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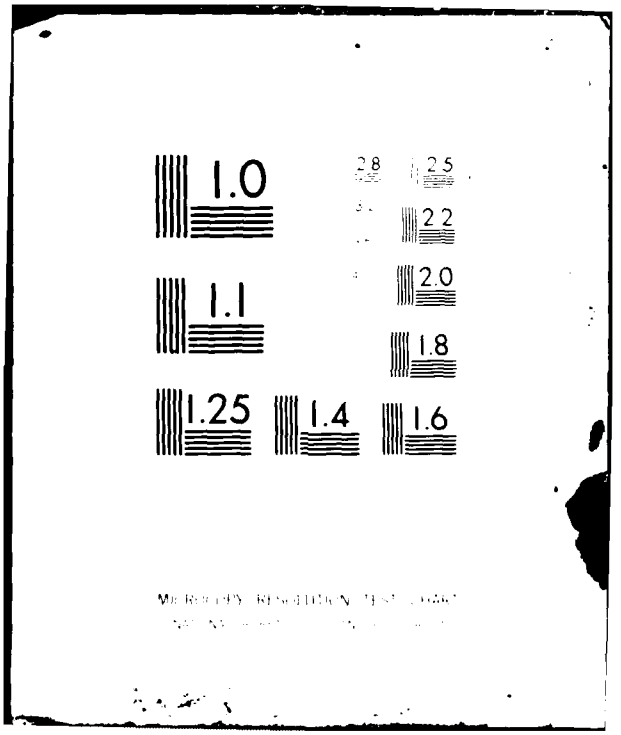
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US ARMY WAR COLLEGE

INDIVIDUAL RESEARCH BASED ESSAY

ENGINEER CONSTRUCTION RESOURCES/SUPPORT IN THE MIDEAST

BY

COLONEL JACK H. CLIFTON
CORPS OF ENGINEERS

6 APRIL 1982

TABLE OF CONTENTS

ABSTRACT

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A general review of current methods/types of ongoing construction in the Middle East. An analysis was made of the engineering resources and support required to accomplish major construction in the region. A discussion on some of the current U.S. construction requirements that appear to be slowly forcing U.S. contractors out of the region. Recommendations on keeping U.S. contractors competitive.

PREFACE

There are many critics of the U.S. Army Corps of Engineers construction program and few words written in its defense. The author was actively involved in the airfield construction program in Israel from August 1979 through June 1981. Many articles have been written about specific aspects of that project and many other Middle East projects, but little has been done to tie the construction methods, resources, logistics and host nation constraints into one essay. With this objective in mind, the subsequent essay was pursued.

CHAPTER 1

INTRODUCTION

Armies have long been builders as well as users of facilities and roads. Most often the construction has been of a temporary nature to house personnel, equipment, and supplies or to speed the movement of men and material to facilitate the continued support required for military operations. But some construction has been much more permanent; sectors of highways built by the Romans following their conquest of Gaul and Britain survived as the only paved routes in Europe until the end of the 17th century.

Unknown except to those with special interests in the subject, the U.S. Army Corps of Engineers is the Department of Defense's designated construction agency for all construction in the United States, and for much of the rest of the world where defense construction is accomplished. Through specific agreements with the U.S. State Department, the Corps of Engineers also acts as the design - construction agent for certain foreign governments for selected on-going construction in their country. As such, the U.S. Army Corps of Engineers operates a worldwide construction business which has the proponency and execution responsibility for over $11.4 billion in FY 82.[1] In real terms the Corps of Engineers construction business is big business indeed. It is, and has to be atuned to the mood of the worldwide forces which may

impact on their construction business.

Essay Objective

Principally this enormous construction program is nation building in certain countries while it also provides the facilities and land required for the military needs of the United States overseas. The objective of this essay is to look at the many facets of the construction program, primarily in the Middle East, to ascertain if any trends are developing which may influence current or future U.S. interests in the region and consider recommendations to improve on current efficiency, timeliness or construction costs.

The Changing Middle East

The last twenty-five years have seen many spectacular changes in the world as a whole, but few as striking as the transition in the Persian Gulf. The area moved from poverty to numerous areas of influence, from tradition to more modern ways, and from a position of relative international insignificance to a position of significant strategic and economic importance to many industrial nations of the west. The outstanding change in the region has been the discovery and rapid exploitation of the area's oil reserves. A growing concern about world energy requirements focuses continuous international attention on the Persian Gulf region.

The world continues to stand exposed to the risks of another energy crisis which could cause the mighty industrial complexes of Japan, Western Europe and the United States to virtually grind to a halt. Oil is central to the political, military, security, and economic aspects of the energy question. A cursory investigation reveals that the bulk of

the estimated proven oil deposits is concentrated within the land mass contiguous to and beneath the Persian Gulf.

The Persian Gulf is a shallow body of water covering an area of 97,000 square miles with a northern limit of 30 degreees north. At the southern extremity is the Strait of Hormuz which separates the Persian Gulf from the Gulf of Oman. The length of the Gulf is over 500 miles and its width varies from 180 miles to a mere 26 miles at the Strait of Hormuz. Flanking the gulf are the two great plateaus of Arabia and Iran and these, together with the lower river of Iraq constitute the geographical area.[2] See map attached as Figure 1.

The two major nations on the littoral are Iran and Saudia Arabia. Other countries are Iraq, Kuwait, Bahrain, Oman, Qatar and the United Arab Emirates. These nations have a population estimated at 50.8 million, with Iran alone having approximately 30.2 million people. With the exception of Iran, all of these nations are Arab and in various stages of development with varying levels of political, economic, military and social sophistication with few natural resources of any economic consequence, if oil is excluded. The other Arab mid-east nations have a very definite impact on the political activities in the region, but are considered non-oil producing nations. They are the Peoples Democratic Republic of Yemen, Arab Republic of Yemen, Jordan, Lebanon and Syria (which does have some oil reserves). Israel is also located in the region and is the one common enemy of all the Arabs. The countries of Egypt, Sudan, Ethiopia and Somalia also influence the actions of the region.

