

**NUCLEAR SHADOWS IN THE MIDDLE EAST:**

**PROSPECTS FOR ARMS CONTROL  
IN THE WAKE OF THE GULF CRISIS**

By

**Avner Cohen and Marvin Miller**

**December 1990**

DEFENSE AND ARMS CONTROL STUDIES PROGRAM



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**ACKNOWLEDGEMENTS**

**This paper represents work-in-progress as part of the Nuclear Arms Control in the Middle East Project undertaken by the authors. The paper has been accepted for publication in Security Studies, Vol 1, no 1 (Spring 1991). We thank the editors for their permission to publish the material in its present form.**

**We thank Larry Brown for his timely and generous assistance in bringing this paper to fruition. We gratefully acknowledge the financial support of the sponsors of this project: Rockefeller Brothers Fund, the Rockefeller Foundation, the John D. and Catherine T. MacArthur Foundations, the W. Alton Jones Foundation, the Ploughshares Fund, and the Prospect Hill Foundation.**



## **I. Introduction**

With the end of the Cold War, and the promise of further agreements between the superpowers to significantly reduce their stockpiles of nuclear, chemical, and conventional weapons, war between the U.S. and the Soviet Union seems a distant nightmare. But as the superpowers cut their arsenals, countries in the Middle-East are moving dangerously in the opposite direction. Weapons of mass destruction, as well as ballistic missile delivery systems, are fast proliferating in the region.

This trend was evident even before the current crisis in the Gulf.<sup>1</sup> However, the crisis has heightened the dangers inherent in four developments of the 1980s which, taken together, constitute an explosive mix. These are: (1) Israel's attainment of an advanced nuclear capability;<sup>2</sup> (2) Iraq's determination to pursue its own nuclear weapons program;<sup>3</sup> (3) the acquisition of ballistic missile technology by many states, especially Iraq and Israel;<sup>4</sup> and (4) the legacy of the Iran-Iraq war in which both ballistic missiles and chemical weapons were used.<sup>5</sup> In particular, the specter of Saddam Hussein armed with nuclear weapons has focused attention on the urgent need for new nuclear arms control initiatives in the Middle East. Yet, both conceptually and practically, it is not clear how such an endeavor can proceed. What would a realistic nuclear arms control regime in the region look like?

In this paper we assess the prospects for such a regime, particularly in the short and mid-term, i.e., in the aftermath of the Gulf crisis, but prior to a comprehensive Arab-Israeli peace settlement. Specifically, we address the following question: Under what conditions could one curtail Iraq's nuclear weapons program, short of destroying it by military action, and also minimize the risk of Israeli use of nuclear weapons

against Iraq, perhaps in retaliation for a chemical weapons attack on Israeli population centers?

We believe this is possible, and make the case for it in Section VII below. The discussion requires some context with regard to: (1) events in the Middle East prior to the Gulf crisis; (2) the specific "dialogue" between Iraq and Israel on nuclear weapons and related matters; (3) basic facts about nuclear weapons technology and their implications for the Iraqi nuclear program; (4) the feasibility of nuclear arms control initiatives which are currently "on the table," particularly the concept of a Nuclear Weapons Free Zone (NWFZ); and (5) the rationale for and role of nuclear weapons in Israel and Iraq. This is provided in Sections II-VI, respectively. We close in section VIII with some general remarks about the relationship between the outcome of the current crisis and the prospects for nuclear arms control in its aftermath. Given the many uncertainties with regard to the former at the time of writing (December 1990), it would be foolhardy to make specific predictions as to the latter, especially with regard to the timing of various initiatives.<sup>5</sup>

Another limitation of our analysis is self-imposed. As the title suggests, our focus is on the nuclear dimension of unconventional weapons proliferation in the Middle East; chemical weapons are discussed only in terms of their bearing on the nuclear issue. We take it that chemical weapons are truly "the poor man's bomb," i.e., in terms of both destructive power and the predictability of weapons effects, they do not stand on a par with nuclear weapons. This is not to deny the credibility of scenarios characterized by accurate delivery systems, favorable weather conditions, and unprotected human targets in which a chemical weapons attack could result in large

numbers of deaths and injuries, and/or significant degradation in the timely use of military facilities, such as air bases. However, it is just these uncertainties with regard to delivery, weather, and protection which limit the utility of chemical weapons. For all his rhetoric about being in a position to scorch "half of Israel with binary chemicals," it is clear that Saddam Hussein appreciates these limitations, and is running hard to end Israel's nuclear monopoly.

The increasing chemical weapons and ballistic missile capabilities in the Middle East, as well as the prospects for their limitations by negotiation, are both intertwined with the nuclear issue and merit serious consideration in their own right. However, we believe that the most pressing arms control need at the moment is in the nuclear arena.

## **II The Pre-Crisis Atmosphere**

Within two years after the end of the Iran-Iraq war, three major developments had dramatically changed the political climate and the strategic balance in the Middle East, and heightened the risk of a new Arab-Israeli war. These were: (1) the emergence of Iraq as the foremost Arab military power, and the leader of the hard-line Arab coalition against Israel; (2) the collapse of the U.S.-led efforts to initiate an Israeli-Palestinian political dialogue; and (3) growing concern among Palestinians, and Arabs in general, over the large-scale immigration of Soviet Jews to Israel.

On the strategic-military level, a confident Iraq, under the leadership of Saddam Hussein, emerged after eight years of war with Iran seeking hegemony in the region. During that war it launched an ambitious program to develop the capability to produce advanced military systems, particularly ballistic missiles. Indeed, perhaps the most

important military legacy of the Iran-Iraq war was the use by both countries of ballistic missiles against cities.<sup>7</sup> In particular, Iraqi missiles (modified Scud-B) were used massively during the "War of the Cities," in February-April 1988; this was probably a significant factor in persuading Iran to accept U.N. resolution 598 calling for a cease fire.<sup>8</sup> Evidently Iraq incorporated this lesson into its military thinking and strategic planning. By 1989 it had deployed two of its modified Scud-B missiles, the 900 km Al-Abbas and the 600 km Al-Husayn, while continuing to develop five other types.<sup>9</sup> In December 1989, Iraq announced the test-firing of its first satellite launch vehicle, the Al-Abid, while claiming to have almost completed the development of two prototypes of true Intermediate Range Ballistic Missile (IRBM) systems with a range of 2,000 km.<sup>10</sup>

On the political level, by mid-1990 it was evident that the attempt to move forward with Israeli Prime Minister Shamir's "peace initiative" had reached a dead end. In February, Shamir's national unity government fell due to a fundamental split between Labor and Likud about how Israel should respond to U.S. Secretary of State Baker's proposals for a preliminary Israeli-Palestinian dialogue. With the formation of a new hard-line Israeli government headed by Shamir in June, Palestinian frustrations reached a high point, while the Israeli-American relationship was at a low ebb. No "peace process" was on the horizon.

Palestinian frustration was aggravated further by the large-scale immigration of Jews from the Soviet Union to Israel. This immigration was perceived by Arabs as undercutting the Palestinian cause by diminishing Israel's incentive to agree to a political settlement based on a trade of "land for peace." It provided an attractive rationale for "deporting the Palestinians from their national land, strengthening the



Israeli occupation, and widening its range through the process of intensified settlement."<sup>11</sup>

As the moderate Arab camp led by Egypt failed to engage Israel in a serious political dialogue with the Palestinians, Iraq emerged as the hard-line alternative. It advanced the view that the only realistic response to Israeli intransigence is to raise the option of war. This led to a convergence of interests between Iraq and the Palestinian Liberation Organization (P.L.O.). For the P.L.O., Iraq is the only Arab state that is credible militarily vis-a-vis Israel, and hence can force it to negotiate seriously with the Palestinians. For Iraq, the Palestinian issue is the vehicle that allows it to claim the mantle of leadership in the Arab world.

