

## **Toward Defensive Restructuring in the Middle East**

Carl Conetta, Charles Knight, and Lutz Unterseher

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Commonwealth Institute Cambridge, Massachusetts

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### 1. Introduction

The Gulf crisis and war signifies a staggering failure of policy on the part of all nations who have had a hand in shaping the region's security environment. This is not a recent failure, nor one confined to the confrontation between Iraq and the American-led coalition. Four decades of *realpolitik* and \$500 billion in arms transfers have not brought security or stability to the Middle East and North Africa. Looking to

the future, some members of the anti-Iraq coalition envisage a new security order, at least for the Gulf area. But if this order is founded on a new confrontational alliance and massive new transfers of offensive arms to the region, it will not mark a turning point, just another phase in a 40-year march of folly.

In this study, we suggest an alternative approach to defense and arms control policy for the Middle East and North Africa, comprising efforts to enhance the defensive potential of regional armed forces while limiting their capacity for cross-border offensive action. The goal of this approach is the evolution of defense structures that are nonprovocative, resilient, relatively self-contained, and viable within existing demographic and resource constraints. Such structures should allow states in the region to refrain from destabilizing offensive-weapon arms races and to pursue serious arms control efforts without fear of compromising their security. We do not contend that the problems of peace and stability in the region are principally military in character, only that a defensive transformation of armed forces would contribute significantly to progress in the political sphere.

Our analysis begins with a brief review of relevant nonoffensive defense precepts. Next we examine the special character of recent mid-intensity conflicts in the Mideast and North Africa, paying particular attention to the structural limits on offensive and defensive action. Based on this analysis, we offer defense modernization guidelines consistent with the precepts of nonoffensive defense and suited to conditions in the region. With an eye to the recent Gulf crisis, we apply our guidelines in some detail to the cases of Saudi Arabia and Kuwait. Finally, we show the implications of our approach for arms transfer and arms control policy, and for the intervention policies of extra-regional powers.

## 2. The Principles of Nonoffensive Defense

The nonoffensive paradigm, which gained currency in Europe during the new-cold-war period of 1978-1988, embodies a conceptual break with the dominant trend in security policy. This trend stresses punitive deterrence and, in the event of war, large-scale offensive action including escalation to the nuclear level. By contrast, a defense along nonoffensive lines would deter aggression principally by lowering an aggressor's probability of success. Should deterrence fail, it would contain and exhaust aggression by using a combination of area-defense and smaller-scale maneuver forces and tactics. By incorporating limits on the capacity for offensive action, a nonoffensive defense posture would improve crisis stability and mitigate interstate tensions. Moreover, by improving defense efficiency, it would make possible significant near-term reductions in the level of armed forces and military spending.<sup>1</sup>

Most alternative defense models draw in common on the area-defense tradition and emphasize the increased anti-armor capability of modern infantry weapons and indirect-fire artillery systems. The models differ from each other in several respects, including (1) how they choose to balance and integrate light and heavy forces, and static and mobile components; and (2) the degree to which they rely on high-technology inputs.

Our application of nonoffensive defense to the Gulf region derives from the most recent variant of the "spider-in-its-web" model.<sup>2</sup> Its distinguishing features are:

- The "lightness" of a large portion of its constituent combat units;
- A division of the ground force into an area-covering component with low organic mobility and a mechanized/air-mechanized component -- these components standing in a three or four-to-one ratio;
- Close integration of the mechanized and area-covering components, with the latter boosting the capability of the former by providing intelligence, logistics, and combat support;
- The partial substitution of firepower mobility for the mobility of troops and, hence, an increased emphasis on indirect-fire artillery systems;
- A range limit on most artillery systems of 50 kilometers, and on close air support aircraft of 300 kilometers (combat radius);
- A reduced emphasis on intelligent weapons, and a greater emphasis on improving the intelligence gathering capacity of the defense system as a whole -- for instance, by the use of sensor fields, reconnaissance drones, and network communications;
- An emphasis on troop dispersion, battlefield preparations (including protected firing positions, shelters, minefields, and obstacles), and protection of the logistics and communication infrastructures.

These design features provide our starting point for developing a model tailored to conditions in the Mideast and North Africa. In the next sections, we examine some of these conditions as revealed by the conduct of the region's recent conflicts.

#### 3. Patterns and Parameters of War in the Region

Most mid-intensity wars in North Africa and the Mideast share distinctive attributes: War-initiating states are seldom able to quickly consolidate initial gains. Neither, however, are defenders able to quickly contain and expel aggressors. After an early period of intense combat and often considerable movement, wars typically settle into a long phase of intermittent and indecisive fighting. This, despite the fact that the region's nations usually go to war with limited objectives in mind, frequently rely on strategic surprise, and have attempted to incorporate the tools and tactics of modern mechanized airland warfare.<sup>3</sup>

Conforming closely to the pattern are Libya's long intervention in Chad, the Somalian assault on Ethiopia, Ethiopia's efforts to suppress Eritrean separatists, Iraq's invasion of Iran, and the war in the Western Sahara. Of course, these cases vary among themselves, especially as to the character of the stalemate phase. Common to them, however, has been the inability of the combatants to force a decision through sustained offensive action.<sup>4</sup> By contrast, the Israeli successes in the Six-day War and the 1982 Bekaa Valley campaign constitute strong counter-examples. We will return to these later; for now, suffice to say that Israel and the Israeli Defense Force (IDF) are unique in many respects beside their success in war.

#### 3.1 Regional Armies on the Defensive

In contrast to their performance in offensive operations, regional armies have demonstrated both inventiveness and stamina when fighting on the defensive. In the Iran-Iraq war, for instance, Iraq was able to recover from its early, failed offensive to successfully check numerous Iranian counterattacks. Regarding Iraqi defensive operations in the Iran-Iraq war, one analyst has observed that "there has probably never been as much construction plant on a battlefield and such investment made in manipulating the terrain and making it suitable for military operations."<sup>5</sup> Iraq's defensive preparations included anti-tank obstacles, trenches, minefields, and underground headquarters; mutually-supporting, fortified strongpoints incorporating tanks in hull-down position; and alternate protected firing positions for artillery.<sup>6</sup> These preparations, backed by armored and airmobile reserves, proved quite effective in dealing with the Iranian armed forces, which were poor in both tanks and combat aircraft. (For an analysis of the failure of Iraqi ground defenses in the recent Gulf war, see Appendix 1.)

Moroccan efforts to consolidate their control of the Western Sahara against Polisario opposition provides another example of defensive ingenuity -- although in this case associated with offensive objectives. To foil the Polisario's raids, Morocco built a tall sand barrier, the Hassan Wall, covered with sensors, reinforced with mobile units, and protected by minefields, small forts, and artillery. Eventually extending 1750 kilometers, the wall sealed off the rebels from 90 percent of the nation's population as well as its key mineral resources, towns, and ports. Although Polisario troops proved able to repeatedly breech the barrier, it channeled their movements and helped the Moroccan army quickly locate and counter them.

The Arab-Israeli wars attest to both the strength and limits of defensive operations. In the 1973 war, the failure of Israel's Bar Lev line along the Suez illustrated what should have been obvious: no natural or artificial barrier can provide sufficient protection against a large-scale surprise attack if held by only a thin line of defenders. Once beyond the line, the Egyptian attackers dug themselves in and were able to thwart reinforced Israeli counterattacks by relying on a thick air-defense umbrella and numerous antitank guided weapons. The Israelis soon discovered that if they used their armor, infantry, and artillery in concert they could reduce the effectiveness of the Egyptian defenses. Nevertheless, only when the Egyptians attempted an offensive thrust toward the Sinai interior did the battle open up and the Israelis gain the upper hand.<sup>7</sup>

On the Golan Heights in 1973, Israeli defensive positions proved more resilient than those along the Suez, holding out against vastly superior Syrian forces.<sup>8</sup> On the Golan, the Israelis had deployed their forces in depth, not in a line, and the density of Israeli forces on the Golan was much higher than that along the Suez. These factors permitted better mutual support between firing positions, higher densities of artillery fire, and greater synergism between tanks, artillery, and minefields.

Exemplifying the strength of these defenses, one of the Israeli brigades withstood the attacks of a heavily reinforced Syrian division for four days. Chris Bellamy suggests that a major element of the brigade's success "was its commanders' intimate knowledge of the ground."