Bolstered by the soaring revenues from their vast oil reserves, the oil producing countries have embarked on wide-ranging construction programs to accelerate their social and economic development. The con-

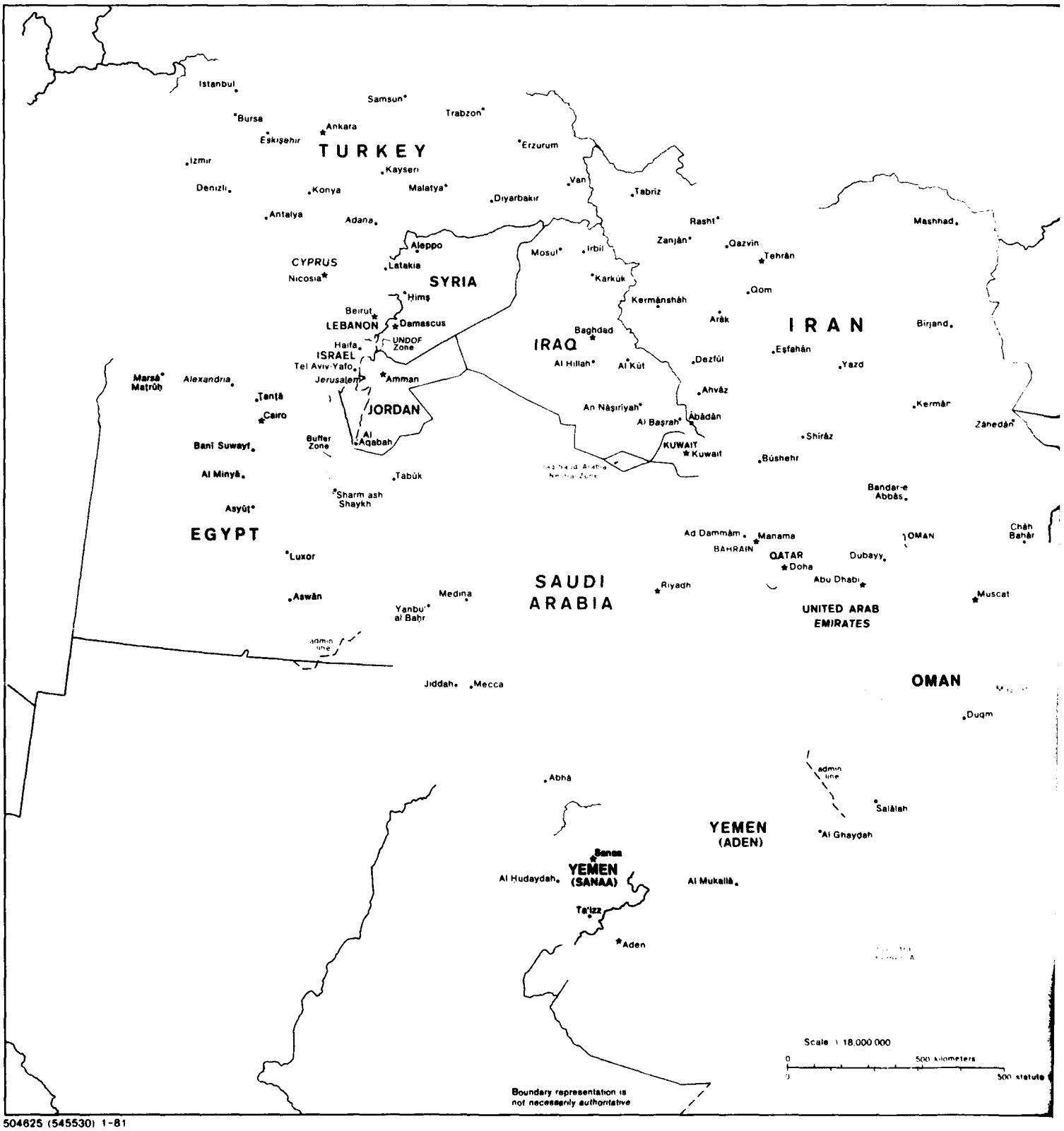

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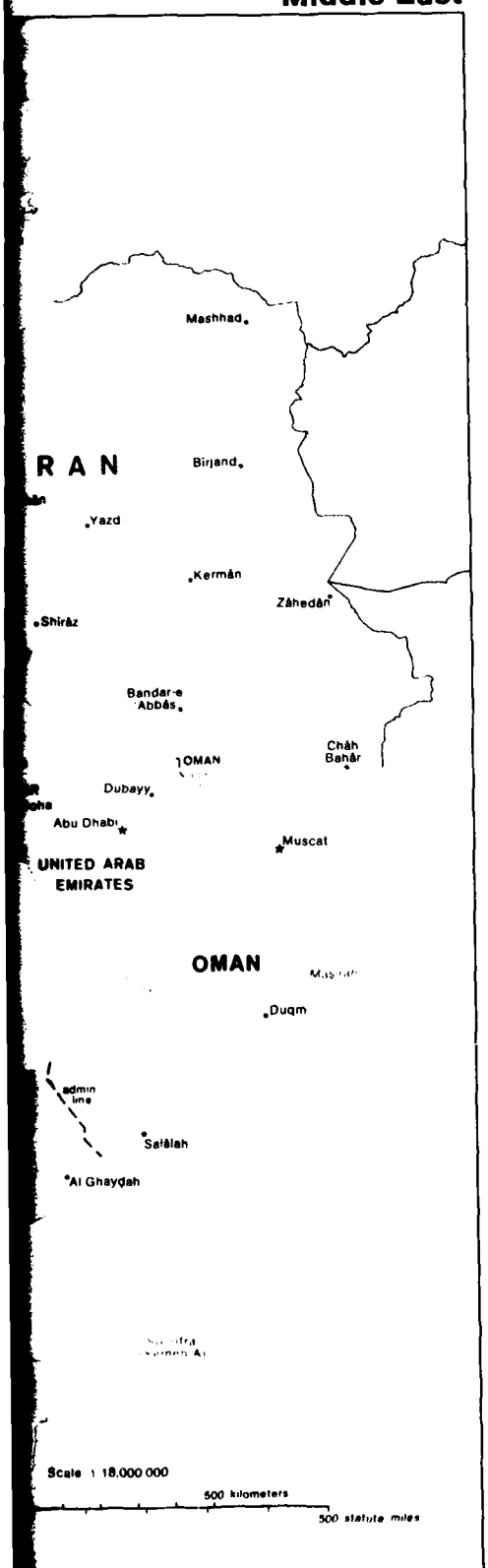
Figure 1

