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Israel Versus Anyone: A Military Net Assessment of the Middle East

by Kenneth S. Brower



Mideast Security and Policy Studies No. 178

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Cover image: IDF soldier of the 595th Field Intelligence Battalion stationed at Israel's northern border, photo by Cpl. Eden Briand, IDF Spokesperson's Unit

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Table of Contents

Executive Summary	5
Israel's Current Military Capability	7
Israel and the United States	12
Israel and Russia	15
Current Potential Threats	17
The Sunni Arabs	17
Turkey	20
Iran, Syria, Hezbollah, and Hamas	21
Probable Scenarios	25
Israel vs. an Iran-led Coalition	25
Israel vs. a Sunni Coalition	31
Net Assessment	35
Conclusion	37
Notes	43

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“Israelis believe their own propaganda and disinformation.”

- Christopher Donnelly, principal adviser to British Prime Minister Margaret Thatcher on Soviet affairs and later special assistant to the NATO Secretary General, to the author at the 2007 Herzliya Conference

EXECUTIVE SUMMARY

Most published Middle Eastern military net assessments are based primarily on lists of units and equipment. Unfortunately, history proved that such lists are all too often incorrect. Even when they were correct, the overall assessments generally ignored the quality of personnel and/or equipment, as well as the extent to which rival defense systems could turn available financial, human, and material resources into actual military power.

Almost without exception, these earlier net assessments ignored the impact of the time required by all militaries to mobilize and deploy. This is particularly true for the major powers that were remote from the Middle East. These countries had to project their forces over intercontinental distances, which was, and is, a slow and difficult process.

This study contains no lists at all. Its assessments are based on historically proven combat data, which reflects the impact of human and technical quality on military combat effectiveness. The study also reflects a unique understanding of the significant variation in

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the efficiency of alternate national defense systems and the realistic impact of time on the generation of regional military power.

The study first provides a summary of current Israeli military capability. Rather than simply providing figures, this section provides a baseline for subsequent comparisons of Israeli capability to the ability of remote countries to project military power into the region, or the threat posed by potential enemies. The first of these assessments discusses the ability of the US or Russia to project conventional military power into the Middle East, followed by threats posed by the Sunni Arab states and/or Turkey, and finally, Shiite Iran and its proxies.

The study's objective and fact-based assessments are often at odds with conventional wisdom. First, it shows that, as compared to Israeli military capability, neither the US nor Russia can project meaningful conventional military power into the Middle East unless they are provided with both many months to mobilize and a lack of opposition during the long process of deployment. This conclusion implies that any US-proposed mutual defense treaty offered to Israel would be militarily meaningless. Moreover, the study shows that, over the long term, any such treaty would actually result in significantly diminished Israeli national security.

It is also demonstrated herein that Israel can defeat any attempt by Russia to militarily intervene against it.

The study assesses that a Sunni military threat, either with or without Turkey, could rapidly and unexpectedly emerge. The current combined military capability of the Sunni states is relatively limited compared to that of Israel, but over the long term, Israel would likely prove unable to maintain the decisive technological superiority it now possesses versus the current Sunni militaries. In such a scenario, Israel's current exaggerated emphasis on combat with non-state light infantry, located within urban areas, under counter-insurgency rules of engagement would combine to compromise its long-term ability to cope with a Sunni conventional combined arms threat that could arise in the future.

Israel can defeat Iran and its proxies at a relatively acceptable cost—but only if there is decisive Israeli political and military leadership, which is now lacking. If military power has to be used preemptively to neutralize the Iranian nuclear threat, Israel, acting unilaterally, is far more militarily capable than the US.

According to the study's assessment, Israel cannot convert to an American-style volunteer military based on active forces with relatively small, low-readiness reserves. Such a conversion would result in a significant loss of military capability that could ultimately put the state at existential risk.

The study provides a series of recommendations that would improve Israeli political-military leadership. The fundamental conclusion is that most Israelis, as well as their international supporters, have come to believe decades of their own propaganda. They see weakness where the study sees strength. This compromises Israel's ability to effectively wage war and reach the compromises necessary to achieve peace with security. In the end, even if Israel somehow manages to achieve real peace with all its Muslim neighbors (which is doubtful), it will only remain secure if it is the sole nuclear-armed country in the Middle East. It will also have to maintain a decisive superiority in terms of conventional military power against any conceivable array of possible enemies.

ISRAEL'S CURRENT MILITARY CAPABILITY

Israel has a two-tier military, comprising active and reserve forces. Its estimated first tier active force structure is based on about 113,000 male and 35,000 female conscripts, plus about 40,000 salaried officers and specialist NCOs. The IDF's active forces are largely responsible for maintaining day-to-day national security, but their primary function is generating the trained reservists who currently provide about 75% of Israel's wartime military manpower.

Israel's rapidly mobilizable estimated wartime force structure includes about 555,000 second tier reserves who can be activated within 96 hours. The total mobilizable force of about 743,000 personnel reflects an estimated 200,000-person reduction in the previously maximum

wartime force structure. This significant reduction has progressively occurred over the past two decades.

The Israeli Air Force (IAF) maintains a limited number of serviceable combat aircraft in long-term storage. But, more significantly, mobilization of reserves allows the IAF to achieve a uniquely high aircrew-to-aircraft ratio, as emergency posting and reserve aircrew supplement those in active service. These supplementary aircrews serve within squadrons irrespective of rank. The resulting wartime aircrew-to-aircraft ratio of about 2.5:1.0 allows the IAF to achieve a uniquely high planned sustained wartime daily sortie rate of seven per F-16 and five per F-15. This rate is achievable out to a maximum range of about 800 km. Beyond this range, the number of daily sorties that can be generated by each aircraft becomes constrained by the cumulative flight hours required to complete successive long-range sorties.¹

Continuous, high-intensity, sustained 24/7 flight operations also depends on the mobilization of large numbers of supplementary reserve ground support personnel.

It is estimated that the currently active fast jet F-15/16/35 squadrons of the IAF can almost immediately sustain the generation of about 620 short-range combat sorties per day. When fully mobilized, these same squadrons can sustain the generation of about 1,600-1,800 short-range sorties per day. It is estimated that, given adequate strategic warning, the IAF could reactivate two very large squadrons employing recently deactivated and stored F-16A/Bs and A-4Ns. These two squadrons could generate as many as 400 additional sustained short-range daily sorties. However, as time passes, the ability of the IAF to employ these stored aircraft will inevitably decline.²

The current availability of Israeli F-35A stealth aircraft is likely to be substantially lower than that of other Israeli combat aircraft. Moreover, the stealthy F-35A cannot sustain a high daily sortie rate because of the need to repair its mission-critical low RCS coating, which reportedly requires 24 hours for maintenance and curing after about five sorties. Consequently, it is likely that the declared total of 20 stealthy F-35As currently in IAF service will be operated primarily as niche aircraft.

The number of air-to-ground weapons that can be delivered by each F-15 or F-16 sortie will depend on the range to the target and the size of the weapon required to neutralize that target. Aircraft wing pylons can typically be used to mount an under wing fuel drop tank or a single large precision-guided weapon, or up to four smaller guided weapons. Israeli F-15Is can each deliver up to seven 2,000-pound guided weapons per sortie and Israeli F-16s up to four. When armed with smaller guided weapons, they can respectively deliver up to 32 or 18 individually guided 250-pound weapons per sortie. The IAF is therefore capable of delivering many thousands of precision-guided munitions per day. Consequently, it is estimated that Israeli fast jet squadrons can neutralize 3,000-5,000 individual targets per day, or even more, depending on the type and number of air-delivered weapons required to destroy each target.

The active first tier IDF ground forces order of battle now includes 12 armored and infantry brigades, of which two are dedicated to training and not normally operationally deployed. The nine active tank battalions each require the addition of reserve tank and mechanized infantry companies to come to full combat strength. Mobilization of second tier reserves rapidly raises the estimated number of full-strength Israeli maneuver brigades from 12 to 64.

Israeli ground force reserves are likely the most combat-ready in the world. Generally, most Israeli reservists had three years of active service, using the same equipment and trained in the same battle drill tactics they will subsequently employ as reserves. Perhaps more importantly, IDF reserve platoon and company commanders all have at least four years' active duty experience, including experience as both NCO squad or vehicle commanders and platoon commanders. While IDF training for both active and reserve personnel is far better than it was prior to the 2006 campaign against Hezbollah, it remains substantially less demanding than it was earlier in the twentieth century.

Less than half of Israel's mobilizable maneuver brigades can be quickly and effectively thrust into combat, whereas almost all IDF reserves could be put immediately into combat two decades earlier. The majority of the IDF's current reserve combat units would

significantly benefit from at least several weeks of field training, which would allow them to reach the high level of unit cohesion and combat readiness that IDF reserve units have previously exhibited during wartime.

In earlier Arab-Israeli wars, the IDF's ground forces did not possess technologically superior equipment. Nevertheless, Israeli units proved two to four times as effective as numerically equivalent Arab units.³ Today, Israeli units employ both leading edge integrated battle management systems and advanced combat systems, which are generally vastly superior to the technology fielded by any of its current potential opponents. Therefore, there is reason to conclude that the gap in unit performance may have actually widened since 1967-82, not closed, even though IDF ground force combat training is far less rigorous than it was in the past.

Israel has one other significant military advantage: at least three (and potentially up to five) IDF tank brigades and one or two mechanized infantry brigades use armored vehicles that are now equipped with active self-defense systems. These systems can defeat most enemy weapons employing shaped charge warheads, including both ATGMs and RPGs. As of this writing, these are the only anti-tank weapon systems widely employed by enemy light infantry forces other than mines or IEDs.