They knew the advantages and disadvantages of every piece of high-ground, and the area had been prepared for a defensive holding battle, with hull-down tank positions and ramps, while [artillery] range tables had been prepared to various landmarks to give an outnumbered force the maximum advantage against an oncoming enemy.<sup>9</sup>

Just as the events of the 1973 war led some observers to predict the ascendancy of defensive operations, the 1982 Israeli defeat of Syrian forces in the Bekaa Valley led some to proclaim the renewed power of the offensive. But neither conflict provides sufficient grounds for such ambitious conclusions. The 1973 war demonstrated that defensive preparations, made and used with care, have the potential to arrest and erode armored thrusts. However, it also showed that an attacker can quickly learn to adapt and counter defenses that rest on too narrow a technical or tactical base. In other words, there is no more room for complacency on the defensive than on the offensive. The stunning Israeli success against the Syrians in the 1982 Bekaa Valley campaign amplifies this lesson.

In 1982 the IDF was able to dislodge 25,000 Syrians from prepared defensive positions in less than three days. Typically, Israeli air superiority played a critical role. Although the Syrian air defenses were formidable, including 79 missile launchers and 200 radar-directed guns, the Syrians had not deployed an adequate number of early-warning radars. Moreover, Syrian electronic security was lax and its positions poorly protected. Compounding these errors, the Syrians made little use of the mobility of their SA-6 launchers, leaving them stationary for long periods. These failures allowed the Israelis to execute a devastating attack on Syrian air defenses. Given Israeli superiority in airborne reconnaissance and battle management systems, their air force quickly gained complete control of the air. This, plus a slight numerical superiority in soldiers and tanks, gave the IDF a decisive edge. The Syrians' many and egregious errors essentially derive from one: complacency in the preparation, deployment, and use of their defenses. That they could have, in any case, defeated the Israelis is questionable; that they could have greatly increased the cost of Israeli success is certain.<sup>10</sup>

#### **3.2 Factors Underlying the Historical Pattern**

Several geo-strategic and socio-economic variables have determined both the recent regional pattern of warfare and the major exceptions to it. These variables are: (1) the ratio of force to space in the theater, (2) the quality of the region's transportation networks, (3) the capacity of nations' military sustainment infrastructures, (4) the structure of their armed forces, and (5) the problems of national integration and the politicization of regional military establishments. Examining these factors in greater detail will give us a better view of both the limits of and prerequisites for transforming regional defense postures.

3.2.1. *The ratio of armed force to the space that regional armies must defend is, in many cases, quite low.* When such conditions prevail, a European-style mobile or forward defense is susceptible to easy circumvention or penetration.<sup>11</sup>

Table 1. Comparative Territory & Transportation Infrastructure									
	Libya	Egypt	Jordan	Syria	Iraq	Saudi Arabia	Israel	NATO Central Region <sup>1</sup>	WTO Central Region <sup>2</sup>
Territory (000 Sq Km)	1759	1000	91	185	447	2150	21	323	549
Roads Paved & Improved (000 Km)	32.5	33.0	7.5	27	25	74	4.5	615	327
Railway Track (000 Km)		5.1	0.6	2.2	3	0.9	0.6	47	54
Roadway Km/Sq Km of Territory	.0185	.033	.082	.146	.056	.034	.214	1.9	0.6
Railway Track Km/Sq Km of Territory		.005	.006	.012	.006	.0004	.029	.146	0.1
Ground Force Personnel (000) <sup>3</sup>	>55	400	74	360	485 (965)⁴	79	104	796 <sup>5</sup>	995 <sup>6</sup>
Main Battle Tanks (MBT)	2300	3190	1131	4000 <sup>7</sup>	5500	550	4288	12700	18000
GF Personnel/Sq Km of Territory	0.03	0.4	0.8	1.9	1.1 (2.2) <sup>8</sup>	.037	4.95	2.46	1.8
MBTs per Sq Km of Territory	.0013	.0032	.012	>.022	.012	.00026	.2	.04	.033

1 Includes West Germany, Belgium, Luxembourg, and the Netherlands, circa 1987-88.

2 Includes East Germany, Czechoslovakia, and Poland, circa 1987-88.

3. Includes all regular, active-duty army, marine, and ground-based air defense personnel. Excludes border

guards, internal security forces, and other paramilitary forces.

4. Includes regular army and air defense personnel. Number in brackets adds called-up reserves currently serving with army.

5. Includes all NATO and national forces in NATO central region countries.

6. Includes all WTO and national forces in WTO central region countries.

7. Includes some number of tanks deployed in stationary mode.

8. Bracketed number reflects addition of called-up reserves to ground force total.

Sources: The Military Balance 1990-91 (London: International Institute for Strategic Studies, 1990;) The Military Balance 1987-88 (London: IISS, 1988;) The World Fact Book 1990 (Washington, DC: Central Intelligence Agency, 1990.)

As Table 1 shows, only one Arab nation among those with large armies -- Syria -- has a troop density approximating that prevailing in Europe's central region. Considering Arab nations other than Syria, the North-South contrast is stark. Of course, tactically, the largest Arab armies can achieve a degree of force concentration that approaches that along Europe's former "central front." However, they seldom have the option of maintaining such a densely-packed front in peacetime, primarily because they perceive multiple threats on widely-separated borders and face serious internal threats as well.

Moreover, most regional armies cannot, by means of rapid redeployment, quickly constitute a front wherever and whenever needed; They are not as mobile as their Northern counterparts and the transportation networks along which they must move are comparatively underdeveloped. (See Table 1) As a result, an attacker using surprise can often drive deep into a neighbor's territory before meeting substantial resistance -- as was the case in Somalia's invasion of Ethiopia and Iraq's invasion of Iran. In conflicts where the force-to-space ratio is *extremely* low -- for instance, the wars in Chad and the Western Sahara -- a "front," in the usual sense, might never materialize; neither attacker nor defender is able to consistently and thoroughly control any large portion of the contested area.

From the perspective of the dominant European defense paradigm, there is only one good solution to these types of problems: increase the size and mobility of the armed forces. Later, we will suggest another: make better use of the resources at hand by specializing in area-covering defensive operations.

3.2.2. The transportation infrastructures of most nations in the region are underdeveloped. As noted above, there are relatively few roads and rail beds of sufficiently high quality to allow the rapid movement of heavy mechanized or even motorized troops. Although the presence of hard-packed desert areas and dried river beds partly compensates for this problem, difficult terrain -- marshes, mountains, escarpments, and shifting-sand deserts -- often compartmentalizes the open areas. These features can make control of a few key transportation junctures critical to winning a war -- as in the Sinai campaigns.<sup>12</sup> Underdevelopment of the transportation net also accelerates the tendency of combat power to degrade as the distance between an army and its base area increases. This dynamic particularly affects the capacity of combatants to *sustain* cross-border offensives and, hence, partially counterbalances the problems defenders face in trying to meet an attack.

3.2.3. The sustainment infrastructures and equipment stocks of armed forces in the region are inadequate for prolonged combat. Compounding this weakness is the underdeveloped state of most of the region's military-industrial complexes. These factors help give the region's longer wars their oscillatory character: As wars proceed, periods of intense combat become briefer while recuperative periods grow longer, until defensive operations or simple raids predominate.

# 3.2.4 Most armed forces in the region have a "hybrid" character, mixing modern, mobile force components and components less suited to offense-oriented air-ground warfare.

Developing nations have less leeway than do the nations of the industrialized north when attempting to balance perceived security needs and other competing claims on limited state revenues and scarce labor power. This results in distinctive force structures and unique operational problems. For example, as Table 2 shows, Egypt, Syria, and Iraq lack truly-advanced tanks, and the proportion of advanced combat aircraft in their air forces is much less than that in the air forces of West Germany and the United Kingdom. However, there is less of a cost barrier to the acquisition of large numbers of new, light and medium guided antitank and anti-aircraft weapons. This contributes to the greater strength of regional armed forces in defensive operations relative to offensive ones -- *at least when kind fights kind.* 

Table 2. Comparative Measure of Air-Ground Force Technology Level								
	Egypt	Syria	Iraq	Saudi	Israel	W. Germ	UK	
Ground Force Personnel (000) <sup>1</sup>	400	360	485 (965) <sup>2</sup>	79	104 (598) <sup>3</sup>	308	153	
Total Main Battle Tanks (MBTs)	3190	?3500	5500	550	4288	5045	1900	
Advance Tanks as Fraction of Total <sup>4</sup>	.00	.00	.00	.00	.15	.40	.24	
Total Fighter - Fighter Ground Attack Aircraft⁵	411	482	635	189	617	596	800	
Advanced FGA as Fraction of Total <sup>6</sup>	.20	.10	.07	.45	.30	.49	.36	
MBTs per Ground Force Personnel	.008	.01	.01 (.005) <sup>7</sup>	.007	.04 (.007) <sup>8</sup>	.016	.012	

1. Includes all regular, active-duty army, marine, and ground-based air defense personnel. Excludes border guards, internal security forces, and other paramilitary forces.