Middle East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struction boom in Saudia Arabia has led the way. The Saudi Arabian construction programs of the 70s was generally labor-intensive with emphasis on nation building. The third five-year plan covering 1980-1985, shows a shift toward industrialization moving from labor intensive to more sophisticated and complex jobs requiring mechanization. The Saudis will continue to spend $20-30 million a year during the period for expansion of its military bases, support systems, housing, new aircraft and new naval facilities.[3]

When considering the construction programs of the region, the question is often asked: "What is so unique about the construction programs in the Middle East?" In looking at the individual national programs, it becomes obvious that they are subject to the very special parameters of specific location and time. Originally they involved an unusually large number of U.S. and foreign construction agencies. Its funding drew upon an unprecedented number of different budget categories. It was undertaken for nation building purposes as well as support for military activities and it requires a degree of permanence seldom demanded of construction by military engineers. In the case of the Israeli airbase construction, it had a direct tie to the Middle East Peace Agreement of April 1979. Considering that the region has few natural resources conducive to construction, a tremendous logistical element emerges since virtually all construction material has to be imported. Labor also has to be imported with all its attendent ramifications. Many of these problems will be discussed individually in later chapters. Suffice to say that it is unique, different, and exciting.

Acting External Forces

As the world's demand for petroleum continues to intensify, the competition for control of the Persian Gulf appears to be flourishing. While the rivals in this new arena of confrontation include Western Europe, Japan, Korea, and China, it essentially is another rivalry between the two super powers - - the United States and the Soviet Union. Soviet activity has been steadily increasing in the region ever since the British withdrawal in the early 1970s. In so far as oil is concerned, the Soviet Union has traditionally been self-sufficient. The Soviets have, for several years, been involving themselves in long-term barter agreements with the oil producing nations. A parallel effort has involved the development of political influence through military and economic assistance and exploitation of the continuing Arab-Israeli conflict. Soviet expansion into the region has fed on the Arab-Israeli conflict with the greatest assistance possible to the more volatile Arab nations.

During 1974-1977, the Soviets had a treaty of friendship and cooperation with Somalia. In October 1979, the Soviets and South Yemen (People's Democratic Republic of Yemen) signed a treaty of friendship and cooperation. Augmenting the military and political maneuvering, the Soviets have continued to provide an increasing appearance of their Navy in the Indian Ocean in its quest to gain outlets to the Persian Gulf and warm water ports. Whoever controls the Indian Ocean, controls the sea lanes to the Gulf. Gaining a dominant role in the region would give the Soviets a hand at turning off the oil faucet to the west by crippling its rivals for world power and influence. The Soviets want controlled chaos designed to thwart Western moves that might be considered detremental to

their position.

Towards the end of 1979, the increasing tense situations in the area of the Persian Gulf led to strenuous U.S. efforts to conclude agreements with countries bordering the region on the development of bases on their territory. A concentration of U.S. Naval Forces were sent to the Indian Ocean and Arabian Sea. The U.S. established the Rapid Deployment Force. President Carter announced the policy that an attempt by an outside force to gain control of the Persian Gulf would be regarded as an assault on vital interests of the United States and that any assault would be repelled by use of any means necessary, including military forces.[4]

In September 1979, Oman sent a representative to a number of countries bordering the Gulf to suggest some international force including U.S. participation should be entrusted with insuring freedom of passage through the Straits of Hormuz. With dangers continuing to rise on all sides, the Arab states find themselves short on military muscle and willing to cooperate with the U.S. The moderate Arab states, once reluctant to move tooclose to U.S., now fear a revolution spawned in Iran could surge across the Gulf and without outside help, they might not survive. The result is a subtle but perceptible shift by Saudia Arabia and the Gulf Cooperation Council. In February 1982, Washington and Saudia Arabia signed an agreement to form a joint U.S. - Saudi military commitment.[5] The U.S. hopes that it may be able to develop an informal defense arrangement including all moderate Arab states in the region. This would undoubtedly open the door to additional military construction activity throughout the region. It becomes imperative to look at the construction forces in the region, eliminate earlier pitfalls encountered and expand on those areas where increase effective-

ness, better timeliness and the best cost can be achieved.

CHAPTER 2

METHODS/TYPES OF CONTRACTS

Contracting, at least as practiced by a number of wide-ranging professionals overseas, is more of an art than a science. It requires constant improvisation. One must also know a good deal about local customs, politics and labor problems. It requires foreign bank accounts to be opened, housing to be constructed for supervisors, construction camps to house the labor force, warehouses and staging yards for laborers to work out of, a sorting out of the precious few from the hundreds of potential subcontractors, setting up of customs clearances, work permits, visas, organizing survey teams to accomplish topographic work and soil testing - all of the above before the first shovel bites into the earth. Then begins what has been observed as an almost obsessive dance around the job, that is, a constant and overpowering preoccupation with the work. The work seems inevitably to engage 10-14 hours per day, a minimum of six days per week, stretching for many weeks on end, with few interruptions except for food and sleep. This is the general atmosphere surrounding the overseas contractor.

The Corps of Engineers is the branch of the U.S. Army that is charged with providing combat and construction engineering support for the Army, and as directed, construction support for other programs of the government. Because of its internationally recognized engineering

reputation, its favorable image in foreign countries as an example of a military participation in nation building, and its flexibility of organization, the Corps has also been asked to provide peacetime (non-military) assistance to more than thirty countries.[6] Since the early 1960s, the Corps' Middle East Division has provided extensive and various Saudi funded support to the development of civil and military facilities in that country.

In their pursuit of quality, timely and cost effective construction, the Corps and most of its client states prefer to use one of the several of the fixed-price and competitive bid type contracts. This type of contract puts a leash on the contractor as to the final cost of a project. Most contractors will use proven construction methods, materials, and equipment under a fixed-price contract since any additional costs resulting from the failure of other than specified materials or equipment and problems that arise from using experimental methods have to be absorbed by the contractor. This is not to say that a contractor won't cut corners wherever possible to increase his profit margin, but that is at the contractor's risk.