The IAF is responsible for the Israeli air defense system. When mobilized, this is estimated to include three Arrow, one or two Magic Wand, at least seven Patriot, several Hawk, and 10 to 12 Iron Dome surface-to-air missile batteries. When fully deployed, these SAM batteries provide a cohesive shield covering almost all of Israel against ballistic and cruise missiles, long-range rockets, and aircraft. However, the available Iron Dome batteries cannot provide coverage for all of Israel against short-range rockets.

Without question, Israel has the world's most capable national air defense system. This system can still be saturated, however. No surface-to-air missile system has yet provided a single shot kill probability higher than 0.85-0.90, and most have actually achieved

much lower wartime kill probabilities. This is particularly true if the intent is to detonate the inbound warhead in lieu of just damaging the airframe, which would cause a targeted missile or rocket to simply alter its course. Israel also has a finite inventory of air defense missiles. Each of them is costly, often costing more than the damage that might be caused by the enemy weapons they are intended to intercept.

To an extent, the effectiveness of Israel's air defenses has been enhanced by their ability to determine which inbound rockets or mortar shells following predictable ballistic trajectories will threaten high value targets. Inbound weapons that are assessed as on course to land in unpopulated areas can therefore be ignored. Israel deploys several 3D surveillance radars that are suspended below aerostats. These unique radars provide relatively long-range 24/7 coverage of low altitude aircraft and/or cruise missiles.

Still, the fact remains: despite the unique effectiveness and capability of the current Israeli air defense system, it cannot provide near certain defense against a large, sustained barrage of enemy rockets and missiles.

According to media reports, Israel deploys multiple pass per hour space-based electro-optical and synthetic aperture radar surveillance satellites that can provide near real time visual intelligence coverage of selected areas within enemy states. Israel also employs communications satellites and has a very advanced signal intelligence system providing coverage across the entire Middle East. Israel's regional real-time intelligence capability is comparable, if not superior, to that of the US, and is likely more advanced than that possessed by any other country.

Israel has a relatively small but very advanced navy, including three corvettes, eight fast-attack craft (FACs), and five conventionally powered attack submarines. It has a sixth submarine and four additional corvettes under construction in Germany and plans to replace its FACs with much larger, more capable mini-corvettes that will be designed and constructed in Israel. The Israeli navy has numerous high speed patrol craft and a very capable special warfare unit.

Israel deploys a substantial deterrent nuclear force and has the reported capability to conduct tactical nuclear warfare. Its strategic deterrent is estimated to include land based IRBMs, submarine-, ship-, and land-based cruise missiles, and air-delivered nuclear-armed missiles and gravity bombs. Its tactical nuclear weapon inventory is assessed to include variable yield and enhanced radiation air-delivered gravity bombs and missiles, ground-to-ground missiles, and artillery shells.⁴

Israel's second-strike nuclear capability is believed to be somewhat limited because many of its land-based missiles and aircraft are not adequately hardened to survive an accurate nuclear attack. In addition, its corvettes and submarines can each launch only a limited number of nuclear-armed cruise missiles. Moreover, Israel lacks the warning time necessary to launch on alert, or to assume that quick reaction aircraft mounting nuclear weapons can be launched before they could be destroyed.

Most significantly, it is probable that Israel cannot differentiate between inbound missiles mounting conventional versus nuclear weapons. Israel is a physically small country that cannot survive even a limited nuclear attack, so it would have no choice but to assume that any weapon launched against it by a known nuclear capable state was nuclear-armed. Given the very short flight time of limited-range missiles, this creates a highly unstable quick response environment.

Israel reportedly has a significant offensive chemical warfare capability, including the ability to deliver nerve agents by aerosol. It is also believed to have a leading edge biological warfare capability. Israel's civil defense system, while far from perfect, remains the world's most extensive and capable civilian passive defense system.

ISRAEL AND THE UNITED STATES

Most Israelis and Americans view the US as the ultimate guarantor of Israeli security. They assume that in a dire emergency, US conventional military forces would be able to rescue Israel before it faced total defeat. They also believe that US training and military equipment is absolutely vital to Israeli military power.

These widely held assumptions are divorced from reality. The simple and unarguable truth is that for decades the US military has lacked the ability to quickly project conventional ground and air forces into the Middle East that would be able to successfully defend Israel. This has been true for about 50 years.⁵

The US Army and US Marine Corps combined now have an active force structure of just 39 maneuver brigades, of which only about 13 are combat ready. It would require many weeks to bring a portion of the remaining 26 active maneuver brigades to combat ready status. Achieving this would require cannibalization of about 25% of the remaining active units in order to bring the others to full strength. US reserve National Guard maneuver brigades would each require about five months for mobilization, retraining, and deployment. These National Guard reserve units are thus irrelevant to any Israeli rescue scenario.⁶

The ability of the US military to deploy forces over long distances has declined in the last 30 years because of a lack of investment in large specialized roll-on roll-off ships. Many of the existing US reserve merchant marine ships dedicated to military use are overage and have been poorly maintained. Based on the deployment times achieved during Operation Desert Storm, it is estimated that within about three weeks the US could project two light infantry paratroop brigades into Israel by air, plus one Marine infantry brigade transferred by forward deployed USN amphibious ships and pre-loaded forward-based maritime ships. Given about nine weeks, the US would likely be able to field nine maneuver brigades in the Middle East consisting of three paratroop, three Marine, and three heavy armored brigades. Consequently, it would require about nine weeks for the US military to generate roughly 15% of the IDF's ground force mobilizable order of battle. These US forces would only deploy about 10% of the number of armored fighting vehicles the IDF can field.⁷

The USAF has a very limited number of combat aircraft currently deployed in Europe. With air-to-air refueling, it is estimated that these aircraft might be able to sustain the generation of about 90 sorties a day in support of Israel. But these few sorties, which only

represent 5% of Israeli wartime capability, could only be generated if the host country where these aircraft are based were to allow them to be operated in support of Israel. In the past, this approval has not always been provided. Neither the USN nor USMC currently have any operational combat aircraft based on aircraft carriers or large amphibious ships that are normally deployed in the Mediterranean within range of Israel.⁸

If numerous European airfields were to be made available for use by the USAF, with appropriate host nation approval, it is estimated that within 30 days the US could likely shift about 15 additional fast jet squadrons into Europe. This would potentially raise the number of daily USAF fast jet sorties generatable to about 450 per day. However, projecting aircraft over great distances onto existing airfields sounds far simpler than it is. Maintaining these aircraft requires extensive specialized ground support equipment. Generating sorties also requires vast quantities of fuel, munitions and spare parts. The personnel that command, fly, maintain, and support these aircraft all require housing and security. Unless European military airfields are almost totally pre-prepared and fully stocked with ground support equipment and consumables, which they generally are not, it requires substantial sealift to transfer everything but the aircraft and personnel overseas—and sealift takes time.

It should be noted that the generation of 450 daily long-range combat sorties would also require the forward basing of at least 72 to 96 additional USAF aerial tankers in Europe. Without the provision of additional forward-based air-to-air refueling tankers, European-based USAF aircraft would be largely useless in support of Israel.

The USN could likely deploy two carrier battle groups in the Mediterranean within 30 days. Each USN carrier currently carries only 44 F-18 combat aircraft. Many of these have to be dedicated to the generation of defensive combat air patrols and/or buddy air-to-air tanking. Depending on the selected stand off distance from shore, each carrier can only generate 25 to 50 offensive fast jet sorties per day. The USMC would likely be able to shift one air wing forward, including up to 30 F-35B or AV-8B VSTOL aircraft operating from

two or three LHDs/LHAs. These vulnerable unarmored ships would have to operate far offshore. The sea-based Marine VSTOL aircraft, which have very limited range, would, therefore, likely generate a very low daily sortie rate. Conventional Marine F-18 combat aircraft would, like all USAF aircraft, have to be based at European airfields. Marine fast jet aircraft would likely generate a daily sortie rate similar to European-based USAF aircraft and would require additional aerial tanker support.

To summarize: Given 30 days to mobilize and deploy, and being provided with access to about 12 large European military air bases, all with the host nations' approval for use in support of Israel, and the deployment of a large number of USN aircraft carriers and amphibious ships, the three combined US military air forces could only sustain the generation of about one-third the number of daily combat sorties that can be generated by the IAF on day one.

It is inherently obvious that Israel would require military support from the US only if it faced military disaster. This means the Israeli air force would be near defeat with all its existing airfields under consistent attack. Given these conditions, what could slowly deployed American air power achieve that the far more capable Israeli air force could not? Similarly, the slow to deploy, relatively small US Army and Marine ground forces, which include relatively few heavy armored units, represent but a small fraction of Israeli ground force power.

It should be understood that the promise of American military support for Israel is hollow. This promise is based on an illusion of military power where relatively little actually exists.

ISRAEL AND RUSSIA

For decades, the USSR was an undeclared enemy of Israel. The Jewish State faced Soviet-equipped Arab militaries that were trained and advised by Soviet officers and sometimes reinforced by forward-deployed Soviet military forces. Israeli forces occasionally clashed with Soviet personnel. Generally, the IDF was not impressed by the combat performance of the Soviet military, whereas the Soviets called the IDF a "serious" military (a rare compliment).

