where HNS is judged to be inadequate . . . Services should identify U.S. Reserve Component units . . . Additional active combat service support manpower should not be planned and programmed where HNS or RC alternatives are feasible.

(Quoted in *DoD Appropriations for 1983*, Part 6, House Appropriations Committee, pp. 49-50).
5. The Rapid Deployment Joint Task Force was reconstituted as the Central Command (Centcom) in January 1983. Throughout this paper, however, we will use the more familiar terminology of the Rapid Deployment Force (RDF).
6. The B-52Hs would be supplemented by other attack aircraft which carry smaller payloads and operate over shorter ranges. *DoD Appropriations for 1982*, Part 2, Senate Armed Services Committee, p. 1064.
7. *DoD Appropriations for 1982*, Part 5, Senate Armed Services Committee, p. 2466.
8. Wolf Blitzer, "No AWACS. No Strategic Deal with Israel—Pentagon," *Jerusalem Post*, September 13, 1981, p. 1.
9. "Begin Offers Services," *Jerusalem Domestic Service* in Hebrew, September 11, 1981.
10. Testimony in *DoD Appropriations for 1983*, Part 6, Senate Armed Services Committee, p. 3744.
11. Israel currently is one of the world's leading sources of 707 maintenance and recently has been awarded a contract to perform component maintenance on USAF F-4s and U.S. Army helicopters.

12. The average "mission capable rates" of U.S. Air Force first-line tactical aircraft were 63% in FY 1980 and 60% in FY 1979. (*DoD Appropriations for 1982*, Part 1, Senate Armed Services Committee, p. 335). Mission capable rates by aircraft type in FY 1980 were as follows:

F-15	59%
F-4E	66%
F-111D	39%
A-7	64%
A-10	72%

(*Ibid*, Part 5, p. 2523)

