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The Egyptian Threat and the Prospects for War in the Middle East

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CONTENTS

Executive Summary.....	2
Introduction.....	3
Section One: Egyptian Strategic Objectives.....	5
Section Two: US-Egyptian Relations.....	5
Section Three: Israel-Egyptian Relations.....	8
Section Four: Other Regional States.....	9
Section Five: Egypt's Military Build-up.....	10
Section Six: Egypt's Defense Expenditures.....	14
Conclusions.....	23
Endnotes.....	25

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Executive Summary

In September 1999, Brigadier-General Amos Gilad, head of the research division of military intelligence, reported that Egypt, despite its massive military build-up, was not seen as a threat to Israel. Unfortunately, Gilad's remarks were not an isolated utterance. Indeed, it appears that Israeli strategic planners have taken an exceedingly myopic view *vis-a-vis* Egypt. For the past two decades, while Israeli intelligence and strategic planners have been asleep, Egypt has systematically reinvented its military in order to position itself to achieve its strategic objectives. Indeed, history may note that the failure of Israeli intelligence and strategic planners to anticipate, preempt, and formulate a viable response to the two-decade long Egyptian military build-up was its greatest blunder, rivaling in its failure to anticipate and respond to Egyptian intentions prior to the outbreak of the 1973 Arab-Israeli war.

This article analyzes the congruence between Egyptian intentions (regional strategic objectives), and its capabilities (military force). Egypt has three medium and long-term strategic objectives. First, Egypt desires to create a credible deterrent to counter regional military threats. Second, it desires to supplant Israel and become the primary strategic partner of the United States in the region. Finally, it hopes to reassert its historic leadership role and become the regional hegemony. Egypt is entering a period in which it has a window of opportunity to achieve its medium and long-term strategic goals. The external destruction of Iraq in the Persian Gulf War, the internal turmoil of Iran following the death of the Ayatollah Khomeini, and the deaths of Hafez Assad of Syria and King Hussein of Jordan, have opened a window of opportunity for Egypt to reassert its leadership role of the Arab world and emerge as the regional leadership.

Ironically, the only threat to Egypt's regional supremacy is Israel. Only Israel possesses the requisite technological expertise, economic might, and military superiority to challenge Egypt. For this reason Egypt has a vested interest to insure that Israel is not assimilated into the region. In this respect, Israel and Egypt are engaged in a zero-sum game, in which Israel's assimilation into the region weakens Egypt's ability to achieve its strategic objectives. This accounts for Egypt's incessant anti-Israeli rhetoric and its vociferous opposition to Israel in virtually every area.

Compounding the challenge to Israel is the massive regional influx of state-of-the-art Western military hardware, in unprecedented quantities. This unfettered, massive proliferation of modern Western weaponry is shifting the regional balance of power in favor of the Arab states. This is especially true in the case of Egypt. Today, Egypt can field a military that rivals Israel in both quantity and quality. Only recently have Israeli strategic planners realized the growing confluence between Egyptian strategic objectives and its ability to project the requisite force to achieve those objectives. However, Israeli concerns are muted by the conflicting messages it is sending to the United States and other Western allies.

Unless current trends are reversed, the prospects of a future Arab-Israeli war will increase exponentially as more and more weapons find their way to the Middle East. This will occur regardless of the outcome of the current peace process. Indeed, it appears that the Israeli policy of withdrawing from territories captured in the 1967 Arab-Israeli war, without achieving real peace, will only exacerbate the likelihood of future conflict.

Introduction

This monograph is a modified Egyptian threat assessment designed to analyze the congruence between Egyptian intentions (regional strategic objectives) and its capabilities (military force). Threat assessments generally consist of five separate sections. These sections include: history of the organization and origins of conflict; ideology of the organization or ruling elite; intentions of the organization or state; capabilities of the organization or state; and recent activities of the organization or state. This paper focuses on the two critical parts of a threat assessment (intentions and capabilities) in order to ascertain the probability of future regional conflict.

The first part examines the intentions of the Egyptian regime by analyzing Egypt's regional strategic objectives and governmental and public attitudes towards Israel. This is done by analyzing the strategic relationship between Egypt and the United States, as well as Egypt's relationship with other regional states, and by looking at the course of Egypt-Israeli relations since the 1979 signing of the peace treaty between the two countries.

The other part analyzes Egypt's capabilities to achieve its regional strategic objectives. This section includes an overview of Egypt's conventional and non-conventional capabilities, as well as a detailed analysis of Egypt's defense expenditures. Any cursory review of the official published figures of Egypt's military expenditures indicate that there exists serious anomalies between the decade-long Egyptian arms build-up and its officially stated annual defense budget.

The only section excluded in this analysis from a traditional threat assessment angle, is the history of the Arab-Israeli conflict. This was done for two reasons. First, such an overview, given the history and magnitude of the conflict, is beyond the scope of this paper. Second, the Arab-Israeli conflict is well documented thereby making any additional review superfluous.

For the last two decades, the Egyptian armed forces have been in the process of a massive transformation as it moves from an Eastern-based to a Western-based military. The impetus for this transformation has been provided by the United States in the form of over \$1 trillion in military and economic aid.¹ The motivations underlying the decision by the United States to provide this aid were three-fold. First, the United States hoped to exploit Egypt's historical leadership role in the region to the benefit of the Western Alliance. Second, the United States has come to view the Egyptian regime as a moderate voice in the Arab world. Finally, the United States hoped that its economic support for Egypt would strengthen the 1979 Egyptian-Israeli treaty and facilitate Israel's integration in the region.

The course of events during the last decade has frustrated US policymakers, as Egypt has proven unwilling to make its regional parochial interests subservient to US regional foreign policy objectives. In many respects, the two countries are pursuing antithetical objectives and are destined to clash in the medium-term. For example, the United States sees the formal integration of Israel into the region as a major foreign policy objective, while Egypt believes that such integration would have a severe deleterious effect on Egypt's medium-term objective of becoming the leading hegemony in the region. Debate between the two countries on this issue has already created fissures in Egyptian-American relations. These fissures will be exacerbated as the United States and Egypt continue to clash on a myriad of issues covering the spectrum from the Arab-Israeli conflict to inter-Arab relations.

However, the unfettered influx of US and Western weaponry into the region has far more dangerous implications. The massive regional influx of state-of-the-art Western military hardware, in unprecedented quantities, is shifting the regional balance of power in favor of the Arab states. Should

this shift occur, or the Arab states perceive that this shift has occurred, then the region will likely succumb to another Arab-Israel war.

Equally egregious, has been the failure of Israeli strategic military planners to identify and take the requisite steps to rectify this trend. Indeed, it appears that Israeli military strategic planners have failed to connect the scope of the Egyptian military build-up, and the rising level of hostility that is emanating from the Egyptian government towards Israel. This congruence of intentions and capabilities is a clear indication that the potential for hostilities is shifting from theoretical possibility to distinct probability. In this respect, the failure of Israeli strategic military planners to identify the growing Egyptian threat may be remembered as its greatest strategic blunder since its failure to anticipate the Arab attack in the 1973 Yom Kippur War.

Section One: Egyptian Strategic Objectives

Broadly stated, Egypt is pursuing three primary long-term regional strategic objectives. First, Egypt desires to create a credible deterrent to counter regional military threats. Egypt, notwithstanding the 1979 Egyptian-Israeli peace treaty, still views Israel as a regional enemy and as the only country that poses a credible military threat.² Consequently, Egyptian strategic planning and military preparations are developed to create a formidable deterrent to any potential Israeli threat and to prepare the Egyptian military to initiate hostilities if deemed necessary to achieve Egypt's strategic objectives.

Additionally, the regional proliferation of Islamic radicalism has permeated Egypt and poses a significant threat to the Mubarak regime. This threat was exacerbated by the geographical proximity of Sudan, which became the leading African supporter of Islamic radicalism following the takeover of that country by Lt. Gen. Omar al Bashir on June 20, 1989. By rebuilding its military and re-emerging as a vanguard against Israeli colonialism, Egypt hopes to regain the leadership role over conservative status quo Arab states, gain recognition from the radical Arab states as the decisive element for any future crusade against Israel, and to end its regional isolation that began with Anwar Sadat's historic 1977 visit to Jerusalem and the 1979 peace treaty with Israel.

Second, Egypt hopes to strengthen its ties with the United States and weaken US support for Israel. Egypt is in direct competition with Israel over the prospect of diminishing American foreign military assistance. Egypt and Israel receive almost 42 percent (\$5.1 out of a total of \$12.2 billion), of all US foreign assistance. Consequently, both countries will be targeted for aid reductions as the US addresses its enormous economic deficit. This reality leaves Egypt with a vested interest in demonstrating its regional importance to the United States while simultaneously convincing the United States that recent events have diminished Israel's strategic importance to that country.

Finally, Egypt hopes to reestablish itself as the leading Arab hegemony in the region and reassert the leadership role it achieved under Nasser during the 1950s and 1960s. Egypt, given its demographic and geographic size, has long considered itself titular head of any pan-Islamic coalition. The collapse of the USSR, coupled with Egypt's role in the Persian Gulf War, has created a window of opportunity for Egypt to reassert its leadership role that it lost following its 1979 peace treaty with Israel.

Section Two: US-Egyptian Relations

The United States has three enduring interests in the Middle East: to ensure secure access to oil for itself and its allies; to maintain the security of the state of Israel; and promotion of US ideological values. To achieve these goals, the United States, and other Western powers, have sought to ameliorate tensions in the Middle East and to broker a settlement of the Arab-Israeli conflict while simultaneously preventing Soviet encroachment into the region.

Since the 1950s, recognizing the centrality of Egyptian leadership in the region, US policymakers have made Egypt a central component in achieving its objectives. However, US political support for Israel, and its unwillingness to provide then Egyptian President Nasser with the military and economic support he demanded, prompted Egypt to rebuff US political efforts and to gravitate towards the Soviet Union. This decision precluded Egypt's integration into a Western alliance, and the region subsequently came to characterize the global Cold War being waged by the Western alliance and Soviet Bloc.

The first breakthrough in American efforts to bring Egypt into the Western alliance occurred following the 1973 Arab-Israeli War. Egyptian President Anwar Sadat, spurred by severe domestic economic problems, decided to strategically break with the Soviet Union and to reconcile with the United States. The signing of the 1979 Egyptian-Israeli peace treaty was the climatic event of this shift. It not only removed the immediate existential threat historically posed to Israel, but shifted the regional balance

of power in favor of the West and muted the adverse impact precipitated by the deposing of the Shah of Iran by the Ayatollah Khomeini. Western interests were further strengthened a decade later when the Soviet Union collapsed, thereby leaving the United States and the Western alliance as the remaining competitor for global hegemony.

