WEAPONS OF MASS DESTRUCTION IN THE NEAR AND MIDDLE EAST – AFTER THE IRAQ WAR 2003

GÖTZ NEUNECK

MILITARY CAPABILITIES IN THE NEAR AND MIDDLE EAST

CHRISTIAN MÖLLING / GÖTZ NEUNECK

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Die „Interdisziplinäre Forschungsgruppe Abrüstung und Rüstungskontrolle (IFAR)“ beschäftigt sich mit dem komplexen Zusammenspiel von rüstungsdynamischen Faktoren, dem potenziellen Waffeneinsatz, der Strategiedebatte sowie den Möglichkeiten von Rüstungskontrolle und Abrüstung als sicherheitspolitische Instrumente. Der Schwerpunkt der Arbeit liegt dabei auf folgenden Forschungslinien:

- Grundlagen, Möglichkeiten und Formen von Rüstungskontrolle, Abrüstung und Nonproliferation nach dem Ende des Ost-West-Konfliktes sowie die Entwicklung von anwendungsbezogenen Konzepten präventiver Rüstungskontrolle

- „Monitoring“ der fortschreitenden Rüstungsdynamik und Rüstungskontrollpolitik in Europa und weltweit mit Fokus auf moderne Technologien

- Technische Möglichkeiten existierender und zukünftiger (Waffen-) Entwicklungen, besonders im Bereich Raketenabwehr und Weltraumbewaffnung

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Die Arbeitsgruppe kooperiert mit einer Vielzahl von nationalen und internationalen Organisationen.

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WEAPONS OF MASS DESTRUCTION IN THE NEAR AND MIDDLE EAST - AFTER THE IRAQ WAR 2003*

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The possession and use of ***Weapons of Mass Destruction*** (WMD) in the Near and Middle East[1] are a "chronic disease" (W. Cohen, 1997) and a barrier for confidence building and a lasting peace in a violent region.[2] WMDs are Nuclear, Biological and Chemical weapons (NBC).[3] This common designation has resulted in much confusion. ***Chemical weapons*** (CW) are not necessarily WMD. They are inhumane and frightening devices, but they are little different from conventional explosives. ***Biological Weapons*** (BW) can be very lethal in terms of weight and size of the delivered munitions, but their effects can be delayed by passive measures and early warning. ***Nuclear weapons*** (NW) are the most destructible weapons, because they release enormous amounts of energy in a short time.[4] Additionally a big area will be inflicted by radioactive fallout and can cause physical destruction, genetic effects and the destruction of the infrastructure for a long time. In the case of B/CW defense is possible after a release of such substances, this is not the case with NW. ***Radiological Weapons*** (RW) are basically a nuclear-weapon variant designed to harm or kill people through radiation. Potential scenarios are ranging from a nuclear exchange between nuclear-armed countries to a nuclear explosion in a big city by a simple "nuclear device" which was manufactured by terrorists. Given the huge stocks of nuclear materials the diversion of significant quantities in all nuclear weapons states cannot be excluded.[5]

The following contributions tries to describe the status of WMD programs and the publicly available information[6] on the deployment and function of these arsenals.[7] The second part explains possible instruments to curb or reverse proliferation.

The level of militarization in this region is exceptionally high if the number of armed forces, the military budget, and weapons holdings are used as indicators. According to the

* This article draws on a lecture given at the conference: „Iraq – Regional Implications" – June 21st, 2003 – External Relations Department of the European Commission (DG Relex), Brussels

[1] This region encompasses Maghreb, Mashrek, and the Persian-Arab Gulf.

[2] Between 1948 and 1982, five major Arab-Israeli Wars took place. The Persian Gulf region saw two "Gulf Wars" before 2003: the first was waged from 1981 to1988 by Iran and Iraq, and the second took place after the occupation of Kuwait in 1991, between Iraq and the US-led Western-Arab alliance, the third is the operation Iraqi Freedom by a US-led alliance from March to April 2003.

[3] In the US definition delivery systems such as missiles or cruise missiles are included.

[4] An one kt atomic bombe releases the energy of 1000 kg of conventional TNT. A thermonuclear bomb with 1 Mt yield can kill hundreds of thousands of people in a short moment.

[5] At least 140 tons of military plutonium and 1000 tons of highly enriched uranium (HEU) are surplus to the Russian weapon programs. The US has nearly 750 tons of weapon-grade uranium and 85 tons of weapon-graded plutonium. Storages of the civilian nuclear industry, research reactors, production facilities can be added.

