

The Strategic Value of Israel

Steven J. Rosen

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PREFACE

This study marks a new departure for AIPAC—the publication of a monograph series on issues concerning U.S.-Israel relations. This will enable us to provide greater depth of background and more detailed information on such issues as the potential for U.S.-Israel strategic cooperation, the military balance in the Middle East, economic issues of aid and trade, and media coverage of Arab-Israeli issues, in a format that will permit publication of current material on a schedule of weeks rather than months.

Publications in this series will be of two types: First, we will produce *annuals* on subjects of continuing interest, such as the military balance, Israel's aid requirements, and directories of key actors in American policy toward the Middle East. Second, we will publish individual *studies* on subjects of particular interest, such as major developments in Middle Eastern diplomacy, security problems of the West Bank and Gaza, and the potential for U.S. government procurement from Israel.

The editor of this enterprise is Steven Rosen, AIPAC's Director of Research and Information. Dr. Rosen recently joined this organization after four years as a Senior Analyst at the Rand Corporation where he served as Associate Director of the National Security Strategies Program. Previously, he was a professor in the Political Science faculties of Brandeis University, the University of Pittsburgh, and the Australian National University. Dr. Rosen will draw upon a larger and more experienced research staff to support the development of this unique series.

Thomas A. Dine
Executive Director
October, 1982

EXECUTIVE SUMMARY

Israel's strategic value derives primarily from four advantages:

- (1) *Geostrategic position.* Israel is located midway between Europe and the Persian Gulf. From the point of view of U.S. defense planning, it has the potential to contribute in three theaters: the Gulf, the Mediterranean, and NATO's Southern and Central fronts. Compared to the continental United States, Israel is one-seventh the distance to the Gulf and one-half the distance to Germany.
- (2) *Political stability.* While virtually every other friendly country of the region is subject to overthrow by coup or revolution or a drastic change of political orientation, Israel's stability is deeply rooted in sound democratic institutions.
- (3) *Political reliability.* While policy orientations of other friendly states of the region could revert to hostility in the future, Israel's strategic interests and the values of its people are permanently aligned with those of the Free World. Deals made with certain Arab governments over the heads of their people can come unstuck if these people arise against their rulers, while our alliance with Israel is an alliance with the people of that country themselves.
- (4) *Advanced society.* Israel is the one politically and technologically advanced country of the region.

Yet, these advantages, which have taken on particular importance since the loss of bases in Iran, have not been sufficient to prevent the systematic *exclusion* of Israel from U.S. defense planning for the Middle East and the Mediterranean, even while such less promising "allies" as Somalia and Oman are fawningly courted.

As a result, an undue reliance is being placed on basing U.S. "Rapid Deployment Forces" in the continental U.S., and to a lesser extent in "access arrangements" with unstable regional allies, simply to avoid Israel.

This paper quantitatively compares U.S. basing and these other allies with the currently excluded option of Israel in meeting one particular requirement of current defense planning: the need to move huge quantities of war materiel to the Persian Gulf region rapidly in the event of Soviet aggression there. "Prepositioning" of materiel in Israel is shown to have substantial objective advantages over the alternatives in terms of both force effectiveness and cost including the following:

- *Force Effectiveness.* Using half of America's airlift fleet, materiel for a mechanized division prepositioned in Israel could be redeployed to the Persian Gulf 66 days sooner than from the continental United States. Similarly, the time required to airlift to Germany would be reduced from 24 to 11 days.
- *Cost.* It would cost the U.S. over \$9 billion in additional C-5 aircraft to achieve the same effect from bases in the U.S.—in terms of time required to deploy such a force—as compared to prepositioning in Israel.
- *Swing Force.* In terms of prepositioning a "swing force" for use either in the Gulf or Europe, Israel compares favorably with the other major prepositioning sites available to the U.S. Considerable savings in time and/or money could be achieved by prepositioning in Israel rather than in sites presently planned for the RDF.

Overall, in an honest comparison, Israel offers substantial strategic advantages. Yet the United States has chosen to bypass Israel in favor of an excessive reliance on strategic airlift from the continental U.S., which is slow and expensive, and alliances with unstable local governments of dubious reliability. This virtual exclusion of Israel from U.S. defense planning is, implicitly, a sacrifice of the objective American national interest to appease rejectionist Arab opinion. It is a sacrifice with a substantial hidden cost to the U.S. taxpayer, and it results in a less effective system of defense at a higher cost.