- Secretary of Defense Weinberger expects Reagan Administration initiatives to raise the Air Force tactical aircraft mission capable rate to "68 per cent, as opposed to the 64 percent projected by the previous Administration." *DoD Appropriations for 1983*, Part 1, House Appropriations Committee, p. 139.
13. According to the General W. L. Creech, head of the U.S. Tactical Air Command, the Israelis reported that all 72 of their F-16s were ready to fly every morning. Richard Halloran, "U.S. General Says American Jets Have Proved Reliable in Lebanon," *New York Times*, August 7, 1982.
14. Richard Halloran, "Special U.S. Force for Persian Gulf is Growing Swiftly," *New York Times*, October 25, 1982, p. 1.
15. Using the worst case scenario. *DoD Appropriations for 1983*, Part 8, House Appropriations Committee, p. 311.
16. TAC would also be responsible for air-to-air interception, air-defense suppression, achievement of air superiority, close air support for ground forces, and possible strikes against Soviet air bases. See *DoD Appropriations for 1982*, Part 3, Senate Armed Services Committee, pp. 1247-53.
17. For example, the typical "exchange rates" in engagements between U.S. and Soviet aircraft in the Middle Eastern wars have been considerably more favorable than the kill ratios of U.S. vs. Soviet tanks.
18. Soviet movements through the northern and central Iranian mountains would be channeled into a relatively small number of narrow highways marked by ideal interdiction zones where off-road movement is difficult or impossible, thus presenting lucrative targets for air-to-ground blocking and impeding operations. The large desert tracts in the south deny concealment to ground forces moving over open terrain. Similarly, the prevailing weather conditions provide clear visibility for target acquisition and effective employment of precision-guided munitions.
19. One USAF TFW consists of three squadrons of 24 aircraft. The five original AF TFW's assigned to the RDF were the 27th (F-111s), the 49th (F-15s), the 347th (F-4s), the 354th (A-10s), and the 23rd (A-7s). See *DoD Appropriations for 1982*, Part 4, Senate Armed Services Committee, p. 1708. According to Halloran, the Reagan administration has expanded this to include 10 USAF TFWs (of which some would presumably be "attrition fillers" to replace losses), three aircraft carriers with 258 aircraft (of which no more than half would be available for offensive overland missions), the air wings of two Marine Corps divisions, and a number of B-52 strategic-range bombers carrying conventional munitions. See Halloran, *op. cit.* For typical composition of tactical fighter wings in the different services, see *DoD Appropriations for 1982*, Part 1, Senate Armed Services Committee, p. 255.
20. If the Suez Canal was closed by hostile action, or if the Military Sealift Command considered the sea line of communication through the Canal insecure and therefore preferred the Cape route around southern Africa, it would take about 40 days to sealift fuel from CONUS and the prepositioning requirement would increase to 72 million gallons for 5 USAF TFWs and 144 million gallons for 10 TFWs.
21. This calculation assumes: (a) fuel consumption of one gallon per mile; (b) two sorties per day average; (c) all aircraft operational. This totals 360,000 gallons per tactical fighter wing per day, or 10,800,000 gallons per wing for thirty days.
22. *DoD Appropriations for 1983*, Part 6, House Appropriations Committee, p. 57.
23. Source: *Military Construction Hearings, FY'82 and '83*, (various).
24. By contrast to the small payload of aerial tankers (the KC-10, for example, carries 30,000 gallons), maritime supertankers carry millions of gallons, and are currently available in surplus due to the worldwide oil glut. However, thin-skinned vessels could be vulnerable to a single missile hit, and would be a lucrative target difficult to protect against enemy action.
25. *DoD Appropriations for 1983*, Part 6, House Appropriations Committee, pp. 59-60.
26. According to General Lew Allen, USAF Chief of Staff, "Our current refuelling assets are unable to support a major contingency deployment without degrading tanker support for our strategic bomber forces. The increased refuelling requirements associated with the B52G/ALCM will further strain our limited tanker force." *DoD Appropriations for 1982*, Part 2, Senate Armed Services Committee, p. 1076. The Air Force, which already faces a severe shortage of aerial refuelers for other purposes, clearly has no intention of pursuing the impractical course of airlifting fuel to the Persian Gulf from CONUS to supply theater tactical requirements. The strategic bomber force alone requires 765 KC-135A tankers for optimum bomber tactics, compared to a current fleet of only 615, and in addition 75 to 265 are believed necessary for tactical air refueling within the theater in a Persian Gulf contingency. In other words, a considerable expansion and upgrading of the current aerial refueler inventory is required to meet these and other priorities, and airlifting fuel to the Gulf in quantity is and will remain beyond the capability of the fleet. See *DoD Appropriations for 1983*, Part 6, House Appropriations Committee, pp. 56-57.
27. Each KC-10 carries 30,000 gallons of fuel, and could complete a CONUS/Gulf/CONUS cycle in 3.3 days, averaging 272,000 gallons per KC-10 over the month of an airlift. Flying fuel to make up the deficit for five tactical fighter wings (as in Table 1) would require 133 KC-10s costing \$9.8 billion, while ten fighter wings would require 332 KC-10s costing \$24.6 billion.
28. According to General Bryce Poe, Commander of the Air Force Logistics Command, "Adequate stocks of properly prepositioned fuels are becoming increasingly more critical to our ability to project and sustain a credible force throughout the world. *We have a two-fold problem—storage capacity and storage location*. The heightened tensions in the Persian Gulf and dwindling reserves in the geographic areas covered by our major war scenarios have increased our dependence on prepositioned fuel stocks." *DoD Appropriations for 1982*, Part 5, Senate Armed Services Committee, p. 2485. Emphasis added.
29. *Military Construction Appropriations for 1983*, Senate Armed Services Committee, p. 185.
30. *DoD Appropriations for 1982*, Part 5, Senate Armed Services Committee, p. 3052.
31. During the closing stages of World War II, the Allies carried out extensive bombing raids against petroleum reserves in both Germany and Japan. Although the accuracy of the bombings was poor by contemporary standards, the results of these raids were devastating, largely because of the secondary damage caused by fires and explosions. In Germany, production of aviation fuel dropped to ten per cent of its previous level; in Japan, output capacity was cut by 85 per cent and more than half the storage tanks were destroyed. The devastation was achieved without the use of incendiary bombs and against fuel storage tanks which were smaller and more hardened than those currently being constructed. In the battle field of the 1980s, fighter-bombers will be able to utilize an array of weapons—including Precision Guided Munitions and improved incendiary bombs—to ensure a high degree of effectiveness against fuel depots. Target acquisition will also be much easier than in World War II, both because of the terrain in Southwest Asia and the switch to low-level bombing tactics. See Edmund Dews, *POL Storage as a Target for Air Attack: Evidence from the World War II Allied Air Campaigns Against Enemy Oil Installations*, Rand Corporation, Santa Monica, California, June 1980, N-1523-PA&E.
32. *DoD Appropriations for 1982*, Part 5, Senate Armed Services Committee, p. 2845.
33. As Senator William Cohen, Chairman of the Senate Armed Services Subcommittee on Sea Power and Force Projection, has noted:
- "One can question the utility of an RDF that is composed largely of air transported US Army and US Air Force units . . . critically dependent upon prehostilities access to bases and airfields ashore and whose ability to sustain combat would require the creation ashore of a huge support infrastructure. The question we have to raise is, are we to stake the RDF's success or failure in a crisis on the momentary political calculation of host regimes in an area that former Secretary of State Henry Kissinger has aptly called the most volatile,

Appropriations for 1982, Part 4, Senate Armed Services Committee, p. 1700.