This Iraqi-Palestinian condominium of interests was manifest in the Baghdad summit in late May 1990, which was dominated by Saddam Hussein's bellicosity.<sup>12</sup> Its ostensible purpose was to protest the immigration of Soviet Jews to Israel, and to show support for Saddam Hussein's threat against Israel if the latter attacked Iraq.<sup>13</sup> In the aftermath of the summit there was a general sense that Iraq had become the major Arab protagonist in the Arab-Israeli conflict, and that Iraq and Israel were on a military collision course, with nuclear weapons as the primary "bone of contention."

### **III The Iraqi-Israeli "Dialogue"**

Nuclear weapons were the prime focus of a renewed and increasingly tense Iraqi-Israeli "dialogue" during the 18 months prior to Iraq's invasion of Kuwait.<sup>14</sup> Its major theme was the establishment of the "rules of the nuclear game" in the Middle East, with specific reference to the revitalization of Iraq's nuclear weapons program and the

implications of Israel's raid against the Osiraq reactor in 1981. The dialogue was conducted using both direct and indirect forms of signalling. Among the former are: military measures on the ground, official statements, threats and counter threats (including indications of "red lines" concerning nuclear weapons), as well as disarmament proposals in various international fora; among the latter are press reports and commentaries, commonly based on leaked information.

It should be noted, however, that this ongoing exchange is not limited to nuclear weapons per se; it includes also references to ballistic missile capability, e.g., announcements and/or "unconfirmed reports" about launches of missiles and satellite vehicles, as well as allusions to other types of weapons of mass-destruction, especially chemical weapons.

The beginning of this dialogue can be traced to the Paris Conference on Chemical Weapons of January 1989, which was held primarily in response to Iraq's use of such weapons during the Iran-Iraq war. Iraq stated that it would only accept restrictions on its chemical arsenal if similar limitations were placed on Israel's nuclear weapons.<sup>15</sup> From this point the pace of the dialogue escalated rapidly. In March 1989, Israeli officials issued public warnings about Iraq's renewed nuclear weapons program, and raised the possibility that Iraq might produce nuclear arms within "two to five years."<sup>16</sup> U.S. intelligence sources also pointed to this danger, though they tended to assess the Iraqi nuclear threat as "five to ten years distant."<sup>17</sup> Articles in both the American and Israeli press stressed that striking Iraqi nuclear facilities "is no longer an easy option for Israel."<sup>18</sup> In June 1989, on the 8th anniversary of Israel's raid on the Osiraq reactor, three Iraqi newspapers made the point that "Iraq today is not Iraq of

1981, and enemies would pay dearly for an act of an aggression now."<sup>19</sup>

In mid-1989 the Israeli press carried reports of Iraqi reconnaissance flights along the Israeli-Jordanian border<sup>20</sup>--in one case only about 20 miles from Israel's nuclear facility in Dimona. Israel warned Jordan against the continuation of such flights. On December 14, 1989, less than ten days after Iraq had test-fired its satellite rocket vehicle (Al-Abid),<sup>21</sup> it also announced the test of an IRBM with a reported range of 2,000 km (Tammuz 1). Such a rocket would be capable of striking Israel from any part of Iraq, and would make an Israeli preemptive air strike extremely difficult. Israeli officials expressed open concern about these tests.<sup>22</sup> In March 1990, it was reported that Iraq had completed the construction of fixed launchers for its Al-Husayn missiles in Western Iraq.<sup>23</sup>

These indications of Iraq's growing military prowess culminated in the threat made by Saddam Hussein on April 2, 1990, "to make fire burn half of Israel" by binary chemical weapons, if Israel should strike "at some [Iraqi] industrial metalwork."<sup>24</sup> This marked the first time that threats to use weapons of mass destruction were openly issued, let alone presented as a military posture<sup>25</sup>, in the context of the Arab-Israeli conflict. It emphasized Hussein's claim that possession of binary chemical weapons, along with second-strike delivery means, implies that "strategic parity [has] practically [been] achieved by Iraq,"<sup>26</sup> and this constitutes a form of "balance of terror" between the two states.<sup>27</sup> Chemical weapons, associated with ballistic missiles, are sufficient to provide Iraq with the military means to confront a nuclear-armed Israel.<sup>28</sup>

The specific motivation behind Hussein's threat was to deter Israel from military action against Iraq's nascent nuclear program.<sup>29</sup> This is clear from the context in

which it was made, in particular its proximity to the Heathrow Airport episode in which Iraqi nationals were caught attempting to smuggle special capacitors which can be used to detonate a nuclear weapon.<sup>30</sup> The official Iraqi reaction to the incident itself, and the ensuing flurry of publicity about Iraq's nuclear ambitions, was that it was part of a "campaign" serving "the Zionist designs for aggression on Iraq."<sup>31</sup> Saddam Hussein was signaling Israel that an attempt to destroy Iraqi nuclear installations, in the manner of its 1981 attack on the Osiraq reactor would be considered as a casus-belli that would lead to military retaliation (possibly against Israel's nuclear facility in Dimona).<sup>32</sup> The deployment of the Al-Husayn missiles lent further credibility to this threat.<sup>33</sup> In sum, Iraq is determined to end Israel's nuclear monopoly, and would be ready to go to war to achieve this goal.

On the other hand, despite the military difficulties, political costs, and risks of Iraqi chemical retaliation, it is equally clear that no Israeli government would view Iraqi nuclearization with equanimity.<sup>34</sup> In fact, according to the "Begin Doctrine," Israel would also regard such an attempt as a casus belli, and would try to abort it by whatever means necessary, including military action that involves the risk of full-scale war.<sup>35</sup> The Gulf crisis only highlights this conviction. Thus, we have a classic--and dangerous--situation of one casus belli against another. By mid-1990 an Israeli-Iraqi showdown over the nuclear issue appeared to be just a matter of time.

Even aside from its nuclear dimension, the Iraqi-Israeli "balance of terror" that has emerged is highly fragile and vulnerable to failure, either by miscalculation or design, especially at times of crisis.<sup>36</sup> First, there are the risks of Iraq's declared posture of extended deterrence. In June 1990, just two months prior to Iraq's invasion

of Kuwait, Saddam Hussein asserted that his threat of retaliation covers not only attacks against Iraq, but all Arab territory subject to Israeli aggression, "from Mauritania to Syria."<sup>37</sup> To the extent that such a posture is credible, it is on a collision course with Israel's doctrine and practice of conventional deterrence, which relies heavily on both preemption and retaliation in Arab territory. This now includes the frequent air, sea and ground raids on Palestinian targets inside Lebanon, as well as occasional forays further afield, e.g., P.L.O. headquarters in Tunis.