Strategic Value of Israel

The debate over how best to defend the Persian Gulf and its oil against the possibility of Soviet aggression is warming up and, as it does, it becomes increasingly clear that an issue as simple as geography is at the heart of the problem. The Soviet Union borders on Iran and is within 1,000 miles of the main oilfields of the Middle East, while the distance from the United States is about 9,000 miles by air and considerably longer by sea. Moreover, unlike Europe, the Far East, and Southeast Asia, there is no intact U.S. military basing structure to provide support in the event of a conflict. However, since the fall of the Shah, no nation of the Gulf region is prepared to extend to the United States full-scale basing privileges. The closest U.S. base, on the Indian Ocean island of Diego Garcia, is still 3,000 miles from the assumed locus of conflict, and this base is in any case limited in scale by the smallness of the island.

These simple facts create quite a problem for U.S. planners. A Soviet standing army of perhaps fourteen divisions sits astride the region across the border with Iran, in addition to the force of nearly a hundred thousand stationed in Afghanistan, while a single American division of about 25,000 would, if airlifted from the United States with its 70,000 tons of equipment, take about four weeks to get there using all U.S. airlift resources (and over twice as long using half the available airlift). It might well be a case of “too little too late,” and if the Soviets perceived this in advance, they might be tempted to exploit their advantage.

Both the defense of the region and deterrence of a Soviet attack therefore require energetic remedial measures to enhance our “projection” capability. In part, this may take the form of expanding our small fleet of airlift and sea-lift vessels, procuring such items as additional C-5s or CXs. But at a \$60 million program unit cost, there are severe limits on the number of strategic air transporters that can be procured. A second solution is to “lighten the load” to be lifted by developing lighter armored forces, thereby reducing the number of flights (“sorties”) and transporters needed. But this would, at

best, result in a saving of perhaps 20 percent in terms of time or the required size of the lift fleet. While there is much to be said for both measures, additional solutions clearly are required.

The most obvious solution is to have the equipment in the theater of conflict, or at least near it, when you need it, rather than moving it only after an aggression begins. By moving the heavy equipment to "prepositioning sites" in peacetime, and flying in just the men to "marry up" with the equipment if a conflict contingency develops, considerable time can be saved. The prepositioned equipment poses no threat in peacetime, but serves as a notice to the Soviets that a rapid response to aggression is possible, and thereby enhances the deterrent threat to promote the stability of the region.

With this in mind, the Carter Administration negotiated a set of "access arrangements" to permit prepositioning in Oman, Somalia, Egypt, and Kenya on a limited scale, and the Reagan Administration has submitted to Congress appropriation requests for funding to flesh out these arrangements. There are, however, several problems with the prepositioning sites negotiated to date. Kenya is over 2,500 miles from assumed conflict areas by the most direct route, and Somalia is about 1,600. Somalia is demanding a king's ransom in aid in exchange for access, and has problems of political stability. Neighboring Ethiopia is a virtual colony of the Soviet Union, and has openly threatened to employ its air force against U.S. facilities in Somalia (with which Ethiopia is at war). As if this weren't enough, Somalia and Kenya are antagonists, and Kenya is informally allied with Ethiopia against Somalia. Kenya objects to U.S. cooperation with Somalia. Neither Kenya nor Somalia is in a position to provide an air defense umbrella for the security of American equipment and personnel against air attack, so anything prepositioned at these locations will be vulnerable unless the scarce air defense assets of the United States are devoted to the task and permitted by the host government to operate.

Oman is the best site of all in terms of distance, lying at the mouth of the Persian Gulf, but as an access opportunity it suffers from some of the problems already mentioned. It is within strike range of Soviet aircraft stationed in Afghanistan as well as the increasingly sophisticated air force of South Yemen (another Soviet colony), yet the host government cannot provide air defense. This alone will limit the amount of materiel the United States can put at risk in a vulnerable environment. In addition, the Omani government, not wishing to be seen as a "cat's paw" of a superpower in the region, intends to limit the conditions under which facilities can be used by United States forces. For example, the Sultan Qaboos was so outraged by the reported use of Omani facilities on Masirah Island in support of the (failed) Iran hostage rescue mission that he threatened to withdraw all American privileges. While the latter did not happen, it is clear that American access in Oman will be less

than 100 percent reliable over time under the present government. Nor is the survival of the Omani regime a foregone conclusion, although there are few signs of instability at the moment. In addition, Masirah Island and the other Omani sites reported in the press are among the hottest and most inhospitable places on the planet Earth, and the effects on U.S. armed forces personnel retention could be a real problem.