Conversely, most major contractors working in a new and strange environment, would prefer to initially work under one of the various cost-reimbursable type contracts. This reduces the risk of the contractor and places an increased burden on the client and construction manager to exercise control, especially the cost. Clients use this type of contract where there are associated with the project, a large number of unknown variables. These variables include, but are not limited to: variable or incomplete design, experimental equipment or processes, planned future add-ons before contract completion, unknown country responses to the entire spectrum of imported labor, materials, and equip-

ment. A contractor's profit margin associated with a cost-reimbursable contract will usually be an award-fee or fixed fee. That additional fee is intended to reward the contractor for his expertise and provide the incentive to do the best job possible. The award-fee is used as a percentage of the total contract and may fluctuate over a number of years whereas a fixed-fee is independent of a fluctuating contract cost but covers a specific period of time in which the primary contract is to be completed.

Another major type of contract is the design-construct contract. This is usually associated with process plants where a particular company may hold specific patent rights associated with the processing procedures or methods.

In the Middle East all of these types of contracts have been used with many variations. As an example, much of the contracting done in Saudia Arabia between 1974-1978, set the stage for some of the current contracting philosophy now being followed throughout the Middle East.

- A four-berth port was built on the Persian Gulf at Ras al Mishab by Santa Fe Overseas, Inc., from Lancaster, California, under a design-construct contact in 76-78. The port was built to support the construction of King Khalid Military City (KKMC).
- KKMC was designed as a self-supporting city of 70,000 people located in the desert some 220 miles from Riyadh at an estimated cost of $8.5 billion.
- Phase I of the construction was done by MKSAC - Morrison-Knudson Saudia Arabia Consortium - under a cost-plus-

award-fee contract. MKSAC was a joint venture of Morrison-Knudsen of Arabia, Inc., Boise; Fischbach and Moore International Corporation, Dallas; and Interbeton Construction N.V., a Curacao -incorporated Dutch company. The contract was estimated that it would approach $1.0 billion by its completion.

— Phase II was awarded to Sam Whan Corporation, Seoul, Korea, under a $266 million fixed price contract. The contract provides construction support for three years in making concrete slabs, beams, attachments and conduits to be installed by other contractors. They will use steel molds procured through subcontractors in the Netherlands. A separate concrete plant, involving a highly mechanized production process designed in West Germany, will produce 1.5 million square meters of concrete paving tiles.[7]

— Jubail Industrial City is an east-coast complex expected to grow to 370,000 people in the next twenty years. The Arabian Bechtel Company, Limited, manages the construction. It encompasses 135 separate construction contracts, 81 architect-engineer design assignments, 42 operational and maintenance contacts and over 1,400 major pieces of construction equipment.[8]

What is happening is that the single company is being forced into joint ventures to raise the capital and provide an access for a contract. The combining into a joint venture for a specific project adds strength, credit resources and manpower expertise. Some of the contract marriages are being made because of government decree. For example, all

bidders for the Saudia Arabia Riyadh University (estimated $1.7 billion contract), were under a Saudi mandate to form binational joint ventures.[9] Other countries - either by law or suggestion that has the force of law - China and Yugoslavia being two - require that a national construction firm be one of the partners. Pakistan and India are among those countries whose government will give help to a joint venture that includes one of their nation's companies.[10] Saudia Arabia is now insisting that foreign design firms competing for certain major work in Saudia Arabia must have a Saudi partner and a certain percentage of the work must be done in-country.[11]

For U.S. companies, one of the most important reasons for establishing an international joint venture is to obtain access to less expensive manpower. While international joint ventures will continue to grow for the work in the Middle East, finding partners becomes an ever increasing problem. An international survey has shown that unless a firm is listed in the top 12 foreign or 18 U.S. companies, there is little familiarity with the eligible partners.[12]

It should also be remembered that a U.S. firm doing business in the international market, when any U.S. financing in being used, must comply with all U.S. Federal Procurement Regulations. If the construction is financed through any part of the foreign military sales program, then the contactor must also abide with all of the Defense Acquistion Regulations (DAR), previously called the Armed Services Procurement Regulations (ASPR) and the particular service regulations governing procurement.[13] The Army uses the Army Procurement Regulations (APR). These then are just some of the factors which can influence the type of contract to be awarded and the eventual winning of those contracts.

CHAPTER 3

ISRAEL AIRFIELD CONSTRUCTION

In early 1979, a major stumbling block to the signing of an Israel-Egypt peace treaty was the impasse on the time to construct two new airbases to be occupied by the Israelis on their pull out of the Sinai. The Egyptians steadfastly demanded the complete Israeli withdrawal within 36 months of the signing of the agreement. The Israelis were also insistent that the construction would take between five to seven years to complete the construction and the final withdrawal couldn't be accomplished until the airfields were completely operational. Finally, President Carter promised that the United States would construct the two airbases for Israel in 30 months, and would also pay for the first $800 million of the construction cost with an outright grant. The negotiators decided to believe the President and the agreement was signed.[14]

It thus became quite apparent to the U.S. Army Corps of Engineers that a major construction effort would be required in an area and time where normal contacting agencies would be negated. Steps were immediately initiated to line-up internationally based construction and engineering firms to undertake, as joint ventures, the construction work in the Negev desert of Israel. A decision was made that the new aibases would be a replication, as much as possible, of the two bases

being given up by Israel. There was no secret that Israeli engineers and their construction industry were fully capable of constructing the airfields, but not within the time-frame as specified in the treaty. The need for speed was the driving factor which had thrust the U.S. construction industry and Corps of Engineers into the turbulent waters.

With the agreement, there were certain restrictions, conditions, and complications introduced by the signatories. These included:

- An Israeli conscientious decision to try and insulate its then full-employment economy from the ravages of inflation which could be caused by the massive in-country expenditures over a short time.
- No in-county construction labor could be used for the building of the two airbases. All workers would have to be imported. It was stipulated that the laborers would have to come from a country or countries which maintained diplomatic relations with Israel, and all workers would be required to pass a security clearance.
- All contractors must be imported and would be paid in U.S. dollars. Most building materials, machinery and components would be purchased outside of Israel.
- The United States would provide an $800 million grant for the airfield construction, but any additional cost would have to be paid for by the Israeli government through low cost loans from the United States. The original estimate for the two airfields was $1.04 billion, which meant the Israelis were committed to at least another $240 million. This brought the day-to-day construction costs to the forefront as a sensitive multinational issue.

— If the Israelis were to pull out of the Sinai on schedule, the United States Army Corps of Engineers must build the two airbases within 30 months and have them operational within 36 months from the signing of the treaty or the last part of the Sinai would not be evacuated.[15] There were no exceptions, excuses or reasons for schedule deviation.