2. Includes estimated reserves on active duty.

3. Includes full mobilization potential.

4. Includes M-1 variants, Leopard II, Challenger, and Kerkava. Inclusion based on approximating basic M-1 standards for fire control, lethality, reliability, protection, passive night vision/night fighting capability, and automotive performance (including power-to-weight ratio, suspension, and other factors.) See Willian Vogt, "Beyond the Bean Count: Quality/quantity Assessment of Conventional Forces," International Defense Review, Vol. 22, No. 3, March 1989, pp. 279-284; and Malcolm Chalmers and Lutz Unterseher, "Is There a Tank Gap? Comparing NATO and Warsaw Pact Tank Fleets," International Security, Vol. 13, No. 1, pp. 5-49.

5. Includes air force and naval air force unit-assigned and stored fighters and fighter/ground attack aircraft as well as aircraft in conversion units. Variants configured for training or in a reconnaissance role are excluded.

6. Advanced fighter and fighter/ground attack aircraft currently in the tactical arsenals of the countries covered by this chart comprise the F-14, F-15, F-16, F-18, Tornado, Mirage 2000, MiG-29, Su-24, and Su-27. List derived from Vogt, "Beyond the Bean Count" pp. 279-284; and Aharon, Levran, ed., Middle East Military Balance 1987-88 (Boulder, Colorado: Westview Press, 1988.)

7. Reflects mobilized reserves currently serving with the ground forces.

8. Reflects full reserve mobilization.

Sources: The Military Balance 1990-91 (London: International Institute for Strategic Studies, 1990); Aharon Levran, ed., Middle East Military Balance 1987-88 (Boulder, Colorado: Westview Press, 1988.)

Also significant is the lower ratio of tanks to ground force personnel in most Arab armies compared to Northern ones -- a contrast that grows in significance if one also considers the relative balance between advanced and older tank models. Syria and the Iraqi regular army attain tank-to-troop ratios comparable to Britain's, but about half of their tank fleets comprise pre-1965 models; less than 30 percent of Britain's tanks are so old, and most of these are in storage.

These comparisons point to the bifurcation of regional armies, *de facto* if not formally, into capable and much-less-capable components. The latter, which in some cases may emerge from the former as war

takes its toll, perform optimally in defensive combat.<sup>13</sup> In some nations -- Iran, Iraq, and Saudi Arabia -the division into two major ground force components *is* formal. Competition between the two is more frequent than cooperation, and the division of labor they embody is as likely to reflect political considerations as military ones. Most important, the two components usually differ not only in types of equipment, but also in the quality of equipment, leadership, and training. What exists are not complementary offense- and defense-oriented forces, but rather first- and second-string armies. When nations bring the lighter or less-mechanized component into play, this usually reflects not the flexibility of their doctrine and operational planning, but its failure.

# 3.2.5 As a function of their postcolonial situation, most countries in the region are less integrated politically than European nations and their military institutions tend to be more politicized.

These conditions further diminish the ability of armed forces to sustain offensive operations. Offensive operations, more so than defensive ones, test the commitment, cohesion, and professionalism of commanders and troops. All these qualities suffer if social divisiveness and discontent beset the armed forces, or if factors other than skill determine recruitment, promotion, and unit assignments.<sup>14</sup> In a context of political turmoil and intrigue, state authorities may establish restrictive, rigid command structures, which stifle innovation. In extreme cases, as mentioned above, parallel command structures or armies may evolve.

How well do the factors we have identified explain the dynamics of regional wars? An adequate hypothesis should account for both the historical pattern and its exceptions. Hence, an examination of the exceptional case of Israel and its wars in light of these factors provides a good test.

### 3.3 Understanding Israel's Success in Offensive Operations

Israel's armed forces, although not the largest in the region, are the most modern. As Table 2 illustrates, the Israeli ratio of tanks to ground force personnel far surpasses that of its neighbors. Israel also holds the only significant stock of advanced tanks in the region. The Royal Saudi Air Force has a larger proportion of advanced combat aircraft than does the Israeli Air Force (IAF), but the absolute size of the IAF's advanced segment puts it in a class by itself. Nevertheless, like many nations in the region, Israel has a hybrid army: many of its tanks are of pre-1965 vintage and it still makes use of half-tracks. Unlike other nations, however, this "second army" is well integrated with the first and bifurcation is not evident in the quality of its officers or training.<sup>15</sup>

Augmenting the Israelis' advantage in equipment is their military sustainment infrastructure. It is the best in the region, perhaps the best in the world. Israel also possess the region's most developed military-industrial complex. At the heart of these advantages is Israel's five-to-one advantage over its immediate neighbors in per-capita income, as well as its highly-skilled workforce and an extraordinary level of external military aid.

Israel has not, however, simply substituted advanced technology for numbers of weapons and troops. In fact, Israel keeps a higher proportion of its citizenry under arms than does Iraq. Moreover, Israel maintains the highest density of military forces in the world -- four times that of Iraq. This, together with its extensive road and rail network, allows Israel to quickly concentrate armed forces anywhere along its borders. (See Table 1.) Finally, the IDF embraces a style of military professionalism that gives play to innovation and initiative. This has led occasionally to costly problems of command and control, but has also given Israel an important competitive edge in undertaking offense-oriented maneuver warfare.<sup>16</sup>

Enduring demographic realities and the facts of underdevelopment preclude other nations in the region successfully copying the Israeli style of warfare, at least in the near term. (The Israeli style is not, at any rate, of the stabilizing sort.) These realities do not, however, bar other nations from developing effective defenses -- provided they are willing to eschew offense-oriented models.

### 4. Toward Self-contained and Stabilizing Defense Structures for the Region

The structural limits on offensive and defensive operations in the Mideast and North Africa suggest several guidelines for developing stable and resilient defenses there.

First, regional armed forces should build on their aptitude for defensive operations by placing special emphasis on such operations -- a competitive strategy that seeks to array strength against weakness.

Second, nations should structure and deploy their armed forces to minimize the problems associated with low theater force-to-space ratios. Several types of measures can help: With the aim of narrowing the scope of battle, nations should seek to selectively defend critical areas. More important, they should emphasize measures that facilitate area control by smaller forces -- for instance: the thorough preparation of likely battlefields and the substitution of artillery firepower for the mobility of tankheavy units.

Third, nations should plan, in the event of invasion, to make better use of depth, seeking initially to trade space for time and enemy casualties -- a stratagem that would put strain on an aggressor's sustainment capabilities while relieving the defender's.

In the following sections we examine each of these guidelines in greater detail.

### 4.1 Defense Specialization

By configuring their armed forces to take advantage of fighting in a defensive mode, nations can improve defense efficiency and, thus, increase their capacity to outlast an aggressor at an acceptable cost to themselves. Defense specialization entails less emphasis on early counteroffensive operations and greater emphasis on countermobility operations and preparation of the battlefield.<sup>17</sup> Such a shift in emphasis would also allow more efficient use of "second-string" infantry and reserve troops in an appropriate role, fighting in familiar surroundings and from protected positions.

In the context of a well-prepared defense, lightly-armored mobile antitank gun and missile systems could play a bigger role in countering mechanized units. Likewise, artillery systems would become more

significant, and their use over familiar territory with the aid of forward or heliborne observers would reduce the requirement for expensive terminal guidance systems.<sup>18</sup>

Nations can improve the defense efficiency of their air forces by means of greater mission specialization, strict limits on deep strike operations, and closer cooperation with ground-based air-defense and combat units. Air force modernization plans should eschew expensive longer-range multipurpose aircraft and emphasize instead shorter-range air superiority fighters, close-air-support aircraft, and some fighter-bombers configured for battlefield interdiction. Nations should shop at the high-cost end only when seeking to procure airborne reconnaissance, surveillance, target acquisition, and battle management systems. Even here, savings can be had by avoiding systems designed to support deep attacks into an adversary's home territory.

### 4.2 Selective Area-defense

Nations can limit an aggressor's options by concentrating their defense efforts on critical terrain, key links in the transportation network, and the approaches to vital areas. To limit the effect of enemy maneuver, nations should selectively deploy deep, area-covering defenses. These should take the form of stronghold or fortified areas, each extending over 150-500 square kilometers and comprising (1) carefully sited tank obstacles and minefields covered by anti-tank infantry fighting from prepared positions, (2) mobile tube- and rocket-artillery systems (50-80 pieces), also operating from numerous alternate positions, and (3) mobile air-defense units.<sup>19</sup> Small supply depots should be dispersed throughout the stronghold area.