Russia has now become a friendly state that maintains close political ties to Israel. However, in its own national interests, Russia has projected a small expeditionary force into Syria to decisively support the current Syrian regime. While doing so, it has made limited attempts to constrain Israeli attacks on Hezbollah or Iranian targets in Syria.

By Israeli military standards, the Russian expeditionary force in Syria has often fielded obsolescent equipment and its order of battle has been relatively tiny. The Israelis once stated that the IAF could destroy the Lebanese military in 45 minutes. By the same standards, the Russian expeditionary force, which is largely concentrated around only one densely packed and relatively soft airfield, likely represents a 15-minute target.⁹

In the late 1980s, well before the collapse of the USSR, it was estimated that it would have been nearly impossible for the then huge and well-equipped Soviet military to effectively intervene in the Middle East. Israel's very considerable military capability and relative remoteness made Soviet military intervention exceedingly difficult. Projection of Soviet ground forces into the region by air transport meant that only limited numbers of light infantry could be deployed. Furthermore, Soviet transport aircraft could not safely operate within 1,000 km of Israel unless the IAF was first defeated. But for the Soviet air force to defeat the IAF, they would have had to first project 700-1,000 combat aircraft into the region, whose air space and airfields were already either controlled by Israel or subject to preemptive Israeli air attack.

The alternate projection of Soviet ground forces by sea would have required the use of very large numbers of Soviet merchant and naval amphibious ships. These could not safely transit through the Eastern Mediterranean without air defense protection that could only be provided by a relatively limited number of vulnerable Soviet surface ships.

The reality, then, was that Israeli aircraft, which were already armed with stand-off PGMs and which had extensive EW capability, made the use of the Eastern Mediterranean by hostile naval or merchant ships all but impossible. Projection of Soviet ground forces into the Middle East by land meant a very long transit across open desert that

was devoid of pre-prepared logistical support or air defenses. The long convoys of soft trucks needed to support an expeditionary force of at least 20 divisions would have represented easy targets for the IAF.¹⁰

All of this was true then, and it is still true now.

Israel can defeat any conceivable Russian expeditionary force, but obviously cannot defeat Russia or reach Moscow. Similarly, Russia cannot defeat Israel or reach Jerusalem.

CURRENT POTENTIAL THREATS

The Sunni Arabs: Egypt, Jordan, Saudi Arabia and the Gulf emirates

Israel has signed peace treaties with Jordan and Egypt. However, the people of both those countries remain overwhelmingly hostile to Israel. Consequently, there is minimal people-to-people interaction and very little trade, tourism, or cultural exchanges.

These peace treaties should be recognized more realistically as temporary armistices, with an added provision for embassies and ambassadors. An abrupt change in the dictatorial leadership that currently governs both Jordan and Egypt, which is always possible, would almost certainly transform either Sunni Arab state into a hostile foe of Israel, and this could happen literally overnight.

The Egyptian military has maintained an unnecessarily large order of battle. They continue to acquire new production aircraft, missiles, armored vehicles, and naval ships while continuing to operate obsolescent if not entirely obsolete equipment, much of which is equivalent to that which was long ago scrapped by Israel. Since Israel is the only nation neighboring Egypt that has a large and capable military, it seems obvious that this unnecessarily large force structure exists for one reason: to fight Israel sometime in the future.

It has been reported that the Egyptian military exercises against a “blue” enemy that in every way represents the IDF. Egypt has prioritized the procurement of weapon systems needed to engage Israel, not those that are so urgently required for internal security purposes. The

senior leadership of the Egyptian military has once again become deeply politicized, and it is considered highly likely that it is once again relatively incompetent. Egyptian military performance in Sinai counter-insurgency operations has certainly been mediocre at best.

In order to effectively attack Israel, Egyptian ground forces would have to cross the Sinai. Today, as in 1967, the northern Sinai is traversed by only three narrow west-to-east roads. As long as Israel can maintain air supremacy over Sinai, while also maintaining a significant inventory of long-range non-line-of-sight missile systems, any Egyptian ground force attempting to cross Sinai would find itself in a kill zone.

Moreover, Sinai's geography has not changed. Its only defensible northeastern passes and hill ranges are located about 40 km west of the Israeli border. The IDF could easily establish a strong defensive line stretching south from El-Arish, which would enable it to dominate the desert plain to the west.

The Egyptian military is logistically dependent on the US for the maintenance of its most advanced military equipment. If Egypt were to renounce its peace treaty with Israel, it is highly likely that the US would cut off its logistical support of that equipment. Within months, if not weeks, the readiness of the American-supplied advanced weapon systems used by the Egyptian military would likely become dramatically reduced.

Jordan is a relatively poor country that cannot fund large-scale investment in its military; nor can it currently support a large order of battle. The limited number of military personnel reflects the fact that the Bedouin-dominated military leadership does not trust the bulk of its Palestinian citizens. The Jordanian military thus depends primarily on volunteers who are under long-term contract, and its military personnel are disproportionately largely drawn from a relatively limited number of Bedouins.

Jordanian ground forces have long been viewed as among the most effective in the Arab world, but today their numbers are limited,

they generally employ obsolescent material, and they generally lack effective air defenses. Any attempt by Jordan to generate a ground offensive westward across the Jordan valley would almost certainly be beyond their means.

Saudi Arabia has a huge military budget of over \$60 billion, about triple that of Israel. The kingdom has procured, or has on order, very large quantities of advanced weapon systems, but much of its expenditures are dedicated to foreign contractor-supplied logistics, maintenance and training support, all at ridiculously inflated prices. The combat performance of Saudi military units has been consistently terrible.¹¹ Most observers concur that their vast investment has yielded relatively little real military capability.

Today, Riyadh has reduced its overt hostility to Jerusalem because it needs Israel to offset the threat of Shiite Iran. The reduction in hostility would almost certainly disappear instantly if there were a change in the current Saudi leadership or if the royal family perceived the Iranian threat to be manageable without Israeli support.

Almost all the Sunni Gulf emirates are oil-rich. Their royal families fear Shiite Iran, and therefore have invested heavily in their militaries. Like Saudi Arabia, these states have large annual military budgets and have procured or have on order very large quantities of advanced weapon systems.

The emirates' militaries have not generally been active participants in the Arab-Israeli wars. Today, most of the emirates have covert relationships with Israel, only because "the enemy of my enemy is my friend." Like all the Sunni Arab states, their relationship with Israel is tenuous at best.

The Emirates are relatively remote from Israel. They would find it exceedingly difficult to shift ground forces westward. However, it would be feasible for them to shift their advanced aircraft westward if forward air bases were available for their use.

Turkey

For many years, Turkey was friendly toward Israel, and for over a decade there was very close collaboration between the Turkish and Israeli militaries. But Turkey is now led by an Islamist dictator who is deeply anti-Israel and who has grandiose plans for the domestic development and production of advanced combat aircraft, armored vehicles, missiles, and ships. These plans are unlikely to ever reach full fruition due to the ongoing collapse of the Turkish economy and the significant reduction in the value of Turkish currency.

The Turkish military generally fields mediocre weapon systems, many of which are obsolescent if not obsolete.¹² Technically, it is believed to be about two or three decades behind the Israeli military. The secular senior Turkish military leaders have all been purged and the remaining Turkish officer corps has become highly politicized. Moreover, it has also been reported that a large proportion of Turkish aircrew was also purged. The recent Turkish military performance in Syria was exceptionally poor.

Turkey is located hundreds of kilometers north of Israel and has never participated in prior Arab-Israeli wars. However, Israeli military planning must now assume that the current Turkish political leadership, which often verges on irrationality, could conceivably decide to engage Israel militarily.

Egypt, Jordan, Saudi Arabia, the Gulf emirates, and Turkey do not represent an immediate military threat to Israel either individually or collectively. But this could change in an instant. If any of these states were to experience a sudden change in government, or their dictatorial leaders were to reverse policy, it would take no more than a few months for these Sunni militaries to reach a minimally effective level of combat readiness and/or to forward deploy and concentrate their military forces within effective striking range of Israel.

It seems likely that Israel's political-military leadership would be provided with unambiguous warning of the hostile intent of the adjacent Sunni Arab States and/or Turkey. Israel would therefore have time to improve its own military readiness and, if necessary,

reactivate disbanded reserve units using existing material that has not yet been scrapped. Time would also be available for Israel to increase its inventory of munitions and other consumables. But the effectiveness of the Israeli response would depend entirely on the speed and decisiveness of Israel's political leadership. There is significant reason to believe the Israeli political decision-making process would be inept.

Iran, Syria, Hezbollah, and Hamas

Compared to the Sunni nations, the Iran-led coalition does indeed represent an immediate threat to Israel.

Under the Shah's leadership, Shiite Iran was friendly with Israel. It imported Israeli weapons and provided Israel with ammunition and other military consumables when Israel ran short. By the early 1970s, a significant covert military relationship had evolved.

All that changed in 1979 with the overthrow of the Shah and the advent of a revolutionary fundamentalist Shiite government. Despite their professed hostility toward Israel, the revolutionary Iranian leaders accepted covert Israeli military assistance during their decade-long war with Iraq. When Iran emerged from that devastating war, Israel ignored the threatening language of the mullahs. As Iranian military capability had been significantly reduced and had become obsolescent, the mullahs' threats were hollow, as Iran had no means of acting on its intent. In the 1990s, Iran simply lacked long-range strike capability.

Tehran has long been largely cut off from access to the international arms bazaar. (This will change in 2020.) Consequently, for the last 30 years, it has had no choice but to adopt asymmetrical military concepts rather than attempt to deploy large well-equipped conventional military forces. Iran began to train and equip Hezbollah while simultaneously investing in long-range missiles and rockets that would enable it to bombard Israel.