Second, Iraqi chemical weapons are perceived in Israel as a real threat to both its cities and military facilities, not just a "poor man's" rhetorical equalizer. This perception has been reinforced during the Gulf crisis. Saddam Hussein has renewed his threat to attack Israel, invoking the possibility of an Iraqi chemical first strike, in the event hostilities break out (or even become imminent) in the Gulf, no matter what Israel did.<sup>38</sup> These threats have had a profound impact in Israel. For the survivors and the children of the Holocaust, the possibility of the use of gas evokes terrible memories.<sup>39</sup> The Israeli government's decision in September 1990, under intense public pressure, to distribute gas masks to the entire population underlines this anxiety.<sup>40</sup>

Even assuming a preference for a "tit for tat" strategy with respect to chemical weapons, for the sake of deterrence Israel encourages the notion that it may respond "awesomely" if so attacked, which includes the option of using its unacknowledged nuclear weapons. For example, even before the Gulf crisis former Israeli Minister of Defense, Itzhak Rabin, repeatedly invoked the threat that if any adversary dared to attack Israeli cities with chemical weapons, it would be "clobbered one hundred times harder, if not more," in return.<sup>41</sup> Though the wording of the Israeli threats to Iraq have

not gone much beyond what Israeli leaders such as Rabin had said prior to August, with officials still refraining from referring explicitly to nuclear weapons,<sup>42</sup> the Gulf crisis has given those warnings a new and urgent meaning.<sup>43</sup> Israeli commentators have openly suggested that official allusions to Israel's "awesome deterrence" are, in fact, euphemisms for nuclear threats.<sup>44</sup> One Israeli political pundit suggested that Shamir should signal Hussein that "any Iraqi action against Israeli civilian populations, with or without gas, may leave Iraq without Baghdad."<sup>45</sup>

Thus under the pressure of the Gulf crisis, the most unique aspect of Israel's nuclear behavior, its opacity, has been eroding, as it faces the grave risks of nuclear proliferation.<sup>46</sup>

#### **IV Bomb Basics: Implications for Iraq**

A recognition of the risk of Iraqi nuclearization extends beyond Israel. In the U.S., the specter of Iraqi nuclear weapons provides the strongest public support for military action against Iraq.<sup>47</sup> President Bush highlighted the urgency of the threat in his Thanksgiving address to U.S. troops in Saudi Arabia: "those who would measure the timetable for Saddam's atomic program in years may be seriously underestimating the reality of that situation and the gravity of the threat."<sup>48</sup> These dire warnings were generally viewed as a means of generating public support for war.<sup>49</sup> However, there was also the recognition that Iraq was making a determined effort to obtain nuclear weapons technology. Further, in the worst case, it might be able to produce a nuclear weapon using diverted safeguarded uranium in less than a year.<sup>50</sup> Since there has been much confusion with regard to the technical aspects of Iraq's nuclear efforts, we include

here for a brief discussion of these matters.

A nuclear fission weapon can use either plutonium produced in a nuclear reactor or uranium with a high concentration of the fissile isotope, uranium-235. This "highly-enriched" uranium can be made from natural uranium using various processes, e.g., with rapidly-spinning gas centrifuges. The minimum amount of either material required to start a nuclear explosion is called the critical mass; smaller (sub-critical) masses will not explode. Hence, one way to detonate a nuclear weapon is to rapidly bring together two sub-critical masses, whose combined mass is greater than critical. A practical embodiment of this method is to place one sub-critical mass at the end of a gun barrel, and to fire another sub-critical projectile into it. This "gun" detonation technique was used in the "Little Boy" bomb which destroyed Hiroshima.

Another detonation scheme is to rapidly and uniformly compress an initially sub-critical mass using chemical explosives. This technique--known as implosion--works because the critical mass varies as the inverse square of the density of the material. For example, if the critical mass of a solid sphere of plutonium at normal density is 8 kg, its critical mass would be reduced to a value of  $8/2^2 = 2$  kg by compressing it to twice its normal density. Thus, a mass of say, 6 kg, would be sub-critical at normal density, but highly or super-critical when compressed or imploded to increase its density by a factor of 2.

If highly-enriched uranium is used, a nuclear weapon can be detonated using either the gun or implosion method; with plutonium, only implosion can be used. The main advantage of the gun method is that it is conceptually simpler; its major drawback is that the amount of material required for a given explosive energy release or yield is

much greater. For example, the "Little Boy" bomb contained about 60 kg of highly-enriched uranium. Using modern weapons-grade uranium containing about 93% uranium-235, the same yield--roughly equivalent to 15 thousand tons of chemical high explosive--could be produced using somewhat less material, say 50 kg.

However, this is still a factor of two or more greater than what is needed in an implosion bomb with a comparable yield. For example, an implosion bomb of the type dropped on Nagasaki, but employing weapons-grade uranium instead of the 6 kg of plutonium actually used in that device, would require about 20 kg of such material. Advances in weapons design and technology since 1945 make it possible to produce powerful implosion bombs of low weight--the Nagasaki weapon weighed about 5000 kg--using amounts of plutonium and uranium smaller than 6 and 20 kg, respectively. However, this requires a higher degree of technical sophistication and nuclear testing to achieve predictable yields.

Obtaining weapons-grade uranium using gas centrifuges--the clear goal of the Iraqi program--is a much harder task than fashioning it into either a gun or an implosion-type weapon. Gas centrifuges for uranium enrichment are precisely-machined cylinders made from special materials which can withstand the stress of spinning at high peripheral speeds, e.g., 400 meters per second, for long periods of time. Equipment to keep the machines in balance, to spin them at a precise speed, to maintain a high vacuum, and to produce the highly corrosive gas used in the process, etc., must also be specially designed and prepared for this task. And because the enrichment capability of a single centrifuge (technically, the "separative power") is small, many such machines are required to produce the uranium for even a single implosion weapon. For example,



about 1000 centrifuges 1.5 meters in length and spinning at 400 meters per second continuously for one year would produce about 20 kg of weapons-grade uranium.<sup>51</sup> In practice, many more would probably be needed to account for machine failures.

From the above, we may draw the following conclusions concerning the prospects for nuclear weapons in Iraq:

- \* The 12.3 kg of weapons-grade uranium contained in the safeguarded fuel for the Osiraq reactor in Iraq is not sufficient to make a gun-type nuclear weapon, crude or otherwise. As previously noted, a Hiroshima-sized energy release would require about 50 kg. Half this amount would produce a much smaller explosion, on the order of a few hundred tons of high explosive; anything less than about 15 kg would not give any nuclear yield.

- \* If this 12.3 kg were used instead in a Nagasaki-type implosion weapon, the explosive energy released could be comparable to that device, but most probably it would be smaller, on the order of several thousand tons. Such a bomb would be too heavy for aerial delivery, except by bomber aircraft. And, it also would be of uncertain reliability, since the limited amount of material precludes a nuclear test.

- \* In addition to the 12.3 kg of 93% enriched uranium supplied by France, Iraq also has an unspecified amount of 80% enriched uranium contained in the fuel for a Soviet-supplied 5 megawatt research reactor. Given the size of this reactor, it is unlikely that there are more than several tens of kilograms of such uranium on hand; statements attributed to U.S. government officials indicate that there are at least 10 kg.<sup>52</sup> About 25 kg of such uranium, or 10 kg added to the 12.3 kg of French-supplied material, would suffice for a Nagasaki-type bomb. Thus, all the safeguarded weapons

grade uranium in Iraq might be enough for several Nagasaki-type weapons.