Coverage by stronghold artillery and air-defense weapons could extend 40-60 kilometers beyond the stronghold's boundaries, thus permitting adjacent strongholds to support each other and deliver overlapping fires on the areas between them.<sup>20</sup> Assuming some maneuver within the stronghold by air defense and artillery units, they could cover with fire a total area exceeding 10,000 square kilometers. (See Figure 1) In this wider area, armored units, airmobile anti-tank infantry, and heliborne mine-dispensing systems could act to contain and defeat an invader.

The local counteroffensive power of this defense would derive from its armored and airmobile units operating under the cover of the artillery and air defense systems, which themselves find protection within the stronghold area. In the interest of stability, however, the system would restrict counteroffensive capability in several ways. First, range limits on attack aircraft would entail some limit on the cross-border offensive capability of ground forces as well. Also, armored units operating outside the reach of stronghold artillery and air defense systems would have much reduced combat power. Finally, the artillery, air defense, and armored units would all depend on the static stronghold sustainment network.

#### 4.3 Better Use of Defensive Depth

Depth is first among the untapped defense resources of many nations in the region. By fighting a series of brief delaying battles before drawing a firm line, nations can trade space for time and enemy casualties. The value of such operations is undisputed, but many Western defense planners view them

as acceptable above the tactical level only when defenders have no other choice because, viewed in isolation, the practice means yielding initiative and national territory to one's opponent.<sup>21</sup> However, under typical regional conditions, attempting a NATO-style forward defense can be very risky and put as much strain on the defender's sustainment capacity as on the attacker's.

In its most developed form, the proposed system would comprise three types of defense areas or zones: a border zone, the stronghold areas, and the areas between these.<sup>22</sup> Covering the border area would be an array of sensors, obstacles, and minefields. Patrolling this area would be ultra-light cavalry units, whose mission would be to detect and evaluate an incursion, and delay the invading force by attacking its forward reconnaissance elements. In the area between this forward zone and the strongholds, helicopters could deploy mines to impede an invaders' mobility. The defender could bring up airmobile antitank units supported by ground-attack aircraft to cover these minefields. This combined-arms force would fight delaying battles all the way back to the stronghold areas. In this way, the defenders could diminish the strength of an aggressor while conserving their own for use around the strongholds.

### 4.4 Stability Factors

Several features of the proposed defense would contribute to greater stability in the region. First, because it uses both depth and dispersal to its advantage, it limits the bonus an aggressor can obtain through surprise attack, thus reducing the incentive for such attacks. Second, by incorporating limits on cross-border offensive capabilities, the proposed posture is less likely, in a crisis, to provoke neighboring states to undertake preemptive attacks. Indeed, with less at stake in the opening salvos of a war, preemptive pressures diminish on both sides.

### 5. The Defense of Saudi Arabia: Problems and Prospects

The Saudis' capital-intensive approach to defense is a function of their high per-capita income, low population density, and vast national territory. Their great wealth gives them relative freedom to meet the material requirements of fielding a modern air-ground combat force. But they have been unable to surmount the difficulties associated with their extremely low population density. Today, they are testing the limits of a quality-for-quantity trade off, and have run up against the inherent inefficiencies of the mobile defense model -- a model that demands the investment of not only great wealth but also ample skilled active-duty personnel.

Saudi Arabia typically spends as much on defense as Iraq, even though its armed forces are just oneeighth as large as Iraq's. It presently maintains four large garrison cities for its field army, two more for the National Guard, and seven large air force bases -- all of which have facilities that are among the most modern in the world. Although the 189 combat aircraft of the Royal Saudi Air Force (RSAF) make it only 30 percent as large as the pre-war Iraqi air force, when the size of the two nations' armed forces is taken into account, the Saudis' distinctive emphasis on air power is clear.<sup>23</sup> True to form, in the area of ground-based air defense, the Saudis have also sought to develop the most sophisticated system in the Gulf, incorporating 16 Improved Hawk batteries, 141 Shahine SAM fire units, 270 air defense guns, six underground hardened command sites, and an automated command, control, communications, and intelligence (C3I) system.

Saudi Arabia's actual defense capability, however, is less than its ambitious program of military construction and procurement suggests. For instance, despite the Saudis' \$12 billion investment in air defense upgrades during the 1980s, Anthony Cordesman concludes that their air defense corps could "hope to do no more than properly integrate its Hawk defenses before the mid-1990s, and create a few effective mobile Shahine units." Furthermore,

Saudi [ground] forces will have to be more dependent on air power than the strength of their land-based air defense force indicates, and will need systems like Stinger which do not require sophisticated training, or full integration into the new air defense system.<sup>24</sup>

Unfortunately, coordination between the army and air force is poor -- a condition reinforced by the air force's lack of dedicated close-air-support aircraft.

The Saudi air defense effort exemplifies a problem endemic to Saudi defense planning: it is too ambitious given the Saudis' shortage of skilled labor and the limits of available technology. Despite defense expenditures equaling 18 percent of their gross domestic product, the Saudis have been unable to close the gap between perceived requirements and capabilities. On paper, the Saudi air defense system is supposed to provide coverage for industrial and urban concentrations, protect the army as it maneuvers over wide areas, and augment the defense capabilities of the smaller Gulf states. The program hinges on the successful integration of the whole into automated C3I and battle management systems. But the target date for system integration and start-up -- now set for 1992 or 1993 -- keeps receding into the future.

Saudi efforts to build a capable heavy-mechanized ground force have faced similar difficulties.<sup>25</sup> Their regular army comprises 2 armored and 4 mechanized brigades, one infantry and one airborne brigade, a Royal Guard regiment, and five artillery battalions. But the number of personnel in their army, a mere 40,000 soldiers, reveals that Saudi units are under strength and lack sufficient support personnel.<sup>26</sup> Moreover, despite concerted development and training efforts, the army has little real capacity for high-paced mobile defense. Cordesman suggests that "by the early 1990s, Saudi Arabia will have an army capable of fighting reasonably well in prepared defensive positions," but will still lack the "offensive and maneuver warfare capability" its designers had in mind.<sup>27</sup>

Emphasizing a NATO-style mobile defense, as the Saudis do, is not only costly, but also demanding in terms of skill requirements and sustainment needs. Although proponents insist that a mobile offenseoriented defense gives able practitioners the capacity to win when outnumbered, few would contest that trying to out-maneuver a moving enemy entails considerable risks.<sup>28</sup> On the European central front, NATO and the WTO hedged these risks by maintaining very high force densities -- an option not open to the Saudis.

The maldeployment of the Saudi army would, in the event of conflict, compound its shortcomings in maneuver warfare. The closest army garrison to Saudi Arabia's northeast coastal cities and oil fields is 300-kilometers distant. Should the units there prove unable to quickly re-position in the event of an

Iraqi advance, they might find the Iraqis positioned between them and the kingdom's major urban and industrial centers. Likewise, army deployments in the south and near the Jordanian border risk circumvention because they deploy far forward and in dense concentrations. Some analysts contend that keeping the Saudi army close to the border, while leaving the National Guard to defend in and around the cities and oil fields, improves deterrence. Such a disposition certainly mirrors long-standing NATO practice. But Saudi ground force deployments may have as much to do with royal concerns about internal stability as with defense requirements. As one analyst observes,

Precautionary refusal to deploy the armed forces anywhere near the population centers, the royal leaders, and particularly the Al-Hasa oil fields limits their deterrent value against external attack on eastern targets. Failure to train the National Guard, who must defend these key locations, in front-line combat further contributes to this vulnerability.<sup>29</sup>

Efforts to transform the 35,000-member Saudi National Guard into an effective light mechanized force have not been successful, as their low skills and readiness levels attest. Better integration or cooperation with the regular army might help, but the Guard exists less as a complement to the army than a political counterweight.

## 5.1 Toward A New Saudi Defense Posture

A nonoffensive approach to the defense of Saudi Arabia would center on the creation of a series of stronghold areas, such as those described earlier. In the northeast sector, these would cover an area bordered by the An Nafud desert to the west, the Gulf coast to the east, north to Hafar al-Batin, and south to Qatif and Artawiya. The army and a portion of the National Guard would take up positions within and among these strongholds. Cavalry units would patrol along the border. In the event of invasion, the area between the border and the strongholds would be the site of initial delaying actions. The adoption of this posture would ameliorate Saudi defense problems in several ways:

*First, greater emphasis on battlefield preparations would reduce the Saudis' dependence on hightechnology fixes and highly-skilled technicians.* For instance, operations centered on strongholds and fortifications would ease the burden on centralized longer-range air-defense systems, because ground units would have better short-range defenses and better passive protection, and their deployment area would be smaller. Battlefield preparations could also grant Saudi Arabia's older and lighter tanks a new lease on life.