Since the collapse of the Soviet Union, the United States has supported Egypt in its quest to become the leading Arab hegemony in the region. United States support of Egypt is predicated on four broad interests.³ First, despite regional challenges to its leadership, Egypt has historically played a de facto leadership role in the Arab world. This position was solidified under the charismatic leadership of Nasser and continues, albeit in a less charismatic manner, under the Mubarak regime. Egypt was the first Arab country to openly break with the West and import massive quantities of Soviet weaponry. It was Egypt which took the leading role in precipitating the Arab-Israeli Wars of 1956, 1967, and 1973. More important, Egypt was the first Arab country to sign a peace treaty with Israel.

Second, the United States perceives Egypt to be a moderate voice in the Arab world. The last two decades has experienced a prolific increase in the popularity of Islamic extremism. While Islamic extremism comes in a number of variations, it is consistent in its virulent hatred towards the West in general, and Israel in particular. However, Islamic extremism is not the only threat to Western regional objectives. Equally dangerous to Western interests is the threat posed by the nationalistic, anti-Western regimes such as Syria and Iraq. Consequently, given the prolific regional antagonism that many regional states have towards the West, the Mubarak regime, and its relatively mild hostility towards Israel, is considered moderate by regional standards.

The United States is increasingly relying on Egypt to serve as the regional facilitator in the current Israeli-Palestinian peace process. Unfortunately, the expectation that Egypt would attempt to be a neutral party in the current peace process has been dampened by unequivocal statements from Egyptian leaders that they are on the Palestinian side in the current peace process.⁴ Moreover, Egyptian positions concerning a Nuclear Proliferation Treaty (NPT), as well as their criticisms of Israel, has undermined US expectations as to the Egyptian role in the peace process.

A third US interest in supporting Egypt is to maintain that country's support for the 1979 Egyptian-Israeli peace treaty. The United States still perceives itself as having a historical and moral obligation to ensure the survival of Israel and has made the security of Israel a cornerstone of its policy in the region, often at the expense of more tangible interests. The United States perceives a strong, pro-Western Egypt as a key component in fulfilling its commitment to Israel's security. The militant Arab states realize that Israel, without the participation of Egypt, is capable of decisively defeating any regional coalition of Arab states. Indeed, it was the realization that Egypt's 1979 peace treaty with Israel had removed any chance of defeating the Jewish state that exacerbated the Arab states harsh reaction towards Egypt. However, the United States has made Egypt, through its enormous economic and military support, the most powerful Arab military regime in the region, and vindicated Sadat's decision to turn to the West.

Finally, the United States looks to Egypt, as the de facto leader of the Arab world, to secure US regional interests both militarily and politically, and to serve a stabilizing influence in a chaotic region.⁵ The participation of Egypt in the 1991 liberation of Kuwait was a critical component in mobilizing Arab support for the Western coalition. Moreover, the United States anticipates Egypt to serve as a forward base for protecting US strategic interests in the region. In this respect, given its greater leverage over the Arab states and its ability to influence regional events, Egypt has supplanted Israel as the military strategic outpost of the West.

For these reasons, the United States has made an enormous investment to secure Egypt's political cooperation. Direct US support for Egypt has included over \$1 trillion in US economic and military assistance as well as forgiveness of \$6.7 billion of Egyptian military debt following that country's

support for the Western coalition in the 1991 liberation of Kuwait. Additionally, the United States and Egypt have participated in a number of joint military exercises designed to enhance and solidify the relationship between the two countries.

The most notable manifestation of military cooperation is the joint "Bright Star" exercise. The exercise has been held every two years since 1979. In 1999, over 78,000 troops participated in the exercise. These troops included contingents from 11 countries including the United States, Egypt, United Kingdom, France and the United Arab Emirates.⁶ However, notwithstanding the enormous US investment in Egypt, their respective long-term antithetical goals has created a number of fissures in the alliance that have the potential to lead to a deterioration of relations between the two countries.

Currently, the most dangerous schism developing between the United States and Egypt concerns the integration of Israel into the region. The United States is currently fully committed to Israel's security and is interested in obtaining full Israeli integration into the region. Conversely, Egypt, wary of Israel's economic, military, and technological superiority, prefers to keep Israel regionally isolated lest that country supplant it as the leading regional hegemony. This schism has manifested itself during the Israeli-Palestinian peace process as the United States had complained on numerous occasions that Egypt has subverted US attempts to reconcile Palestinian and Israeli negotiators. The net effect of these actions has been a chilling effect on US-Egyptian relations. Many US congressional leaders are beginning to question the wisdom of continued US economic and military support for Egypt, given their perception that Egypt is subverting US interests. Conversely, the United States is subjected to severe criticism in the government controlled Egyptian press for what it perceives to be a biased position vis-à-vis the Arab-Israeli conflict.⁷

Despite the prominence given to the divergent US and Egyptian interests concerning Israel, it is by no means the sole point of contention between the two countries. Egypt and the United States have clashed on numerous issues pertaining to inter-Arab relations. Among the most contentious points of disagreement was Egyptian opposition to American attempts to impose a military sales ban on Sudan, its opposition to potential US military action against the alleged chemical plant in Libya, and its disapproval over a proposed military strike in 1992 by the United States against Iraq.⁸

When examining the US-Egyptian relationship, one is struck by the parallels between it and the former US-Iranian relationship with the Shah. As with Egypt today, US strategic planners saw Iran as the protector of its interests in the region. This prompted the US to provide Iran with unprecedented military support only to have its enormous investment dissolve following the overthrow of the Shah by the Ayatollah Khomeini. While Egypt is not likely to replicate Iran in the short-term, there is a strong incentive for Egypt to reduce, if not eliminate, US influence in the region.⁹

The United States, given its commitment to Israel's survival, is an impediment to Egypt's long-term strategic goal of establishing its regional hegemony. This is because the United States sees Israel's acceptance and economic integration in the region as the key to ensuring its long-term security and thereby fulfilling one of the United States' strategic regional objectives. Conversely, Egypt, recognizing Israel's current military, economic, and advance technological superiority, sees Israeli integration as a threat to its regional strategic objectives.¹⁰ Consequently, inter-Arab dynamics militate against Israel's regional integration, and Arab antagonism towards Israel serves as a rallying point for any potential hegemony. Consequently, Egypt has a vested interest in maintaining the Arab-Israeli conflict on the political, economic, and cultural levels. However, past experience has taught that it is just a matter of time before such conflicts escalate to military confrontation. The probability of this confrontation occurring is exacerbated due to the massive influx of American weaponry into the region.

When this confrontation occurs, the United States may well have to choose between maintaining its support for Israel's security or maintaining its unfettered access to oil and good relations with its Arab

allies. Given the enormous US investment in Egypt and its other Arab allies, this choice may prove more difficult than in any other previous time.

Section Three: Israel-Egyptian Relations

Despite the 1979 peace treaty, Israel never achieved the kind of peace it envisioned when returning the Sinai to Egypt. Former Egyptian President Sadat's support of expanded relations with Israel never came to fruition as Egypt's intellectual, political, and economic elite continue to shun Israel as a regional actor.¹¹ Moreover, the passage of time has not improved Egyptian perceptions, or acceptance, of Israel. Outward manifestations of Egyptian rejection of Israel includes: the Egyptian Bar Association burning of American and Israel flags on every anniversary of the signing of the 1979 peace treaty; the regular featuring of anti-Israel and anti-Semitic articles in Egyptian newspapers; and routine refusals of Egyptian teachers, student unions, medical professionals, and other grassroots organizations to meet with Israeli counterparts for dialogue and cooperation.¹² Nor has the Palestinian-Israeli peace process resulted in a softening of Egypt's harsh criticisms of Israel. The official Egyptian press routinely castigates Israel for its positions and actions taken against its Arab neighbors.¹³ More disturbing is that the criticism of Israel from the Egyptian government controlled press has transcended policy issues and embraces blatant anti-Semitism. For example, official Egyptian newspapers have accused Israel of spreading AIDS and hepatitis in Arab countries.¹⁴ Additionally, the Egyptian press routinely accuses Israel of fomenting plots and conspiracies worldwide.¹⁵

A study of Egyptian university graduates, who were in college during the signing of the 1979 Egyptian-Israeli peace treaty, found that 92.8 percent believed that Israel was an expansionist, aggressive state headed by terrorists.¹⁶ Egypt has actively lobbied against US-Israeli assistance treaties, the 1995 Memorandum of Military Cooperation between Israel and Russia, as well as Israeli-Turkish military cooperation agreements.

Equally disturbing is the fact that this rejection of Israel is not confined to Egypt's intellectual, political, and economic elite, but permeates throughout the Egyptian population. An Egyptian public opinion poll showed that 98 percent of the people opposed full normalization of relations with Israel. The same poll showed that 97 percent opposed cultural ties, 96 percent opposed economic ties, and that 92 percent opposed normal tourist ties.¹⁷

According to Egyptian Brig. Gen. Morad Dessouki, military expert at the Al Ahram Center for Political and Strategic Studies, the Egyptian government still views Israel as a regional enemy.¹⁸ Dessouki's remarks were buttressed by Egyptian Defense Minister Tantawi's statement that the September 1996 Egyptian military maneuvers (dubbed "Badr 96"), the largest in Egypt's history, were being conducted out of concern for Israel's non-conventional capabilities. Egyptian animosity toward Israel was further underscored by Egyptian political analyst Hassan Heikal, when he stated that Egypt rejected the concept of "normalization" with Israel and that many Egyptian generals viewed the current situation as a temporary cease-fire. The continued erosion of the Israeli-Egyptian relationship is exemplified by the evolving Egyptian position concerning the Sinai.

Egyptian support for the continuation of the multinational forces in the region has eroded. As early as November 18, 1992, Egypt proposed that the multinational forces be withdrawn from the Sinai. This proposal was based upon its perception that the presence of these forces on Egyptian soil violates Egyptian sovereignty. Since 1992, Egypt has not deviated from its position that the multinational presence in the Sinai be significantly reduced, if not officially terminated.

Egyptian perceptions of Israel as an enemy are exacerbated by the potential threat Israel poses to Egyptian regional ascendancy. This threat is perceived due to Israel's military and technological

superiority coupled with US political support. Egyptian antagonism towards Israel has been manifested in Egypt's position concerning the Israeli-Palestinian peace process.