It is also worth noting that Oman, while it is close to the Gulf, is quite distant from Europe (as are Somalia, Kenya, and Diego Garcia). This means that equipment stationed there is dedicated to Persian Gulf contingencies but poorly located for NATO. Ideally, prepositioning sites would be suited to a "swing force" that could be deployed *either* to Europe or the Gulf, to limit the adverse impact of Persian Gulf security arrangements on the already precarious NATO alliance capability.

In these terms, Egypt has a considerable advantage over Kenya, Somalia, Oman, and Diego Garcia. For example, the distance from Ras Banas, Egypt, to Munich is about half that of Masirah, Oman. Egypt can also provide general air defense against any adversary but Israel, and can provide security against other forms of attack on the facilities that have been discussed. Moreover, Egypt is forthright in its support for a strengthening of U.S. capability in the region, and clearly intends to cooperate in plans to build the Rapid Deployment Force.

Yet, even the sites in Egypt raise problems. Cairo's isolation in the Arab world is unnatural, and should the current or a future Egyptian government seek to rejoin its historic allies, the price might include a weakening of the alliance with Washington. This might come, for example, now that Egypt has repossessed the Sinai in April 1982, under the terms of the peace treaty with Israel. Moreover, the evolution of the domestic political situation in Egypt could lead to a change of policy or even a change of government. After the bitter experience with Britain and then the USSR, Egyptians have a considerable antipathy to foreign troops and equipment on their soil. Egypt was one of the founders of the nonaligned movement, and foreign installations by whatever name are bound to become a target for Arab nationalist "Third Worldist" criticism of the regime. While, at the present time, the Egyptian/American alliance seems secure, Egyptian policy five and ten years hence is unpredictable.

Given this array of problems and reasons to worry, American planners are obligated to "spread the risk" by distributing American commitments among the access sites. Of the sites discussed, Egypt emerges as the "dominant solution," but conditions there too will limit the scale of American military investment. Basically, something more is needed.

Israel as a Prepositioning Site

Given the problems of each of the sites already explored, attention is beginning to turn to Israel. Israel offers several distinct advantages as a “stepping-stone” access site, which, taken together, comprise an attractive package:

1. *Location.* The distance from Israel to the Gulf is less than one-seventh that from the U.S. It is also half the distance of Diego Garcia, and closer than Kenya, Somalia, or Turkey (assuming, in the last case, that overflight of Syria, Iraq, and Iran is excluded). At the same time, it is half the distance to Europe (Munich) compared to the East Coast of the United States, and also about half the distance to Europe compared to Diego Garcia, Oman, Somalia, and Kenya. Of states willing to provide regional access for the RDF, only Egypt is competitive as a location for a “swing force” that could be sent either to Europe or the Gulf.

2. *Political Stability.* While the future political structures and policy orientations of Oman, Somalia, Kenya, Egypt, and Turkey are subject to radical change, the basic political structure and policy of Israel are stable and predictable as they affect that country’s policy toward regional security. Virtually all Israeli leaders in the major parties support a strengthening of the United States role in the region, an enhancement of U.S. capability to deter and, if need be, defeat Soviet aggression, and an enhancement of U.S. force projection capabilities to support these objectives. The leadership of both major Israeli parties has forthrightly endorsed the provision of strategic access arrangements to the United States under appropriate conditions. Sites in Israel would be intrinsically less vulnerable to revolutions, coups, and domestic disorders.

3. *Political Reliability.* No sovereign nation in the modern world will extend basing privileges to a foreign power completely without restriction. But the political limitations that would be imposed in the Israeli case probably would be less severe than those on which Oman, Egypt, Somalia, and Kenya will insist, for the simple reason that there is a closer congruence between Israel’s own interests and those of the United States as regards force projection contingencies. If, for example, an Iraqi threat to Kuwait or Iran called for an American response, the policies of Oman and Egypt could be limited by inter-Arab politics, while Israel would, in almost all scenarios, find its interests aligned with those of the U.S. The contrast might be still more pronounced in a European scenario, from which the Arab states might wish to divorce themselves while Israel, given its strategic position, could not. While there are differences between the Israeli and American policies in the local

diplomatic arena, their postures in regional strategic military affairs are generally in agreement.