[6] When investigating into and adding up military arsenals and secret weapons programs, one has to be extremely cautious. Much of the information on the various armed forces are estimates or derive from open intelligence sources which cannot be considered objective. Information about missile parameters from emerging missile powers are often exaggerated. Most WMD programs remain secret and cannot be verified independently.

[7] Moreover, a sufficient picture of the strategic environment should be complemented by political, as well as economic and geographic, factors. In addition, military arsenals should not only be evaluated by their quantity, but also by their quality and their utility in the context of the prevalent military strategy and the underlying political ends.

International Institute for Strategic Studies (IISS), 2.9 million men are under arms, not counting reserves and paramilitary units.[8] Within the last 10 years, the military spending in the Middle East rose from US$ 52.3 billion to US$ 72.4 billion - an increase of 20.1 billion dollars, or 38%. And this trend seems unbroken: in 2002, Israel increased its defense budget by US$ 983 million to a total of over US$ 10 billion.[9] Israel's Arab neighbors, in turn, are likely to follow suit. In the last decade, the Near East is the most heavily armed region in the world after East Asia.[10] The slight decline in heavy weapons can be partly put down to the heavy weapons embargo against Iraq. Moreover, existing systems have become increasingly obsolete and unreliable. Over 6% of the gross domestic product (GDP) in the region is spent on defense. The leading nations are Saudi-Arabia (11.6%), Israel (8.0%), and Jordan (9.5%). In relation to the gross national product (GNP), the military budgets are slightly decreasing. This is probably caused by the excessive armament after the 1991 Gulf War, and by the precarious economic situation of some countries.[11] To this day, the huge arsenals are a heavy burden for the corresponding countries. In the aftermath of the new war in Iraq, additional weapons procurement might further increase this burden. The attempt of the United States to reorder the region might fuel a new arms race in the region. (see for more information the article from Mölling/Neuneck in this working paper)

1. Weapons of Mass Destruction

According to many statements and analyses, various Middle East states run programs for the production of weapons of mass destruction (WMD), or they already have operational stockpiles. Chemical weapons (CW) have already been used by Iran (1984-1988) and Iraq (1983, 1978-1988). As in Syria, Egypt, and Libya, these two countries have probably CW arsenals in the form of artillery shells and missile warheads as well as on board aircraft. Moreover, Egypt (1963-1967) and Libya (1987) have been accused of using CWs weapons.

Israel certainly has the capability to take up production of B/CW at short notice. Tel Aviv has neither confirmed the existence of a nuclear weapons program nor the potential of its missile arsenals, but an operational Israeli nuclear arsenal is deemed certain.

In 1991, **Iraq** run a crash program for the development of nuclear weapons, which has been largely destroyed or eliminated by the United Nations Special Commission (UNSCOM) mission. UNMOVIC has not found any evidence that Saddam Husseins Iraq was running a new NW program.

Other states, like **Iran**, are allegedly developing nuclear weapons. Iran has the basic nuclear technology and infrastructure to build a bomb. IAEA Director El Baradei visited Iran on 21-22 February 2003 and confirmed the construction of a large-scale gas-centrifuge enrichment plant and a heavy-water production facility. Satellite images from December 2002 reveal the construction of a nuclear fuel cycle facility in Natanz in Central Iran. The government insists that the uranium enrichment is for peaceful purposes only to produce

[8] This corresponds to one soldier per 109 inhabitants. This ratio increases in the center region of the Near East, where there is one soldier for every 99 inhabitants. The world wide ratio is 1:269, for NATO 1:195; ibid., 191. For details see: Margret Johannsen (2002), *Rüstung und Rüstungskontrolle im nahen Osten*, in: Uta Klein/ Dietrich Thränhardt (Hrsg.), *Gewaltspirale ohne Ende? Konfliktstrukturen und Friedenschancen im Nahen Osten*, Schwallbach/Ts.: 190-229. The world wide ratio is 1:269, for NATO 1:195; ibid., 191.

[9] SIPRI, *SIPRI Yearbook, 2002*: *Armaments, Disarmament, and International Security*, 2002, Oxford: 234, 266; http://projects.sipri.se/milex/mex_wnr_table.html (11.11.02). Calculation base: constant US$ (1998); BICC (2002), *Conversion Survey 2002 Global Disarmament, Demilitarization and Demobilization*, Baden-Baden:41.