\* The technology to mass-produce uranium gas centrifuges and the expertise needed to operate a centrifuge enrichment plant is sophisticated, but also widely available, especially in Western Europe. Indeed, the countries of the URENCO commercial enrichment consortium, England, the Netherlands, and West Germany, were the source of much of the centrifuge capability now in place in Pakistan, India, and Brazil. Given their relatively unsophisticated indigenous technical base, the pace and ultimate chances of success of the Iraqi centrifuge program depends significantly on what technology it has already obtained from outside sources, and what it might be able to obtain in the future. The former is unclear,<sup>53</sup> while the latter obviously depends on whether a strict embargo can be maintained.

For this reason, estimates of the time required for Iraq to build and successfully operate a centrifuge plant--based in large measure on West European and Pakistani experience--should be viewed with caution. This also applies to their ability to produce implosion-type weapons. On the one hand, it is unclear if Iraq now has the technology and expertise needed for making a Nagasaki-type weapon, e.g., for shaping the uranium and other components, and detonating the device. On the other hand, a bomb design only a few years more advanced than the Nagasaki weapon could be much lighter and could achieve comparable yields using amounts of weapons-grade uranium on the same order as that in the Osiraq reactor fuel. Moreover, if the intended use does not require high confidence in the exact yield of the device, the need for testing is significantly diminished.

## **V A Nuclear-Weapons Free Zone: Can It Work?**

There is no doubt that a nuclear-armed Iraq, especially one led by Saddam Hussein, would pose a grave threat to regional, even global stability. Indeed, could the U.S. afford to confront such a state in the way it has done during the Gulf crisis? Could it afford not to? Thus, it is not surprising that concern about the Iraqi nuclear program and proposals for curbing it were often made during the August-December 1990 time period.<sup>54</sup> To date, two perspectives have shaped the public debate on this issue.

The hawks fear that in the wake of a negotiated settlement of the Gulf crisis which leaves Iraq's nuclear program intact, the international community will breathe a collective sigh of relief, and return to pre-crisis business as usual.<sup>55</sup> In particular, it will continue to rely on the standard non-proliferation mechanisms which have proved incapable in the past of thwarting a state which is determined to have the bomb. From this perspective, the only effective means of dealing with Iraq's nuclear program is to destroy it in the manner of the 1981 Israeli attack on Iraq's Osiraq reactor.

The dovish counter-argument is that Iraq is many years away from obtaining an operational nuclear arsenal.<sup>56</sup> Thus the Iraqi nuclear threat, by itself, is not a sufficient rationale to go to war. From this perspective, stringent controls on Iraq's nuclear program must be part of a negotiated end to the Gulf crisis; such controls would suffice to prevent Iraq from going nuclear.<sup>57</sup>

Neither the hawks nor the doves emphasize the need for Israel to be a player in post-crisis nuclear arms control. However, for controls on Iraq's program to be effective, they must be part of a strengthened non-proliferation norm which includes

Israel.

Forging such a norm will not be an easy task. To begin with, there is a long-standing reluctance among the two key players, the U.S. and Israel, to acknowledge Israel's nuclear capability. For more than two decades, Israel's declaratory position has been that "it will not be the first state to introduce nuclear weapons to the Middle East."<sup>58</sup> This formula, of course, begs the question of what "introduction" of nuclear weapons means. In response, the U.S., has developed its own ritualistic formula for dealing with the matter, urging Israel to place its "unsafeguarded facilities" under international inspection and signing the Nuclear Non-Proliferation Treaty (NPT).<sup>59</sup>

A recent Arab initiative in the area of nuclear arms control is Egyptian President Mubarak's proposal for the establishment of a Middle East free of all weapons of mass destruction.<sup>60</sup> This was an extension of the long-standing Egyptian proposal to establish a Nuclear Weapons Free Zone (NWFZ) in the Middle East, based on adherence of all the parties in the region to the NPT.<sup>61</sup> Though Mubarak's proposal extended the notion of a NWFZ to all non-conventional weapons--chemical, biological, and nuclear--Egyptian spokesmen have emphasized that there need not be a formal linkage between measures to control the different categories of unconventional weapons.<sup>62</sup> Iraq, both before and during the Gulf crisis, has agreed in principle to a ban on all such weapons of mass-destruction in the Middle East.<sup>63</sup> However, it has insisted that Israel's nuclear arms be part of the bargain, and that the agreement be negotiated "in the framework of a just and comprehensive solution to the conflict in the region."<sup>64</sup> This is an obvious ploy to deflect criticism of its production and use of chemical weapons, but an effective one, nonetheless.

For its part, since 1980 Israel has also been advocating an NWFZ in the Middle East. However, the Israeli concept differs in several key respects from the Egyptian proposal. First, it is not tied to the NPT. The Israeli view is that "the NPT cannot serve as a reassurance in areas where wars are endemic or warlike threats exist."<sup>65</sup> Rather, an NWFZ should be modeled on the South American Treaty of Tlatelolco (1967). The attractive features of this Treaty for Israel, is that it was arrived at by direct negotiations between the parties, and it also provides for challenge, as well as routine, inspections at the request of any member state.<sup>66</sup> Although the Israeli proposal does not formally link an NWFZ with formal peace between Israel and its Arab neighbors,<sup>67</sup> de-facto, it is clear that the Israeli condition for an NWFZ requires an Arab-Israeli settlement.

The current Arab and Israeli NWFZ proposals are largely propaganda designed to establish the non-proliferation bona fides of the parties. For the Arab states know that Israel will not sign the NPT, and Israel also realizes that, under the present circumstances, the Arabs will not agree to direct negotiations, which would amount to diplomatic recognition of Israel. By stipulating such pre-conditions, the proposals of both sides are, in practice, a recipe for non-action.

## **VI Going Nuclear: Israel and Iraq**

Nevertheless, the nuclear issue cannot be left on the diplomatic "back burner" until "true peace" comes to the region.<sup>68</sup> The risks of inaction outweigh the potential political costs of addressing the issue. Recognition of this reality has increased since the onset of the Gulf crisis, with a focus on the need for curtailing Iraq's nuclear

program.<sup>69</sup> However, an effective non-proliferation regime which is part of long-term security arrangements for the Middle East must also account for Israel's nuclear weapons capability and the rationale for its acquisition.

To appreciate this rationale one must place it within the broader context of Israeli perceptions of national security.<sup>70</sup> It was Israel's first prime minister, David Ben-Gurion, who came to the conclusion that Israel should develop a nuclear weapons capability as the ultimate deterrent against Arab (or other) threats to destroy the Jewish state. The proximate cause for Ben-Gurion's decision was probably the strong U.S. pressure and Soviet threats which forced Israel to withdraw from the Sinai peninsula in the wake of the October 1956 Suez campaign.<sup>71</sup> However, the broader context was his deep-seated pessimism and anxiety regarding Israel's long-term security predicament.<sup>72</sup> His major concerns were the extent of Arab enmity towards Israel, highlighted by their refusal to grant it diplomatic recognition, the fundamental geo-strategic and demographic asymmetries between Israel and the Arab states, and Israel's failure to achieve formal security guarantees for its territorial integrity.<sup>73</sup>

More fundamentally, Israel's nuclear program has its roots in the trauma of the Holocaust. This trauma lies not only in the genocidal destruction of almost two thirds of European Jewry, but also in the harsh recognition that, with few exceptions, the world looked the other way, or in some cases even aided, the Nazi attempt to achieve a "Final Solution to the Jewish Problem." The lesson that the leaders of the young Jewish state, particularly Ben-Gurion, drew was that, as far as its basic security interests are concerned, Israel must be as self-reliant as possible. In particular, it must be in a position to threaten another Hiroshima to prevent another Holocaust.