4. *Air Defense.* U.S. materiel prepositioned in many states of the region could be subject to conventional and guerilla attacks, yet few of the host nations have the capability to provide a secure defense umbrella. Israel is a clear exception. The primary mission of the Israeli Air Force is to defend that nation’s own air space, and the IAF’s mastery of the skies is almost uncontested. While the United States might have to provide its own air defense in such locations as Masirah or Berbera, allocating scarce F-15 wings or I-Hawk SAM batteries, security of “prepo” against air attack in Israel would be provided implicitly by the host government. The same applies to security against large-scale guerilla operations, which the Israelis have brought almost completely under control.

While these differences between Israel and other sites, taken together, might be regarded as a considerable, even commanding advantage, there has been comparatively little American interest in strategic cooperation with Israel until recently. The notion of Israel as a strategic asset has been a subject of considerable interest in American Jewish and Israeli circles, but until recently it has been regarded with official indifference if not contempt, particularly by the Carter Administration. Indeed, it is said that the name “Israel” was not, until recently, permitted even to appear in official exploratory discussions of prospective access sites, and that, having been rejected from the start as a serious candidate for the regional security system, Israel’s potential contribution was not studied by Carter Administration officials in any systematic way.

The Reagan Administration brings to the issue a different perspective. Repeatedly during the 1980 presidential campaign, the Republican candidate called attention to Israel as a concrete strategic asset and ally, and the Administration is reported to have a serious interest in exploring potential forms of strategic cooperation with the government of Israel.

Reagan is of course aware that the Arabs (with the possible exception of Egypt) do not look kindly upon U.S.-Israel cooperation, but, unlike his predecessor, he does not take this as an absolute limit to U.S. freedom of action. Since the very founding of the Jewish state, the U.S. has played both sides of the street successfully (in spite of heckling from certain elements in the Washington bureaucracy who endlessly warned that it couldn’t be done). It is probably even the case that the U.S. has had more rather than less influence with the Arabs exactly because it also has had (most of the time) influence with Israel too. Ironically, Arab opinion already takes it as given that the U.S. is in cahoots with Israel, which Washington supports with considerable economic and military aid. The incremental diplomatic cost of expanded strategic cooperation could, for this very reason, be minimal if the

problem were managed intelligently during the transitional period.

Still, there will be political costs to be measured against strategic benefits. It is worthwhile, therefore, to assess in closer detail the strategic value of Israel, to quantify the military advantages that should be compared to any political disadvantages. What follows, then, is a more detailed statistical excursion to compare Israel with other prepositioning sites in military and economic terms, to quantify the value of cooperation or the "opportunity cost" of non-cooperation, in the expectation that this may provide a criterion by which to assess future policy.

Comparing Deployment Times

For the military planner, the central consideration of any prospective arrangement affecting the Rapid Deployment Force is its impact on force effectiveness. In the case of a prospective access site, this means that the central measure of effectiveness is the contribution that a "steppingstone" can make to shorten the time that it takes to deliver and deploy forces to assumed conflict locations, by comparison with sending forces from the continental United States (CONUS) or from other regional access sites.

The methodology by which such comparisons are made is complex, and includes the following factors:

1. distance;
2. the number and types of transport aircraft available;
3. the portion of this lift fleet assumed to be available for a given contingency;
4. lift capacity in terms of weight and bulk;
5. utilization factors, sortie rates, speed, and productivity; and
6. the weight and bulk of the materiel to be lifted.

These factors can be estimated from such public sources as the Defense Marketing Service databook, *Rapid Deployment Force* (Greenwich, Connecticut, DMS, 1980), on the basis given in the appendix to this paper. Assuming that the equipment for a mechanized infantry division is to be lifted from prepositioning sites to Dhahran, Saudi Arabia (from which they would move overland to participate in a Persian Gulf conflict), and that half of the available U.S. transporters were used for a Persian Gulf scenario (the other

half being held in reserve for European contingencies), prepositioning in Israel compares to prepositioning at other sites or lift from the continental U.S. as follows:

Table 1
Airlift to the Persian Gulf (Dhahran)
(using half of strategic lift)