Second, the model would permit fuller utilization of available personnel in roles matched to their skill level, and would provide a basis for better integrating the army and National Guard. The National Guard, for instance, could help provide security for artillery and other units within the stronghold areas. It could also assume control of the stronghold supply system and, in this way, continue in its role as a check on the regular army.

Third, by concentrating the defense effort on key terrain, transportation junctures, and other likely enemy objectives, the stronghold system would reduce the scope for effective enemy maneuver.

Circumventing the stronghold areas would be difficult because they would form an interlocking network of great depth and serve as shields for friendly maneuver units.<sup>30</sup> Attempting to reduce the strongholds one-by-one would be costly and give the Saudis time to bring up reinforcements or, if necessary, seek outside assistance.<sup>31</sup>

Fourth, by permitting lighter forces a much greater role, the system would facilitate strategic mobility. Today, Saudi Arabia cannot rapidly redeploy much of its army from different sectors of the country. The least expensive way of redressing this problem is to develop a defense in which lighter and, hence, more easily transportable units can play an effective role.

## 5.2 Implications for Saudi Defense Modernization

Implementing the proposed system would require important changes in Saudi Arabia's current defense modernization plans.<sup>32</sup> A network of seven or eight strongholds in the northeast quarter might harbor 500 artillery and multiple-rocket systems. Available for use in and around these areas should be 300-400 tanks. However, Saudi Arabia today possesses a total of only 420 longer-range artillery systems, and most of these are tube artillery. Its present holdings of 550 tanks are sufficient, although more than half of these are older models.<sup>33</sup>

Pre-war Saudi plans were to add as many as 700 US M1 Abrams tanks to its inventory at a cost of at least \$4 billion. But this would only aggravate the problems associated with a maneuver warfare approach and the Saudi army's lack of strategic mobility. A modernization program consistent with the alternative we propose might add a much smaller number of new tanks while upgrading the Saudis' existing tank stock. As already noted, even the Saudis' older AMX-30 tanks could usefully serve as mobile antitank artillery within the stronghold areas. This alternative program would allow savings that could fund both a substantial modernization of the Saudis' artillery capability and an increase in their holdings of vehicle-mounted and infantry anti-armor guided weapons. Indeed, given the cost ratio of tanks to artillery systems and antitank weapons, and the Saudis' already considerable artillery and antitank weapon arsenal, the proposed alternative should allow a transfer of funds from the military to the nonmilitary sector.

Saudi air force modernization plans seek add to the current fleet of 189 combat aircraft as many as 100 F-15s and Tornados and 60 Hawk-200 light-attack aircraft. The Saudis also hope to replace their 98 F-5s with some number of F-16s or F/A-18s. If implemented, these plans would further tax the Saudis' defense labor pool, leading either to lower readiness levels or greater dependence on expatriate pilots and technicians. Moreover, due to the great expense involved, the plan would draw investment away from other areas, such as ground-based battlefield air defense, that might promise a higher marginal return. A more thoughtful approach would procure fewer Tornado deep-strike aircraft and rely instead on upgraded F-5Es and additional Hawk-200s in the interdiction and close-air-support roles, respectively. Savings realized by implementing this alternative could profitably fund the needed improvements in ground-based short- and medium-range air defense. Again, transfer of funds to the nonmilitary sector should be possible.

#### 6. The Defense of Kuwait: Problems and Prospects

Considering its locations and small size, Kuwait seems undefendable -- an assessment supported by the quick collapse of Kuwaiti defenses under the 2 August onslaught of Iraqi armed forces. But the difficulty of mounting a resilient defense does not preclude the option of making aggression costly and, hence, improving deterrence, or of holding firm against superior force until outside assistance can arrive. There is value, then, in assessing Kuwait's pre-invasion defense posture and exploring a possible alternative.

Kuwait's pre-invasion army -- comprising 16,000 troops in 1 artillery, 1 mechanized, and 3 armored brigades -- was oriented, like Saudi Arabia's, toward a traditional mobile defense. However, its size precluded sparring in the open desert with an Iraqi army fielding as many as 13 mechanized divisions. Had the Kuwaiti army attempted a mobile defense, the Iraqis would have quickly overwhelmed, enveloped, or bypassed it. Perhaps recognizing this, Kuwaiti commanders did not place the army on alert when Iraq massed its troops on the border. Once the invasion began, the regular army quickly melted away, although elements of the Palace Guard held on for two days.<sup>34</sup> The bulk of Iraq's invasion force entered Kuwait along its main highway, riding in jeeps, trucks, and buses, and with their tanks still loaded on flatbed transporters. Such an operation would have been quite susceptible to artillery bombardment, but the Kuwaitis had placed little stress on developing their artillery arm.<sup>35</sup>

Kuwait's air force fared little better. Prior to the invasion, it comprised about 35 combat aircraft.<sup>36</sup> This represents a considerable investment in air power for a nation so small. But because no part of Kuwait is more than 8 minutes by air from Iraq, this investment was always at great risk. And, surprisingly, Kuwait had not made a comparable investment in air defense, deploying only 12 Improved Hawk launchers and some shorter-range systems.

Like the army, the air force did not go on alert status when Iraqi forces began to threaten. In the opening shots of the invasion, Kuwait's Mirage squadrons, based at Ali-Salin in the north, were badly mauled by Iraqi artillery. Combat planes flying from Al-Jabir air base in the south, however, were able to engage the invaders for 2 days before the Iraqi air force destroyed their runways.

How can we understand a defense scheme that places the better part of a nation's air force within artillery range of a likely opponent and then fails to put that air force on high alert when the opponent masses his army on the border? It can only be understood as a weak deterrent posture, more symbolic than substantial. Such a posture might, together with skillful diplomacy and measures of appeasement, discourage aggression -- but only when dealing with an opponent less desperate and less capable of aggression than pre-invasion Iraq.

As early as 1988 the Kuwaitis had anticipated that the end of the Iran-Iraq war would alter the regional calculus of deterrence.<sup>37</sup> In that year Kuwait initiated an ambitious five-year \$5 billion defense modernization program. The centerpiece of the program was to be the purchase of 40 F/A-18 jets and 250 M1A2 Abrams tanks from the United States and 245 BMP-2 infantry fighting vehicles from the Soviet Union. Completion of the program, however, could not have boosted Kuwait's mobile warfare capability above a small fraction of Iraq's. And its air force would have remained vulnerable to early

destruction. Moreover, the program would have placed additional stress on Kuwait's fragile sustainment infrastructure and exacerbated its shortage of skilled labor. Most important, it would have reinforced the structural symmetry of the Kuwaiti armed forces and the Iraqi Republican Guards -- a symmetry that highlighted the relative weakness of the Kuwaiti side.

#### 6.1 Toward An Alternative Defense Posture for Kuwait

An alternative defense design for Kuwait would differ in several respects from that proposed for Saudi Arabia. Due to the great disparity in size between the Iraqi and Kuwaiti armies, and given Kuwait's lack of defensive depth, preparations for fighting a mobile delaying battle would make little sense. Instead, the alternative should focus solely on establishing a series of three or four artillery-infantry stronghold areas, like those suggested for Saudi Arabia. These could cover at least one-third of Kuwait, specifically the eastern part, stretching from the Iraqi border in the north to Minagesh in south-central Kuwait. Operating among the strongholds would be a tactical counterattack force of 5-6 tank battalions. Also available for rapid reinforcement of threatened sectors would be airmobile antitank infantry and transport helicopters equipped with rapid-mine delivery systems. To help guard against concerted reararea attacks by Iraqi airmobile or amphibious troops, light cavalry units would deploy in and around the coastal cities.

The Kuwaiti air force should remain small because of the problems of vulnerability and sustainability, and it should operate only from the south. Unlike the Saudi air force, it should focus solely on the air defense mission, with the aim of denying the aggressor reliable control of the air. Much of the air defense effort would, nonetheless, fall to ground units. To compensate for the ground forces' lack of close air support, the Kuwaiti strongholds should incorporate more artillery than the Saudi ones, perhaps as many as 70-80 guns and launchers each.

The implications of this model for defense modernization are clear: the Kuwaitis should spend less on tanks and infantry fighting vehicles, and more on artillery and countermobility measures, such as minelaying systems and field fortifications. They should also spend less on expensive multi-role aircraft -such as the 20 F/A-18 it had ordered prior to the invasion for \$2 billion -- and more on dedicated interceptors and ground-based air defense systems.