Given this view of the bomb as the ultimate guarantee of its national security, it is clear that Israel is willing to play "hard ball" if necessary to preserve its nuclear monopoly. The deception of American inspectors at the Dimona reactor in the 1960s,<sup>74</sup> the consideration given to the use of nuclear weapons in the 1973 Yom Kippur war,<sup>75</sup> and the bombing of the Iraqi Osiraq nuclear reactor in 1981 are relevant reminders of this fact. Absent a comprehensive resolution of the Arab-Israeli conflict, progress in superpower nuclear arms control would have little impact on Israel's security calculations, specifically the perception that it must retain nuclear weapons. In fact, it can be argued that if Israel trades "land for peace," the deterrent role of nuclear weapons in a "smaller Israel" will be even more important because of its loss of "strategic depth."<sup>76</sup>

Israel's victory in the 1967 Six Day War created a radically new politico-strategic environment which had significant implications for the nuclear issue. In one sense, it was the anxiety of standing alone, particularly during the three weeks of "peril and solitude" that preceded the war,<sup>77</sup> that allegedly justified the final push in the Israeli nuclear program.<sup>78</sup> The war was perceived as a failure of Israel's conventional deterrence; the Arab threat to Israel was perceived as total and existential. In another sense, however, it was the "Greater Israel" resulting from the war that rendered the role of Israeli nuclear deterrence highly problematic. While prior to the 1967 war there was a clear domestic and international consensus about the need to preserve Israel's territorial integrity, there is no such consensus about a "Greater Israel."

Virtually all Israelis, ideological differences aside, continue to view the bomb as Israel's ultimate defense. The opacity of the nuclear issue in Israel,<sup>79</sup> and the

consequent lack of public debate about it, tend to suppress other, more controversial, views of its role, e.g., as a means of reinforcing territorial intransigence.<sup>80</sup> But this is precisely the way that many Arabs perceive it, especially after the Vanunu revelations. To the extent that Arab analysts discuss the nuclear issue, they stress the view that Israel's nuclear weapons are intended to be used as instruments of aggression.<sup>81</sup> From this perspective, Israel, usually identified with a right-wing Likud government, will use its nuclear monopoly as well as its probable qualitative advantage in chemical weapons, ballistic missiles, and conventional arms as a means of preventing the Arab states from changing the status quo by military force.<sup>82</sup> Thus Israeli nuclear weapons become the ultimate guarantee of the durability of a "Greater Israel."

Iraq is the only Arab state that has committed itself, from the mid-1970s, to develop its own nuclear weapons program, and thus challenge Israel's nuclear monopoly.<sup>83</sup> The fact that the Iraqi program was largely dormant for much of the 1980s, following Israel's raid on the Osiraq reactor in June 1981, was due to the strain of its war with Iran, not to political acquiescence with the "Begin Doctrine."

In the Iraqi view, Israel's nuclear monopoly is the manifestation and symbol of both its scientific superiority and its political arrogance; the former supports the latter.<sup>84</sup> Its destruction of the safeguarded Osiraq reactor was an unprovoked use of force to deny nuclear technology to Iraq, an NPT state, while Israel itself refuses to sign the NPT and continues to proliferate.<sup>85</sup> In the Iraqi view, the lack of reaction to this attack in the U.S. was further confirmation of its "double standard" in its treatment of Israel and the Arabs.



As long as Israel can retain its qualitative technological edge, manifested and symbolized by the bomb, an equitable political settlement of the Arab-Israeli conflict cannot be achieved. It is the bomb, in Saddam Hussein's view, that allows Israel to pursue its "expansionist ambitions" under the guise of "national security."<sup>86</sup> It follows that an Iraqi equivalent would place it in a position of Arab leadership.

### **VII A Realistic Approach to Nuclear Arms Control**

To stop Iraq from becoming a nuclear weapons state, and to assure that Israel's nuclear weapons will never be used, security arrangements for the Middle East in the post-crisis era must address the nuclear issue. We believe that this is feasible under four conditions. First, it must be realized that Israel will not soon relinquish its nuclear shield. It was not the first state to acquire nuclear weapons and, especially given its security concerns, it will not lead the world into the post-nuclear age. Utopian hopes for nuclear disarmament must be replaced with a recognition that interim measures of arms control are the only means for minimizing nuclear risks in the near term.

Second, progress toward a political settlement of the Arab-Israeli conflict would facilitate negotiated limitations on both conventional and non-conventional arms in the Middle East.<sup>87</sup> Yet, the direction of that linkage, in terms of timing, is not necessarily from the political to the nuclear. A recognition of the risks of proliferation, solidified by international consensus, may lend impetus to the political process.

Third, it is unrealistic to expect that Israel would participate in post-crisis nuclear arms control arrangements if Iraq is rewarded in any way for its aggression

against Kuwait. This is particularly true if such rewards are at Israel's expense, e.g., by linkage to the nuclear issue. Finally, such arrangements should not require direct negotiations between the parties.<sup>88</sup>

If these basic conditions are recognized, the following interim confidence building steps are feasible.<sup>89</sup> To begin, the declaratory non-proliferation positions of all the states in the region must be reaffirmed. Iran and all the Arab states, including Iraq, have signed the NPT, and they must confirm their commitment not to acquire nuclear weapons themselves, nor to help other states attain this capability. For its part, Israel will have to clarify and strengthen its pledge "not to be the first state to introduce nuclear weapons to the region." In particular, this would mean an understanding that Israel's undeclared nuclear capability would remain in the basement as a "last resort,"<sup>90</sup> an "existential deterrent"<sup>91</sup> for possible use only in situations of "supreme national emergency."<sup>92</sup> That is, there would be no testing of such weapons, nor would they be integrated into Israel's military force structure.

There are indications that this concept of the role of its nuclear arsenal has been accepted by almost all of Israel's senior decision makers, past and present. However, especially given the strain of the Gulf crisis, and the tendency to avoid serious discussion about all nuclear matters, such an understanding may be a fragile matter, and needs to be reinforced.

While these declaratory reaffirmations are important, they are insufficient. New verifiable nuclear constraints are also needed. In particular, all non-nuclear NPT states must accept the authority of the International Atomic Energy Agency (IAEA) to make timely special inspections at both declared and suspected nuclear facilities.<sup>93</sup> Without

such inspections even a strict embargo on nuclear technology to countries such as Iraq cannot guarantee that a clandestine nuclear program, based on technology already received, will not succeed.

The important new constraint on Israel would be a ban or a "freeze" on further production of all nuclear weapons materials. Such a ban would involve a verifiable, though possibly unacknowledged, shutdown of both the Dimona nuclear reactor--and to conform to the spirit as well as the letter of such a ban--the associated reprocessing facility which could otherwise continue to extract plutonium from an existing inventory of irradiated fuel.

We acknowledge the basic asymmetry of these proposals. However, their intent is not to freeze or legitimate the current situation with respect to nuclear capabilities in the Middle East. Rather, we advocate these measures as the first step of a process whose ultimate goal is the establishment of a true nuclear weapons free zone in the Middle East.