From	Days to Transport One Mechanized Division
United States	77 days
Israel (Tel Aviv)	11 days
Diego Garcia	27 days
Somalia (Berbera)	14 days
Kenya (Mombasa)	22 days
Oman (Masirah)	8 days
Egypt (Ras Banas)	10 days
Turkey (Izmir)	17 days

(No overflight of Iraq, Syria, or Iran)

The advantage of prepositioning in Israel is substantial compared to sending forces from the U.S.; the first whole division would get to the Gulf 2-1/2 months earlier! Forces from Diego Garcia or Kenya would take twice as long to arrive, and forces from Turkey 50 percent more time (assuming that overflight of radical countries is excluded). Only Oman and Egypt offer shorter deployment times, and in both cases the advantage is marginal.

If a war erupted in Europe instead of the Gulf, major U.S. reinforcement would be required for NATO to hold the line against the vastly larger Warsaw Pact armies. It could, in such a contingency, be necessary to lift materiel prepositioned for Persian Gulf contingencies to Europe instead of Dhahran. Assuming that the equipment for a mechanized infantry division were to be lifted from these prepositioning sites to Munich, Germany, and that all the available U.S. transporters were used, Israel compares to the other sites as follows:

Table 2
Airlift to Europe (Munich)
(using all of strategic lift)

From	Days to Transport
	One Mechanized Division
United States	24 days
Israel (Tel Aviv)	11 days
Diego Garcia	29 days
Somalia	20 days
Kenya	23 days
Oman	20 days
Egypt	12 days
Turkey	8 days

Forces prepositioned in Israel could be in Europe in half the time it would take those from the continental United States to arrive, and Israel is closer than any of the other regional prepositioning sites except Turkey (which is, of course, a member of NATO). It is also worth noting that Diego Garcia, which is the anchor of the RDF prepositioning system, is even further from Europe than the continental United States. Forces prepositioned in Diego Garcia, Somalia, Kenya or Oman are in effect dedicated to Persian Gulf contingencies, while Israel, Egypt, and Turkey are superior as sites for a “swing force” suited to either Gulf or European scenarios.

In addition to the swing force concept, Egypt, Israel, and Turkey also have importance for Mediterranean contingencies, from which Diego Garcia, Oman, Somalia, and Kenya are remote. The “beefing up” of our navy in the Indian Ocean has been accomplished partly at the expense of the Sixth Fleet in the Mediterranean, and any comparison of allocation of U.S. forces to alternative access sites should also take Mediterranean conflict into account. This comparison will be developed in greater detail in a subsequent study.

Comparisons in Terms of Cost

So far we have compared prepositioning sites exclusively in terms of military effectiveness and deployment time. But in the real world of force

planning, choices are constrained by budgetary impact as well. For example, if the cost of deploying a given unit to a particular location within a required time can be reduced, the budgetary resources “liberated” can be used to strengthen other elements of the overall force structure. Conversely, spending more to achieve a given objective implicitly weakens other elements of the force structure.

How, then, would Israel compare to other access sites in terms of cost, holding military effectiveness constant? One way to make such a comparison is to compare the direct costs of the airlifts of equipment for one mechanized infantry division to Dhahran or Munich, as above, on the simple principle that miles translate into airfleet sorties which cost money (see Appendix). Table 3 gives the direct costs for the airlifts enumerated in Tables 1 and 2:

Table 3
Direct Costs of Airlifting One Mechanized Division
(as in Tables 1 and 2)

From	To Dhahran	To Munich
United States	\$391 million	\$247 million
Israel	63	125
Diego Garcia	138	294
Somalia	76	198
Kenya	124	232
Oman	43	208
Egypt	54	140
Turkey	99	87

Combining these comparisons (i.e., using the imaginary case in which one division was lifted to Dhahran and a second division to Munich), a “swing force” would cost a half billion dollars less to lift from Israel compared to the U.S.; \$350 million less than Diego Garcia; \$170 million less than Kenya; \$90 million less than Somalia; and \$60 million less than Oman. Again, only Egypt and Turkey are competitive in terms of cost, both being essentially identical to Israel.

But comparison of cost on this basis ignores a critical dimension of effectiveness, which is the time required to deploy. The very purpose of an airlift is to reduce the time that otherwise would be required to move forces at less expense but more slowly by sea. Indeed, even airlift deployment times like those given in Tables 1 and 2 are considered much too slow by officials responsible for U.S. national security planning, and procurement of additional C-5s or CXs is considered essential to the RDF.