Syria remained hostile to Israel, even as Jordan and Egypt reached political settlements with the Israelis. Up to 1986, the Syrians attempted to match Israeli military capability by acquiring Soviet

weapon systems. These were procured in very large numbers based on advantageous long-term loans provided by the USSR at low-interest rates. But in 1986, the USSR decided it would no longer subsidize Arab militaries. Cash-poor Syria was, therefore, no longer able to procure large quantities of leading-edge Soviet equipment. Consequently, the Syrian military began to fall progressively further behind the already more technologically advanced and much higher quality IDF.

Thirty years later, Syria is slowly emerging from a devastating civil war in which the 25% Alawite and Christian minorities, with Iranian and Russian support, bloodily defeated the 75% Sunni majority.

Millions of Syrian Sunnis have become refugees and about 500,000 Syrians were reportedly killed, most of them Sunni civilians. Clearly, the current Alawite leadership will not be able to trust the majority of its Sunni population for decades to come. The Syrian military, which remains conscription-based, thus no longer has an adequate number of reliable young men to call to arms. Syria's once very large force structure has suffered tremendous material and personnel losses over six years of sustained combat. Syria has long lacked the financial resources needed to procure state-of-the-art weapon systems. Its ground forces, air defenses, and air force operate obsolescent if not obsolete equipment that has been hardly been used.

Any near-term combat between Israeli and Syrian ground and air forces in open terrain would no doubt be similar to the "live fire exercise with occasional return fire" results of the 1992 Desert Storm War.¹³

In 2006, Israel and Hezbollah fought a limited war. The IDF's ground forces, which had almost totally ignored training for conventional warfare during the previous five years and were in the midst of transitioning to an ill-conceived effects-based military doctrine, quickly showed themselves to be a mediocre shadow of what they once were. Moreover, Israel's political-military leadership was unknowing, amateurish, and totally inept. After a month of indecisive, very low scale combat, Hezbollah was still able to target northern Israel with a large number of inaccurate, limited lethality rockets. It was widely perceived that the IDF had failed to achieve a dominant result. Hezbollah emerged bloodied but intact, and, in its view, victorious.

The vast bulk of Hezbollah's inventory of some 130,000-150,000 rockets and missiles consists of short-range, limited payload and inaccurate 107mm and 122mm rockets. The 107mm rocket is man-portable, whereas the much longer and heavier 122mm rocket is not. Hezbollah often employs simple one-time use disposable launchers for these rockets, with their firing actuated by a simple battery-powered delayed action device.

Multi-tube launchers with artillery-type fire control systems are available for both types of rockets. Many have been mounted on a variety of military and civilian vehicles. Vehicle-mounted multi-tube launchers can generally be elevated and traversed, but most that are static can only engage a pre-determined fixed target.

In 2006, only one out of every four 107/122mm rockets that were fired landed within the boundaries of the targeted Israeli cities or towns. These 1,000 rockets killed about 60 Israeli civilians. The very limited lethality of these rockets reflected the widespread availability of Israeli civil defense shelters, the ruggedness of Israeli reinforced concrete or concrete block buildings, the small high explosive content of the rockets' instantaneously fused warheads, and the low population density in the targeted Israeli urban areas.

The location of many of the fixed multi-tube rocket launchers is likely known to the IDF, as is the location of many storage areas for the vehicle-mounted multi-tube launchers. All these locations should be targetable by Israeli PGMs. However, preventing the use of fixed one-time only rocket launchers and/or shoot and scoot vehicle launchers will likely prove impossible unless the IDF physically controls the ground across all of southern Lebanon.

In Syria, Hezbollah effectively employed short-range heavy rockets that had relatively large high-explosive blast warheads. Blast weapons are relatively useful when used against personnel within urban areas. These rockets represent a lethal threat to all Israeli towns located within about 6 km of the Lebanese border. Neutralizing these weapons and/or rapidly and safely evacuating vulnerable Israeli citizens living in these villages and towns must be a primary goal of the IDF.

Only about 10% of Hezbollah's rockets/missiles reportedly consist of long-range large payload weapons, only a handful of which have guidance systems that can reportedly generate a 30m CEP. Long-range guided rockets with large warheads would represent a very serious threat to Israel's vital civilian and military infrastructure.

These large rockets/missiles are generally launched by elevatable and traversable launchers mounted on vehicles. The heavy rockets must be reloaded using cranes. In Lebanon, it is feasible for some of these large launchers to be situated in fixed locations. Given the IDF's 24/7 surveillance of Lebanon and its other significant intelligence assets, a substantial proportion of these fixed launchers should be vulnerable to preemptive destruction.¹⁴

In 2005, Israel evacuated the Gaza Strip to the last square millimeter. The ceding of all control of a widened corridor along the Gaza-Egyptian border has proven to be strategically catastrophic. Hamas quickly emerged as the local regime. It has been able to smuggle arms across its Sinai border with Egypt, particularly when the Egyptian Muslim Brotherhood was in power there. Hamas long ago began to manufacture low-quality short-range rockets that now have longer-range and larger warheads. However, the homemade rockets manufactured by Hamas remain relatively unreliable and inaccurate.

The IDF's air defense system, notably its Iron Dome batteries, have had considerable success intercepting rockets launched by Hamas. Most Hamas rockets are wildly inaccurate and have short-range and small warheads. The combat-proven effectiveness of Iron Dome has time and again enabled the Israeli political-military leadership to refrain from launching a bloody ground offensive across Gaza.

But when faced with the likely threat of simultaneously engaging both Hezbollah and Hamas, plus the possibility of Syrian and/or Iranian missile fire, the limited number of Iron Dome batteries cannot effectively shield all of Israel. Moreover, Israel maintains a finite inventory of interceptor missiles. In any large-scale conflict, the use of Iron Dome systems would almost certainly only be used to engage weapons that threaten the most vital Israeli strategic targets.¹⁵

Probable scenarios

ISRAEL VS. AN IRAN-LED COALITION

To a very great extent, the outcome of any scenario pitting Israel against a (mostly) Shiite coalition consisting of Iran and its allies will depend on the decision-making of the Israeli political-military leadership.

If Israel secretly mobilizes its air force, navy, and air defenses while partially reinforcing its active ground forces and launches a preemptive attack initially targeting all long-range or heavy forward-deployed missile and rocket launchers, the danger of significant damage to Israel's vital civilian and military infrastructure would be very significantly reduced, as would the threat of heavy civilian casualties. If Israel elects not to preempt, it will inevitably suffer painful losses to its infrastructure and heavy civilian casualties.

It will require major multi-division offensive ground attacks by the IDF to neutralize the threat of shorter-range rocket launchers. Any IDF offensive ground maneuver will certainly mean that Israeli armored vehicles will be engaged by anti-tank guided missile teams that will often be located in civilian urban areas that are also defended by Hamas or Hezbollah light infantry.

Both anti-tank guided missile teams and light infantry located in urban areas can be neutralized at relatively low cost by the widespread use of blast weapons. The lethality of conventional high explosive warheads generally depends on the fragments they generate, but these fragments often cannot penetrate rugged concrete walls or the floors of multi-storey buildings. Blast can, however, penetrate tiny openings.

But blast will kill almost everyone, military or civilian, within a defined radius. If their use is delayed to allow civilians to escape, enemy combatants will also be able to disengage to new firing positions.¹⁶

The IDF can now deploy the most advanced fast-response counter-engagement weapons. But the IDF's revolutionary fast sensor-to-shooter link will be operationally useless if the generation of immediate return fire is constrained by counterinsurgency rules of engagement.

The use of blast weapons would be far more effective than counter-engagement fire. Urban areas can become death traps for defending light infantry and anti-tank guided missile teams if blast weapons are employed. But the widespread use of blast weapons will unquestionably generate very high civilian casualties within any targeted area.

If blast weapons are not employed and/or immediate response fire is precluded, IDF ground forces will have to engage in close combat within urban areas. Inevitably, the rate of an Israeli advance will be greatly slowed, and the enemy-to-IDF casualty exchange rate will be considerable reduced. The only way the Israeli political-military leadership can successfully minimize enemy civilian casualties by knowingly accepting a significant increase in friendly casualties.¹⁷

Reportedly, over 500 IDF tanks and heavy armored personnel carriers are now defended by active defense systems. These are exceedingly effective in defeating the shape charge (HEAT) warheads of shoulder-fired rocket launchers and anti-tank guided missiles. Hamas and Hezbollah currently depend on precisely these anti-tank weapons. They do not currently deploy state-of-the-art tanks or anti-tank guns that are capable of firing high velocity kinetic energy penetrators.

Nevertheless, there should be no doubt that the IDF will lose armored vehicles to mines and other anti-tank weapons, and there will certainly be pictures of burning IDF combat vehicles. But neither Hamas nor Hezbollah can prevent aggressively commanded IDF mechanized units from boldly maneuvering.

Moreover, Hezbollah's light infantry cannot effectively maneuver in response to the IDF. Their widely disbursed infantry detachments will, therefore, be vulnerable to defeat in detail. Whether or not blast weapons are employed, because of the IDF's unique leading-edge battle management system, any surviving strong point, mortar pit, or rocket launcher can, theoretically, be lethally engaged by precision weapons within seconds of detection.