Beyond their symbolic value as a mutual acknowledgment of the grave risks of nuclearization, such measures would provide substantive benefits to both sides. Forcing Israel to confront and curtail its nuclear program would largely minimize its frightening "Dr. Jekyll and Mr. Hyde" character: the notion that while Israel is in general a responsible actor with respect to nuclear weapons, it could behave as a "crazy state"<sup>94</sup>, if pushed to the wall.<sup>95</sup> This would tend to reassure many states, including those in the Arab world, that Israel's nuclear weapons and nuclear decision-making are not "loose cannons," control of which might pass to fanatical elements.

The obvious benefit to Israel would be the achievement of the basic objective of the "Begin Doctrine" by non-military means.<sup>96</sup> Israel would not have to continually confront and destroy Arab attempts to achieve nuclear parity with it. Given the continued diffusion of both specifically nuclear and "dual use" technology throughout the world, as well as the growing retaliatory capabilities of the Arab states, a policy of nuclear denial by military means cannot succeed in the long and perhaps not even the short run.

### **VIII Conclusion**

Until fairly recently most--but not all--of the small number of Israelis who seem to think about these matters<sup>97</sup> were skeptical of the need for such interim initiatives.<sup>98</sup> They tended to focus strongly--almost obsessively--on the problems facing Israel, and had deep reservations about the technical and political feasibility of arms control arrangements in a situation short of peace, especially in the highly sensitive (and officially unacknowledged) area of non-conventional weaponry and delivery systems.

Simply put, their attitude regarding the nuclear issue was: "Why rock the boat?" As long as Israel's Arab neighbors could be dissuaded or prevented from getting their own nuclear weapons, they saw no danger of actual nuclear use, unless there was a real threat to Israel's basic security or social fabric, in which case consideration of a nuclear response would be perceived as both moral and legitimate.

The U.S. seemed to share this perspective. Before the Gulf crisis, there was little appetite in Washington for tackling the issue of Israel's nuclear capability until there was some progress on the Palestinian problem. American policy towards Israel's

ultimate, if opaque, deterrent continued to be guided by the old conventional wisdom, expressed well by McGeorge Bundy: "If there is nothing the U.S. government is prepared to do that can end or even limit the Israeli nuclear program, what purpose is served by attacks on it?"<sup>99</sup>

This view did have its political logic, but now seems increasingly and dangerously outdated. In fact, even prior to the Gulf crisis, a number of Israelis, in and out of government, recognized the need to rethink the nuclear issue.<sup>100</sup> In the wake of Saddam Hussein's threat "to scorch half of Israel," and in direct response to President Mubarak's proposal to ban all weapons of mass destruction from the region, Prime Minister Shamir hinted at Israeli readiness to discuss curbs on such weapons even prior to comprehensive peace negotiations.<sup>101</sup> It is also clear that individuals in the U.S. have been wrestling for many years with the dilemma of how to limit further nuclearization in the Middle East, without forcing Israel to abandon the one defense it might require to prevent it from being overrun.<sup>102</sup>

But it is the Gulf crisis, and the recognition of the reality of Iraq's nuclear ambitions that has lent a sense of urgency to the need for nuclear arms control in the region. Although the curtailment of Iraq's nuclear program is not among the declared objectives of the U.N. Security Council resolutions, it is a crucial element of the crisis. For the manner in which the nuclear issue is resolved will determine not only Iraq's nuclear future; it will also have significant repercussions for the prospects of further nuclear proliferation, and hence global stability in the post Cold War era.

Obviously, the content and modalities of nuclear arms control initiatives for the Middle East will be determined to a significant degree by the manner in which the

crisis is resolved. Nevertheless, such initiatives must be an essential element in any settlement of the crisis, even in case of war. For even if Iraq's nuclear facilities are destroyed, the incentives for nuclearization will surely remain, and the world may soon again have to confront the specter of a nuclear-armed renegade state, or states. A post-crisis Middle East cannot afford the luxury of not addressing the nuclear issue.

In the absence of decisive military action, thwarting Iraq's nuclear ambitions will require a strict embargo on nuclear technology, and timely inspections to deter a clandestine weapons program based on technology already acquired. However, to obtain both the degree of international consensus required for the effectiveness of such measures, and also to decrease the Iraqi motivation to go nuclear, Israel's nuclear capability must also be constrained in the spirit of the initiatives we have suggested.

Recognition of this reality, like that of the need for a just solution of the Israeli-Palestinian problem, does not constitute a reward for Saddam Hussein's aggression or his nuclear quest. But it also must be recognized that movement on these issues depends upon Iraq not being rewarded for its aggression against Kuwait. Otherwise Israel will not be a player, and non-military remedies for nuclear proliferation in the Middle East are wishful thinking.

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25. "Saddam Husayn Addresses Visiting U.S. Senators," FBIS-NES-90-074, Daily Report, April 17, 1990, p. 7. (Full quotation in footnote 28).
26. "Arab Power for Regional Peace," Iraqi News Agency, FBIS-NES-90-108, Daily Report, June 5, 1990, p. 16.
27. Saddam Hussein repeats a similar point also in his address to the Islamic Conference in Baghdad, on June 18, 1990. In that address he stresses that his threat to "burn half of Israel," was taken "out of context." In other words, Hussein's threat was just a way to signal deterrence resolve, not a reflection of intention to strike first; "Saddam Husayn Addresses Islamic Conference," Baghdad Domestic Service, translated in FBIS-NES-90-118, Daily Report, June 19, 1990, p. 21.
28. "We do not need an atomic bomb. We have the binary chemical. Let them take note of this.... Whoever threatens us with the atomic bomb, we will annihilate him with the binary chemical." "President Warns Israel, Criticizes U.S." translated in FBIS-NES-90-064, Daily Report, April 3, 1990, pp. 34, 36. This was also one of the central themes in Saddam Hussein's address to a group of U.S. Senators on April 12, 1990. His threats against Israel are just second-strike deterrence posture vis-a-vis Israel's nuclear weapons. "...if Israel uses atomic bombs, we will strike at it with binary chemical weapons. We have given instructions to the commanders of the air bases and missile formations that once they hear Israel has hit any place in Iraq with the atomic bomb, they will load the chemical weapon with as much as will reach Israel and direct it at its territory. For we might be in

Baghdad holding a meeting with the command when the atomic bomb falls on us. So, to make the military order clear to the air and missile bases' commanders, we have told them if they do not receive an order from a higher authority and a city is struck by an atomic bomb, they will point towards Israel any weapons capable of reaching it." "Saddam Husayn Addresses Visiting U.S. Senators," Baghdad Domestic Service, FBIS-NES-90-074, Daily Report April 17, 1990, p. 7.

29. As noted earlier, this was not the first time that Iraq warned Israel that striking against Iraqi strategic targets would trigger Iraqi retaliatory strike. Cf., "Israel Warned Against Attacking," Iraqi News Agency, translated in JPRS-TND-90-002, Nuclear Developments, January 17, 1990, p. 17.

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33. Michael R. Gordon, "Iraq Said to Build Launchers for its 400-mile Missiles," op. cit.