The Corps of Engineers, as construction agent, decided upon a cost-plus type of contract and incorporated a building technique known as "fast-track construction." The technique was not new in that it had been used for much of the space program in the 1960s and calls for the procurement of materials and the actual construction to be done concurrently. It also requires that building foundations be laid out and constructed before the final blue prints are drawn. This introduces an added risk to the construction process. Fast track construction - to use a layman's medical analogy - would be likened to a patient needing several operations being wheeled into surgery and various teams of doctors would work on the head, heart, and appendages, all at once. Most big construction jobs today make an attempt to do this kind of simultaneous work, if the multitude of subcontractors can be kept out of one anothers way. It amounts to a scheduler's nightmare. As if this headache of a construction nightmare weren't enough, base activation was also required to proceed concurrently with the construction and in some sensitive areas, before the construction could be completed. The enormity of this type of job excites and encourages engineers and contractors in planning and executing the job.

To complete the task, the Corps contracted with three joint ventures, two design-construct teams, and a management assistance team.

The initial awards were made by letter agreement, with the fees negotiated at a later date. The design-construct joint venture for Ramon included Guy F. Atkinson, San Francisco, Dillingham Corporation, Honolulu, Nello L. Teer Company, Durham, N.C., and Tippets, Abbet, McCarthy, Stratton of N.Y.C.; and for Ovda the Perini Corporation, Farmingham, Mass., Herbert Construction, Birmingham, Alabama, Paul N. Howard, Greenstore, N.C., and Louis Berger International of East Orange, N.J. The management support venture included Lester B. Knight & Associates, and A. Epstein & Sons, International, both of Chicago, and Pope, Evans & Robbins of N.Y.[16]

Construction management is traditionally a Corps of Engineers role, but in this case it did not want to completely staff-up for a known short-term project. Thus, the management support joint venture, known as MSA, was contracted to assist the Corps.

Soon after getting the job started in the summer of 1979, the problems began rapidly surfacing. The Americans understood they would be doing the design associated generally as an updated replication of the existing bases. However, the Israelis had jumped the gun and contracted out to over 120 local firms essentially the total design under the guise of designing a third airbase. To the chagrin of the Americans, it soon became apparent that a completed Israeli drawing was not considered complete according to American standards. The drawings did not show a lot of detail and were considered about 60-70 percent complete. This required the U.S. designers to augment the original designs at a considerable cost of time. The American efforts were not helped in that in almost every case, the Israelis rejected all U.S. requests for design calculations which were needed to complete the

augmented drawings.

Other significant problem areas arose when the previous Israeli full-employment took a nose dive when the Shaw of Iran fell. The Israeli construction industry had been fully employed in Iran, but after the fall of the Shaw, they were expelled from Iran. They immediately demanded a cut of the airfield pie. There was also a clamor to purchase construction materials in Israel, a complete change from the original agreement. As a result, subcontracts were let to Israeli firms and the procurement SOPs were radically changed until almost 75 percent of all materials were purchased through Israeli firms.

Other time consuming detractors included coordinating the removal of selcted Nabatean era (3,000 B.C. - 300 A.D.) archeological ruins with the local archeological minister; clearing a former gunnery and bombing range that covered the Ramon construction site; going through a severe rock crushing exercise in order to obtain good rock which met the strict specifications for the project; quelling a communist inspired riot that broke out at Ramon with the Portuguese laborers; and precluding international incidents when foreign laborers showed up in the various cities on their day off from work. All of these factors were handled on a day-by-day basis, while an extreme push was made to complete the construction.

Due to the multinational funding arrangement described earlier, costs were of prime interest to the Program Managers, a U.S. Air Force and an Israeli Air Force Brigader General. They wanted an overall management system to tell them where the project was going, not the traditional where it had been and was at a particular time. They demanded precise information on all costs and the final schedule. The Program Managers determined what had to be done by when in order to

coincide with the scheduled base activation. The Project Manager (Corps of Engineers) in consonance with the two prime contractors determined how to do it.[17] The overall task at hand was broken down as follows:

- The Program was to get two airbases operational prior to 25 April 1982.
- The Project was construction.
- Time was the challenge which was driven by the schedule.
- The paramount goal was to complete the bases on time, below budget, and with high quality.

The one underlying fact which drove all participants was that if the airbases were not operational by 25 April 1982, the United States would be judged guilty of stalling and would then be required to manufacture a new solution for Israeli-Egyptian peace - that was considered a nice piece of diplomatic irony. It was a risky race against time.

It should be noted that by March 1982, the airbases at both sites were well ahead of schedule, with aircraft introduced to the airfields in October 1981, three months ahead of the original schedule. The cost also looked very favorable and was expected to come in below budget and the quality, as expected, was never in any doubt.

CHAPTER 4

FOREIGN COMPETITION

It shoud be noted that the international construction circuit operates in a super charged atmosphere. In looking at the potential for future American construction initiatives in the Middle East, one should look at the trend over the past decade at what has happened to construction in that area. Since 1974, the Middle East countries have poured billions of dollars into construction programs and companies from around the world have been scrambling for their share.[18]

As late as 1978, the United States Construction Industry was considered the most competitive force in the international arena. However, since that time, it has seen its competitive edge dulled by a continuing storm of federal regulations, tax policies, and export restrictions.[19] The result of these new federal laws, rules, and regulations, is that American business is inhibited from offsetting the billions of dollars she spends on Saudi oil from winning Saudi design and construction contracts. Quite simply, the Americans are losing ground to major foreign competitors on a yearly bases since 1978. In 1980, the U.S. was ranked 12th behind South Korea, Italy, West Germany, Japan, France, Brazil, Yugoslovia, United Kingdom, India, Taiwan, and the U.S.S.R.[20]

The question is often asked, "Why have American contractors fallen

from their position of prominence so fast in the Middle East?" Up front, the argument is advanced that much of the material and most labor has to be imported for any project, the contract conditions are very onerous and the competition is becoming very stiff. But in retrospect, this is nothing new, so what really happened?

The U.S. construction industry claims that foreign companies are using an unfair advantage whereby their governments provide easy financing in order to win contracts. It is widely known that the governments in Europe and Japan sharpened their attack to win contracts in the third world. Foreign countries do much more to encourage their nationals to win business in Saudia Arabia. As an example, look at the South Korean venture.