The proposed defense would improve on Kuwait's pre-invasion posture by simplifying the task of the defenders, reducing their vulnerability, and fully exploiting the advantages of fighting on the defensive from prepared positions. Of course, had this defense been in place on 2 August, the Iraqis would still have had the wherewithal to eventually overwhelm Kuwait, if they were willing to pay the price. However, by increasing the cost of aggression and complicating the calculus of an aggressor, the proposed defense would greatly enhance deterrence -- and do so in an entirely nonprovocative manner. Should deterrence fail, the posture would give the defenders the means to retain the most valued third of their country until outside assistance could arrive.

## 7. Implications for Arms Control Policy

Although we have formulated our restructuring guidelines so that nations might safely adopt them unilaterally, measures of bilateral or multilateral arms control could provide an important catalyst for a broader process of regional restructuring. The guidelines we have proposed for defense modernization would also be relevant to arms control efforts, providing the conceptual means for surmounting their present impasse.<sup>38</sup> In the next sections we examine some of the implications of our perspective for regional arms control.

## 7.1 Toward a Defensive Reorientation of the Arms Trade

Current efforts to control the trade in weapons and weapon technology focus narrowly on the proliferation of ballistic missiles and nuclear, chemical, and biological weapons. More germane to regional security concerns, however, would be measures encompassing those conventional weapons that already serve as the mainstay of wars in North Africa and the Mideast. But several obstacles stand in the way of negotiating more inclusive measures. First, great numbers of conventional weapons are already present in regional arsenals, and they figure centrally in regional defense planning. Second, few if any nations in the region are satisfied with existing military balances, and they see continued procurement as a means for resolving the perceived imbalances. Third, many nations supply conventional arms to the region, and most view the arms trade as a vital part of their economic activity. Finally, given motivated and multiple buyers and sellers of conventional arms, it will be difficult to prevent the circumvention of negotiated limits on their transfer. To the extent that producing nations can enforce export limits, importing nations may turn increasingly to domestic production.

The major powers might surmount these various obstacles by not attempting to enact undifferentiated limits on the conventional arms trade, but seeking instead to *defensively reorient the trade* by selectively prohibiting those arms most suitable for offensive operations. This would speak to the security concerns of the arms importing nations and mitigate some of the objections of the producers, thus reducing the pressures for circumvention. The participating powers might buttress these selective limits by similarly reorienting their military assistance programs and offering special credits to those nations willing to forgo the acquisition of offensive arms from other sources.<sup>39</sup>

From the nonoffensive defense guidelines presented earlier in this analysis, we can derive a tentative list of controlled and uncontrolled weapon types:

### **Controlled/Proscribed**

- Heavy and medium battle tanks
- Heavy and medium infantry fighting vehicles
- Tactical missiles with ranges exceeding 100 kilometers
- Armored, attack helicopters
- Ground-attack and bomber aircraft with combat radii above 800 kilometers
- All weapons of mass destruction

### **Uncontrolled/Subsidized**

- Antiarmor and air defense weapons suited for infantry or mounted on lighter-armored vehicles
- Other infantry weapons including mortars
- Towed- and self-propelled artillery systems (including rocket artillery) with ranges under 60 km.<sup>40</sup>
- Mines and mine-delivery systems
- Interceptor, close-air-support, and battlefield-interdiction aircraft w/ combat radii <600 km.<sup>41</sup>
- Helicopters suitable for transporting troops or mounting mine-delivery systems

Although a reorientation of the arms trade along these lines would facilitate comprehensive restructuring, it cannot guarantee such an outcome. This, because the character of a defense posture depends on much more than weapon mix. Also critical are doctrine, gross force structure, force size, unit structure, training, and deployment patterns. These features are likely to change only as the result of a positive commitment to defensive restructuring on the part of state and military leaders within the region. The major military powers might encourage such a commitment through other forms of military assistance, such as training programs and joint military planning.

## 7.2 Negotiated Reductions in Offensive Capabilities

The intensity and complexity of present disputes among the nations of North Africa and the Mideast dim the prospects for bilateral or multilateral arms reduction agreements. However, the experience of the 1979 Camp David Accords suggests that the co-sponsorship of such agreements by major Northern powers could resolve the arms reduction impasse. Of course, the Camp David Accords did not entail arms reductions. Quite to the contrary, the United States sealed the agreement by underwriting substantial defense modernization programs for both Israel and Egypt. Still, such inducements need not be incompatible with the goal of alleviating military confrontations in the region: outside powers might offer military assistance of a nonoffensive sort as a *quid pro quo* for reductions in the most offense-capable weapon categories.<sup>42</sup>

The Camp David Accords and the 1974 Israeli-Syrian disengagement agreement also illustrate the potential for negotiating confidence- and security-building measures (CSBMs) consonant with defensive restructuring. The Camp David Accords established a buffer zone between Egypt and Israel and institutionalized contacts between their military establishments. The Israeli-Syrian agreement established a zone of restricted military activity extending 25 kilometers to either side of the Israeli-Syrian border.<sup>43</sup> Building on these experiences, nations entering peace accords could establish "offensive-weapon exclusion zones" along their borders.<sup>44</sup> These might permit all manner of defensive preparations as well as the deployment of light troops, but no units capable of high-intensity assault. Nations might also negotiate measures that improve military transparency, and thus reduce fears of surprise attack. These would include permitting cross-border reconnaissance flights and the posting of observers at each others' military bases.<sup>45</sup> Such an ensemble of arms reduction and confidence-building measures, together with defensive assistance packages, would provide a supportive context for comprehensive restructuring.

#### 8. Implications for the Intervention Policies of the Major Powers

Steps toward defensive restructuring in the South would, by improving stability, remove one important rationale for the intervention policies of the North. It is unlikely, however, that third world nations will attempt any comprehensive restructuring of their armed forces without some concurrent change in the intervention policies of their northern neighbors; the process of change must be reciprocal. This much should be obvious from the skeptical reaction of third world states to the 1977 US-Soviet talks on Conventional Arms Transfers and their continuing desire to link nonproliferation agreements to arms reduction in the North.

For their part, the major global powers -- the United States, Soviet Union, China, Great Britain, France, and Germany -- should agree to abstain from military intervention in the South except to provide peacekeeping forces or defensive support for nations facing external aggression.<sup>46</sup> Moreover, military intervention should occur only under the auspices of global or regional agencies, and should be truly multinational in character. Finally, control of such operations should increasingly devolve to a United Nations military command.

A shift in emphasis by the major powers from traditional intervention to the missions of peacekeeping and defensive support would make superfluous much of their existing military capabilities for forced entry. These capabilities derive from large naval and long-range tactical air forces, airborne army corps, and marine or naval infantry forces. Hence, an agreement between the major powers limiting intervention, as suggested above, might coincide with negotiations on the reduction of tactical air forces and naval forces.

A new emphasis on the peace-keeping mission would require forces specializing in surveillance, reconnaissance, and area control. Such forces should have a strong organic facility for self-defense, narrowly defined, as well as the capability for quick withdrawal under fire. Light airborne cavalry, motorized infantry, and airmobile infantry better meet these requirements than do simple airborne infantry or marine units.

The defensive support mission requires a capability to rapidly reinforce the defenses of a nation threatened by aggression and, if need be, supplement that nation's ability to drive an invader from its soil. To address third world concerns about Northern military domination, the major powers should design their defensive-support units to be structurally dependent on the defensive array of the host nation. This means emphasizing combat support elements and a limited number of light mechanized units, *not* self-contained heavy maneuver units.<sup>47</sup> The air force component of a defensive-support force should comprise close-air-support, battlefield interdiction, and interceptor aircraft, and *not* longer-range fighter-bombers.

Clearly, such a force would lack the capability for far-reaching offensive operations, such as those characterizing Operation Desert Storm. In our view, this limitation is a political prerequisite for any wide-spread process of defensive restructuring in the South. To further guarantee, structurally, that defensive-support forces would not become the tool of narrow coalition or national interests, no single nation should possess more than 20 percent of the global total of such forces.

### 9. Conclusion

For many analysts, the recent Gulf crisis and war portends an era of increased instability and, hence, establishes the continuing relevance of defense postures based on punitive deterrence. Contrary to this view, we hold that the crisis is most usefully understood not as the first act of the post-cold-war era, but as the last act of an era shaped by the cold war. To paraphrase Antonio Gramsci: The crisis consists in the fact that the old is dying and the new cannot be born. Today, it is our urgent responsibility to imagine means of transition from the old era to the new. We have argued that defensive restructuring and related measures constitute such means. They can serve to break the crippling cycle of distrust and violence in the third world, and help create a political milieu in which nations will conduct their affairs without resort to arms.