Consequently, much to the consternation of the United States, Egypt has opted to forgo the role of a neutral party and has clearly supported the Palestinians in their dispute with Israel. Egyptian President Hosni Mubarak has taken the position that Israel is responsible for the current state of instability in the region.¹⁹ These sentiments were echoed by Egyptian Foreign Minister Amr Moussa who claimed that Israel, "with its prolonged provocations and renewed construction in the settlements created the deadlock."²⁰

Given this reality, Israel must pay attention to the massive Egyptian military build-up of conventional forces, coupled with its complaints concerning the continued presence of multinational force peacekeepers in the Sinai. While the \$2.1 billion of economic and military aid currently being provided by the United States motivates Egypt to act with restraint, the situation would quickly deteriorate should such aid be withdrawn or substantially reduced. Should this occur, the Egyptian military would be much more capable of fulfilling Egyptian strategic military objectives than in any previous time.

Section Four: Other Regional States

Throughout the last two decades, Egypt followed a two-prong strategy to position it to become the regional hegemony. The first stage was to restore relations with its sister Arab states that were severed following the 1979 peace treaty with Israel. The second stage was to reestablish its leadership role in the Arab world.

The first stage of this process began in 1982 when Lebanon, Iraq, Jordan, and the PLO, following Egypt's criticism of the Israeli invasion of Lebanon, reestablished diplomatic contacts with Egypt. These openings facilitated new diplomatic initiatives that afforded Egypt the opportunity to restore bridges with its Islamic brothers. The subsequent collapse of the Soviet Union strengthened Egypt's position and accelerated its acceptance in the Arab community. This decade-long process culminated in the August 1990 decision to return the Arab league headquarters from Tunis to Cairo.

The impetus for the second stage was provided in 1991 with the advent of Desert Storm. During the conflict, Egypt played an instrumental role in coalescing a united Arab front against Saddam Hussein. Moreover, Egypt's ability to mobilize Arab support for the allies highlighted its strategic importance to the United States.

Following the Gulf War, on March 6, 1991, Egypt and Syria joined the 6 member Gulf Cooperation Council (GCC) and, in what is known as the Damascus Declaration, formed a military alliance. The declaration called for the stationing of an Egyptian infantry division in return for economic aid from the GCC. However, the GCC apparently had second thoughts concerning the stationing of Egyptian and Syrian troops on their soil, opting instead to rely on Western security commitments to build-up their own militaries through unprecedented arms purchases, and the agreement was never implemented.

While the failure of Egypt to secure implementation of the Damascus Declaration represented a temporary setback in its quest for regional hegemony, Egypt has solidified its position in the region through a number of bilateral agreements. Egypt has secured a security treaty with Yemen and has entered a military pact with Algeria.²¹

However, it is the developing relationship between Egypt and Syria that has the most far-reaching consequences. Egypt, by supporting the Syrian demand that any Syrian-Israeli peace talks proceed with a precondition that Israel commit itself to a full withdrawal from the Golan Heights, has fostered

the growing relationship between the two countries. There have been numerous meetings between the Egyptian President Mubarak and Syrian President Assad concerning development of a joint position vis-à-vis the Arab-Israeli peace process. This cooperation between the two countries should be a cause of consternation for American and Israeli strategic observers of the region and, given Syria's extensive ties with Iran and the historical consequences of this relationship will have an adverse impact on US and Israeli regional strategic interests.

The Egyptian-Syrian rapprochement is but one manifestation of a growing trend of thawing regional relations between Islamic states in the region. In April 1997, in what was the highest level of contact between the two states since the founding of the Islamic republic, Iranian President Rafsanjani met with Saudi Crown Prince Aziz.²² This is a considerable achievement, given the animosity between these two countries. This rapprochement between the rejectionist and conservative Muslim regimes has accelerated in recent years. There have even been cultural exchanges and high-level conversations between Egypt and Iran.²³

Section Five: Egypt's Military Build-Up

Conventional Build-up

Notwithstanding the 1979 peace treaty, Egypt has undertaken serious efforts to achieve conventional military parity with Israel. Egypt, relying on billions of annual financial aid from the US, \$1.3 billion in the form of direct military assistance, is in the process of transforming its forces into a modern, Western-based military and currently fields the 13th largest military in the world.²⁴ Egypt is the fourth largest importer of conventional weapons.²⁵ Moreover Egypt, in a region that leads the world in the import of weapons, is the only Middle East country to have increased its arms purchases yearly since 1990.²⁶ While the vast majority of Egyptians continue to live in squalor, the Mubarak government has devoted much of the aid it has received from the United States since 1979, to reconstitute, rebuild, and reorganize Egypt's military to such an extent that it rivals the qualitative and quantitative levels of the Israeli Defense Forces.²⁷

Air Force

Since the early 1980s, Egypt has embarked on a myriad of five-year plans to buildup, modernize, and increase its military capabilities. The first five-year plan, which started in 1983, consisted of rebuilding Egypt's military infrastructure that was destroyed during the 1973 Arab-Israeli War. The primary focus of these efforts was the construction of new bases and communications systems. From 1988 to 1993, Egypt channeled funds into the Air Force by purchasing American F-16s and upgrading its command and control and air-defense capabilities.²⁸

The current five-year plan was initiated in 1998 and the Air Force continues to receive the bulk of the resources. Egypt spends as much as 80 percent of US military aid on the Air Force. The crux of the Egyptian build-up started in 1982 as part of the Peace Vector Program. Under this program, the Egyptian Air Force made five orders of F-16s that totaled 190.²⁹ Most recently, the United States approved the purchase of an additional 24 F-16C/Ds bringing Egypt's total arsenal of the fighters to 220.³⁰ These aircraft are equipped with the Block 40 upgrade configuration that includes integration capability to employ the HARPOON, Heads Up Display, and Egyptian Identification Friend and Foe.³¹ Egypt has equipped its aircraft with relatively modern accessories including AN/ACR-68 radar warning systems, AN/ALE-40V chaff/flair dispensers, and AN/ALQ-131V jamming pods.³²

Today, Egypt can field a modern, sophisticated air force with about 550 airplanes, more than half of Western origin. The Egyptians have also bought advance ordnance, avionics and accessories and are upgrading their aging Soviet aircraft by equipping their MiG-21 fighter aircraft with night vision capabilities.³³ Egypt augmented its air-to-air missile capabilities with the purchase of 271 AIM-7M

Sparrow and 314 AIM-9M Sidewinder missiles.³⁴ These missiles will supplement its extensive air-to-surface missile inventory that includes AGM-65A/B/D Maverick, Exocet AM-39, and Rockeye missiles.³⁵

Egypt has been cooperating with the US to develop an advanced C3I system that will assimilate data from air and ground sources into a single network so that aircraft and missile systems can engage multiple targets simultaneously.³⁶ Egypt first enhanced its airborne early warning capabilities by taking delivery of 5 Grumman E-2C Hawkeyes, 2 CH-130Es, and 4 Beech 1990s.³⁷ It then upgraded its aircraft with Group II Mission Suite retrofit kits which included AN/APS-145 radar.³⁸ Moreover, a \$7.5 million contract was awarded to Orbital Sciences Corporation to provide Egypt with Mission Support Systems (MSS) which included: 16 MSS II+ mission planning workstation subsystems and associated data; 1 MSS II database preparation system; and 100 satellite imagery scenes of Egypt; related training for Egyptian Air Force personnel; installation and checkout of all systems in Egypt.³⁹

The Egyptians are also acquiring a modern helicopter fleet. The Egyptian Air Force has approximately 111 armed helicopter including 36 Apaches (AH-64A).⁴⁰ These helicopters possess state-of-the-art night-flying equipment and carry up to 16 Hellfire antitank missiles and 38 rockets.⁴¹ These helicopters will supplement Egypt's existing arsenal of attack helicopters consisting of 74 SA-342L, many of which are armed with HOT air-to-surface missiles and 30mm guns.⁴² Recently, the United States announced approval of a \$400 million program for the conversion of Apache helicopters into the new AH-64D model, but without installing the sophisticated "Long Bow" radar system that is supplied to the Israeli air force. This improvement will increase the ability of anti-tank missiles to operate by day and night, defend essential installations, and provide airborne assistance in proximity to ground forces.⁴³

Nor is the improvement limited to equipment acquisition. The Egyptian Air Force has adopted western command and control, attack techniques, support, and aerial combat roles. Many Egyptian pilots are being trained to Western standards, often at US training facilities. Moreover, Egypt is building advanced maintenance and training facilities for F-16 repair depots and have expanded their support efforts to provide depot level and other major maintenance.⁴⁴

Air Defense

Egypt has continued the Soviet practice of maintaining a separate air defense command structure. As a consequence, Egypt's air defense system is one of the largest and most complex systems in the Middle East.⁴⁵ While Egypt still maintains large stocks of antiquated Soviet systems, it has been steadily improving its air defense capabilities.