34. The following table gives the ratios of Israeli to enemy aircraft losses in *air-to-air* engagements. The 1967-1973 figures include the IAF's shooting down of four Soviet-piloted Mig-21s over the Suez Canal in July 1970 for no Israeli loss.

KILL RATIOS IN AIR-TO-AIR COMBAT

	Enemy Losses	Israeli Losses	Kill Ratio
1967 Six Day War	60	3	20:1
1967-1973	138	2	69:1
1973 Yom Kippur War	334	6	55:1
1982 Lebanon War	80	—	80:0

Source: *Armed Forces Journal International*, October 1973, p. 61 and April 1974, p. 32, and press accounts of the Lebanon engagements.

35. Xinhua News Service, 4/28/82. When Bayulken visited Washington in June 1981 he declared that Turkey was not involved in contingency planning with the U.S. for intervention in the Gulf and that American access to Turkish bases would be permitted only in the context of "a need to protect the vital interests of NATO" (*Associated Press*, 6/12/81). In October 1982, the Reagan Administration signed an agreement with Ankara to build one new air base and modernize two others in eastern Turkey. In the process of negotiations, U.S. officials sought permission to use these bases for a Persian Gulf emergency. Consistent with its earlier pronouncements, Turkey refused. (*Washington Post*, 11/7/82, *Associated Press*, 11/6/82).
36. According to Turkish sources, the Soviet Union possesses some 150 air bases which pose a threat to Turkey and it has constructed new air bases in the south, in close proximity to the three Turkish air bases being refurbished or built by the U.S. From its bases the Soviet Union would be able to deploy large numbers of MIG-27s, Su-17s and Su-24s to destroy such vulnerable and high priority targets as fuel sites. (*Washington Post*, November 7, 1982).
37. Henry Kissinger succinctly summarized the pressures on the Saudi regime in a recent interview: "Saudi Arabia faces simultaneously the uncertainties of rapid modernization and the challenges of Islamic fundamentalism. It has a secular, radical neighbor to the south in the People's Democratic Republic of Yemen; a perhaps reformed but always potentially radical neighbor in Iraq to the north. Across the Gulf it faces traditional Iranian expansionism allied to religious fanaticism; across the Red Sea there is a Soviet and Cuban base in Ethiopia." *The Economist*, November 13, 1982. See also William B. Quandt, *Saudi Arabia in the 1980s, Foreign Policy, Security and Oil*. The Brookings Institution, Washington, D.C., 1981.
38. For a summary of Saudi attitudes to the Rapid Deployment Force see, *Saudi Arabia and the United States: The New Context in an Evolving Special Relationship*. Report to the Subcommittee on Europe and the Middle East, House Committee on Foreign Affairs, by the Congressional Research Service, 97th Congress, 1st Session, August 1981.
39. One newspaper report suggests that "overbuilding" of Saudi facilities is already underway. The U.S. Army Corps of Engineers is under contract to build a large number of facilities which conform to American specifications and are compatible with American systems. Among these projects are five air bases, in each corner of the country, which—according to the report—are being built on a scale that exceeds Saudi needs, perhaps to meet RDF requirements. There is no indication, however, that the construction plans include large-scale jet-fuel storage facilities. See Scott Armstrong, "Saudis' AWACS Just the beginning of a New Strategy", *Washington Post*, November 1, 1981.
40. As the Chairman of the Senate Armed Services Subcommittee on Sea Power and Force Projection has argued:
 . . . back in 1973 when we had the October War suddenly our closest friends said, no, you can't have overflight rights and no, you can't use our bases for this purpose. If you can't count on your allies in a time of crisis it ought to raise a very serious doubt in our minds as to whether you can count on people who are not actually allies, who have to remain for domestic political reasons as neutral as possible, and who don't want to see a presence on the part of the United States in that part of the world. I think the same kind of political pressures which say stay out of here, we want to feel you but not see you, will be

political pressures which say stay out of here, we want to feel you but not see you, will be the same kind of pressures that would be exacerbated in a time of crisis or conflict.