South Korean contractors were trained by the U.S. Army Corps of Engineers to do labor intensive projects during the 1950s. In 1972, the South Koreans were invited to bid on Corps jobs in Saudia Arabia. They immediately jumped into the competition for the petrodollar construction business. By 1980, the South Koreans had all but cornered the market on labor-intensive heavy construction projects in Saudi and were expanding toward the industrial building.[21] To encourage their contractors, Seoul had provided them with low cost loans, loan guarantees, and a five-year tax exemption on all exported construction material and equipment. The South Koreans are considered to be low cost with a high productivity. For example in 1978, the cost to maintain a Korean engineer was about half the cost of an equivalent British engineer and one-fourth the cost of an American engineer.[22] However, it appears that the South Koreans may have reached a peak with their manpower, due to the rising wage rates back home and are now forced to employ Pakistani laborers on their projects in Saudia Arabia.

Canada and Sweden are two other countries enjoying government incentives that range from "soft" loans to credit insurance. Taiwan, India, and Brazil have very good construction companies ready to stretch their wings outside their national boundaries. In addition, Mexico and Brazil have money to go along with their good indigenous contractors.[23] It doesn't help that the United States is the only major industrial power that taxes the income of its citizens earned outside the country. That move makes a U.S. citizen markedly more expensive to employ than the British, German or French expatriate. It takes $62,500 for a U.S. expatriate to clear $27,480 a year. It takes a Briton only $36,700 to clear $29,244 a year.[24] That is quite a difference when you get down to hiring on a fixed-price contract.

There is another more disconcerning factor involved with new construction contracts in the Middle East. Previously the Middle East governments showed a willingness to pay the higher western prices for an established engineering capability when they undertook such key projects as electrification and petrochemical plants. That preference is rapidly breaking down. The Saudis, long the leader in letting new construction contracts, became furious with some big western engineering and construction companies over huge cost overruns on a series of big projects. The Saudis blamed the project management system used by the companies. In the past, there were many cost-plus projects because of the many variables and unknowns. The Saudis now want a turnkey and fixed-price contracts in massive pieces.[25] The turnkey process means that the winning company or team must assume full responsibility from the initial design until the project is ready to operate. This process is being coupled with a Saudi requirement to post a performance bond

that guarantees the work up to 25 percent of the contract value. Without low cost loans, an American construction firm cannot afford to tie up that amount of capital through the life of a contract. Following the lead of Saudia Arabia in 1980, many of the nations in the Middle East have rewritten the game rules for construction accomplished within their borders. They are inisisting on international competition to obtain the lowest price and are strictly enforcing new government laws which encourage the use of joint ventures with local firms to diminish the chance of foreign contractors.[26] Client nations are increasingly making it a prerequiste for foreign contractors to use local labor.[27] Saudia Arabia has now limited the amount of design that can be accomplished outside of the Kingdom. This has led to either joint ventures with Saudi architect-engineers or the outright Saudi buying into a design or construction firm doing business in Saudia Arabia. By doing this, the Saudis have increased their control over the foreign company doing business within their country.[28] They continue to favor the low bidder and are enjoying the fruits of stiff competition among the industrial powers.

While the developing nations are enjoying their new found prosperity, the U.S. companies face an uphill battle against companies from nations with more favorable tax laws and financial incentives. With $300 billion up for grabs in Saudia Arabia alone, the hamstrung U.S. companies are most likely to be the big losers. Some U.S. general contractors, practically put out of the competition by the U.S. tax laws, are looking for partners from India and Pakistan with whom to bid.[29]

CHAPTER 5

PROBLEMS

U.S. contractors working in the Middle East find that inflation, labor disputes and material shortages are as much of a problem there, as they are in America. The political turmoil, skilled labor shortages and smaller budgets have made the construction operations a risky business. Many of the nations now have government edicts which regulate everything from profit repartition to the number of persons a company can bring into the country to handle the work. As an example, the Nigerian government requires not only that a firm be registered in Nigeria, but also majority owned by Nigerians.[30] Many Middle East countries are now requiring a company to have some national ownership of a firm doing business in the country. Kuwait in the latest government which requires that an international contract must subcontract at least 30 percent of large government contracts to local nationals and buy building materials on the local market if they are available.[31] The materials found on the local market may not be of the quality to insure a good end product. This has further imposed a tremendous burden on any foreign firm that wants to do business and recover some of the petrodollars.

Another factor raising havoc on the industry is inflation. In Egypt the cost of construction is rising about 25 percent a year. Although the common labor rates remain relatively low, skilled labor

costs continue to climb. In Israel the construction industry, faced with severe government austerity measures to try to curb inflation and with a meager supply of skilled labor, finds the inflation rate running over 100 percent in 1981. The Israelis are rather self-sufficient in producing most construction materials, but product shortages have delayed some projects. The major problem has been labor disputes which have limited production at plants of the major cement producers. Even oil rich Kuwait reports a construction inflation rate which runs about 15 percent a year. A contributing factor is that most of the construction materials must be imported. In Saudia Arabia, South Korean contractors control approximately 35 percent of the construction market and account for the major portion of the labor market. However, wage costs and inflation at home is now restricting the number of exit visas being granted to Koreans and the Korean contractors are now looking to Pakistan for some of their workers.[32]

The American construction industry is convinced that the U.S. government is in the process of destroying expatriot construction. They point out the Treasury Department's hardline interpretation of the tax penalty provision of 1979 legislation that sharply restricted compliance by U.S. contractors with the Arab boycott of Israel. The Treasury Department developed a set of guidelines that denied various tax privileges to companies that complied with the shipping and insurance certification required by Saudia Arabia and several other Middle Eastern countries.

The certification required that the vessel transporting the material or goods not be registered in Israel or go to one of its ports on the way to the Arab country. The insurance certificate must have a duly qualified and appointed agent or representative in Saudia Arabia. The

Treasury Department decided that participation with the certificate would constitute boycott compliance and be grounds for denying credits on U.S. taxes that were permitted on both income earned abroad and income earned by export subsidiaries.[33]

Saudia Arabia had not put the certificate into effect until it had consulted with the Commerce Department to determine the legality of the certificate under the U.S. anti-boycotting laws. The Commerce Department approved the certificate. Commerce argued that the Treasury Department's guidelines would hurt U.S. exports. The State Department agreed with Commerce and felt the guidelines would precipitate a new confrontation with Saudia Arabia in 1979, when their relations with the U.S. were already strained. To top it all off, the Internal Revenue Service decided to apply the guidelines on a case-by-case basis regardless that the guidelines were never formally published.[34]

Another disincentive imposed by the U.S. government is the U.S. anti-bribery law that is imposed on U.S. companies doing business in third world countries. In the rest of the world you do not pay the commission to the seller, it goes to the buyer. It is a different morality and that's the way it is. By imposing a U.S. law outside the U.S. simply creates a hinderence to doing business. That is not to say that every U.S. citizen is lily pure and all foreigners are unrestricted.