Among some of the notable Egyptian acquisitions are 12 Improved Hawk batteries with 72 Improved Hawk launchers and 12 Crotale batteries with 24 to 36 Crotale missile launchers.⁴⁶ Egypt's air defense capabilities were also enhanced by the acquisition of 180 Hawk and 1,000 Hellfire II missiles.⁴⁷ Additionally, Egypt improved its existing Hawk missile systems through the purchase of Raytheon's Phase III Product Improvement Program. The estimated cost for this program is \$303 million and includes modification kits, systems engineering, remanufacturing of selected hardware and other related items of system support.⁴⁸ Egypt has also procured British-made Plessey AR-3D and TSR-2100 radars.⁴⁹ Most recently, the United States has agreed to supply Egypt with the ground-launched version of the Advanced Medium Range Air-to-Air Missile to replace its aging Soviet SA-6 inventory.⁵⁰

Army

Egypt has also modernized its ground forces. Until the late 1970s, the Egyptian army comprised 10 divisions, only half of them either mechanized or armored. Today, the army has 12 divisions, all but one of them is either mechanized or armored, and plans to field a total mechanized army by the year

2005.⁵¹ The result is that the Egyptian army is now capable of fielding a modern mechanized military that can move with the speed and firepower equal to that of most modern armies. The mechanized divisions revolve around some 4,500 armored personnel carriers, the core of which consists of 2,000 US M-113s. In 1996, in order to further modernize its infantry ground forces, Egypt took delivery of 611 Dutch YPR-765 armored infantry fighting vehicles to replace its aging BMP forces.⁵² Egypt is also upgrading its Fahd-30 AIFVs with BMP-2 turrets.⁵³ Additionally, Egypt has substantially improved its anti-tank capability with the acquisition of 2,372 TOW 2A missiles and its intention to buy 540 TOW launchers.⁵⁴

Second only to its modernization of its Air Force, has been the transformation of its armored forces. In the 1970s, the Egyptian Armored Corps was comprised almost exclusively of Soviet tanks, the best of which was the T-62. Today, Egypt's armored corps is comprised of some of the most modern tanks in the US inventory. Egypt began the transformation of its armored forces by forming two armored divisions following its acquisition of 850 M-60 A3s. Egypt currently has 1,700 M-60s (1,100 of them M-60A3s), and plans to upgrade all of its M60A1 tanks to A3 standards.⁵⁵ However, the hallmark of Egypt's transformation of its armored forces has been the integration of the M1A1 Abrams tank. Acquisition of the premier US MBT has been done through a combination of production, through the "Factory 200" program, and the purchase from the United States. It is estimated that Egypt now possesses some 555 M1A1 MBTs and ultimately plans on fielding some 1,500.⁵⁶ Egypt is also improving its aging Soviet armor by contracting with UK firms to provide those tanks with greater armor penetrating ammunition and by negotiating with Russia to modernize its aging Soviet inventory.⁵⁷

Navy

Despite enormous costs, Egypt has also taken steps to improve its Navy. Egypt is focusing on upgrading the Egyptian fleet of eight submarines acquired from China and entered negotiations to purchase two submarines from the United States.⁵⁸ It has leased two former US Navy Knox class frigates and is expected to receive 10 ex-US Navy Seasprite ASW helicopters upgraded to SH-2G(E) standards.⁵⁹ Making Anti-Submarine Warfare a priority, Egypt spent \$32 million to purchase 84 Alliant Techsystems MK-46 torpedoes and training equipment.⁶⁰ Additionally, Egypt has purchased two PERRY class frigates (USS GALLERY and DUNCAN FFG10). The ships are equipped with MK-46 MOD 5 torpedoes and PHALANX Close-in-Weapon Systems (CIWS).⁶¹

As part of its inculcation of Western technology, the navy holds joint maneuvers with units of the American, French, British and Italian navies. Egypt is also modernizing four Chinese-built Romeo class submarines with improved weapon systems including Harpoon missiles, fire control systems, and sonars.⁶²

Weapons Development

The most impressive aspect of the two-decade long modernization of its military has been the development of its indigenous production programs. Egypt has 32 defense production plants which are supervised by three government entities.⁶³ Several of these plants produce civilian products in addition to defense equipment or defense-related products, and are looking for additional opportunities to produce under license. Its military factories are operated under the Egyptian Military Factories (EMF) and managed by the Ministry for Defense and Military Production/National Organization for Military Production (NOMP). Egypt's military industries are kept strictly under military control and act independently from government oversight.⁶⁴ Some of Egypt's significant weapon development efforts include the following:

Factory 200

After the Gulf war, the Egyptians began to assemble the US-made M1A1, which is widely regarded as one of the finest tanks in the world, under the “Factory 200” program. The M1A1 “Factory 200” program is a major milestone in Egyptian efforts to achieve limited military self-sufficiency. Egypt obtained US approval in 1984 to build a giant factory to produce new tanks. Under the agreement, the Egyptians will assemble 524 M1A1 tanks and officials hope that will eventually rise to 1,500 tanks.⁶⁵ Six production cycles were established with each increment increasing the level of technology from General Dynamics Land Systems. The cost is estimated at \$3.2 billion. The Egyptians also will produce the 120-mm cannon as well as an increasing number of parts for the tank. Egyptian officials say the goal is to make Cairo self-sufficient in tank production.

Egyptian Infantry Fighting Vehicle Program

Egypt is testing the prototype of the Egyptian Infantry Fighting Vehicle (EIFV). Development is being done by United Defense LP (UDLP) of the US and Egyptian Ministry of Military Production. It is designed to complement the M1A1 battle tank and is armed with a 25mm M242 chain gun, a 7.62mm M240 co-axial machine gun and a twin launch for the TOW anti-tank guided system.⁶⁶

Saqr Factory

The Saqr Factory for Developed Industries produces artillery and missile systems of several types. Thus far, Saqr has produced three families of 122mm multiple rocket launchers including: the Saqr 36 equipped with 21, 30, and 40 rails having a maximum range of 36 kilometers; the Saqr 18; and the Saqr 10.⁶⁷ Egypt, in addition to its imports, is modifying and experimenting with different systems in an attempt to develop an indigenous production capacity. The factory also developed the Saqr Eye, an improved version of the SA-7B which is more sensitive and reliable than the original.⁶⁸

Abu Za’abal Engineering Industries

Automatic guns and artillery pieces with a caliber up to 203mm are produced by Abu Za’abal Engineering Industries. Among its projects is the 23mm Nile 23 and Sinai 23 air defense gun vehicle. It also manufactures 105mm guns for upgrading T-55 tanks. It has also produced an indigenous 23mm weapon system (Ramadan 23), which combines two ZU 23mm fire units with a Contraves Gun King laser/computer firing system.⁶⁹

Heliopolis Company

This company manufactures the SA-7 warheads as well as 100mm and 115mm tank ammunition, 122mm rockets, 100 AA ammunition, aerial bombs, depth charges, and other associated products.

Arab-American Vehicle Company (AAVCO)

AAVCO is a joint Egyptian and American venture formed in 1977. The company employs over 17,000 workers and produces military jeeps and other light vehicles.

Arab-British Dynamics Co. (AB-DCO)

Formed in 1978 as a joint Arab-British project, AB-DCO produces well over 1,000 Swingfire ATGMs under British license. Additionally, the company has produced a modernized Soviet 9M14M Malyutka Sagger ATGM and is developing a new warhead with greater armor-piercing capability. The plant has also been involved in a joint manufacture venture of SA-2 Guideline SM missiles with China and North Korea.

Banha Company for Electronic Industries

Produces military products including communications devices, radars and electronic equipment.

Non-Conventional Weapons

Nuclear

Egypt was one of the first countries to obtain nuclear capabilities when it purchased a small research reactor from the Soviet Union in the early 1960s. Despite this distinction, it appears that Egypt has made the strategic decision to concentrate its efforts on increasing its conventional forces and non-conventional chemical and biological capabilities, rather than developing nuclear weapons. However, Egypt is currently building a 300 MW Chinese-made reactor that will have the capacity to manufacture four nuclear warheads a month.⁷⁰ Additionally, Egypt is believed to be seeking joint nuclear weapons research with Syria and Saudi Arabia to defray the prohibitive costs and allow Egypt to continue its conventional buildup.⁷¹

Chemical/Biological Weapons

Prior to the 1991 Gulf War, Egypt was believed to have been working with Iraq for years on the production and stockpiling of chemical weapons.⁷² While the size of its arsenal is not known, it is probably similar to that of Iraq prior to the Gulf War. Chemical weapons are part of the Egyptian army's "standard issue", and Egypt operates a chemical plant at Abu Za'abal.⁷³

Ballistic Missiles

Egypt has possessed long-range missile capabilities since its acquisition of FROG-7 and Scud B missiles in the 1960s. Today, Egypt has a highly advanced weapons production capacity, trailing only Israel in the region.⁷⁴ Egypt has developed and deployed the Saqr-80 rocket, as well as the Project-T (an enhanced Scud-C) missiles with a range of 450 kilometers and a payload of 985 kg.⁷⁵ The Saqr-80 with a maximum range of 80 kilometers and a payload of 200 kilograms was designed to replace Egypt's aging FROG systems.⁷⁶

Cairo is working with the North Koreans to upgrade the Scud's range and accuracy. The project began as early as 1981, Western intelligence sources say, when Egypt transferred several Scud Bs to Pyongyang, violating the Egyptian treaty with Moscow. The Koreans then used reverse engineering to extend the range and improve the accuracy of the Scud B. The result has been the Scud C and Scud D, with ranges of 600 and 1,000 km. respectively.⁷⁷ North Korea, as part of its agreement with Egypt, supplied several shipments of Scud C missile materials to Egypt.⁷⁸

The most ambitious Egyptian effort over the past decade has been the Badr/Condor missile project. Conceived by Argentina, developed further by German scientists and financed by Iraq, the Condor resembled the US Pershing missile. Western intelligence sources say Egypt wanted the Condor to counter Israel's Jericho II missile, with a reported range of up to 1,500 km. The Badr/Condor was designed to be an advanced two-stage, solid-fuel, inertial guided ballistic missile with a 700 kg payload over 1,000 kilometers and an accuracy to within 100 meters.⁷⁹ However, cooperation of the joint project was terminated in 1989 and the missile was never fielded. Nevertheless, the collaborate effort provided Egypt with a wealth of missile-related technology that was undoubtedly used in other projects.⁸⁰

Section Six: Egypt's Defense Expenditures

Egyptian Military Capabilities

The second basic criteria used to determine a strategic threat is assessing the capabilities of the potential threat to achieve its strategic military and political goals. Historically, strategic planners, recognizing the difficulty in determining a country's intentions, make a worst-case scenario, assuming the worst intentions of a country, and increasingly rely upon their assessment of the country's

capabilities as the primary determinate of the probability of hostilities.⁸¹ However, in the case of Egypt, it appears that Israel strategic planners are making a critical error in their strategic threat assessment and the potential medium and long-term threats that Egypt poses to Israel. Rather than incorporate a worst case analysis of Egyptian intentions, and a probable case given the analysis in section one, Israeli strategic analysts have discounted Egypt as a potential threat and have focused their attention on the short and medium-term threats posed by Syria and Iran.⁸²

This section examines the capabilities of the Egyptian military and its ability to facilitate achievement of that country's medium and long-term strategic goals. Two essential components are used to assess Egyptian military capabilities. The first component examined is the extent of the Egyptian military build-up. Egypt, since 1985, has embarked on an unprecedented military build-up. Relying on \$2.1 billion of direct US aid, and billions in other forms of military and economic assistance, Egypt has virtually reached the qualitative and quantitative levels of the Israeli Defense Forces.

The second component examined is the amount of resources that Egypt is devoting to its military forces. In other words, one needs to accurately determine Egypt's defense budget and its yearly military expenditures. Precisely determining and examining Egypt's defense expenditures facilitates accurate assessment of that country's intentions. Indeed, given Egypt's extreme internal social, economic, and political problems, coupled with the relatively small threat posed by its neighbors, we should expect a relatively small amount of its resources to be devoted to its military.