One way to correct for deployment time in our comparisons, then, is to take into account the number of aircraft that would have to be procured to meet a given lift time requirement from the various prepositioning sites. To permit such a comparison, let us take as our deployment time standard the times required to lift the equipment for a mechanized division from Israel to Dhahran (11 days) and Munich (also 11 days), and take as the unit of cost the number of additional (or fewer) C-5As that would need to be procured to match this time from the other sites. The number of aircraft derived from the calculations in the appendix, is as follows:

Table 4
Number of C-5As Required to Match Deployment Time from Israel

To Dhahran		
from	United States	168.37 more
	Diego Garcia	39.00
	Berbera	6.68
	Mombasa	30.67
	Izmir	17.84
	Masirah	10.06 fewer
	Ras Banas	4.48 fewer
To Munich		
from	United States	69.28 more
	Diego Garcia	89.88
	Berbera	40.66
	Mombasa	57.82
	Masirah	45.81
	Ras Banas	7.44
	Izmir	20.05 fewer

Using the \$56,000,000 program unit cost of the C-5A as a standard, equalization of deployment times will reveal considerable “hidden” cost differences between the access sites, differences much greater than the direct costs of the lifts ignoring time (Table 3) or the costs of facilities on the ground in the host countries (see Appendix). Table 5 compares the C-5A procurement costs to make it possible to lift one mechanized division to Dhahran in 11 days from the various sites.

Table 5
Additional Cost (Savings) of Capability to Deploy Mechanized Division to Dhahran in 11 Days

(as in Table 4)

From	\$ Millions
United States	\$9,429 million
Israel	-0-
Diego Garcia	2,185
Somalia	374
Kenya	1,718
Turkey	999
Oman	(563) savings
Egypt	(251) savings

By this measure, prepositioning in Israel is the equivalent of 168 C-5As or almost ten billion dollars compared to sending forces to the Gulf in the same time from the continental United States. Diego Garcia, Somalia, Kenya, and Turkey would also cost substantially more.

Only Oman and Egypt are superior to Israel for prepositioning in terms of cost to deploy to Dhahran in 11 days. If we add the comparison to Munich, on the other hand (see Table 4 and Appendix), Turkey is superior but Egypt would require 7 additional C-5s (\$417 million) and Oman 46 (\$2.6 billion). Finally, on a combined cost basis, Israel emerges as the least expensive alternative for a “swing force” if the cost of C-5s for both Munich and Dahran is taken as the criterion, since in the three cases where there is an additional expense to one location and a saving to the other, the additional expense is greater.

Conclusions

Israel offers clear and substantial advantages as a prepositioning site for U.S. projection forces, in terms of both force effectiveness and cost. Many of these advantages derive from its geographic position at the crossroads of the Mediterranean and Southwest Asian strategic zones.

There is more political support for an American presence among the Israeli public than in any other state of the region, and more support among the competing political elites. A U.S. decision to preposition materiel in Israel could be taken with a higher degree of confidence that access would in fact be available in a conflict contingency some years down the road than in most of the other host nations now under discussion. In addition, Israel is in a position to provide a security umbrella for prepositioned materiel, while in some of the other sites such security would have to be provided by U.S. forces. Overall, prepositioning in Israel would be a useful complement to other access arrangements, and would strengthen overall force effectiveness at substantially lower cost than other alternatives.

It is true that prepositioning in Israel also will entail political costs, in that certain of the Arab states will be strongly opposed. But these costs are containable if handled firmly, particularly during the transitional period. From the Arab point of view, the principal objection is surely to United States military and economic aid to the government of Israel, aid which will continue regardless of the degree to which Israel is developed as a regional strategic asset. Moreover, Arab publics already assume that the United States is engaged in a strategic alliance with Israel; the concept is more novel to Americans than to the peoples of the region.

In any case, the possibility of prepositioning in Israel should not be rejected *a priori*, without a careful accounting of costs and benefits. If, on balance, a decision is taken not to develop the strategic benefits of cooperation with Israel, it should, at the minimum, be taken with a clear-eyed awareness of the strategic and economic advantages that are being foregone.