In August 1979, it was reported that 19 United States, 9 United Kingdom, 1 Lebenon and 2 Saudi employees associated with Morrison Knudson, Company of Boise, Idaho, were under investigation for irregular payments in conjunction with the construction of King Kalid Military City (KKMC) in Saudia Arabia. The overall KKMC construction cost was

estimated at $8.5 billion. The irregular payments were linked to over-payment and subsequent kickbacks from Saudi vendors.[35]

Probably the largest reported scandal reported in Saudia Arabia involved the Hyundai Construction Corporation of South Korea. The Hyundai Construction Corporation was the largest contractor working in Saudia Arabia and is credited with opening the door for the flood of Middle East contracts awarded to the South Koreans. The company was formally banned from bidding on any new work in Saudia Arabia for two years and F.Y. Park, the company's Riyadh manager, was sentenced to 30-months in jail.[36]

The punishments were a result of a widening payoff scandal and an unsuccessful attempt in August 1979 to bribe an official in the Saudi Ministry of Defense and Aviation, Military Works Directorate, to get a piece of the multi-billion dollar action at Tabuk Airbase. F.Y. Park is said to have taken $2.5 million in cash to the senior officials office. He reportedly left the cash in the office and later called to say that he would be bringing in an additional $5.5 million. The official alerted the Military Police who captured Park upon his return to the office.[37]

The general feeling of contractors at the time was that Hyundai had simply overstepped the bounds. However, there may be a new climate of anti-corruption holding sway in Saudi Arabia. Also the once dominant South Korean construction industry saw its Saudi market position begin to erode, primarily as a result of high inflation and rapidly rising labor costs at home, and felt it had to take extreme steps. In so doing, it got caught. The action though has had a "ripple effect" amongst the South Korean contractors. The Saudis now use pre-qualified bidder lists and still regard cost as important. The Saudis have

announced that they refuse to be pushed around by foreign firms any longer. As the old saying goes - money talks and government agencies and large trading firms are getting more used to having their way.[38]

There was another financial scandal that involved a Belgium consortium in Saudi Arabia in 1979. The Eurosystem Hospitalier (EH) was the leader of a nine member consortium which won a $1.2 billion contract in 1975 to construct two 500-bed hospitals and associated residences for the Saudia Arabia National Guard. The troubles began early when EH management grossly underestimated the cost of the two projects by 25 percent. The original contract had been wooed by promising the Saudis a commission that totaled almost 30 percent of the original contract price. They had hired a ring of 200 call girls under the guise of nurses, to entertain the visiting Saudis. Belgium has always turned a blind-eye to under-the-table payoffs. This was based on a 1938 Belgium law that shrouds such payments in secrecy if it can be shown that they are necessary for maintaining competitiveness. However, the twisted scenario of bribes and kickbacks totaling over $280 million had the effect of rocking the Belgium financial community when it exploded.[39] Another factor of doing business in the volitale Middle East.

The Arabs have another way of doing business which squeezes the mid-sized builders out of the market. To insure the building contractor will get the job finished, they usually require the winning company to place up to 25 percent of the value of the contract in the bank as sort of an insurance policy. The money is kept in a stand-by letter of credit and if the contractor fails to deliver, the cash is withdrawn and goes quickly to the Arab customer.[40] This form of financial

instrument is called a performance guarantee (PG).[41]

The Saudis and other oil producing nations have been able to sustain their construction programs through continued oil sales. Whenever alot of bills came due, they could simply turn up the oil production and the dollars were there. Now there has been an announced curtailment of oil production by OPEC to remove the glut on the market and drive the price of oil back up. This curtailment could have far reaching impacts on the construction industry by a major slow down of letting new contracts. This may drive the competition to ever higher threshholds. The current Saudi five-year plan (80-85) called for construction spending to reach $335 billion in the five years. It was believed that the spending would be so heavy that the nation would be forced to increase the oil flows to raise the money.[42] It will be interesting to watch the effect during 1982, between realizing the five-year plan or abiding with the curtailment.

There are many other items and associated problems of doing construction in the Middle East. A monumental problem can be the extraordinary logistics. The size of Saudi Arabia is about half the size of the continental U.S., but it has a population estimated in 1981 at 10.5 million.[43] Therefore, loads of workers have to be imported. Many of the workers are provided by the poor but more populous countries of Egypt, Yemen, India, Pakistan, Turkey, Philipines or South Korea. Arrangements have to be made for transportation, visas, work permits, housing for laborers, feeding and then trying to keep the antagonistic nationalities from clashing at night. The pay is low when compared to U.S. construction trades (about one-eighth of U.S. equivalent) and the production is also considered low (approximately one-third of a U.S. national).[44] All factors must be considered.

American construction men fear that there may be a chain reaction taking place around the world in construction. They fear that eventually, our companies will become so weak that they will be unable to resist a formidable foreign invasion of the United States domestic work. Yesterday - cars, steel, and TV. Tomorrow - heavy construction.[45]

CHAPTER 6

FORWARD BASES

In order for the U.S. Military to react to President Carter's January 1980 stated policy to respond to any outside invasion to the Middle East oil fields, access rights, overflight and refueling privileges are required. To make the military policy viable in the region depends critically on access to facilities in the area. The U.S. is not seeking permanent garrisons or soverign base areas at this time. It is seeking cooperation with numerous friendly states in the region. Access to facilities in several countries, as opposed to one or two, stems from the need to increase our political-military flexibility while building on already existing arrangements. Some of those existing arrangement in the region include:

- Mombasa, Kenya - a naval port of call where we are spending close to $48 million to dredge the harbor.
- Ras Banas, Egypt - we will expand the existing facilities and provide a port on the Red Sea.
- Manama, Bahrain - we maintain a modest naval facility which includes a 70 man American land support unit.
- Masirah, Oman - an $80 million upgrade of the Masirah's airport.
- Diego Garcia - a lone naval station in the Indian Ocean.[46]