As noted, there is one issue that can constrain Israel's overwhelmingly superior ability to employ blast weapons or rapidly employ precision fire: the inevitability of significant collateral casualties. Hamas

and Hezbollah have both deliberately located their most important military assets within civilian areas, literally using those they profess to defend as hostages and using Israel's decency against it. This is an unequivocal war crime, but Israel's detractors have consistently chosen to ignore this reality.

During an Israeli preemptive strike, given the ability of the IAF to target many hundreds of aim points with lethal precision weapons within minutes and thousands within only a few hours, the inevitable result of preemption would be numerous enemy civilian deaths. Providing civilians with warning of imminent attack would provide the enemy time to launch first, thereby significantly reducing the effectiveness of any preemptive attack. Similarly, the huge advantages provided by the IDF's ability to use blast weapons and/or overwhelmingly effective short sensor-to-shooter response time would be all but negated by delaying counter fire to enable civilians to escape.

It is nonsensical to consider enemy civilians who knowingly live adjacent to firing positions as innocents. They are not, and consequently deserve no special consideration beyond clear general warnings of Israel's intent and capability. This warning must be provided well before any planned preemptive attack so as not to give away the element of surprise, which is absolutely vital if preemption is to be effective. Providing clear warning is a moral and political imperative. But, once the warning has been delivered, the IDF's primary objective should be the safety of Israelis, not the safety of willing enemy hostages.

In short, Israel's political-military leadership faces a simple and brutal choice: either save enemy lives or save Israeli lives. It cannot save both at once. Israel's enemies will cry "war crimes" and "massacre" no matter what the IDF does. These same enemies will ignore any self-restraint Israel shows and will joyfully celebrate Israeli civilian casualties. Most of the world will remain silent as missile launchers located in civilian areas are used to target non-military Israeli urban areas.

Many international politicians and journalists on both the extreme left and the extreme right will claim that any use of force by Israel

is disproportionate, as if the strong must only fight the weak on their terms. Proportionality has become a popular issue among anti-Israel intellectuals.

In war, the reality is that there is no such thing as proportionality. No one can predict which enemy munitions, however obsolete, inaccurate, or relatively ineffectual, will hit a vital target and cause significant civilian casualties. Consequently, every enemy munition must and should be considered a potentially lethal threat that must be preemptively destroyed.

Israeli leaders are obligated to defend their nation without concern for proportionality. However, decency demands that enemy civilians should be provided with clear, unequivocal warning of Israel's intent and capability before the onset of conflict. Once conflict has begun, they are owed nothing. Both the enemy and Israel's own military leaders need to hear clear public declarations of intent by the Israeli government that it will operate against its enemies under wartime rules of engagement. The message must clearly state the obvious: that any conflict in Gaza, Lebanon, or Syria is not counter-insurgency. It's war.

The decision on how the IDF will be directed to fight belongs to the government, not the General Staff. This decision should be made prior to any conflict, not during it. But based on recent performance, the likelihood is that the Israeli cabinet will not provide the IDF with strategic direction and that the IDF General Staff will not act decisively to minimize Israeli civilian casualties, as they fear being personally prosecuted as international war criminals.

Iran has the ability to bombard Israel with long-range missiles launched from Syria, Iraq, Yemen, or Iran. But the numbers of available long-range missiles are limited, and their CEPs are often relatively large. So long as these missiles are armed with conventional warheads, they are primarily useful as weapons of terror when targeting cities. They will generally have relatively low effectiveness when engaging hardened military facilities.

If Iran launches missiles at Israel, it faces almost certain retaliation. The ability of Israel to strike Iran has been vastly underestimated.

It has been almost universally assumed by “experts” that any Israeli attack on Iran would be a one-time raid. These “experts” appear to believe there is a magic switch in IAF aircraft that precludes their use against Iran more than once.

Moreover, these same “experts” are apparently technologically and militarily illiterate, as they appear to know nothing about the impact of the IAF’s aircraft. These aircraft have uniquely high maximum allowable gross takeoff weights and conformal and enlarged fuel drop tanks, and the IAF has unusual crewing practices. These features combine to enable Israeli aircraft to achieve significantly extended range, as well as the generation of an exceptionally high daily sortie rate. Israel can, in fact, sustain intense air attacks against Iran, daily generating many hundreds of strike sorties and daily delivering up to several thousand precision-guided munitions.

There should be no doubt that Israel has the military capability to strategically neuter Iran. It can choose to execute a strategic air operation that might prevent the export of Iranian crude oil, the Iranian generation of refined POL for self-use, and the Iranian generation of electrical power for domestic consumption. Israel could also choose to destroy Iran’s key internal road and rail networks and neutralize its internal communications links.

The IDF can achieve all of this in four or five days. This is made relatively easy because Iran’s air defenses and air force are generally obsolescent, limited in number, and vulnerable to suppression or destruction. Similarly, there should be no question that Israel can unilaterally destroy Iran’s nuclear and missile facilities, including factories and R&D centers. Iran’s large but obsolete ground forces and large fleet of small naval combatants would all be largely useless in the context of an Israeli-Iranian conflict.¹⁸

If Israel were to hand Iran the initiative and allow it to launch a surprise attack on Israel that combines massive missile and rocket barrages with large-scale infantry raids across its northern and Gaza borders, Israel’s air defenses would be saturated, its vital military and civilian infrastructure would be heavily damaged, the mobilization of Israeli

military reserves would be significantly delayed and disrupted, there would be heavy Israeli civilian casualties, and both Israeli civilian and military personnel would become prisoners of war. In short, it would be extremely painful if Israel chose not to preempt its enemies.

Because Iran cannot achieve dense and accurate missile attacks, it does not yet present an existential threat to Israel when employing conventional munitions. However, given the time to improve missile accuracy and increased missile numbers, the conventional threat Iran can pose to Israel could very well rise to an existential level. Israel simply cannot passively wait for that capability to evolve, which it ultimately will, unless Israel preempts.

In previous military clashes between Israel and Hezbollah or Hamas, the overall combatant killed in action exchange rate has favored the IDF by up to about 5:1. This ratio was lower than what the IDF achieved in previous wars. The relatively low ratio reflects the fact that in the 2006 war, the IDF ground forces were relatively poorly trained for conventional warfare, were ineptly commanded, and were in combat vehicles that lacked active protection systems; and that the IDF lacked appropriate munitions for MOUT combat (military operations in urban terrain). The most important factor of all was that the IDF was operating under second-class political-military leadership.

The current deployment of numerous enemy long-range rockets, only a small proportion of which are guided, represents an increased strategic threat to Israel, but has had only a very limited impact on the tactical military balance.

The previously noted ratio of Israeli to enemy casualties also reflects the exceptional self-restraint the IDF has shown when engaging Hamas in the densely populated Gaza Strip. But most of all, it reflects the inevitably low exchange rate that can be achieved during close quarters MOUT combat under constraining rules of engagement that preclude the IDF from using its overwhelming firepower.

If Israel preempted and operated under wartime rules of engagement, the exchange rate would likely increase to at least 12:1. Conversely,

if the Iranian-led coalition is allowed to strike first, and particularly if the IDF continues to operate under COIN rules of engagement, the overall exchange rate might decline to perhaps 3:1, or even lower.

Decisively defeating the first line combat units of Hezbollah and Hamas will require the IDF to generate about 6,000 enemy KIA, which represents about one-fifth of their best trained active combatants. Therefore, IDF fatalities could vary between 500 to 1,200 KIA depending on how the Israeli political-military leadership decides to act. More importantly, preemption would likely reduce Israeli civilian casualties from thousands to hundreds with the cost of the damage to Israel's infrastructure being reduced from billions of dollars to tens of millions of dollars. Preemption, combined with wartime rules of engagement, would also allow the IDF to foreshorten combat, thereby minimizing the probability of random enemy fire achieving significant infrastructure damage and/or relatively significant civilian casualties.

If Israel is going to preempt, it should do so in the near term. First, its enemies lack significant numbers of long-range precision-guided weapons. Second, Israel's overwhelming technological superiority will not be maintainable over the long term. Third, Israel is assured of firm political support from the current US leadership. The vital political support of the US administration and the certainty of the use of a protective American veto to support Israel at the UN Security Council will be far less certain if a left of center Democrat is elected to the US presidency in November 2020.

ISRAEL VS. A SUNNI COALITION

At some future date, Israel could face war with a coalition made up of some or all the Sunni Arab states and/or Turkey.

Israel would be provided with clear strategic warning of such an evolving threat. But the simple reality is that Israel cannot rapidly increase its mobilizable order of battle. To a very significant degree, the current active, conscript-crewed, first-tier IDF force structure determines the future maximum mobilizable wartime force structure that would exist up to 20 years hence.

Over the last 15 years, the IDF has twice downsized its mobilizable order of battle. Israel has demobilized and scrapped many AFVs, artillery pieces, tactical air defense systems, and aircraft after having disbanded the active and reserve formations that employed this equipment. The discarded equipment was generally at least the technological equal of much of the equipment that is still operationally used by many Sunni Arab militaries.

Furthermore, the IDF's active order of battle has been adjusted to reflect the current light infantry/urban warfare threat posed by Hezbollah and Hamas. Consequently, available data leads to the assessment that the Israeli Armored Corps has been dramatically downsized from up to 39 tank brigades to only 24 brigades, a number now certain to be further reduced to 16 brigades by 2030. The IDF's Artillery Corps has lost about 500 self-propelled and 400 towed artillery pieces and heavy mortars from its once large force structure. It is estimated that the IDF mobilizable order of battle will decline from peak strength of about 75 maneuver brigades available at the turn of this century to a maximum of only about 55 by 2030.