It is important to note that traditional sources of military information have generally published third-world countries military expenditures based upon data provided by the countries in question. However, when independent sources conduct detailed analysis of these budgets, they frequently find significant discrepancies which have led to estimations far higher than those officially disclosed.⁸³ Unfortunately, for the most part, acknowledged sources for foreign military expenditures, such as: The Military Balance; The Jaffee Center's Middle Eastern Military Balance; and the Stockholm International Peace Research Institute (SIPRI) Military Expenditure Database continue to publish officially stated figures without independent verification or analysis.

Egypt's Defense Expenditures

A cursory review of the official published figures of Egypt's military expenditures indicate that there exists serious anomalies between the decade-long Egyptian arms build-up and its officially stated annual defense budget. Official figures of Egyptian defense expenditures have reflected a dramatic decline in its yearly defense budget.⁸⁴ However, contemporaneous with its declining expenditures, Egypt has been in the midst of transforming its military from a 1970s Soviet-based military to a modern 1990s Western-based military. For example, in 1985 only 20 percent of Egyptian armor and some 50 percent of Egyptian aircraft were of Western origin. Today, over 85 percent of Egyptian armor and almost 85 percent of Egyptian aircraft are of Western origin.

This presents a serious anomaly since militaries generally experience increased costs during transition periods, as more funds are needed for training, familiarization, and maintenance costs. In this respect, it is worth noting that Egypt is not only absorbing Western equipment but is also adapting Western war-fighting doctrines and command and control techniques. Consequently, it is incongruous to believe that a country can transform a military consisting of over 440,000 personnel, 3,500 Main Battle Tanks, and over 550 Combat Aircraft in so dramatic a fashion, while simultaneously reducing its expenditures by over 60 percent. This is especially true for a third-world country lacking a history of fiducial discipline and one that is hardly imbued with the traditions of thrift and efficiency when it comes to its bureaucracy.

While ascertaining accurate Egyptian annual defense expenditures is a challenging task, given the unavailability of accurate data from the host country, it is by no means impossible. Given the relative availability of open sources in the West, it is possible to obtain general information on the Operational

and Maintenance (O&M) costs incurred in training, fielding, and sustaining various military units.⁸⁵ From this information, it is possible to extrapolate how much it would cost Egypt to construct, train, field, and sustain its military.

While this analysis is far from precise, given the enormous cultural and political discrepancies that would cause deviations in the amount devoted toward maintenance and training, it is far more accurate than relying on official published figures. This is due to the relative stability in what a supplier or manufacturer charge for consumable and repair parts. Indeed, if anything, the cost to a third world country to maintain its equipment should be incrementally higher since the part in question is subject to a myriad of additional costs associated with exporting the component. This section analyzes the costs involved to field, train, and maintain a military of the quality, and quantitative size, as that of Egypt. Moreover, using open sources, this section will attempt to ascertain a minimum estimate of yearly Egyptian military expenditures.

Army

Heavy Divisions

Egypt currently fields and maintains 4 active armored divisions and 8 mechanized divisions. The majority of the hardware of these weapons are US made M-60 A1/3s tanks, M1A1 tanks, and M-113 armored personnel carriers. According to a published Total Force Policy Report to the Congress (December 31, 1990), the annual cost to field and maintain an active US Army (Armored/Mechanized) division is \$976 million.⁸⁶ Of this amount, yearly operational costs for the armored division is \$146 million and for the mechanized division, \$140.3 million (FY 97 dollars).⁸⁷ An additional \$175 million is spent on equipment avg./yr, and the remaining funds are associated personnel costs (military pay, family housing, etc.). A more detailed breakdown of the yearly operational costs is as follows:

	Armored Division	Mechanized Division
Consumables	\$ 48,962	\$ 47,995
Reparables	\$ 70,266	\$ 65,267
POL	\$ 5,651	\$ 5,470
Indirect	\$ 21,152	\$ 21,609
TOTAL	\$146,031	\$140,341

Source: Department of the Army, Office of the Deputy Chief of Staff for Operations.
Cost figures are in millions.

This would put Egypt's yearly operational costs for maintaining its four armored and eight mechanized divisions at \$584.1 million and \$1122.7 million respectively. Consequently, the total yearly operational costs for Egypt to maintain its heavy divisions would be \$1706.8 million or 46.3 percent of Egypt's total officially reported annual defense expenditures. Additionally, the annual cost for equipment avg./yr. per heavy division is \$185 million or a total of \$2220 million for Egypt's 12 heavy divisions.⁸⁸ This puts the total annual costs of maintaining Egypt's twelve heavy divisions at \$3926.8 million (excluding personnel costs) or 133 percent of Egypt's total officially reported annual defense expenditures.

Additionally, Egypt maintains the equivalent of at least one additional armored and mechanized division in the form of independent brigades. These include a Republican Guard armored brigade, 2

armored brigades, and 4 mechanized brigades. Moreover, the overall costs associated with these units are approximately 30 percent higher given their independent command structure.⁸⁹ Consequently, the addition of these two divisions adds approximately \$853 million to the total costs for Egypt to maintain its heavy forces. These additions put the total annual costs of maintaining Egypt's heavy forces at \$4779.8 million (excluding personnel costs).

Light/Airborne Divisions

In addition to its heavy divisions, Egypt also fields the equivalent of two more divisions in the form of three independent infantry brigades, 2 airmobile brigades and a parachute brigade. According to a March 4, 1997 Department of Defense information paper submitted to the House National Security Committee, the yearly operating costs for infantry divisions are as follows: Light Infantry Division, \$583 million; Airborne Division, \$733 million; Air Assault Division, \$951 million.

As with the heavy units, the majority of expenditures, approximately 65 percent, are derived from direct personnel (military pay, housing, travel etc.) expenses. After deducting the personnel expenses we are left with the following yearly operating costs: \$204 million for the Light Infantry Division, \$256.5 million for the Airborne Division, and \$332.8 million for the Air Assault Division.

However, since Egypt maintains these units in the form of independent brigades, the costs associated in maintaining these units are approximately 30 percent higher than if they were part of a division. This raises the yearly operating costs: \$272 million for the three independent infantry brigades; \$111.5 million for the independent airborne brigade; and \$295 million for the two independent airmobile brigades, thereby putting the total estimated yearly operating costs to maintain its independent light units at \$678.8 million (excluding personnel costs).

Field Artillery

Egypt maintains 15 independent artillery brigades. Its artillery strength consists of: over 1,100 major towed weapons including D-20 152mm, A-19 Model 1931/1937 122mm and M-46 130mm weapons; 150 self-propelled weapons including M109A1 155mm howitzers; 200 multiple rocket launchers; and more than 21 surface-to-surface missile launchers. A breakdown of the yearly operational costs for an artillery brigade is as follows:

Consumables	\$ 3,573
Reparables	\$ 9,633
POL	\$ 311
Indirect	\$ 1,822
TOTAL	\$15.339

Source: Department of the Army, Office of the Deputy Chief of Staff for Operations. Cost figures are in millions and are for a 155SP Bn. These figures exclude personnel and equipment costs avg./year.

If we multiply the 15 brigades by the yearly operational costs of \$15.339 million we arrive at a figure of \$230.08 million. Additionally, since these battalions are constructed in the form of independent brigades, and have their own command and support structures, an additional \$4.6 million needs to be added to each brigade thereby bringing the annual operational costs per brigade to \$19.93 million and a total annual expenditure rate for Egypt's field artillery assets to \$298.95 million (excluding personnel and equipment costs avg./year).

Air Defense Command

The Egyptian Air Defense Command consists of approximately 80,000 men and is organized into five divisions with over 100 battalions. These forces include over 90 SA-2/3/6 battalions, as well as 12 batteries each of I-HAWK, Chapparral, and Crotale. Additionally, they man a number of fixed-site AA guns including 23mm ZU-23, 57mm S-60, 85mm and 100mm KS-19 guns. A more detailed breakdown of the yearly operational costs for an ADA battalion are as follows:

Consumables	\$1.45
Reparables	\$1.36
POL	\$0.11
Indirect	\$0.77
TOTAL	\$3.69

Source: Department of the Army, Office of the Deputy Chief of Staff for Operations. Cost figures are in millions and are for a US ADA Avenger Battalion. These figures exclude personnel and equipment costs avg./year.

If we multiply the yearly operational costs of \$3.69 million by Egypt's 100 active duty ADA battalions, we arrive at a total figure of \$369 million for the maintenance of Egypt's Air Defense Command (excluding personnel and equipment costs avg./year). While the actual costs of maintaining a lesser quality ADA Battalion may be lower, this estimate is viable, and may be considerably lower in actual estimates, when accounting for the fact that Egypt maintains a totally independent command structure for its ADA assets.

Air Force

The Egyptian Air Force consists of over 550 aircraft comprising 7 squadrons of strike aviation aircraft and a fighter force of 16 squadrons. These forces include some 190 F-16s, 100 Mirages, and over 200 aging Chinese J series and Soviet MiGs. These forces are equipped with a wide variety of missiles including AA-2 Atolls, AIM-7 Sparrows, AIM-9 Sidewinders, AM-39s and Excoets. Egypt has a transport force that includes 19 C-130Hs, 5 DHC-5Ds, and 1 Super King Air. Moreover, Egypt possesses over 100 attack helicopters, comprising some 15 squadrons including, 24 AH-64s (with an additional 12 on order), and 74 French Gazelles. Additionally, Egypt has 18 airborne warning and control aircraft as well as a large number of rotary wing transport and support helicopters. A detailed breakdown of the yearly operational costs for a squadron of F-16C/Ds is as follows:

Aviation Fuel	\$ 4.3
Depot Maintenance	\$ 0.8
Consumable Supplies	\$ 1.7
Depot Level Reparables	\$ 6.5
Training Munitions	\$ 1.1
Rel and Safety Mod Kits	\$ 1.1
Rel and Safety Mod Install	\$ 0.2

Training	\$ 0.5
TOTAL	\$16.2

Source: Department of the Air Force, 11th Wing, Freedom of Information Manager. Cost figures are in millions. These figures exclude personnel and equipment costs avg./year.

If we multiply the yearly operational costs by the 23 squadrons in the Egyptian Air Force we arrive at a yearly operational cost of \$372.6 million (excluding personnel and equipment costs avg./year).