[10] Ibid. Detailed descriptions in Cordesman (2001): *The Arab-Israeli Military Balance in 2001. A Graphic Analysis;* www.csis.org (11.11.02).

[11] SIPRI 2002: 286 (own calculation). This is 2,6 % worldwide (SIPRI 2002: 231) and 2,1 % in the European NATO-Area. IISS (2002): *The Military Balance 2002-2003*: 231. BICC 2002: 41.

reactor fuel. Additionally, officials express their commitment to developing the full range of nuclear fuel-cycle facilities (uranium mines, concentration and conversion facilities and fuel fabrication).

There is international concern that Iran could withdraw from the NPT, which would permit it to build nuclear weapons without violating treaty obligations. [12]

Iran ratified the NPT in 1970 and has allowed the IAEO to inspect its notified facilities. It is policy of Iran to complying with the NPT and building its "civilian" nuclear program. This is seen by the Bush-Government to establish an " break-out" potential which can be activated at any time.

Table: Estimates of WMD in the Middle East and their state of development[13]

	Nuclear	**Biological**	**Chemical**	Missiles	**Aircraft**
Algeria	Research	Early Research?	Development?	no	MiG-23, Su-24
Egypt	Research	Development?	**Stockpiled** ***Used in 1963-67***	Scud-B	F-16C
Iran	Development	Development	**Deployed** **Used in 1984-88**	Scud-B	Su-24
Iraq*	Weaponization?	Stockpiled?	Stockpiled? ***Used in 1983,1987-88***	Covert Scud-Technology	Su-24
Israel	Deployed	Production capability	Production capability	Jericho 2	F-15C
Libya	Research	Development?	Deployed ***Used in 1987***	Scud-B	Su-24
Saudi Arabia	None?	None	None?	CSS-2	F-15, Tornado
Syria	Research	Development?	Deployed	SS-21; Scud-B/C	Su-24
Turkey	Research	None	None	ATACMS	F-16
United States	Deployed	Terminated	Dismantling	ATACMS	F-15; F-16: F-18 etc.
Yemen	No	No	Stockpiled?**	SS-21**	Su-22

Notes:
* before war
** probably no longer usable
Deployed means ready for use in the event of conflict. *Stockpiled* means that significant quantities are stored but not necessarily in close proximity to military forces. *Weaponization* means that NBC substances are integrated in a missile warheads or an aerial bomb. *Production capability* means that the country is able to produce significant quantities of fissile material or CB agents. *Development* means that dual-capable research was done in laboratories for civilian or military applications and an infrastructure for NBC development or production might be possible.

Finally, some Middle East states posses imported, modified, or self-produced short or intermediate range missiles which can carry biological and chemical weapons. Most of these missiles are Scuds acquired from the Former Soviet Union. In the past, Iran and Iraq have used missiles extensively against each other. Iran, which is envisaged as a potential military

[12] A loophole in the IAEO-safeguards agreement allows Iran to build such a plant until 180 days before it expected to introduce nuclear material into the plant. Iran is unwilling to sign and ratify the "Additional Protocol" which allows the IAEO more authority to search for undeclared activities.

[13] Data from Monterey Institute of International Studies, Center for Nonproliferation Studies; http://cns.miss.edu/research/wmdme/capable.htm.

antagonist of Israel, as well as some of its neighboring states such as Syria, Egypt, Saudi Arabia, and Libya own short range ballistic missiles. APPENDIX I gives an overview of the missile deployment and the status of the missile programs in the region.

Israel

Israel is the leading Middle East nation in terms of missile arsenals. It holds an independent technological capacity to manufacture medium-range ballistic missiles as well as deployed systems that can be equipped with nuclear warheads. The Israeli defense industry has far-reaching knowledge of the production of cruise missiles and drones, and can produce such systems with a range of 200-400 km. The Jericho missile makes it possible to attack targets in all neighboring countries and in Iran as well as in parts of Turkey, Greece, and Libya. On the other side, Israel is surrounded by countries that own short-range ballistic missiles and that allegedly develop intermediate range missiles. The Arrow and the American Patriot missile defense system shall provide additional protection against SCUD missile attacks.