At present, the IDF has clear technological superiority over the surrounding Sunni Arab states. This superiority primarily reflects the impact of Israel's leading-edge military industrial complex, which benefits from its uniquely knowledgeable cadre of engineers and scientists, all of whom generally have extensive hands-on military experience. Wisely, the Israeli leadership long ago decided to specialize its military industrial complex in the generation of force multiplier technologies rather than invest in domestically produced platforms. New platforms are produced only when they can be optimized to best suit specific Israeli tactical concepts.

The US promise to provide Israel with qualitatively superior weapon systems has proven to be almost worthless. In reality, the US has provided Saudi Arabia, Egypt, and the Gulf sheikdoms with armored vehicles, aircraft, helicopters, ships, missiles, and electronic systems that are generally at least the equal of those provided to Israel, and in far larger quantities.

Historically, the impact of radically new technology has had a huge impact on warfare. Thereafter, marginal advances in technology and tactics have tended to have only an incremental impact. Israel has proven to be uniquely able to exploit the significant impact of the digital revolution on warfare. This largely accounts for its current qualitative technical superiority.

But what Israel has been able to develop and deploy today will be available for sale later somewhere in the international arms bazaar. Israel's overwhelming and decisive technological-tactical superiority simply cannot be maintained far into the future.

The Israeli political-military leadership has over-responded to the current tactical threat posed by Iran and its non-state forces and has all but ignored the looming potential strategic threat of renewed hostility with Sunni Arab nations. Quantity has a quality of its own. Numbers can be militarily significant. Fundamentally, by reducing the active first-tier order of battle of the IDF Armored Corps from 45 to 24 tank companies, the Israeli leadership has made it impossible for the IDF to quickly mobilize an adequate "what if" force structure a decade or more from now.

If and when a Sunni threat does emerge, it will likely do so relatively quickly. The IDF would be forced to respond with its second-tier reserve-based force structure, as it would not possess large numbers of weapon systems that can be promptly reactivated and, even more significantly, would not have trained second-tier reserve personnel and junior officers capable of manning such equipment even if it magically become available. If the technological balance remains so one-sided for another decade, the future lack of IDF numbers might be less significant. But as noted, it is highly unlikely that the IDF can broadly sustain its currently decisive level of qualitative superiority over the long-term.

In short, it will not be feasible for Israel to decisively and quickly defeat a Sunni coalition beyond a handful of years from now unless there are immediate major adjustments in the first-tier conscript-based force structure.

Israel's tactical superiority has long depended on the quality of its training and the skills of its junior officers. There can be no debate that the training of second-tier Israeli reserves, who represent the bulk of the country's ground forces, is now significantly inferior to the training Israeli reserves received prior to the year 2000. There are also indications that Israel's best and brightest are now less willing to take on the additional service requirements associated with duty as officers, including volunteering for further long-term contractual active duty after completion of their initial period of conscripted service as junior officers.

The decision to downsize the number of tank companies in each active tank battalion from three to two, negating a previous decision to increase the number from three to four, while also reducing the number of tube artillery units, tactical air defense battalions, and combat aircraft squadrons might be consistent with today's threat, but is potentially catastrophic over the long term. Moreover, scrapping recently deactivated weapon systems means that in the future, the IDF will lack the means to quickly increase its mobilizable order of battle.

For example, the IAF recently deactivated its entire fleet of F-16A/B aircraft and has begun to offer its F-16C/Ds for sale. Against Hamas or Hezbollah, which lack air forces or significant air defenses, the current IAF force structure of 12 active fast jet squadrons with about 1,000 mobilizable pilots and navigators, employing about 300 fast jet aircraft, is adequate. This force structure is equally capable against the current Shiite coalition. This assessment reflects the limited size and obsolescence of the Iranian air force and the limited numbers of high quality Iranian SAM batteries.

But against a potential future Sunni coalition, which would have large numbers of near peer airframes and numerous high quality air defense SAM batteries, the downsized IAF would likely prove inadequate.

The IAF's order of battle has been reduced by about 40% over the last 25 years, apparently based on the overly optimistic assumption that the current political-military environment will remain stable for the foreseeable future. This forecast assumes, without grounds, that the

existing Sunni kingdoms and dictatorships will remain in place and that the hostility of Turkey will not escalate.

NET ASSESSMENT

Israel went to war in 1948, 1956, 1967, 1973, and 1982 and consistently achieved significant military victories despite the fact that it often employed military equipment that was technologically inferior to that fielded by its enemies. These victories were primarily the product of excellent junior leadership, superb training, and the use of well-thought-through tactics.

In the following decades, the IDF has become obsessed with achieving technological superiority and has vastly reduced reserve training. Its senior officer corps seems to have caught the dangerous virus of careerism that permeates the officer corps of most “professional armies.”

Nevertheless, because Israel’s engineers and scientists have almost all served in the IDF, they have proven able to recognize and rapidly exploit the tactical usefulness of advanced digital technologies. To an extent, this may have temporarily offset the reduction in training and small unit tactical skills. However, advanced technology cannot ultimately compensate for the inept political-military leadership that has characterized Israel for many years.

In prior wars Israel could not turn its military victories into strategically decisive victories because it could not ignore the regional interests of the superpowers. Israel’s prior experiences have become a generally accepted paradigm, even though the USSR collapsed nearly 30 years ago. Once poor, Israel now has a significant per capita GDP. Austere and idealistic Israeli socialism has been replaced by get rich quick, pragmatic, self-serving capitalism. Nouveau riche Israeli billionaires have been created by its leading-edge high technology industries. Sparta has been turned into Scarsdale, a wealthy US suburb.

In this environment, Israeli political leaders are no longer willing to ask Israeli citizens to accept the burden of extended reserve duty. Nor are they willing to put IDF ground forces at risk. Static border fences, defensive surface-to-air missile batteries, and remote precision fire

have generally replaced offensive ground maneuver. A military strategy has evolved that is based on defensive attrition.

This new doctrine has replaced the previous emphasis on short, preemptive, offensive attacks. One can easily conclude that current Israeli political and military leaders have based national strategy and military rules of engagement on preventing their international political foes from branding them as war criminals, though that will likely occur no matter what they do. Some might conclude that freedom of travel for the Israeli political-military elite has replaced national survival as the primary imperative of the Israeli political-military leadership.

Israeli cabinets have consistently shown themselves militarily illiterate. There are almost no competent non-military experts available to provide independent political-military advice as staff in a meaningful civilian-dominated national security council. Today, there is virtually no civilian control over the IDF General Staff, whose Chief-of-Staff regularly and actively participates in security cabinet discussions.

The General Staff carefully develops the operational options it forwards to the war cabinet for simple yes or no decisions. The Israeli military has consistently entered wars without meaningful direction from its political superiors. The IDF has time and again proved that it can move far more quickly than Israeli civilian politicians can debate and decide.

As combat has evolved, military directives have often been generated by the war cabinet on an ad hoc basis without the formation of clear political-military objectives. Most recently, extensive national resources have been poured into responding to minor tactical threats like Hamas or Hezbollah assault tunnels. These might be politically sensitive, but they are strategically irrelevant.

Israel has become a regional military superpower. The IDF can field more main battle tanks (MBTs) than the American, British, French, and German armies combined. Beyond that, all Israeli MBTs are co-located and can quickly become combat ready, whereas less than 25% of the above powers' MBTs are combat ready. Moreover, none are currently deployed in the Middle East and few could be deployed there in less than nine weeks.

In the air, the IAF can, in one theater of operations, generate more daily high quality combat sorties than any other currently deployed international air force or coalition of air forces. Only the US can field a comparatively similar quality tactical air force. It would take the three combined US air forces (USAF, USN, and USMC) at least 96 days to mobilize and deploy to match the number of sorties the IAF could generate against Iran in 96 hours.

But all of that military power, all the effectiveness resulting from the IDF's deployment of the world's most advanced integrated battle management system, becomes irrelevant if the Israeli government does not provide precise strategic direction to the IDF General Staff *prior to the initiation of combat*.

Israel's political-military leadership has consistently reacted to the real but still limited threats posed by Hezbollah and Hamas, both of which lack armored vehicles, conventional artillery, air defenses, air forces, or navies. The light infantry of Hezbollah and Hamas cannot maneuver once combat is initiated, cannot stop IDF armor that is equipped with active defense systems, and (currently) have very limited ability to strike Israeli strategic targets with lethal precision weapons. By almost completely adjusting the IDF's first-tier force structure and spending priorities to reflect the limited current threat, Israeli political-military leaders have placed their future ability to cope with an adversarial Sunni coalition at significant risk.

For too long, Israeli leaders have believed that bombing empty land creates a deterrent, or that buildings are important targets rather than their occupants. Locating an enemy leader and then providing him or her with warning of imminent attack is just plain crazy.

CONCLUSION

When Israel declared its independence over 70 years ago, it was physically small, very poor, and comprised a very limited population. It had a relatively weak military that was briefly on the verge of defeat. Today, Israel remains physically small, but its population is about ten times larger and it is no longer poor. The initial window of military vulnerability, which lasted for the first two months of the country's existence, is a distant memory.

The IDF has become a regionally dominant military power and, when mobilized, is likely one of the five most powerful militaries in the world. But many Israelis still feel weak because they have come to believe their own disinformation and propaganda. Yes, Hezbollah likely has over 130,000 rockets and missiles, but Israelis ignore the reality that they possess millions of far more lethal tank, artillery and mortar shells. Israeli intelligence reports that Hezbollah has a handful of long-range precision-guided rockets, but most Israelis are unaware that Israel has an inventory of tens of thousands of far more accurate and lethal precision-guided munitions.