34. Regarding the military difficulties, it is likely that Iraq would disperse, harden and attempt to hide any military facilities which might be targeted by Israel; see, e.g., David B. Ottaway, "Strike on Iraq No Longer an Easy Option for Israel, Analysts Say," op. cit. As to the political costs, the U.S. had to exert considerable diplomatic pressure--including a "reassessment" of its continued participation in the IAEA--to counter the efforts of a group of Arab states to suspend Israel's membership in the Agency as a response to Israel's destruction of the Osiraq reactor in Iraq in 1981. It is problematical if the U.S. would again provide the same degree of support if Israel attacked a nuclear facility which is subject to IAEA safeguards. Perhaps in recognition of this fact, the Israeli delegate at the 1985 General Conference stated that:

His delegation was directed to say on behalf of the Israeli Government that, firstly, Israel held that all States must refrain from attacking or threatening to attack nuclear facilities devoted to peaceful purposes and that the Agency's safeguards system produced the necessary evidence of the peaceful operation of a facility; secondly, within that context Israel reconfirmed its policy that it would not attack or threaten to attack any peaceful nuclear facilities in the Middle East or

anywhere else. He wished to emphasize that no State in the Middle East was excluded. Thirdly, Israel was willing to support any subsequent action in competent fora convened to work out binding agreements that would protect nuclear facilities devoted to peaceful purposes from attack or threat of attack.

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testimony of Leonard S. Spector, Hearings on the Persian Gulf Crisis before the Committee on Armed Services of the U.S. Senate, November 30, 1990.

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52. Mark Hibbs, "Iraqi Nuclear Threat Warnings Called Unrealistic War Rationale," Nucleonics Week Vol. 31, no. 48, p. 7.

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64. This quotation is from the English translation of the text of the Final Statement of the Arab summit in Baghdad, FBIS-NES-90-105, Daily Reports, May 31, 1990, p. 4.

65. S. Freier, "The NPT and the Middle East," unpublished manuscript, The Weizman Institute of Science, Rehovot, Israel, May 1985, p. 3.

66. An Israeli perspective on the type of inspection regime requested for a NWFZ in the Middle East has been given by Avi Becker, a former member of the Permanent Mission of Israel to the United Nations (1977-1982). According to Becker, "a NWFZ in the Middle East will require a reliable and workable challenge system such as the Latin American OPANAL with greater inspection powers based on mutuality." Avi Becker, "A Non-Proliferation Treaty for the Middle East," in Louis Rene Beres, ed., Security and Armageddon, (Lexington: Lexington Books, 1986), p. 131.

Becker's reference to "the Latin American OPANAL" refers to the fact that if a party to the Treaty of Tlatelolco believes that another party is carrying out nuclear activities prohibited by the Treaty it may arrange for the Organization for the Prohibition of Nuclear Weapons in Latin America (OPANAL) to carry out a special inspection at the state's expense to investigate the activity. The "suspect" state may not refuse such an inspection. Becker also quotes the view of Yuval Ne'eman, the present Israeli Minister of Science and Technology, that a treaty establishing a NWFZ in the Middle East will require "mutual inspection by the signatories."

67. The Israeli proposal for an NWFZ was submitted as a draft resolution to the First Committee on Disarmament of the United Nations in 1980; it reaffirmed Israel's long standing position that "nuclear non-proliferation would best be achieved by a regional approach." GAOR, A/C.1/35/PV.31, November 13, 1980, pp. 19-26.

68. Indeed, the prevailing view is that without a peace settlement negotiations on unconventional arms control will achieve little. See, e.g., Geoffrey Kemp, "Solving' the

**Proliferation Problem in the Middle East,"** in Aspen Strategy Group Report, **New Threats: Responding to the Proliferation of Nuclear, Chemical, and Delivery Capabilities in the Third World,** (Lanham, MY: University Press of America, 1990), pp. 197-232 (also p. 22); also, Geoffrey Kemp, "Regional Security, Arms Control, and the End of the Cold War," **Washington Quarterly** (Autumn 1990), pp. 33-51. Z'eev Schiff, "Arms Control Prior to Peace," **Ha'aretz,** July 27, 1990.

69. "Transcript of President's Address to U.N. General Assembly," **New York Times,** October 2, 1990, p. A12; David Hoffman, "Shevardnadze Urges Nuclear-Free Zone in Middle East," **The Washington Post,** December 12, 1990, p. A29.

70. Due to the "opacity" in which Israel's nuclear program is shrouded, it has no authoritative historical voice of its own. All attempts to reconstruct such a history are inevitably incomplete and conjectural. See Spector, **Nuclear Ambitions** (Boulder, CO: Westview Press, 1990), pp. 143-185; Frank Barnaby, *op.cit.*; Uri Bar-Joseph, "The Hidden Debate: The Formation of Nuclear Doctrines in the Middle East," **The Journal of Strategic Studies,** Vol. 5, No. 2, June 1982, pp. 205-226; Yair Evron, **Israel's Nuclear Dilemma** (Tel Aviv: Hakibbutz Hameuchad, 1987; in Hebrew), especially Ch. 1; Yair Evron, "Israel and the Atom: The uses and Misuses of Ambiguity, 1957-1967," **Orbis,** Vol. 17, no. 4 (Winter 1974), pp. 1326-1343; Peter Pry, **Israel's Nuclear Arsenal** (London: Croom Helm, 1984); and Fuad Jabber, **Israel and Nuclear Weapons** (London: Catto and Windus, 1971).

71. See Bar-Joseph, *op.cit.* pp. 211-212; Yair Evron, **Israel's Nuclear Dilemma,** Ch. 1; Pierre Pean, **Le Deux Bombes** (Paris: Fayard, 1982).

72. It is interesting to note that Ben Gurion's rationale for an Israeli nuclear bomb was similar to that of President Truman vis-a-vis the Soviet Union in the post-World War II era. See Martin Sherwin, **A World Destroyed: Hiroshima and the Origins of the Arms Race** (New York: Vintage Books, 1983), Chapters 5-7.

73. See Michael Bar-Zohar, **The Armed Prophet: A Biography of Ben Gurion** (Englewood Cliffs, N.J.:Prentice Hall, 1968), especially pp.256-258; Shimon Peres, **David's Sling: The Arming of Israel** (London: Weidenfeld and Nicolson, 1970), especially pp. 144-148.

74. Pean, *op. cit.*, pp. 104-107.

75. See, e.g., the accounts in Stephen Green, **Living by the Sword,** (Brattleboro, VT: Amana Books, 1988), pp. 90-94; and Nadav Safran, **Israel: The Embattled Ally,** (Cambridge, MA: Harvard University Press, 1981), pp. 482-483.

76. Some Israeli doves have made the case for open Israeli nuclear deterrence once Israel trades land for peace. Shai Feldman, **Israeli Nuclear Deterrence: A Strategy for the 1980s**

(New York: Columbia University Press, 1981); see also, David Twersky, "Is Silence Golden? Vanunu and Nuclear Israel," Tikkun, January/February 1988, pp. 39-43.

77. The reference to the three weeks in May 1967 preceding to the Six Days War as "peril and solitude" was made by former Israeli foreign minister Abba Eban. "You may be surprised if I tell you that in our country the dominant memory is not of military triumph, but of peril and solitude that preceded [the war]...[F]or let it be remembered that the Arab states could be defeated and still survive. For Israel there would be only one defeat." Cited in Michael Brecher, The Foreign Policy System of Israel: Settings, Images, Process, (London: Oxford University Press, 1972) p. 93.

78. Roger F. Pajak, Nuclear Proliferation in the Middle East: Implications for the Superpowers, (Washington: National Defense University Press, 1982), pp. 36-37; see also Peter Pringle and James Spigelman, The Nuclear Barons, (New York: Holt, Rinehart and Winston, 1981), p. 294.