Appendix

Basis of calculations, additional data, and sources

1. The following inventory of primary aircraft available was used:

70	C5A
234	C141
234	C130

Any airlift under 3,000 miles is assumed to utilize C130 aircraft as well as C5A and C141 aircraft.

2. A down factor of 15% was applied to the above numbers and then: (1) all available aircraft were employed in the Munich lift; (2) 50% of all available aircraft were employed in the Persian Gulf lift. The number of aircraft employed in any actual airlift would be highly scenario dependent, the above usage rate was chosen to provide a means for comparison.
3. All figures assume transport of all cargo from the on-loading point stipulated. The U.S. figures do not allow for a possible mix of CONUS and POMCUS locations, nor do any others.
4. After transporting all outsize cargo, C5As are assumed to continue to transport bulk and oversize cargo until the lift is completed.
5. No limitations have been placed on run-through capability of either the on-loading or off-loading point. It is assumed that any location chosen to serve as a future site will be built up as necessary to permit operations. It is also assumed that no limitation has been placed for national security reasons. In the 1973 lift to Israel, the Secretary of Defense limited the number of aircraft permitted on the ground at Tel Aviv at any given time for security reasons. These figures do not allow for such a limitation.
6. Mileage has been calculated as the most direct flight with overflight restrictions as follows: no overflight of the Soviet Union or any Soviet bloc state; no overflight of a Soviet controlled or allied state; no overflight of Iraq, Iran, Libya, Syria, Ethiopia, or Yemen.
7. Overflight of Jordan and Saudi Arabia is permitted on the assumption that regardless of the originating point, if Saudi Arabia is permitting

off-loading in Dhahran, overflight will also be permitted.

8. Non-U.S. prepositioning sites assume the first leg of the airlift originates on the U.S. East Coast, and that airlift aircraft are based in the U.S.
9. The divisional tonnage figures represent a division and support as follows:

Airborne	Outsize	13,775
	Bulk and Oversize	48,300
		62,075 tons
Mechanized	Outsize	34,655
	Bulk and Oversize	60,948
		95,603 tons
Infantry	Outsize	20,942
	Bulk and Oversize	56,399
		77,341 tons

The figures for an armored division were not calculated. It is assumed (1) this division would be transported by sea due to its extreme weight; and (2) this division would be the last division transported.

The source for these tonnage figures is Defense Marketing Service, *Rapid Deployment Force*, 1980.

10. The cost figures given are based on the peace-time operating cost per flying hour for each aircraft. The following figures were used:

C5A	\$6,793/hour
C141	2,087/hour
C130	763/hour

It is acknowledged that in an actual lift scenario there would be additional ground support expenditures which are not included in the given figures.

The source for these figures is *Hearings Before a Subcommittee of the Committee on Appropriations*, House of Representatives, 96th Congress, 2nd Session, Part 8, *Department of Defense Appropriations for 1981*, p. 418.

The following formula was used to compute airlift capability in short tons/day*:

$$L = \frac{N \times U \times S \times R}{D} \times P$$

where:

- L = lift capacity for a particular force, for a particular aircraft
- N = the number of aircraft utilized

U = utilization rate of aircraft; utilization rate is determined by maintenance requirements, aircrew availability, and the fleet-wide average of the number of hours per day that each type of aircraft can fly

S = block-in speed of the aircraft; averaging the cruising speed with the slower take-off and landing speeds

R = productivity factor for the aircraft, allowing for empty return

D = distance travelled in airlift

P = payload of aircraft in cargo of specified force

The following factors were used for the specific aircraft and specified divisions.

C5A	U = 12.5
	S = 428 mi/hour
	R = .445
	P = 54.6 Airborne
	68.5 Mechanized and Infantry

C141	U = 12.5
	S = 407
	R = .445
	P = 18.07 Airborne
	27.04 Mechanized
	23.14 Infantry

NOTE: the calculations assumed the C141B aircraft was used. This craft has been stretched to permit greater capacity before "cubing out". Actual figures for the C141B are not yet available; the Air Force estimate of a 30% increase cited in *Hearings Before the Subcommittee of the Committee on Appropriations*, House of Representatives, 96th Congress, 2nd Session, *Department of Defense Appropriations for 1981*, Part 6, p. 413, was used. Unofficial reports indicate the C141 capacity has increased by more than 30%.