Israel is obviously no longer a beggar state. Its policy should reflect the reality that it is a self-sufficient regional military power. Israel needs to reeducate its friends and foes as well as its own population. A self-confident population should be more politically flexible and ready to compromise in order to achieve peace agreements, but, conversely, far less willing to accept the almost daily intolerable violence they currently face. In short, Israeli policy should reflect reality, not illusion.

Within 30 days of assuming power, Israeli governments should be required by law to provide the military with firm and concise war objectives. This reflects the simple truth that the IDF can generate military power and move faster than politicians can decide what that military should achieve. The Israeli government should also be required to define and take responsibility for the rules of engagement the military should follow.

Moral decency demands that the Israeli government issue clear and unequivocal warning to potential enemy citizens being used as hostages, whether willingly or not, that are living in or about enemy positions holding weapons and/or leadership elements that can potentially lethally target Israeli citizens. These enemy civilians must be made to understand that they will be subject to lethal attack immediately upon initiation of combat.

Israel's political-military leadership should adjust the active duty first-tier force structure of the IDF to ensure that an adequate mobilizable

wartime force structure can be generated 15 to 20 years hence against a realistic worst case combination of potential future Sunni enemies that are equipped with comparable technology.

Many Israeli intellectuals are entranced by the idea of converting to an all-volunteer military like that of the US. The unarguable truth is that it is beyond Israel's financial means to maintain a large enough order of battle to achieve victory when using all volunteer manpower. Israel simply cannot defend itself without resorting to universal conscription and compulsory reserve duty.¹⁹

National service should be an obligation of all Israeli citizens, including long-deferred Arab Israelis and Orthodox Jews. Potential Arab-Israeli conscripts are now three or four generations removed from their great grandfathers or grandfathers who battled Israelis during the bloody War of Independence. They can serve the state without necessarily using arms against other hostile Arabs. In 1949, a few Orthodox students of the Torah had survived the Holocaust. Excusing them from duty was understandable at that time. But in today's Israel, the few have become the many. Religious study and deeply held beliefs can be protected during military service through well-thought out regulations. Any updated national service law should ensure that dereliction of duty results in significant uniform penalties.

The current reserve duty obligation should be modified to generate a tiered readiness level for reserve units. This should consist of reserve units with immediate, 14-day, and 28-day combat readiness levels after mobilization.

Today, all IDF reserve divisions and almost all reserve maneuver brigades are reportedly commanded by active officers. This is simply wrong for a people's army and worse, it is ultimately unaffordable. Down-selecting volunteer active officers somewhere in their early thirties would significantly reduce the number of salaried officers above the rank of Lieutenant Colonel. This would allow the officers not selected for further active service to proceed with meaningful civilian careers while continuing to serve as reserves up to the age of 50, or even older. Reserve officers, including officers who choose

to leave active service prematurely, should command the majority of reserve units.

It is inherently obvious that Israelis serving in combat units will suffer higher wartime casualties than Israelis serving in rear area and/or non-combat units. Those who volunteer to go into harm's way deserve the best training possible. At present, both first-tier active and second-tier reserve combat personnel are required to conduct day-to-day internal security missions in lieu of acquiring the field training necessary to enhance their survivability in combat. This is unfair and unreasonable. The IDF has no choice in this, however, as its support personnel are provided with only minimal basic combat training. For that reason, they have proven to be almost useless in most internal security combat roles.

It is therefore recommended that all support male and many volunteer female conscripts undergo about a 22-week period of basic individual and small unit infantry training. This would enable these support personnel to perform the internal security mission at a reasonable level.

After completing their basic infantry training, support personnel would initially serve a three- to six-month tour of duty in the internal security role. After this initial period of service, they would proceed to their technical training schools, followed by subsequent assignments in their specialist roles. Support personnel would then be available to be called up as required for reserve duty in internal security roles.

This would mean that conscripts volunteering or selected for service in combat roles would serve a somewhat shorter period of active service than their non-combat comrades. Most importantly, reserve duty for combat personnel would thereafter almost always be dedicated to the provision of field training in order to ensure that they can succeed in wartime combat with minimal casualties. Their annual reserve training duty would progressively decline as their reserve units mature and are required to achieve lower levels of readiness.

Israeli Muslim and Orthodox Jewish citizens, who now combine to represent about one-third of Israel's population, should both contribute to national security and be subject to compulsory conscription

and subsequent reserve service. Obviously, the conditions under which these individuals serve would represent each group's unique characteristics. There should be consequences associated with exemption from national service. These might include the denial of all national mandated financial support and/or even the denial of the right to vote as citizens in national elections.

One fundamental reality has dangerously influenced the development of Israeli national security policy. It is this: Israelis have almost universally become the primary victims of their own propaganda and disinformation. This problem is compounded by excessively severe censorship, which, combined with a lack of civilian experience in national security issues, further complicates the domestic policy-making process. In short, most Israelis have little or no understanding of strategic reality and/or their own military capability in either absolute or relative terms.

If, somehow, Israelis were to suddenly grasp their true military capability, there is little doubt that some politicians would instantly issue a call to reduce the IDF's already overstretched budget. That would be a grave error. The simple fact is that for Israel, looking far into the future, the only way to ensure individual and national security is to maintain regional military dominance. This will always require the generation of disproportionately large defense budgets and difficult and demanding universal national service.

A US-Israel mutual defense treaty would be a catastrophic mistake. First and foremost, the US is simply incapable of generating significant conventional military power in the Middle East. Any US security guarantee to Israel would be as meaningless as were the UK and French commitments to Poland in 1939.

Second, once such a treaty exists, political pressure will almost certainly arise in Israel to reduce the burden of universal conscription and compulsory reserve duty on Israeli citizens. It would also generate pressure to reduce the already underfunded annual budget allocated for Israel's self-defense. The reality of a powerful domestically generated military capability would be gradually replaced by the illusion of US military guarantees.

Third, Israel's day-to-day freedom of action would be severely constrained by the overriding national interests of the US. The US is not going to mobilize for war because of low-level terrorism along Israel's borders. The threat of disproportionate Israeli retaliation would disappear, and its citizens would be far less secure than they are today.

Some argue that such a pact would be of value if Israel's enemies became able to field nuclear weapons. That argument depends on the validity of the assumption that after the quick and near total annihilation of Israel by a significant nuclear attack, which would require only about 12 weapons and less than 15 minutes to execute, the US would choose to retaliate afterwards with nuclear weapons against the aggressors even if they possessed intercontinental missiles that threaten the US. It assumes further that the possibility of a US counterstrike would generate greater deterrence than the certainty of Israeli second-strike capability, however limited.

This raises a question: Of what value to the dead is second-strike nuclear retaliation? For Israel, prevention is of course far more important than maintaining second-strike retaliation capability. *Consequently, no potential enemy of Israel should be allowed to field weapons of mass destruction.*

Only unilateral action by Israel can achieve that objective—but Israeli preemptive attacks would become impossible once a mutual defense pact exists. Logically, therefore, a US-Israel mutual defense treaty would have close to no strategic value in a nuclear context.

Israeli political-military policy should be modified to reflect its regional military domination—not to impose its own will on others, but rather to demand and expect that the surrounding states will cease and desist from threatening or employing military force or terrorism against it. Moreover, because of the potential impact of precision missiles and armed UAVs, Israel should demand a very deep demilitarized zone on all its borders that would be devoid of such weapons. In addition, arms control agreements should be developed that constrain the numbers of destabilizing weapon systems that could be deployed by its former enemies.

NOTES

1 Israeli F-15/16 aircraft have been extensively modified to provide very long range without necessarily requiring air-to-air refueling. However, when operating at extreme ranges, these Israeli aircraft will only be able to maintain very brief time on station. They will also have very limited reserve fuel, which is required for air-to-air combat. The IAF currently reportedly has 8 Boeing 707 tankers. These tankers can each refuel about 10 F-15/16 aircraft per mission, and each tanker can likely generate about 2.5 long-range refueling missions per day. Consequently, the IAF can only generate about 200 very long-range F-15/16 daily sorties that will require air-to-air refueling. This number can be increased if some IDF/SAF combat aircraft are employed as buddy tankers using boom and drogue refueling technology, or if a forward air base is provided by a Sunni Arab country for temporary use by the Israelis.

2 The estimated number of daily combat sorties that the IAF can generate has been based on the following:

- The peacetime quantity of operational combat aircraft, which reflects the serviceable inventory, less those estimated to be currently undergoing major depot maintenance,
- An estimated peacetime availability rate of 0.85 for all operational F-15/16 aircraft, and 0.65 for F-35A aircraft,
- An active peacetime aircrew-to-operational aircraft ratio of about 1:1, which permits the sustained generation of about 2.5 sorties per serviceable aircraft per day.

When fully mobilized, a portion of the airframes undergoing depot maintenance might be reactivated, and the initial availability rate at the onset of combat would increase from 0.85 to 0.95 for all operational F-15/16 aircraft and from 0.65 to 0.90 for the F-35A. The number of sorties generated would vary depending on the number of aircraft remaining in depot maintenance and the availability rate of operational aircraft. Hence, reasonable minimum/maximum sortie generation capability was provided in the text. The number of generated sorties does not account for the possible deployment of reactivated F-16A/B or A-4 airframes. It should be noted that, at the onset of a conflict, the number of short-range sorties that could be generated might temporarily increase by about 30%, as compared to the sustained rates presented in the text.