Iran

Iran also becomes the focus of political discussion. US and Israeli experts and politicians warns of an “aggressive program” to develop WMDs and ballistic missiles with a range up to 2000 km. Civilian nuclear projects done in cooperation with China and Russia fuelled speculations that Iran might use its economic power to provide for a nuclear option. In 1992, Moscow and Teheran concluded a treaty on the construction of two nuclear power stations. While Russia hopes for exports of its nuclear technology, the US protests such cooperation because it fears the boosting of Iran’s nuclear ambitions.

Further concern was caused by the native development of an Iranian ballistic missile (Shihab-3) with a range of 1,300 km to which Russia and North Korea contributed. Moreover, Iran has two versions of SCUD missiles, with ranges of 300 and 500 km, respectively. It is also assumed that Iran is capable of producing chemical weapons agents and has constructed at least two production facilities. Allegedly, nerve gas production was taken up in 1994. As to biological weapons, it is believed that Iran can start production of Anthrax and Botulinum toxin if necessary.

The threat analysis by the US intelligence services (NIE 2001) points out North Korea assisted Iran in building long-range missiles. The similarities between the Shihab-3 and the Nodong missile seem to support this claim. The partly civilian launch platforms Shihab–4, -5, and -6 show remarkable similarities to North Korean missile projects.

Egypt

Besides Israel, Egypt owns the furthest developed industrial potential in the region and manufactures some conventional weapons on its own. In the 1950s (with German support), as well as in the 1980s, Cairo had a native development program for ballistic missiles with a range of up to 1,000 km. Currently, the armed forces have imported ballistic missiles (Frog-7, SCUD-B) and anti-ship missiles from China (HY-2 Silkworm). It is suspected that Egypt operates production facilities for a limited amount of mustard and other nerve gases. Small research activities supposedly take place in respect to biological and nuclear weapons.

Syria

For a long time, the Syrian missile capabilities depended on Soviet imports. Syria invested large amounts of money in its missile program, but neglected modernization of its air force. Moscow delivered Frog-7, SCUD-B, and SS-21 missiles. Reports have it that Syria also obtained a limited number of longer range SCUD missiles from North Korea. Possibly, Syria is able to produce nerve gas agents. This would pose a serious threat to Israel. Some sources assume that Syria also conducts research on biological weapons agents. Syria denies all such activities.

Saudi Arabia

Saudi Arabia exposed its missile ambitions by the import of Chinese intermediate range missiles. In 1988, Riad obtained an unknown number of modified CSS-2 missiles from Beijing. This missile can be used to deliver nuclear warheads and has a range of 3,500 km. The CSS-2 could possibly attack cities with conventional warheads. With this missile, Saudi Arabia could threaten its direct neighbors as well as parts of Turkey and Iran. Saudi Arabia is member to the Nuclear Non-Proliferation Treaty (NPT), and has announced several times that it will not mount nuclear or chemical warheads on its missiles. King Fahid explained that his country would use these weapons strictly for self-defense only. Israel repeatedly expressed its concern that these missiles could be equipped with chemical warheads.

What has changed following the conflict in Iraq?

High priority should be given to clarify the size and components of the alleged Iraqi WMD programs. It is also important to secure radioactive material from Saddam Hussein´s nuclear complex. Unfortunately barrels with uranium ore, yellowcake and other byproducts were looted at Tuwaitha, the center of Iraqis nuclear program. This problem brings light on the question whether parts of Saddams WMD programs if they really existed might be have been proliferated in neighboring countries. There is the possibility that weapon material, personnel, or substances themselves have been transported out of the country, in part due to a failure to immediately secure weapon sites.

Saddam Husseins Iraq as a potential threat to his neighbors especially Israel, Iran and the Gulf States no longer exists. Let us assume that the basis, size and components of the alleged Iraqi WMD programs will be clarified and fully dismantled and that a pro-western leadership will renounce the development, possession and the use of WMD. This might create an incentive for more countries to comply with existing arms control treaties in the future.

2. Arms Control and other instruments:

In sharp contrast to the military potentials that exist in the Middle East, no attempts at arms control and cooperative security have so far been undertaken in order to contain conflicts or prevent escalation. Several existing treaties could be used as a starting point for regional arms control: the Treaty of Pelindaba (1996), which establishes a nuclear-weapon-free zone in Africa:, the Nuclear Non-Proliferation Treaty, and the Chemical Weapons Convention. After the opening round of the Middle East Peace Process in Madrid in October 1991 the “Arms Control and Regional Security (ACRS) working group” was established to discuss exclusively security issues, but it does not produce concrete results due to the blocked arms control dialogue between Israel and Egypt.