A detailed breakdown of the yearly operational costs for a squadron of Ah-64s is as follows:

Consumables	\$ 2.34
Reparables	\$11.02
POL	\$ 0.46
Indirect	\$ 0.36
TOTAL	\$14.18

Source: Department of the Army, Office of the Deputy Chief of Staff for Operations. Cost figures are in millions. These figures exclude personnel and equipment costs avg./year.

Using the figure of \$14.18 million for the average yearly operating cost per squadron, we arrive at a total figure of \$212.7 million for the yearly operational costs for Egypt's 15 attack helicopter squadrons. This brings the total cost for Egypt's attack fighters and helicopters to \$585.3 million (excluding personnel and equipment costs avg./year). While the actual yearly operational cost may differ due to the fact that not all the squadrons are F-16C/Ds and Ah-64s, this discrepancy is adequately compensated by the fact that the analysis is excluding the large number of aircraft including its transportation and training assets.

Navy

Egypt's navy consists of 33 patrol boats, 8 frigates, 9 minesweepers, 8 submarines and one aging destroyer. Its naval aviation assets include 10 Seasprites, 9 Gazelles, and 5 Sea Kings. The Egyptian Coast Guard is part of the navy and operates approximately 60 small patrol craft, 9 Swiftships, and 12 PCIs.

Data concerning the number of training and operational hours that the ships in the Egyptian navy conduct each year is unavailable. However, the hourly costs to operate naval aircraft and vessels of a similar type found in the Egyptian navy are as follows:

Component	Hourly Cost
FFG-7	\$3039
Minesweeper	\$1036
E-2C	\$2761

SH-2	\$830
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Source: Department of the Navy, Freedom of Information Office.
 These figures exclude personnel and equipment costs avg./year.

Given the high hourly cost involved in operating naval vessels, and the size and magnitude of the Egyptian navy, a yearly operational cost (excluding personnel and equipment replacement costs) of \$150 million is a conservative estimate.

Personnel Costs

Thus far, this discussion has not addressed the myriad personnel expenses including salaries, clothing, food, housing, and medical costs involved in maintaining and sustaining a large military. Traditionally, these are the largest expenses that a military incurs. Using the example of the US heavy division, at least \$617 million or 63 percent of its annual budget, is devoted to personnel expenses. While recognizing that Egyptian personnel expenses do not approach US levels, the maintenance and sustainment of a large standing army does consume a substantial portion of its officially stated budget.

Egypt has approximately 440,000 men in uniform. Of these, approximately 275,000 are conscripts. However, just the basic costs involved in maintaining such a large military consumes a significantly higher amount than Egypt's reported defense expenditures. This became the case, even more so, following the instituting of a number of reforms by the military during the 1980s to improve the quality of life of military service, in hopes of making it more appealing and attractive to more volunteers..

These reforms have included: periodic pay raises; reduced prices when purchasing cars; access to better health care; visits to special resort areas; and special commissaries that carried products unavailable to the general civilian populace. However, by far the most ambitious and expensive project was the construction of military cities. Each city is designed to accommodate as many as 150,000 people and includes (in addition to a comfortable apartment) schools, nurseries, supermarkets, banks, water purification systems, and solar heating.⁹⁰ The construction of these cities represents a considerable expenditure and is arguably comparable, in both scope and cost, to the benefits offered active duty US service members.⁹¹ While most of these reforms were directed towards career and volunteer soldiers, the quality of life of the Egyptian conscript also improved during this time.

Consequently, considering the direct costs of sustaining a soldier, such as clothing, feeding, housing, health care, etc., coupled with the indirect costs such as benefits paid to retirees, construction and maintenance of the military cities, and dependent care, an average cost of \$25 per day per soldier is rather modest. However, using \$25 as the average cost per soldier and multiplying that amount by the number of personnel in its active forces, we arrive at an annual expenditure rate of \$4.015 million (excluding direct pay).

The average pay for a conscript is about \$10 a month. However, volunteers, career enlisted soldiers, and officers enjoy substantially higher wages that are competitive with the civilian sector. Using the per capita income of \$689 (FY 94 figure) as the average annual salary for career soldiers and \$120 as the annual salary for a conscript we arrive at a total yearly expenditure for salaries at \$8.26 million for career and volunteer soldiers and \$3.3 million for conscripts, for a total annual expenditure of \$11.56 million on salaries. This raises the total yearly personnel expenditure to \$4026.56 million.

It is important to stress that this is a conservative estimate of personnel expenditures. Normally personnel expenditures constitute the lion's share of a military's budget. Indeed, approximately 65 percent of the yearly operational costs of fielding, maintaining, and sustaining a US unit is devoted to

personnel costs. Moreover, US figures exclude all of the collateral costs included in this Egyptian estimate such as civilian construction, retirement pay, etc.

Reserves

In addition to its large standing army, Egypt also sustains a reserve force of over 600,000 soldiers. However, unlike most Western armies, the Egyptian reserve system is thought to be totally dysfunctional with only some 150,000 soldiers receiving any meaningful training.⁹² Taking the 150,000 soldiers and estimating that they receive an average of 30 days training at an average cost of 60 percent of that of an active duty soldier, we arrive at a total reserve budget of \$67.5 million. Furthermore, assuming that an additional 150,000 receives a total of 15 days training, at a cost of 40 percent of that of an active duty soldier, we arrive at an additional cost of \$22.5 million for a total annual reserve cost of \$90 million. This averages out to a yearly expenditure of \$150 per soldier.

A conservative estimate of the Egyptian military budget is far higher than its official figure of \$2.7 billion. Indeed, as the following table illustrates, Egypt actually spends a minimum of more than 4 times its officially reported figures to maintain, sustain, and operate a military as large and qualitative as it does.

Component	Estimated Yearly Operating Costs
Heavy Divisions	\$4779.8 million
Light/Airborne Divisions	\$ 678.8 million
Air Defense Command	\$ 369.0 million
Artillery	\$ 298.9 million
Air Force	\$ 585.3 million
Navy	\$ 150.0 million
Personnel Costs	\$ 4026.5 million
Reserves	\$ 90.00 million
TOTAL	\$10978.3 million

Once again, it needs to be reiterated that these figures are conservative estimates and that the actual figures are undoubtedly higher (as many smaller components, as well as equipment costs avg./year for many units, were not included in calculating the total annual figures).⁹³ In this respect, it is worth noting that the US FY97 O&M budget request for its 510,000 troop army is \$21.4 billion and that Egypt fields an army over 60 percent (310,000 troops) the size of that of the United States.⁹⁴ Consequently, a comparable level of spending would put Egyptian O&M expenditures at around \$12.84 billion for just its active duty components. Moreover, the daily logistical costs of doing business, i.e. transporting equipment, import overhead costs related to part and equipment purchases, fuel, oil, etc. tend to be more expensive in third-world countries than in the United States. Consequently, actual expenditures for any given piece of equipment should be higher.

Three important considerations need to be noted. First, unlike the Egyptian military, US forces logically should not have to devote as many resources (per unit) on training as compared to the Egyptians. This is due to the fact that US training doctrine has not undergone the extensive evolution of changing its war-fighting doctrine to the extent of the Egyptians. Notwithstanding the constant state of transition of the US military, as it integrates particular nuances of its doctrine into the system, it is

hardly of the revolutionary nature that is currently taking place within the Egyptian military establishment as it transforms its military from a Soviet-based to a Western-based military.

Second, the Egyptian military, as it adopts and integrates Western war-fighting doctrine, has to reorganize and retrain much of its military. Since sustainment operations are relatively less costly than training costs, it stands to reason that the Egyptian's operation and maintenance (O&M) expenditures (per unit of measure) to train its forces, should not substantially deviate from what it costs the US military to sustain their forces.

A typical US Armored Division trains about 12 to 15 weeks annually. This training includes "train-up" time spent to prepare for, and participate in, one or two major deployments such as to The National Training Center. Egypt also conducts two or three major deployments annually, such as Bright Star and Badr exercises. Consequently, given the relative small amount of time US forces actually spend training, it is hard to imagine the Egyptians training substantially less.

Finally, US military planners vehemently contend that the current levels of spending are the minimum required to sustain their forces. The Department of Defense has been arguing since the beginning of its drawdown in the late 1980s that any significant reductions would make US forces "hollow" and incapable of fulfilling US national strategic objectives. Consequently, either the Egyptians are spending a similar amount on O&M or they are fielding a very hollow army. Whatever the case, the task of the strategic planner is to assume the worst.

Moreover, this estimate does not even to begin to take into consideration the score of civilian administrative and support tasks that are needed to sustain a divisional unit such as: non-divisional training support services; civilian support services; O&M costs for non-divisional support facilities; as well as administrative and staffing costs for the maintenance of Egypt's military schools and institutions.⁹⁵ For example, Egypt spends approximately \$200,000 to train one officer.⁹⁶

Thus far, this analysis has not addressed three critical components of Egyptian defense expenditures. In addition to its conventional forces, Egypt maintains an enormous security apparatus. It is estimated to be the size of its armed forces.⁹⁷ That being the case, a conservative estimate of Egyptian intelligence expenditures would be \$2-3 billion annually. This would include training, pay and benefits, and operational costs of an organization approximating the size of Egypt's military. Second, while it is impossible to ascertain the cost of Egypt's non-conventional weapon program, it is readily known that Egypt is devoting a massive effort to challenge Israeli superiority in this area. Consequently, it is not unreasonable to assume that Egypt is devoting between \$2-4 billion annually on these programs. Finally, Egypt's massive indigenous military production infrastructure is estimated to be around \$3 billion.⁹⁸

Applying the conservative figures of this analysis, we arrive at the following annual expenditures for Egypt:

Conventional Forces	\$10.9 billion
Military production Facilities	\$ 3.0 billion
Intelligence Community	\$ 2-3 billion
Non-Conventional Forces	\$ 2-4 billion
US Arms Deliveries & Military Aid	\$ 2.5 billion ⁹⁹
TOTAL	\$ 20.4-27.4 billion

Whatever the actual figures of annual Egyptian military expenditures, it is clear that it is far higher than its reported \$2.7 billion. Indeed, this analysis is probably significantly underestimating actual Egyptian military expenditures. The Egyptian military industrial complex pervades all aspects of Egyptian society, thereby blurring the distinction between civil and military expenditures. While most published sources put annual Egyptian military expenditures at 7 to 10 percent of gross national product, this figure is grossly underestimated.