3 Detailed analysis of the combat results of prior Arab-Israeli wars was conducted in the 1970s and 80s by a team directed by Trevor Dupuy. These studies were initially conducted under contract to the US Department of Defense and later published in a series of books. The very detailed numerical analysis concluded that IDF ground units were two-to-four times as effective as those fielded by their opponents, which were of comparable size. This was true when IDF forces were often employing weapon systems that were inferior to those employed by their enemies. Interestingly,

the Dupuy results were remarkably consistent with a classified British study of the relative combat performance of the British Army versus their opponents in WWII, which briefly included the Iraqi Army.

4 The author independently generated an estimate of the Israeli nuclear inventory, which was subsequently called a deliberate exaggeration by many internet observers. The author's conclusion in 1996 was that Israel then likely fielded the world's third largest inventory of nuclear and thermonuclear weapons. This assessment was based on information provided to the author by uniquely knowledgeable sources. This information was not available to other open source analysts. The author was also able to independently verify the technical veracity of this information.

5 In the late 1970s, a senior IDF officer told the author of the US Army's "operational plan" to rescue Israel. This "plan" was patently ridiculous! It was based on an initial brigade-sized airborne assault to capture a Sinai airfield, which would be followed soon thereafter by the insertion of two additional paratroop brigades by transport aircraft landing at that airfield. This "plan" assumed that the 3 US light tank companies organic to a paratroop division, which would be inserted by vulnerable transport aircraft, could achieve what 135 IDF main battle tank companies could not!

6 The US Army's order of battle currently includes 10 heavy, 7 mechanized, 4 paratroop, and 10 infantry brigades. The National Guard reserves include an additional 5 heavy and 2 mechanized brigades. However, US National Guard units require about 5 months for reactivation and training before they could be deployed. The US Marine Corps has 8 active infantry brigades, which only include 2 tank battalions. Consequently, US active ground forces can currently field only about 960 main battle tanks. This represents about one-third the number of tanks that the IDF can mobilize within 96 hours.

7 The deployment time required for the US military forces to respond to the Iraqi occupation of Kuwait was fully documented in great detail in the "Conduct of the Persian Gulf War", published by the US Department of Defense in 1992. Fundamentally, the number of transcontinental ship transits and long-range cargo aircraft sorties required to transfer US Army and Marine units has not changed since then, but the ability of the US military to generate ship transits and cargo aircraft sorties has actually significantly declined over the last three decades.

8 The daily sortie rate for US A. F. F-15/16s for long-range missions in previous conflicts has consistently been about 1.25 per deployed aircraft per day. During Operation Desert Storm, for short-range missions, which were unconstrained by a rigid air tasking order, the peak sortie rate for US M. C. AV-8Bs was 2.6 sorties per aircraft per day. The US currently does not have heavy bombers based in Europe. Stealthy B-2 heavy bombers have historically generated only 3 sorties every third day when operating from their US base or Diego Garcia. Deployed B-52 and B-1 heavy bombers have also generated about 0,50 sorties per aircraft per day.

9 Currently, the Russian combat aircraft deployed in Syria are generally densely parked in the open, adjacent to a single runway. Only a few accurately delivered cluster munitions would be required to destroy the parked aircraft, and a handful of PGM hits on the one currently available runway would make Russian flight operations from this airfield impossible.

10 This assessment was developed by the author in the late '80s and published by the International Defense Review (IDR). A senior Israeli official subsequently visited the IDR editor to complain that the IDF General Staff was upset because the "author got it right."

11 During the on-going conflict with Yemen, the Saudi Air Force daily sortie generation rate has been a small fraction of what the IDF/SAF can achieve, and their targeting has been mediocre. Saudi ground forces have performed at an utterly incompetent level.

12 Turkey still operates large numbers of virtually unmodified M-48, M-60A1 and M-60A3 Patton tanks that Israel had long ago upgraded. IDF active units that were equipped with upgraded Magach 6B Gal tanks were deactivated in 2005 and reserve brigades employing the Magach 7C were disbanded in 2013. The bulk of Turkish towed artillery employs WWII era US howitzers and the majority of its self-propelled artillery is similar in performance to the M-4 self-propelled howitzers the IDF deactivated in the early '90s.

13 This observation was privately expressed to the author by one of the Desert Storm Division Commanders.

14 Israeli long-range missiles reportedly have a CEP of less than 10 m. Israeli combat aircraft can deliver dumb gravity bombs with a CEP of about 20 m. Israeli NLOS missiles and PGMs can achieve CEPs of less than 5 m. CEP and warhead characteristics and size combine to impact the lethality of weapons. It is estimated that a CEP of 30m will generally provide a low kill probability against small hardened targets. However, a CEP of 30 m. will generate considerably higher lethality than unguided weapons that have CEPs measured in hundreds of meters, since lethality is generally considered to be a function of the square of CEP and a cube of warhead weight.

15 The Iron Dome air defense system has been extremely effective when used to engage relatively slow rockets that are following a predictable ballistic trajectory. Israel claims that this system has a single shot kill probability of about 0.85. Some observers are highly skeptical that this can be achieved, but the limited casualties and damage resulting from Hamas rockets would seem to suggest that this performance level very likely has been achieved. Even so, in order to generate near certain destruction of an inbound threat, a shoot-shoot doctrine would have to be used. The engagement range of the Iron Dome system would significantly decrease if it were used to engage fast and/or maneuvering threats.

16 The so-called barrel bombs, so effectively used by the Syrian government during urban operations, are relatively simple blast weapons that consist of conventional high explosives contained within a very lightweight outer shell. Many years ago, Israel deployed far more efficient blast weapons, which were initially used to neutralize enemy mines. Developing much larger blast weapons should have been a relatively simple task for Israeli engineers, particularly as they could copy either US or Russian technology. Any IDF/SAF F-16 can deliver up to twelve 500 kg. blast weapons, which can generate a high explosive blast equivalent to about 67,000 kg. of conventional high explosive bombs. This reflects the fact that blast weapons are relatively effective because a much higher proportion of their weight can be allocated to the actual explosive and because each kilogram of explosive can be five to ten times more lethal than conventional high explosive, as the oxygen needed for detonation is provided by the atmosphere rather than being contained in the explosive. Combined, these two factors allow a modern 500 kg. blast weapon to generate the same blast as 5,000 – 6,000 kgs. of conventional bombs. Multiple weapons that are delivered in a pattern designed to generate a lethal blast over pressure, which is spread across a wide area, could neutralize most personnel within a large town. This could be generated by a flight of two or four aircraft, and the IDF/SAF can daily generate many hundreds of such attacks.

17 Based on published reports of the most recent IDF training exercises, it appears that the IDF will not employ area blast weapons, and will employ counterinsurgency rules of engagement. The unilateral decision made by the General Staff has never apparently been discussed by Israeli political leaders, nor reported by the Israeli media. This vital decision, which will have a significant impact on the effectiveness of the Israeli military and the extent of Israeli military and civilian casualties, should not be left to the General Staff and should be decided by the Israeli cabinet.

18 Most “experts” assume that any unilateral Israeli attack on Iran’s nuclear and missile facilities would have limited impact and cause only a temporary delay. These “experts” apparently assume that only a handful of IDF/SAF aircraft would conduct a one-time raid on a very limited number of targets. The reality is that the IDF/SAF has the ability to generate hundreds of daily sorties against Iran and is capable of conducting a multi-day strategic air operation. These “experts” also apparently assume that Israel cannot destroy key deeply buried Iranian facilities since they cannot deliver gravity bombs with greater penetrability than their known 5,000 lb. bombs, which impact sub-sonically. In fact, the Israelis can employ both long-range ground launched and shorter-range air launched ballistic missiles, whose warheads can achieve great penetrability because of their very high supersonic impact speeds. Through ruthless smart targeting, the Iranian nuclear program can be set back by up to ten years. This issue was assessed in depth in “Pre-empting Iran, a Military Assessment” developed by the author, which was published in 2013 by the RUSI Journal of the U. K. Institute of Strategic Studies.

19 In the early '90s, the author was a senior member of many NATO teams that visited the newly democratic Eastern European states, all of which desired to ultimately join this alliance. He did so as an independent defense analyst, not as a member of a US national delegation. The delegates representing the major NATO powers all proposed that these states follow their practices and develop volunteer active militaries. The author alone recommended that these countries follow the example of Finland, Israel and Singapore, and base their defense on the use of universal conscription followed by the use of obligatory reserve service. At that time, these countries all had hundreds of thousands of males who had previously served in Soviet style militaries. Five years later, the Latvian Minister of Defense told the Secretary General of NATO that "they had not yet decided to follow NATO or Brower." Sadly, they followed the NATO model, and subsequently are now utterly incapable of self-defense.

In 2004, NATO published volume 45 of its *Science and Technology* books. This included "Measuring Military Power" which was developed by the author. This unique study assessed the cost effectiveness of the US and Israeli national defense systems. It reported that the annual budgetary cost required to generate a maneuver battalion was 17.9 times SMALLER than the cost of a comparable US Army battalion, and that the annual budgetary cost of each generated IDF/SAF

F-15/16 daily combat sortie was 16.1 time SMALLER than that required to generate a comparable US A. F. sortie.

This analysis proved, without any doubt, that Israel simply cannot successfully defend itself if it deviates from its current defense system, which is based on universal conscription followed by compulsory reserve duty.

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