UN Resolution 687 of 1992, which deals with the disarmament of Iraq, states that the actions taken for the monitoring and destruction of Iraqi weapons "represent steps towards the goal of establishing in the Middle East a zone free from weapons of mass destruction and all missiles for their delivery and the objective of a global ban on chemical weapons." However, no apparent efforts are made to reach any of these objectives.

On the contrary, the US, as the *de facto* ordering power, has withdrawn from all arms control negotiations. Washington favors arms exports to this region, stimulating demand by new wars, and prefers classical alliance strategies to fulfilling its responsibility in the region by instigating stability-oriented policies that rely on civil instruments of change. On the global level, one arms control treaty has been cancelled, and several other cannot enter into force. No reasonable initiatives are undertaken to regulate the existing military capabilities, let alone to begin disarmament.

In principle the following ***classical instruments*** to curb the proliferation are conceivable:

- Strengthening and harmonization arms export regulations. This is a necessary but "one-sided affairs". Supply-side arms control only can buy time, but it cannot solve antagonistic situations.

- Norm setting and strengthening existing multilateral arms control treaties such as the NPT, the CWC or the BWC. Unfortunately the failure to introduce an verification protocol for the BWC and the slow implementation of the CWC does not amplify the authority and credibility of these regimes.

- The concession of positive or negative security guarantees for states which give up WMD

- Diplomatic pressure including sanctions or "stick and carrot" measures

- International "naming and shaming"

Additionally the current US government in its new "National Strategy" is advocating for preemptive strikes to disarm possible WMD proliferators.

A look to the arms control status in the Near and Middle East reveals the following:

- All countries in the Near and Middle East became members of the NPT except Israel

- The Bio-Weapon Convention was ratified by all states except Egypt and Syria.

- Egypt, Syria and Libya did not join the CWC and Israel has not ratified yet.

It would be utmost important, if key countries such as Egypt or Syria would join the BWC/CWC. A key here is of course Israel, because the Arab countries argue that as long as Israel does not give up its nuclear weapons, they would not join the other nonproliferation regimes.

Table 2: Treaties on Weapons of Mass Destruction - Membership in the Middle East[14]

Country	NPT	CTBT	CWC	Geneva P.	BTWC
Algeria	1/12/95	Signed 10/15/96	8/14/95	—	—
Egypt	2/26/81	Signed 10/14/96	—	12/6/28	Signed 4/10/72*
Iran	2/2/70	Signed 9/24/96	11/3/97	7/4/29	8/22/73
Iraq	10/29/69	—	—	9/8/31	4/18/91
Israel	—	Signed 9/25/96	Signed 1/13/93*	2/20/69	—
Libya	5/26/75	—	—	12/29/71	1/19/82
Saudi Arabia	10/3/88	—	8/9/96	1/27/71	5/24/72
Sudan	10/31/73	—	—	12/17/80	—
Syria	9/24/69	—	—	12/17/68	Signed 4/14/72*
Turkey	4/17/80	Signed 9/24/96	12/5/97	10/5/29	11/5/74
USA	3/5/70	Signed 9/24/96*	4/25/97	4/10/75	3/26/75
Yemen	5/14/86	Signed 9/30/96	—	3/17/71	6/1/79

* = Not ratified

[14] See Monterey Institute for International Studies: http://cns.miis.edu/research/wmdme/regimes.htm#1

2. Recommendations:

The following steps could be taken into consideration:

(1) Most of the WMD programs are secret and could not be verified independently. It is in the interest of the EU countries to achieve more transparency about the size, scope, status and function of these programs and the adherence of existing arms control obligations. The goal of a Near and Middle East which is free from WMD and missiles with a range greater than 150km should be compulsory for Europe.

(2) It is important to clarify the status, scope, components and remnants of the assumed Iraqi chemical and biological weapon programs again. A new Iraqi government should renounce all ambitions to restart WMD programs. Monitoring and verification measures should be established in Dual-Use facilities such as missile production plants or Bio-research facilities.

(3) Concerning Iraq it is not only important to find, secure and eliminate WMDs in the country but also by creating Iraq as a country which is free of WMDs. This would guarantee that neighboring states such as Iran, Iraq or Jordan are not threatened by delivery systems which can carry biological or nuclear weapons. This underlines the argument, that a WMD deterrent is no longer necessary for others thus creating the nucleus for a WMD free zone as mentioned by Resolution 687. It would be harder for the pro-nuclear elite in Iran or Israel to stand up for going nuclear.