Given the size of its active conventional forces, its large non-conventional research and development programs, and its conventional military defense industry, actual annual Egyptian military expenditures is closer to 20 to 30 percent of its gross national product (GNP). Historically, only countries engaged in a full-scale war have devoted such a large percentage of their GNP to defense.

Egypt is bordered by Libya, Sudan, and Israel. While Sudan's Islamic regime is potentially ideologically threatening, its 300 main battle tanks (250 of which are T-54/55s) and some 50 combat aircraft pose a negligible threat to Egypt. On paper, Libya's military is far more formidable than Sudan's. However, its forces hardly present a threat to Egypt. Approximately 1,600 of Libya's 2,200 tanks are old Soviet T-54/55s. Moreover, a lack of manpower has forced Libya to place over half of its armor, as well as many of its 400 aircraft, in storage, thereby making Libya little more than a massive arms depot.¹⁰⁰

It is significant to note that Libya's 80,000 man military is less than 20 percent the size of Egypt's. Finally, despite the triangle of tension that periodically erupts between Egypt and its Islamic neighbors, the three countries have demonstrated a willingness to rally over perceived pan-Islamic issues. For example, notwithstanding the belief that Sudan was behind the June 1995 assassination attempt on Mubarak's life, Egypt opposed attempts by the United States to impose a military embargo on Sudan. Egypt also opposed the US when it threatened to take military action against a suspected Libyan chemical plant. Consequently, Israeli strategic planners should be asking themselves for whom is the current, Egyptian military build-up directed towards.

Conclusions

There can be little doubt that there exists a growing congruence between Egyptian capabilities and its intentions. However, this does not suggest that war is imminent or even a high probability in the short-term. Currently, the Egyptians, despite their major modernization efforts, are still incapable of launching a successful and credible military offensive that would pose an existential threat to Israel. Egypt still suffers from a number of qualitative weaknesses that would make an Egyptian attack in the short-term a strategic mistake.¹⁰¹ However, Egypt currently possesses a formidable defense capability. This capability affords Egypt greater flexibility as it pursues its strategic goal of achieving regional hegemony.

The quantitative and qualitative size of the Egyptian military would serve as a powerful deterrent in any deterioration of relations between Egypt and Israel, thereby affording Egypt the capability of heightening tensions to the level of those that existed in June 1967. Consequently, given Egypt's strategic interests, an Egyptian remilitarization of the Sinai, in the mid-term, cannot be ruled out. Unlike 1967, Israel would have to absorb such a psychological blow, as the balance of forces would preclude Israel from achieving strategic surprise.

Notwithstanding the enormous military build-up of forces in the region, the IDF still maintains a discernable qualitative advantage over the neighboring Arab forces in weaponry, manpower, and integration of war-fighting technologies. However, the decade-long massive influx of Western weaponry to the Arab countries has seriously eroded Israel's qualitative superiority while simultaneously widening the quantitative gap in favor of the Arabs.

The influx of Western armaments pose at least two significant adverse ramifications for Israel. First, the influx of Western technology will insure that the technological gap between Israel and its neighbors will remain significantly reduced as compared to other periods. The influx of Western technology and the deployment by the Arabs of “smart weapons” has dramatically increased the ability of the common Arab combat soldier. Today, weapons of extreme lethality can now effectively be employed by soldiers who traditionally lacked the capability to effectively employ sophisticated equipment.

Consequently, Israel’s much heralded human qualitative edge is somewhat neutralized, as many of these weapons have made target acquisition, and therefore target destruction, much simpler. Moreover, the Arabs have closed the human qualitative gap due to a tremendous increase in the number of engineer and natural science graduates from Arab universities in the last two decades.¹⁰²

Second, the relative cost for Israel to maintain any qualitative gap is now much greater. Israel has generally maintained a high degree of technological advanced armaments. Consequently, each incremental gain in Israel’s qualitative advantage will cost that country substantially more in research and development costs. This will make the relative cost of each new system more expensive and will limit any attempt by Israel to hold, or decrease, the Arab’s quantitative advantage.

Technology returns tend towards an **S** shape: increasing performance for cost in its early growth phase, and diminishing returns during its later phase. As Israel precedes its neighbors along the **S** curve, Israel’s costs will increase faster if it desires to maintain a constant level of technological superiority.¹⁰³ Consequently, Israel can maintain qualitative superiority only by devoting more resources from force structures to technology. Since Israel, as virtually every country, operates within well-defined budget constraints, it can maintain its qualitative advantage only at the expense of allowing the quantitative gap to increase.

Compounding this problem are numerous reports of declining motivation and military preparedness within the IDF.¹⁰⁴ The roots of this decline can be traced to the political debate during the 1982 Israeli invasion of Lebanon, and the misuse of IDF forces during the *Intifada*. However, it was the broadening of the ideological schism between supporters and opponents of the peace process, coupled with the unrealistic expectations concerning the peace process by the previous government that has exacerbated the morale problem. Should this trend of declining IDF motivation continue, coupled with increasing qualitative capabilities of its Arab neighbors, then the probability of Israel maintaining an overall qualitative edge is in jeopardy.¹⁰⁵ If Israel loses its qualitative edge, then the prospects for a tactical military defeat in a future war would shift from a negligible to a distinct possibility. It needs to be emphasized that the Arab states do not need to achieve qualitative parity with Israel. They only need to erode the Israeli qualitative advantage enough to allow their quantitative superiority to overwhelm the much smaller IDF.

Consequently, while the IDF still may hold a qualitative advantage over its neighbors, this advantage has been severely eroded when comparing the current correlation of forces to other periods of the Arab-Israeli conflict. This advantage continues to dissipate as weapons flood the region from both the West and East as the collapse of the Soviet Union and the 1991 Gulf War has removed the last restraints regarding such sales.

Unless current trends are reversed, the prospects of a future Arab-Israeli war will increase exponentially as more and more weapons find their way to the Middle East. This will occur regardless of the outcome of the current peace process. It is the consensus opinion of many regional and military experts that deterrence of a future Arab-Israeli war is a direct function of Israel maintaining a perceived superiority in the balance of forces.¹⁰⁶ Should this perception change, the probability of a future war will be high. Consequently, unless progress in the peace process is accompanied by

recognition from the Islamic states that Israel must maintain strategic parity with the collective might of all potential enemies, then the peace process will not succeed.

This analysis does not bode well for future peace on the region. Indeed, former Prime Minister Shimon Peres vision of a new Middle East has indeed come to fruition. Today, the Middle East is far more dangerous, and Israeli security far more imperiled than at any other time in its history. Israel is tenuously maintaining its qualitative edge over its neighbors as it becomes strategically truncated as a result of the peace process.

Egypt is entering a period in which they have a window of opportunity to achieve their medium and long-term strategic goals. The external destruction of Iraq in the Persian Gulf War, the internal destruction of Iran with the collapse of the Shah, and the death of Assad and Hussein, has left Egypt an opportunity to reassert its leadership role of the Arab world and emerge as the regional hegemony. Ironically, the only threat to Egypt's supremacy is Israel. For this reason, Egypt will not allow the economic, cultural, or technological assimilation into the region. Indeed, Egypt sees its anti-Israeli stance as facilitating its rapprochement with radical Arab states and among its own people.¹⁰⁷ For these reasons Egypt will militate against Israel in its conduct of negotiations with the Palestinian Authority and will rely on its ability to become the regional hegemony to mitigate any objections the US might have vis-à-vis its stance on the peace process. Moreover, Egypt will use the threat of reengagement with the East to moot any US objections. Given this environment, Israeli military strategic planners would be well advised to pay closer attention to its neighbor in the South.

Endnotes

- ¹ These amounts include all forms of military aid including direct military grants, direct US industry weapon sales, Pentagon-negotiated foreign military sales, and foreign construction sales. The US Defense Security Assistance Agency estimated that these sales to Egypt exceeded \$689 billion from 1987-96.
- ² This perception has been a constant theme in Egypt's rhetoric. For example, Egyptian Defense Minister Muhammad Hussein Tantawi noted that the September 1996 Egyptian maneuvers were conducted out of concern for Israel's non-conventional capabilities (*The Jerusalem Post*, September 24, 1996). In 1999, Tantawi was reported to have instructed his forces to prepare for a war with Israel if it was deemed necessary for Egypt's strategic interests (Israel Wire, October 29, 1999).
- ³ For a discussion of US-Egyptian relations see Clyde R. Mark's, Federation of American Scientists CRS Issue Brief to Congress titled: 93087: Egypt-United States Relations, October 31, 1996.
- ⁴ Egyptian support for the Palestinians was made as early as 1991, when Egyptian Foreign Minister Amr Moussa made it clear that Egypt was not a neutral party but of the Arab side. See FBIS-NES, October 21, 1991. This support was buttressed by subsequent Egyptian statements following the failure of the 2000 Camp David Accords, when Egypt criticized the United States for not exercising enough pressure on Israel.
- ⁵ The importance of Egypt's stabilizing role in the region was emphasized by Robert H. Pelletreau, Assistant Secretary for Near Eastern Affairs, in remarks made before the CENTCOM's Annual Southwest Asia Symposium, Tampa, Florida, May 14, 1996.
- ⁶ *Jane's Defence Weekly*, January 12, 2000, p. 23.
- ⁷ Egypt has sharply criticized United States support for Israel positions concerning Israeli-Palestinian negotiations, and has accused Israel of directly attempting to subvert Egyptian-US relations. For example, see *Cairo Press Review* June 29, 1997.
- ⁸ See Gregory L. Aftandilian's *Egypt's Bid for Arab Leadership* (New York: Council on Foreign Relations, 1993), pp. 70-72.