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## Appendix. Initial Reflections on the Gulf War

The most salient factor in the Gulf War was a disparity in the capabilities of the combatants far more pronounced than that found even in Arab-Israeli conflicts. For instance, the Allied-Iraq ratio in theater combat aircraft was three-to-one; in advanced aircraft, 25:1. Having marshaled an air force three times as large as Israel's and many times more capable, the allies fought the war principally by means of air power -- talk of AirLand Battle notwithstanding.<sup>48</sup>

Compounding Iraq's disadvantages was its political isolation, six months of effective embargo, and the need to guard against powerful enemies on several fronts. These circumstances set this war apart from *intra*-regional ones, historical and potential. Nevertheless, the war holds some general lessons about regional armed forces and their practice of defensive operations. These lessons will become increasingly relevant should the war's outcome stimulate a new regional arms race, as seems likely.

The war reaffirmed the weakness of Arab air forces. Iraq's heavy investment in air power was to no avail and worse: it beggared other areas of military power that might have proved more relevant to the conflict. From a defensive perspective, Iraq would have more wisely invested in modern, mobile air defenses, basic electronic warfare countermeasures, advanced mines and means for their rapid emplacement, reconnaissance drones, and high-performance multiple launch rocket systems.

The war also revealed the vulnerability of centralized air defense and command, control, and communication systems. Had the Iraqi leadership given its subordinate air defense and army units more capacity and freedom for independent action, the allied "blitz" strategy could not have so easily collapsed Iraq's defenses.

From the outset of hostilities, Iraq's defenses seemed inert and one-dimensional. For instance, although the Iraqis stowed their most prized military assets in bunkers under tons of concrete, they failed to systematically employ simple, complementary measures -- like infra-red- and laser-masking smokescreens -- that would have lessened the effect of Allied precision guided munitions. Also, their air defense missiles and guns seemed largely reliant on a single means of target detection and acquisition: radar. Electro-optical and imaging infra-red backups, which would have proved more resistant to Allied interdiction, were relatively scarce.

The Iraqis were complacent in almost every aspect of their defensive operations. For instance, they showed little restraint in operating their radar and C3I systems in the pre-war period, thus providing the Allies with volumes of tactical data. Also, ground security for Iraqi air defense and artillery systems was lax, leaving them vulnerable to Allied special operations personnel -- many of whom infiltrated into Iraqi-held territory days and even weeks before hostilities commenced.

The outcome of the war is an indictment of "hybrid" armies -- or, more precisely, of their hierarchal segmentation. The Iraqi army in and around Kuwait evinced two forms of hierarchal segmentation: first, in the quality of troops and equipment; second, in their deployment. The Iraqi command placed the least well-trained and equipped troops -- conscript infantry -- far forward to take the brunt of an allied land assault. More capable mobile units were far back in large reserves, but these were not to support the forward line as much as to engage allied units once they penetrated it. Lacking true cooperation, the various Iraqi forces could not multiply each others' effect or cover each others' weaknesses.

With inadequate air defense at lower levels, Iraqi units had no recourse under bombardment but to dig themselves into immobility. The allies reserved the most intense bombing for the weak frontline troops, and sought especially to strip these of their artillery assets -- calling to mind the military maxim that an obstacle not covered by fire is no obstacle at all. With centralized control shattered, the forward troops quickly surrendered to the advancing allies.

We cannot determine how well the Iraqi defensive line along the Saudi border might have withstood a mechanized assault if not for 30 days of unopposed aerial bombardment. Nor, at this time, do we even know the true extent of these Iraqi defensive preparations. Reports from the Marine Corps units that assaulted the Iraqi lines in the south indicate that these were much less elaborate and complete than suggested in the popular press, pre-war. Whatever its extent, several design weaknesses in the system, apart from the inadequacy of its air defense element, were apparent. Lacking a significant, integrated armored element, the forward defense was virtually immobile at the tactical level. Indeed, it was an infantry-based defense with artillery in support, reminiscent of the First World War.<sup>49</sup> This system might have proved adequate for repelling an Iranian or Saudi assault, but not for one undertaken by the world's most advanced air-land combat force.

Moreover, like the Maginot line, the simple linear orientation of the Iraqi system precluded all-around defense. Penetrated at one or a few points, such a system is seriously compromised. The Iraqis repeated the Maginot error on the operational level as well: Having built a defensive line with a flank left open, they failed to prepare for an allied thrust around the open flank.

The weakness of Iraqi defensive arrangements in Kuwait also derives, in part, from their being undertaken in the context of an *offensive campaign*. There is only so much that can be accomplished in six months across an expanse of 18,000 square kilometers, especially when military personnel must also control a hostile population. Furthermore, operating in foreign territory precluded the Iraqis quickly gaining intimate knowledge of the terrain, such as that the Israelis developed in the Golan in the period between 1967 and 1973. On the other hand, the construction of Iraqi defenses in Kuwait were transparent to the surveillance systems of the United States, which had been closely monitoring Iraqi activities since the beginning of the crisis.

#### Notes

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2. See Lutz Unterseher, "A Different Army: Essential Details," in Study Group on Alternative Security Policy, *Vertrauensbildende Verteidigung: Reform Deutscher Sicherheits-Politik* (Gerlinger: Bleicher, 1989); John Grin and Lutz Unterseher, "The Spiderweb Defense," *Bulletin of Atomic Scientists*, Vol. 44, No. 7, September 1988; and, Carl Conetta and Charles Knight, "After Conventional Cuts: New Options for NATO Ground Defense", *Institute for Defense and Disarmament Studies Working Paper 7* (Boston: IDDS, June 1990).

3. For analyses of the pattern of conflict in the third world see Eliot A. Cohen, "Distant Battles: Modern War in the Third World," *International Security*, Vol. 10, No. 4, Spring 1986; Robert Harkavy and Stephanie Neuman, *The Lessons of Recent Wars in the Third World* (Lexington, Massachusetts: Lexington Books, 1985); and, Robert Harkavy, "Recent Wars in the Arc of Crisis: Lessons for Defense Planners," in Stephanie Neuman, *Defense Planning in Less-Industrialized States* (Lexington: Lexington Books, 1984), pp. 275-300.

4. See Stephanie Neuman, "Summary of Lessons," in Harkavy and Neuman, The Lessons of Recent Wars, p. 203

5. Chris Bellamy, The Future of Land Warfare (New York: St. Martin's Press, 1987), p. 20.

6. On purported Iraqi defensive preparations in Kuwait see John Broder, "Iraqi Defenses Take a Cue from History," *Los Angeles Times*, 13 October 1990, p. 8; and, "Breaching the Iraqi Line," *Jane's Defence Weekly*, 15 December 1990, p. 1223. In retrospect, the content of these articles seems more speculative than descriptive.

7. With a different operational plan and better cooperation between armor and infantry, the Israelis could probably have breached the Egyptian line sooner. However, there was also considerable leeway for the Egyptians to improve their defenses, which lacked depth and armor support.

8. The Israeli force comprised three brigades, two of them armored; against this, the Syrians arrayed five divisions. The ratio of Israeli to Syrian tanks was about one to five, the ratio of infantry about one to thirty.

9. Bellamy, Future of Land Warfare, p. 15.

10. For discussions of the 1982 conflict see Hirsch Goodman and W. Seth Carus, *The Future Battlefield and the Arab-Israeli Conflict* (New Brunswick: Transaction Publishers, 1990); Trevor Dupuy, *Understanding War: History and Theory of Combat* (New York: Paragon House Publishers, 1987), Chapter 17; and, W. Seth Carus, "Military Lesson of the 1982 Israel-Syria Conflict," in Harkavy and Neuman, *The Lessons of Recent Wars*, pp. 161-188.

11. On force-to-space factors, see B.H. Liddell Hart, *Deterrent or Defense: A Fresh Look at the West's Military Position* (New York: Frederick A. Praeger, 1962), Chapter 10; and, Archer Jones, *The Art of War in the Western World* (Chicago: University of Illinois Press, 1987), pp. 666-668.

12. See Arnon Soffer, "The Wars of Israel in Sinai: Topography Conquered," *Military Review*, April 1982.

13. "De-mechanization" occurs as a consequence of extended combat. Tank loss rates are higher than personnel loss rates; artillery loss rates are much lower. Self-propelled artillery loss rates are higher than towed artillery loss rates. Hence, as wars proceed, mobility decreases and combat increasingly takes on the form of artillery-infantry engagements. Moreover because infantry cannot overcome the defensive capabilities of modern weapons, even if supported by suppressive fire, de-mechanization entails defense dominance -- as the Iran-Iraq war illustrated. On loss rates, see T.N. Dupuy, *Understanding War: History and Theory of Combat* (New York: Paragon House, 1987), p. 179. On the offense-defense balance, see Kenneth S Brower, "Technology and the Future Battlefield: The Impact on Force Structure, Procurement, and Arms Control," *RUSI Journal*, Spring 1990, p. 56.