(4) The case of Iraq as a country which is free from WMD could trigger a discussion within Arab countries about the future of WMD in the region. Resolution 687 mentions " the goal of establishing in the Middle East a zone free from weapons of mass destruction and all missiles for their delivery and the objective of a global ban on chemical weapons." The EU could encourage the GCC states to form a working group to explore CBM in the region. A regional conference on the future of WMD in the Near/Middle East could be organized together with the EU.

(5) The EU could start its own "non-proliferation initiative" by supporting countries technically and economically which adhere to arms control treaties such as the NPT, the CWC or the BWC. Additionally it could offer help in verification and monitoring activities. Such an regional initiative should comprise specific steps in the nuclear, biological and chemical sector.

(6) Concerning Iran it is not to late to convince the government to halt the enrichment and plutonium separation plants or to put them under multilateral safeguard. Additionally Iran should give a clear statement for the preservation as a non-nuclear member of the NPT. The EU should be very careful not to support Iranian nationalism and should develop a coordinated strategy with the United States to convince Iran not to go nuclear. A strategy of incentives and disincentives aimed at bringing Iran into the international community while simultaneously reducing the risk that Iran will build nuclear weapons. The Bush-administration must be stopped to stimulate Iranian nationalism by using the "axis of evil" and "Regime change" rhetoric.

(7) After the failure of the BWC the EU should invest more to develop a "Biosecurity"-Regime as proposed by scientists. Such an global regime should include the registration and licensing of facilities that work with dangerous biological agents. Countries form the Near/Middle East should be included in such an endeavor from the beginning.

(8) Missiles are in principle "conventional weapon systems", dual-use capable and are equipped with biological or nuclear warheads an strategic threat to all countries which can be reached by these fast-flying and unmanned delivery systems. The "supply-side oriented" MTCR was successful in delaying missile programs, but it is not an arms control instrument which balances different interests. Confidence Building measures (CBMs) in the realm of missiles could be introduced in the Middle East. Possible elements are: De-alerting measures, Disengagement zones, launch notification, notification of missile-related facilities, test-ban moratoria or elimination of launchers.

(9) The EU should increase its expertise in assessing and monitoring WMD developments by using elements of the former UN inspections. UNSCOM and UNMOVIC have established a pool of unique expertise in the search for WMD including missiles. It would be a tragedy not to preserve these procedures, equipment, knowledge and human capital which was developed in the last 12 years. Politically, it might be useful for the EU to build-up its own and independent verification unit. In the Middle East countries accuse each other to develop WMD. This should not continue unless the UN Security Council feels compelled to start inspections, but it might be useful for Europe to create its own verification instruments including satellite based verification as an preventive instrument.. The Cold-War experiences created a "tool bag" of different verification measures such as: Reconnaissance Overflights (Open Skies Treaty), Routine or Challenge Inspections (CFE/CWC), Permanent monitoring of launch Pads or production facilities (UNSCOM, INF) or Destruction Monitoring (UNSCOM, INF, CFE).

MILITARY CAPABILITIES IN THE NEAR AND MIDDLE EAST*

CHRISTIAN MÖLLING UND GÖTZ NEUNECK

Long before the beginning of Gulf War III, newspapers and commentators focused their attention on the military capabilities of Iraq. Although reliable information on weapons numbers and capabilities are mostly missing, it is safe to assume that Saddam Hussein's military potential has decreased significantly compared to his capabilities during the 1991 Gulf War. This is the result of UNSCOM and UNMOVIC weapons destruction efforts, of sanctions and the embargo, and of the lack of military support from other – in particular western – countries which supplied military technology to Iraq prior to 1991.

But how about Iraq's neighbors? What is the status of their efforts to acquire weapons of mass destruction (WMD) and to build-up weapons stockpiles? These questions are crucial variables in a highly complex formula, and the answers have considerable impact on the prospects of war and peace in this unstable region which is bristling with weapons.

In 1997, former US Secretary of Defense William S. Cohen called the Middle East a "chronic disease". Between 1948 and 1982, five major Arab-Israeli Wars took place. The Persian Gulf region saw two "Gulf Wars" before 2003: the first was waged from 1981 to1988 by Iran and Iraq, and the second took place after the occupation of Kuwait in 1991, between Iraq and the US-led Western-Arab alliance.