DoD Appropriations for 1982, Part 4, Senate Armed Services Committee, p. 1834.

41. Pentagon officials admit that these airfields represent a new threat to U.S. air, sea and ground operations in the Persian Gulf—a threat which cannot easily be countered because of the reluctance of Turkey and Saudi Arabia to make their air bases available to USAF. Richard Halloran, "New Soviet Afghan Bases Seen as Peril to Gulf", *New York Times*, November 14, 1982.
42. U.S. concern for the vulnerability of Omani air bases was reflected in the 1982 joint exercises of the RDF and Omani forces—code-named 'Jade Tiger'. The maneuvers reportedly included a simulated attack by two B-52 bombers and six F-15s on an Omani air base defended by the Sultanate's small air force. *Associated Press*, December 5, 1982.
43. Dhofari rebels, supported by South Yemen, waged a prolonged war against Sultan Qaboos in precisely this area. Although they were eventually suppressed, this was achieved by Iranian and Jordanian forces. Oman's army remains incapable of dealing even with this low-level threat.
44. In 1981, the Gulf Cooperation Council was reported to have offered the Sultan over \$1 billion to cancel his agreement with the U.S. Although the report was subsequently denied by the Saudi Information Minister, there can be little doubt that Oman's actions are at odds with the policy of non-cooperation with the U.S. pursued by the majority of GCC members. See David Ottaway, "Saudis Wary of U.S. Role", *Washington Post*, December 2, 1981.
45. In October 1982, for example, Kuwait succeeded in negotiating a normalization agreement between Oman and South Yemen, after which the foreign ministers of both Kuwait and South Yemen argued publicly that Sultan Qaboos could now "refrain from depending on 'world powers' for protection". The actual text of the agreement provides that neither side shall "allow any foreign forces to use their territories for aggression or provocation against the other country". See Foreign Broadcast Information Service, *Daily Report, Middle East and North Africa*, 3 November, 1982, C2; 16 November, 1982, C3; 24 November, 1982, C8.
46. In the wake of Sadat's assassination and the attempt by militants to promote an insurrection in Upper Egypt, the Mubarak regime arrested thousands of Islamic fundamentalists. Many more are believed to have gone underground where they continue to threaten the regime. Thus in October 1982, Mubarak extended the emergency police powers, proclaimed after Sadat's assassination, for another year. See William E. Schmidt, "For Mubarak, a Year of Turmoil and a Year of Survival", *New York Times*, October 7, 1982.
47. In a recent series of articles, the semi-official *Al Ahram Iktisadi*, a Cairo economic weekly, accused the U.S. Agency for International Development of seeking "to dominate every field of Egyptian life", and claimed that American researchers were stealthily collecting intelligence for this purpose. The fact that such articles could appear in a government-controlled magazine is an indication of the disillusionment and suspicion now permeating the Cairo elite. *New York Times*, October 21, 1982.
48. Libya's Colonel Khaddafi has publicly pledged to overthrow Somalia's President Siad Barre and is training and equipping members of the 3,000 strong Somali Salvation Democratic Front who operate out of Ethiopia. These guerillas are reported to be better armed than the Somali army. *Baltimore Sun*, March 12, 1982.
49. See Jack Anderson, "Secret U.S. Plan Would Establish RDF in Jordan", *Washington Post*, January 13, 1983.
50. The cost of constructing tank farms and filling them with jet fuel will be essentially constant wherever the fuel is prepositioned. Military Construction costs for tank farms now being built in Oman and Egypt amount to \$2.00 per gallon of fuel. The FY '83 price of jet fuel is \$1.18 per gallon. If 10% is added for land costs, the total cost of constructing facilities to store an additional 90 million gallons of fuel would be \$304 million.
51. *Middle East Policy Survey*, December 4 and December 18, 1981; Rowland Evans and Robert Novak, "A Near-Bankrupt Mideast Policy," *Washington Post*, December 7, 1981, p. 15.

Glossary

CONUS Continental United States

IAF Israeli Air Force

MOU Memorandum of Understanding

NATO North Atlantic Treaty Organization

PDRY People's Democratic Republic of Yemen (South Yemen)

RDF Rapid Deployment Joint Task Force

SAC Strategic Air Command

SAM Surface-to-Air Missile

Tacair Tactical Airpower—the use of aircraft against ground forces

TFW Tactical Fighter Wing

USAF United States Air Force

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