C130	U = 8.0
	S = 260 mi/hour
	R = .445
	P = 13.8 all divisions

*source for the formula and factors is Defense Marketing Service, *Rapid Deployment Force*, 1980.

Table 1
Airlift to the Persian Gulf (Dhahran)

From	Miles	Days to Transport	Cost (M\$)
<i>United States</i> (East Coast)	8,739		
Airborne Division		69.38	350.0
Mechanized Division		77.44	390.7
Infantry Division		68.17	343.9
<i>Israel</i> (Tel Aviv)	1,284		
Airborne Division		9.77	55.2
Mechanized Division		11.18	63.2
Infantry Division		9.88	55.8
<i>Diego Garcia</i>	3,012		
Airborne Division		24.52	123.7
Mechanized Division		27.30	137.7
Infantry Division		24.11	121.6
<i>Somalia</i> (Berbera)	1,580		
Airborne Division		11.79	66.6
Mechanized Division		13.52	76.4
Infantry Division		11.92	67.3
<i>Kenya</i> (Mombasa)	2,642		
Airborne Division		19.05	107.6
Mechanized Division		21.95	124.0
Infantry Division		19.27	108.9
<i>Oman</i> (Masirah)	839		
Airborne Division		6.73	38.0
Mechanized Division		7.65	43.2
Infantry Division		6.80	38.4
<i>Egypt</i> (Ras Banas)	1,086		
Airborne Division		8.41	47.5
Mechanized Division		9.61	54.3
Infantry Division		8.50	48.0
<i>Turkey</i> (Izmir)	2,074		
Airborne Division		15.17	85.7
Mechanized Division		17.45	98.6
Infantry Division		14.30	80.8

Table 2
Airlift to Munich

From	Miles	Days to Transport	Cost (M\$)
<i>United States</i> (East Coast)	5,530		
Airborne Division		21.76	221.4
Mechanized Division		24.31	247.4
Infantry Division		21.38	217.5
<i>Israel</i> (Tel Aviv)	2,543		
Airborne Division		9.62	109.5
Mechanized Division		11.01	125.3
Infantry Division		9.73	110.8
<i>Diego Garcia</i>	6,418		
Airborne Division		25.88	263.3
Mechanized Division		28.84	293.5
Infantry Division		25.44	258.9
<i>Somalia</i> (Berbera)	4,296		
Airborne Division		17.52	178.3
Mechanized Division		19.50	198.4
Infantry Division		17.23	175.3
<i>Kenya</i> (Mombasa)	5,036		
Airborne Division		20.44	208.0
Mechanized Division		22.75	231.5
Infantry Division		20.09	204.4
<i>Oman</i> (Masirah)	4,518		
Airborne Division		18.40	187.2
Mechanized Division		20.48	208.4
Infantry Division		18.09	184.1
<i>Egypt</i> (Ras Banas)	2,864		
Airborne Division		10.71	121.9
Mechanized Division		12.27	139.7
Infantry Division		10.83	123.3
<i>Turkey</i> (Izmir)	1,679		
Airborne Division		6.69	76.2
Mechanized Division		7.61	86.6
Infantry Division		6.76	77.0

**Appendix
Table 3
Cost of Equalizing All Options**

To Dhahran

from United States	\$9,428.72 M cost
Diego Garcia	2,185.12
Berbera	374.08
Mombasa	1,717.52
Izmir	999.04
Masirah	\$ 563.36 M savings
Ras Banas	250.88

To Munich

from United States	\$3,879.68 M cost
Diego Garcia	5,033.28
Berbera	2,276.96
Mombasa	3,237.92
Masirah	2,565.36
Ras Banas	416.64
Izmir	\$1,122.80 M savings

Footnotes:

The program unit cost of \$56M for the C5A aircraft is used. The unit fly-away cost cited in the same source is \$29.7 M. Source: Defense Marketing Service.

The cost for the C5A was used on the assumption that any actual procurement in any number, would be C5A aircraft. The CX was not used because it is still in the developmental stage.

**Appendix
Table 4
Construction Costs for Basing Options**

Site	FY 81	FY 82	FY 83	Program Total
Diego Garcia		317.6		317.6
Somalia	.4	24.0		24.4
Kenya	19.1	26.0		45.1
Oman	85.5	81.5	44.6	211.6
Egypt		148.5		148.5

Turkey: no figures available

Israel: no figures available

Source: DD 1391, Military Construction Project Data