The tiny desert sultanate of Oman is apparently becoming America's firmest friend in the Persian Gulf basin. Oman, because of its strategic location, is essential to the stability of the Gulf. The country has a basic infrastructure of ports, airfields and even radar which would make it an excellent home for any American force in the Gulf, but it is felt that any American troops physically based on Omani soil would be counterproductive at this time. The cooperation between Oman and the U.S. is in the economic development, trade, and security aspects which are designed to enhance the ability of Oman to develop its economy and to safeguard its territorial integrity and to foster peace and security in the region. Under the agreement the U.S. has obtained land and naval rights. The Corps of Engineers is presently engaged in construction valued at over $280 million to improve the air facilities at Seeb, Thumrait and Mesirah and the ports in Mutrah and Salalah.[47] That friendship promises anchorage for U.S. forces poised to defend the regions oil riches and in the guarding of the Strait of Hormuz.

Oman is also linked militarily and economically to its Gulf neighbors of Saudia Arabia, Kuwait, Qatar, Bahrain, and the United Arb Emirates through the Gulf Cooperation Council. Oman has been the spokesman at the GCC trying to get the American commitment to send help in case of need in the Gulf region. It has been said that the "Arabs want the United States protection, but they don't want us in the region and nobody has figured out how that is suppose to be done."[48] The creation of the Rapid Deployment Force is an excellent demonstration of the U.S. capability of projecting its power to respond to that need. It appears that the U.S. role is the right thing at the right time and hopefully it is sending signals to others to leave the Gulf alone. The U.S. construction throughout the region is a definite show of U.S.

resolve in the region.

Another vanguard of U.S. military presence in the Middle East is the deployment of a reinforced Infantry Battalion to Israel as a port of the peace keeping force. The force was deployed in March 1982 and could be the eyes for future deployment in the Gulf. However, the one thing that all Arabs agree on is that Israel is the one common enemy of all Arabs. Therefore, the U.S. is very explicit that the multinational police force in the Sinai is a completely separate affair from the RDF for intervention in the Gulf. It also can't be overlooked as a sort of unofficial toehold in the region under a different name. The peace keeping force will operate from three airbases: Eitam, 10 miles from El Arish on the Mediterrean coast; Etzian, 10 miles southwest of Eilat on the Red Sea; and Sharm el Sheikh, at the tip of the Sinai. There are also three additional smaller facilities which will be used for storage facilities. All of these areas could provide staging areas for equipment and logistics which would be required in a crisis action.

CHAPTER 7

CONCLUSION/RECOMMENDATIONS

As one thinks of the Middle East in future conflict, the first thought is of another confrontation between the Arabs and Israel. It is very true that the resolution of the Arab-Israeli conflict remains as one of the greatest threats to peace and stability in the region. However, that is not the underlying factor involved in the U.S. commitment to the area. That factor is oil. Western Europe and Japan are currently almost completely dependent on Middle East and North African oil. This over whelming reliance of the Western Industrial nations on oil imports is the source of grave concern. It, therefore, must be concluded that the national interests of the U.S. and the free world are finely interwoven into the present fabric of the Persian Gulf Region of the Middle East. Preservation of this fabric is essential to the stability of the region, to its economic growth and to the intelligent management of its vast petroleum resources.

From our perspective, the most serious external threat is the Soviet presence in the region. Their apparent strategy is one of political and military penetration into the affairs of the Gulf nations in order to assure themselves of future oil and to possibly disrupt the free worlds current source. Our strategy then is one to counter the Soviet incursion and provide a stabilizing effect on that volatile area.

It has been clearly shown with the Israeli airfield construction adventure, that maybe peace cannot be bought with money, but it can be achieved with sticky technical involvement through construction and engineering. Two of the key ingredients necessary are patience and persistence.

I believe that the U.S. is displaying its naivety in assuming that U.S. political and economic influence is sufficient to sway construction contract decisions and that U.S. production and technical know how are superior. The U.S. has displayed a certain arrogance by ignoring the importance of reclaiming a large portion of the lost petrodollars by exploiting the $400-500 billion Middle East construction market; for unilaterally legislating the export of U.S. business ethics, human rights policies, environmental regulations and tax philosophies; and for assuming the American public will simply tighten its belt while Japan and Korea are busy tooling up for more and more Middle East exports.

In December 1978, Mr. Paul Gibson writing in Forbes magazine reported that, "$1.00 of construction work abroad generates $0.20 of work in the United States for equipment and supplies."[49] This was further reported in the Engineering News-Record in November 1979, which cited a figure for all industry which had been developed by the Commerce Department:

> For every one billion dollars in exports, 40,000 U.S. jobs are created . . . . While the proportion of materials, installed machinery and construction equipment required on a Mideast job may be as high as 60% of the contract value, where those commodities are purchased depends on which country the project financing comes from, on the construction buyer's preference and on the sophisitiction of the contractors procurement network.[50]

It shoud be remembered that given a choice, a construction engineer orders from his own country.

The real problem surrounding American construction is that while foreign firms are being treated almost as policy arms of their respective governments, the U.S. government is letting its nationals fend for themselves. The biggest threat percieved is the willingness of a foreign nation to subsidize the work of their construction firms while a U.S. construction firm must operate under the free enterprise rules. A foreign government may provide a grant-in-aid for $250 million at four percent interest to a country letting a construction award to one of their nations firms. In many cases, the U.S. making that same grant will insist that the bidding be to the lowest bidder irregardless of the firms national origin. Once again, Uncle Sam plays goodie-goodie at the expense of American taxpayers, workers and industries. We need to tie the combining to official export financing and foreign aid into concessionary loans which are then tied to procurement.

Construction is a marketable item in the Middle East. To recover some of the available petrodollars, the U.S. government should review closely the manner in which the construction industry could be used in that endeavor. The Corps of Engineers is all ready acting as the design and construction agent in many of the countries. By expanding on that involvement, numerous employment opportunities could be offered to the Americans and be a big bolster to the U.S. economy and reduce some of the unemployement. It would take a concerted effort by our politicians and it is hoped that they will wake up soon and explore this tremendous market. The side effect of all this is that the United States could then very possibly obtain the needed access, overflight and refueling rights that it needs to fulfill its stated policy of the Middle East, at a minimum of additional cost.

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