- ⁹ Concern over Mubarak's ability to stem the rise of fundamentalism in Egypt has been expressed on a number of occasions by US government officials. See for example *The Jerusalem Post*, August 23, 1993, and February 24, 1994.
- ¹⁰ Egyptian President Hosni Mubarak has made it clear that Israel will not be allowed to dominate the region. *The Jerusalem Post*, November 6, 1996.
- ¹¹ Hosni Mubarak has stated that the intelligentsia and the professional class in Egypt were as fanatically opposed to the acceptance of Israel as the fundamentalist militants. *The Jerusalem Post*, September 7, 1995.
- ¹² *The Jerusalem Post*, January 1, 1996
- ¹³ For example, Egypt has justified terrorist bombings against Israel, expressed support for Hizbullah actions against Israel and sharply criticized Israeli retaliation. See Israel Wire reports of September 2, 1999 and August 13, 1999.
- ¹⁴ Israel Wire, September 4, 1999.
- ¹⁵ MEMRI Dispatch #79, February 21, 2000.
- ¹⁶ The study was conducted by Dr. Ahmed Zaree of Al-Azhar University. His study also revealed that 63 percent of those polled viewed Egyptian-Israeli normalization as a national security threat. *The Jerusalem Post*, March 3, 1996.
- ¹⁷ *The Jerusalem Post*, May 3, 1995.
- ¹⁸ Israeli acknowledgment of this perception was articulated by David Ivri during his tenure as Director-General of Israel's Defense Ministry when he stated that "peace with Egypt is not peace. It is actually a cease-fire that has continued for 15 years." *The Jerusalem Post*, April 14, 1992.
- ¹⁹ The Egyptian State Information Service, March 30, 1997.
- ²⁰ *Ha'aretz*, July 11, 1997.
- ²¹ *Intelligence Newsletter*, August 2, 1996, and October 5, 1995.
- ²² Dilip Hiro, *Arabia News*, April 13, 1997.
- ²³ Foreign Broadcast Information Service, June 26, 2000.
- ²⁴ US Arms Control Disarmament Agency (ACDA), 95/13, November 1, 1995.
- ²⁵ *Jane's Defence Weekly*, January 12, 2000, p. 23.
- ²⁶ Egypt's 1994 imports were approximately 70 percent higher than its 1990 imports. ACDA, 95/13, November 1, 1995.
- ²⁷ US aid to Egypt has averaged \$2.2 billion annually (\$1.3 billion of that aid in military assistance) since 1979. See Clyde R. Mark, *Egypt-United States Relations*, Federation of American Scientists CRS Issue Brief, 93087, October 31, 1996.
- ²⁸ *The Jerusalem Post*, March 11, 1994.
- ²⁹ *Jane's Defence Weekly*, February 28, 1996, p. 23.
- ³⁰ *Jane's Defence Weekly*, January 12, 2000, p. 26.
- ³¹ Federation of American Scientists (FAS), Egypt Sales Table 2000.
- ³² Anthony H. Cordesman, *After the Storm* (Boulder: Westview Press, 1993), p. 338-9.
- ³³ *Arms Transfer News*, #94/8, May 20, 1994.
- ³⁴ *Jane's Defence Weekly*, January 12, 2000, p. 27.
- ³⁵ Cordesman, *After the Storm*, p. 338.
- ³⁶ *Jane's Defence Weekly*, February 28, 1996, p. 23.
- ³⁷ Anthony Cordesman, *Perilous Prospects: The Peace Process and the Arab-Israeli Military Balance*, (Boulder: Westview Press, 1996).
- ³⁸ Federation of American Scientists (FAS), Egypt Sales Table, 2000.
- ³⁹ News Release from the Office of Assistant Secretary of Defense, Contract Announcement No. 012-96, January 16, 1996.

- ⁴⁰ Jane's Defence Weekly, January 12, 2000, p. 27.
- ⁴¹ Jane's Defence Weekly, May 1, 1996, p. 8.
- ⁴² Cordesman, *After the Storm*, p. 339.
- ⁴³ Ha'aretz, July 23, 2000.
- ⁴⁴ Cordesman, *After the Storm*, p. 340.
- ⁴⁵ Cordesman, *After the Storm*, p. 341.
- ⁴⁶ Cordesman, *After the Storm*, p. 341.
- ⁴⁷ Defense Link, April 16, 1996, memorandums 061-M and 071-M.
- ⁴⁸ Defense Link, September 5, 1996, memorandum 196-M.
- ⁴⁹ Cordesman, *After the Storm*, p. 341.
- ⁵⁰ *Jane's Defence Weekly*, April 12, 2000, p. 5.
- ⁵¹ *Jane's Defence Weekly*, February 28, 1996, p. 22.
- ⁵² *Jane's Intelink*, April 17, 2000.
- ⁵³ Cordesman, *Perilous Prospects*, p. 205.
- ⁵⁴ *Defense Link*, May 10, 1996, memorandum 092-M.
- ⁵⁵ *Jane's Defence Weekly*, February 28, 1996, p. 23.
- ⁵⁶ *Jane's Intelink*, April 17, 2000.
- ⁵⁷ *Arms Transfer News*, #94/8, May 20, 1994 and Interfax News Agency, November 16, 1998..
- ⁵⁸ *Jane's Defence Weekly*, January 12, 2000, p. 27.
- ⁵⁹ *Military and Arms Transfer News*, November 1, 1995.
- ⁶⁰ *Janes Defence Weekly*, January 12, 2000, p. 27.
- ⁶¹ *Defense Link*, July 29 and April 16, 1996, memorandums 170-M and 066-M.
- ⁶² *Military and Arms Transfer News*, November 1, 1995.
- ⁶³ US & Foreign Commercial Service and US Department of State, 1998.
- ⁶⁴ *Jane's Intelink*, March 13, 2000.
- ⁶⁵ *SIPRI 1996 Yearbook* database and *Jane's Defence Weekly*, February 28, 1996, p. 23.
- ⁶⁶ *Jane's Defence Weekly*, April 9, 1997.
- ⁶⁷ Cordesman, *After the Storm*, p. 335.
- ⁶⁸ Cordesman, *After the Storm*, p. 336.
- ⁶⁹ Cordesman, *After the Storm*, p. 336.
- ⁷⁰ *The Jerusalem Post*, March 13, 1989.
- ⁷¹ *The Jerusalem Post*, March 13, 1989.
- ⁷² *The Jerusalem Post*, April 12, 1995.
- ⁷³ *The Jerusalem Post*, March 11, 1994.
- ⁷⁴ Federation of American Scientists (FAS), report on Egypt's missile proliferation. September 12, 1996.
- ⁷⁵ Federation of American Scientists (FAS), report on Egypt's missile proliferation. September 12, 1996.
- ⁷⁶ Cordesman, *After the Storm*, p. 346.
- ⁷⁷ *The Jerusalem Post*, March 11, 1994.
- ⁷⁸ The Associated Press, June 21, 1996.

- ⁷⁹ Federation of American Scientists (FAS) report on Egypt, September 12, 1996.
- ⁸⁰ Federation of American Scientists (FAS) report on Egypt, September 12, 1996.
- ⁸¹ A case in point was the 1973 Yom Kippur War when Israeli strategic planners appeared to rely heavily on the fact that the Arab states lacked the military capability to defeat Israel when determining the probability of attack.
- ⁸² Until recently, Israeli civilian leaders and generals have consistently downplayed or disregarded the strategic threat posed by Egypt.
- ⁸³ For example, independent analysis of China's defense expenditures have concluded that China spends up to four times more than its officially published estimate.
- ⁸⁴ ACDA has reported Egyptian defense expenditures as high as \$7.17 billion in 1987 to \$2.71 billion in 1995. Other estimates have noted a far less dramatic drop.
- ⁸⁵ O&M costs represents the operating costs of fielding the force. It includes costs for purchasing and distributing spare parts and supplies to support the military members and equipment.
- ⁸⁶ A Department of Defense information paper dated March 4, 1997, used a higher figure putting the peacetime cost to operate a heavy division at \$1,014.80 billion.
- ⁸⁷ Department of The Army, Office of the Deputy Chief of Staff for Operations and Plans, letter dated July 18, 1997. The Department of Defense information paper dated March 4, 1997 used slightly higher figures of \$617 million on personnel; \$184 million on operations; and \$175 million on equipment avg./yr.
- ⁸⁸ A portion of the replacement equipment costs are offset by the \$1.3 billion of annual Foreign Military Assistance from the US.
- ⁸⁹ The costs of maintaining an independent brigade is usually about 30 percent higher than the costs associated with a brigade in a division. This is because an independent brigade has its own combat support units such as: intelligence detachment; combat engineers; air defense artillery, etc.
- ⁹⁰ *US Department of the Army, Army Area Handbook-Egypt*, March 15, 1994.
- ⁹¹ There is no denying that the daily standard of living enjoyed by the American soldier is far superior to that of his Egyptian counterpart. However, considering the relative costs of providing the types of services now offered by the Egyptian military in construction of "military cities", the investment, as a percentage of costs related to per capita income, is comparable.
- ⁹² Cordesman, *After the Storm*, p. 332.
- ⁹³ While Foreign Military Assistance programs account for a substantial portion of replacement costs, it does not begin to cover the total cost.
- ⁹⁴ Army News Service release, March 4, 1997.
- ⁹⁵ Egypt maintains no less than 5 service academies as well as a General and Staff College. *US Department of the Army, Army Area Handbook-Egypt*, March 15, 1994.
- ⁹⁶ *Jane's Defence Weekly*, January 12, 2000, p. 23.
- ⁹⁷ *Jane's Defence Weekly*, January 12, 2000, p. 22.
- ⁹⁸ US & Foreign Commercial Service and US Department of State, 1998.
- ⁹⁹ Foreign Military Sales Facts, US Defense Security Assistance Agency (1996 figures).
- ¹⁰⁰ Data for the Libyan and Sudanese militaries was taken from the *IISS Military Balance for 1995*.
- ¹⁰¹ For example, Egypt's military infrastructure and logistics capabilities are antiquated and scarcely capable of supporting a major rapid excursion into the Sinai. See Cordesman, *The Military Balance in the Middle East*, p. 61.
- ¹⁰² Zeev Bonen, "The Impact of Technology Developments on the Strategic Balance in the Middle East", in Jaffee Center for Strategic Studies, *The Middle East Military Balance* (Boulder: Colorado, 1995), p. 160.
- ¹⁰³ "The Impact of Technology", in *The Impact of New Military Technology*, (The Adelphi Library 4, London, 1981), pp. 37-40.
- ¹⁰⁴ Declining military preparedness on the part of the IDF was most recently noted by Israeli MK Ephraim Sneh, chairman of a subcommittee of the Knesset Foreign and Defense Committee that deals with control and

management within the defense establishment. MK Sneh emphasized that this deterioration has been occurring for a number of years. *Ha'aretz*, July 30, 1997.

¹⁰⁵ This concern was raised most recently by OC Air Force Maj.-Gen. Eitan Ben-Eliahu, *The Jerusalem Post*, July 4, 1997.

¹⁰⁶ This was the consensus opinion of a group of Israeli scholars in response to a questionnaire put to them by the author.

¹⁰⁷ *The Daily Telegraph* (London) reported that Egyptian President Hosni Mubarak "is riding a wave of unprecedented popularity" following his new hard-line stand on Israel, October 30, 1996.