14. For a discussion of how such factors affected the conduct of the Iran-Iraq war, see William O. Staudenmaier, "Iran-Iraq 1980-?," in Harkavy and Neuman, *The Lessons of Recent Wars.*, pp. 211-238.

15. See Victor Azarya and Baruch Kimmerling, "New Immigrants in the Israeli Armed Forces," *Armed Forces and Society*, Vol. 6, No. 3, Spring 1980, pp. 455-482.

16. See Martin Van Creveld, Command in War (Cambridge: Harvard University Press, 1985), pp. 194-230.

17. Countermobility operations include the use of mines and obstacles, as well as other measures that impede an enemy's movement. Defensive preparations include the construction of protected and concealed firing positions, shelters, hardened supply depots, and redundant communication nets, as well as the formulation of artillery range tables and the placement of mines and obstacles.

18. During the Bekaa Valley campaign, Israel used artillery systems with significant effect against tanks. The shells were not of the intelligent-type, but could dispense numerous submunitions for a wide-area attack on the vulnerable tops of tanks. See Bellamy, *The Future of Land Warfare*, p. 29; and, *Jane's Armor and Artillery 1989-1990* (London: Jane's Publishing Company, 1990), p. 85.

19. Each might comprise 1 air defense, 2-3 artillery, 2 infantry battalions -- for a total of 2500-3700 soldiers.

20. To increase firepower flexibility, stronghold forces could add some tactical missile systems with ranges up to 150 kilometers. However, to restrict their offensive capability, these should be immobile; to reduce their vulnerability, they should be set far back in hardened shelters.

21. For an analysis of how delaying battles can produce casualty exchange ratios favorable to a defender see Joshua M. Epstein, "The Calculus of Conventional War: Dynamic Analysis Without Lanchester Theory," *Studies in Defense Policy* (Washington D.C.: Brookings Institution, 1985).

22. We use the term "zone" reservedly because it might convey a degree of inflexibility that we do not intend. These areas are distinguished from each other only by the *principal* mission the defenders would undertake in each. The full three-zone organization would not be relevant in all conflict scenarios. In no case would the zones constitute simple, linear bands or strips, one behind the other; a checkerboard organization would be more likely.

23. Circa autumn 1990, the RSAF included 44 Tornados, 57 F-15C/Ds, 88 F-5B/E/Fs, and 5 AWACs.

24. Anthony Cordesman, *The Gulf and the West: Strategic Relations and Military Realities* (Boulder: Westview Press, 1988), p. 222

25. For a view by a former-captain of the Pakistani army who served for three years with the Saudi army, see M.B. Khan, "Saudi Arabia's Armoured Corps: A Ground Level Appreciation," *International Defense Review*, September 1990, pp. 965-966.

26. By contrast, the US Army active component fields 55 brigades and regiments, and counts more than 700,000 personnel on its rolls: an average of more than 12,500 per brigade/regiment.

27. Cordesman, The Gulf and the West, p. 213.

28. See Conetta and Knight, "After Conventional Cuts: New Options for NATO Ground Defense," *Institute for Defense and Disarmament Studies Working Paper 7* (Boston: IDDS, 1990); Edward Luttwak, "Attrition, Relational Maneuver, and the Military Balance," *International Security*, Vol. 8, No. 2, Fall 1983; and, John Mearsheimer, "Maneuver, Mobile Defense, and the NATO Central Front," *International Security*, Vol. 6, No. 3, Winter 1981/82.

29. Lincoln P. Bloomfield, "Saudi Arabia's Security Problems in the 1980s," in Stephanie G. Neuman, ed., *Defense Planning in Less-Industrialized States* (Lexington: Lexington Books, 1984), p. 107

30. A somewhat similar idea, deriving from the work of retired West German General Uhle-Wetler, has gained the interest of NATO commander General John Galvin. See Michael Gordon, "NATO Ponders Troop Mix in Europe," *New York Times*, 30 November 1989, p. A24; and, F. Uhle-Wetler, *Gefechtsfeld Mitteleuropa: Gefahr der uebertechnisierung von Streitkraeften* (Munich: Bernard and Graefe, 1980).

31. Such assistance might come from other Gulf states, a pan-Arab force, or a UN security force, or from Saudi Arabia's friends in the North. Section eight of this study explores a possible configuration for a defensively-oriented "intervention" force.

32. For a review of pre-war Saudi plans, see Vincent P. Grimes, "Armed to the Teeth and Awaiting the Test," *Defense and Diplomacy*, November/December 1990, p. 21-25.

33. The rest are M-60A3s or M-60A1s in the process of upgrading to A3s.

34. For a review of initial Kuwaiti resistance to the invasion see David Fulghum, "US Mounts Swift Response to Iraq's Invasion of Kuwait," *Aviation Week and Space Technology*, Vol. 133, No. 13, August 1990; and, "Iraq Forces Invade, Occupy Kuwait," *Facts on File*, Vol 50, No.2593, 3 August 1990, pp. 565-567.

35. On the eve of the invasion, Kuwait's artillery assets totaled only 72 guns and 12 FROG-7 missiles.

36. The pre-war Kuwaiti air force included 23 Mirage F-1C/BKs and 12 Hawk dual-role training/ground attack aircraft.

37. See "Kuwait Builds Its Defences," Jane's Defence Weekly, 31 March 1990, p. 597.

38. For analyses of the third world arms control impasse see Edward J. Streator, *Arms Control in the Third World*, Council for Arms Control Seventh Annual Lecture, 16 November 1988; and, Michael T. Klare, "An Arms Control Agenda for the Third World," *Arms Control Today*, April 1990, pp. 8-12.

39. Some of these ideas are explored in *The Requirements for Stable Coexistence in US-Soviet Relations*, Report of a Study conducted jointly by the American Committee on US-Soviet Relations and the USA-Canada Institute of the USSR Academy of Sciences, Washington D.C., 1988.

40. Provisions should be made to restrict the potential contribution of self-propelled systems to rapid offensive moves. Such provisions might include limiting the degree of their armor protection.

41. The suggested range limit on combat aircraft is much less severe than that proposed in many nonoffensive defense models for Europe, although it still represents a very significant restriction on the capabilities of modern aircraft. We have increased permissible range to compensate for (1) the greater expanse of territory that many nations in the region must defend with fewer aircraft and (2) the fact that many nations face several potential adversaries on widely separated borders.

42. See Klare, "An Arms Control Agenda," p. 11.

43. The agreement mandates that within ten kilometers of the border each side can deploy only 6000 soldiers, 75 tanks, and 36 artillery pieces. In a zone 10 to 20 kilometers from the border each can deploy an additional 450 tanks and 162 artillery pieces with ranges of less than 20 kilometers. Air defense missiles are prohibited within 25 kilometers of the border.

44. Zones restricting military activity or excluding offense-oriented forces should be distinguished from zones excluding all defense forces. In some circumstances the latter might prove destabilizing. In the case of a political crisis, such a zone could act as a vacuum, drawing opposing armies toward each other (and into violation of the accord) as the two nations attempt to re-fortify their legal borders.

45. For a discussion of a range of CSBMs applicable to the Arab-Israeli conflict see Ahmad S. Khalidi and Yair Evron, *Middle East Security: Two Views*, Occasional Paper No. 3, International Security Studies Program, American Academy of Arts and Sciences, May 1990.

46. A feasible superpower nonintervention agreement is described in Randall Forsberg, "The Case for a Third World Nonintervention Regime," *Defense and Disarmament Alternatives 3:1*, August/September, 1987. Also see *The Requirements for Stable Coexistence in US-Soviet Relations, op. cit.* 

47. An expeditionary force could quickly bolster a host nation's defensive capability by providing reconnaissance, surveillance, and target acquisition assets; equipment for rapid mine emplacement; air defense and artillery units; and airmobile antitank infantry. For supplementing the host's tactical counterattack capability, the expeditionary force should include light mechanized units. Although lacking the combat power of heavier units, these would have the advantage of strategic mobility and would be quite effective as a supplementary force if adequately supported by artillery and air power.

48. Revised intelligence estimates now show that the Allies also enjoyed pre-war numerical superiority in the number of ground troops in the southern theater. Iraqi troops in and around Kuwait numbered about 350,000, not 540,000 as originally estimated.

49. By contrast, the system we propose emphasizes artillery and armor with infantry and air power in support.