79. Cohen and Frankel, "Opaque Nuclear Proliferation," op. cit; Twersky, "Is Silence Golden," op. cit.

80. Avner Cohen, "Israel's Nuclear Hubris," The Jerusalem Post, January 5, 1990.

81. "Text of Arab League Memorandum Issued to U.S.," Al-Khalij, FBIS-NES-90-114, June 13, 1990, p. 1.

82. See, e.g., Ali Dessouki, Discussion Paper on "Unconventional Weapons and Regional Stability in the Middle East," Meeting of the IEWSS Committee on Regional Arms Transfers and Arms Control in the Middle East, February 7-9, 1990, Wiston House, England, Institute for East-West Security Studies (IEWSS), New York.

83. On the history of Iraq's nuclear program see Spector, Nuclear Ambitions, pp. 186-202; Steve Weissman and Herbert Krosney, The Islamic Bomb (New York: Times Books, 1981); Jed C. Snyder, "The Road to Osiraq: Baghdad's Quest for the Bomb," Middle East Journal, Vol. 37, No. 4, Autumn 1983, pp. 565-593.

84. "Iraq Asserts Arabs Must Acquire Atom Arms as a Balance to Israel," New York Times, June 24, 1981, p. A1; for the text of Saddam Hussein's speech see p. A10.

85. "Officials Meet Ambassadors," Iraqi News Agency, FBIS, Middle East and South Asia Review, Daily Report, June 9, 1981; "UK, U.S. Said 'Distorting Iraq's Reputation'," Iraqi News Agency (in English), FBIS-NES-90-064, April 3, 1990, p. 36.

86. In a recent interview Saddam Hussein was asked why he felt it necessary to seek a nuclear capability. His answer (through an interpreter): "Because Israel is in possession of chemical, biological, and nuclear weapons. And Israel is following a policy of expansion at the expense of the Arabs. And Israel occupies the land of the Arabs and has rejected all the resolutions adopted by the Security Council, resolutions which call upon Israel to



withdraw from the occupied Arab and Palestinian countries. So the way we see it is that peace sometimes dictates for us a kind of balance to be drawn." ABC News PrimeTime Live, November 15, 1990.

87. For a comprehensive discussion of such conventional arms control arrangements, see Yair Evron, "Israeli-Palestinian-Jordanian Security Relations: The Idea of a 'Security Zone'" Occasional Paper No. 3, May 1990, International Security Studies Program, American Academy of Arts and Sciences, Cambridge, MA. See also, Avner Cohen, "Interim Nuclear Arrangements for the Middle East" Ha'aretz, July 6, 1990, p. B5.

88. This is not to imply that informal discussions between the parties, arranged through the good offices of the superpowers, will not be useful.

89. Avner Cohen and Marvin Miller, "Facing the Unavoidable: Israel's Nuclear Monopoly Revisited," Journal of Strategic Studies, Vol. 13, No. 3, (September 1990); Avner Cohen, "Statement," in Sadruddin Aga Khan (ed.) Non-Proliferation in a Disarming World (Geneva: Bellerive Foundation, 1990), pp. 119-123; Avner Cohen and Marvin Miller, "The Nuclear Specter," The Washington Post, August 3, 1990, p. A23. For related ideas see: Gerald M. Steinberg, op. cit.; Joseph A. Yager, "Nuclear Nonproliferation Strategy in the Middle East and North Africa," CNSN Paper, Vol. 1, No. 1, The Center for National Security Negotiations, McLean, VA, February 1989; Rodney W. Jones and Harald Müller, "Preventing a Nuclear Sarajevo," Arms Control Today, January/February 1989, pp. 15-22.

90. The view of nuclear weapons as weapons of "last resort" is now officially embodied into the current NATO doctrine. See, "Text of the Declaration of the NATO Talks," New York Times, July 7, 1990, p. A5; also, Michael Gordon, "Nuclear Strategy Shift," New York Times, July 2, 1990, p. A1.

91. McGeorge Bundy, "Existential Deterrence and Its Consequences," in Douglas McLean, ed., The Security Gamble: Deterrence Dilemmas in the Nuclear Age, (Totowa: Rowman & Allanheld, 1984), pp. 3-13.

92. The phrase is due to Michael Walzer, Just and Unjust Wars, (New York: Basic Books, 1977).

93. The authority to make special inspections is not found in the NPT itself, but in the IAEA model NPT safeguards agreement of 1971, INFCIRC/153, which delineates the structure and content of safeguards agreements between the IAEA and non-nuclear weapons states party to the NPT. The Procedures for carrying out such inspections are specified in paragraphs 18, 21, 22, 73 and 77 of this document. It is a complicated process, but several aspects are clear, and worth noting. First, a key role in the process is played by the IAEA's governing body, its Board of Governors, a purely political committee consisting of representatives from 35 member states, including many from the developing world. The current membership includes Iraq, Iran, Egypt, Tunisia, Morocco, Cuba, India and

Indonesia. Decisions on such issues as whether to request a state to accept special inspectors without delay are made by majority vote. Second, the severest actions the IAEA can impose for non-compliance with such a request are to so inform the Security Council and General Assembly of the United Nations, and to suspend the state from membership in the IAEA. Third, the authority to make special inspections has never been exercised.

94. The terminology "crazy state" is from the Israeli political scientist, Yehezkel Dror, Crazy States (Lexington: Heath Lexington, 1971). In the context of possible Arab use of chemical weapons, Dror, a former advisor to the Israeli Defense Ministry, warned that: "There will be no self shackling when poison gas appears. We will be demonic in our response." Quoted by Tony Horowitz, "Israel's Enemies Develop Alarming Poison-Gas Potential," The Wall Street Journal, September 15, 1988. See also next note.

95. As indicated earlier, the Gulf crisis has lent credibility to the view that Israel might behave like a "crazy state" in case of Iraqi chemical and/or attack on it. Israel's deterrent threats to inflict "awesome retaliation" against Iraq, if the latter attacks Israeli centers of population, do project the image of a demonic Israel. See Z'eev Schiff, op.cit.

96. Avner Cohen, "Updating the Begin Doctrine," Davar, January 19, 1990.

97. This lack of public discussion of nuclear matters is not just a matter of government censorship, but of self-censorship. It is a societal aspect of Israel's nuclear opacity. See Avner Cohen and Benjamin Frankel, op. cit, pp. 15-43; and Avner Cohen and Benjamin Frankel, "Why the Israeli Spy was Imprisoned," New York Times, April 15, 1988, p. A35.

98. Interviews in Israel, April/May 1989.

99. McGeorge Bundy, Danger and Survival, (New York: Random House, 1988), p. 512.

100. See, for example, Z'eev Schiff, "To Deter and Not to Win," Ha'aretz, April 20, 1990; Z'eev Schiff, "No Denuclearization Without Israel," Ha'aretz, June 6, 1990; Z'eev Schiff, "Arms Control Before Peace," Ha'aretz, July 27, 1990; Uzi Benziman, "Nuclear Intifada," Ha'aretz, April 6, 1990.

101. Asher Wallfish, "Shamir calls for talks with Arabs on arms curb," Jerusalem Post, April 15, 1990; see also "Shamir Comments on Talks," Jerusalem Television Service, translated in FBIS-NES-90-073, Daily Report, p.21.

102. See, e.g., McGeorge Bundy, op., cit. Also, "Israeli Missiles for Pretoria: No." New York Times, November 15, 1989, p. A28.

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