Armed conflicts such as these are likely to have far reaching impact on the political and military order of the region. As of today, there is little hope for a stable post-war order in Iraq, and yet this is of utmost relevance for the stability of the region. Failing this, a further escalation of the Israeli-Palestinian conflict and fragmentation trends within Iraq are probable outcomes. This constellation, aggravated by the massive presence of US forces in the region, has a high potential to entangle other states in conflict, as well as to shatter the fragile balance between the populace and the political elites.

The following, largely quantitative description of military capabilities is meant to show the tremendous potential of military capabilities in the Middle East.

When investigating into and adding up military arsenals and secret weapons programs, one has to be extremely cautious. Much of the information on the various armed forces are estimates or derive from intelligence sources which cannot be considered objective. Moreover, a sufficient picture of the strategic environment should be complemented by political, as well as economic and geographic, factors. In addition, military arsenals should not only be evaluated by their quantity, but also by their quality and their utility in the context of the prevalent military strategy and the underlying political ends.

The level of militarization in this region[1] is exceptionally high if the number of armed forces, the military budget, and weapons holdings are used as indicators. According to the International Institute for Strategic Studies (IISS), 2.9 million men are under arms, not counting reserves and paramilitary units. This corresponds to one soldier per 109 inhabitants. This ratio increases in the center region of the Near East, where there is one soldier for every 99 inhabitants.[2]

Within the last 10 years, the military spending in the Middle East rose from US$ 52.3 billion to US$ 72.4 billion - an increase of 20.1 billion dollars, or 38%. And this trend seems

* this article is based on an earlier version : Mölling, Christian/Neuneck, Götz: Das Rüstungspotenzial im Nahen und Mittleren Osten, in: Wissenschaft und Frieden 2/2003: 533-57.

[1] This region encompasses Maghreb, Mashrek, and the Persian-Arab Gulf.

[2] For details see: Margret Johannsen (2002), *Rüstung und Rüstungskontrolle im nahen Osten*, in: Uta Klein/Dietrich Thränhardt (Hrsg.), *Gewaltspirale ohne Ende? Konfliktstrukturen und Friedenschancen im Nahen Osten*, Schwallbach/Ts.: 190-229. The world wide ratio is 1:269, for NATO 1:195; ibid., 191.

unbroken: in 2002, Israel increased its defense budget by US$ 983 million to a total of over US$ 10 billion.[3] Israel's Arab neighbors, in turn, are likely to follow suit.

In the last decade, the Near East is the most heavily armed region in the world after East Asia.[4] The slight decline in heavy weapons can be partly put down to the heavy weapons embargo against Iraq. Moreover, existing systems have become increasingly obsolete and unreliable.

Over 6% of the gross domestic product (GDP) in the region is spent on defense. The leading nations are Saudi-Arabia (11.6%), Israel (8.0%), and Jordan (9.5%). In relation to the gross national product (GNP), the military budgets are slightly decreasing. This is probably caused by the excessive armament after the 1991 Gulf War, and by the precarious economic situation of some countries.[5] To this day, the huge arsenals are a heavy burden for the corresponding countries. In the aftermath of the new war in Iraq, additional weapons procurement might further increase this burden. The attempt of the United States to reorder the region might fuel a new arms race in the region.

The Middle East continues to be the greatest 'weapons bazaar' in the world. The military buildup occurred in several waves, especially after the wars of 1967 and 1973. The rearmament was supported by the Soviet Union, the US, France, and the UK. Until the Arab-Israeli war of 1973, Egypt got its weapons from the Soviet Union, then from the US. To this day, successor states from the former Soviet Union deliver weapons to Syria. Jordan, Kuwait, and most weapons for Saudi Arabia are supplied by the US. Israel imported French military material until the late 1960s, when the US took over the role of the principal supplier.[6]

The Six Day War of 1967 gave Israel a reason to build up their own defense industry. Today, Israel is the only state in the region that maintains its own defense industry. Although dependant on US technology, this nuclear weapons state runs native production facilities for tanks, missiles, airplanes, unmanned air vehicles, electronics, personnel carriers, and small arms. Israel not only produces for its own defense forces, but is part of the "dirty dozen" of the world's leading arms suppliers. Both weapons exports and military-technological cooperation (e.g. with China and Turkey) represents an important economic factor. Around one fourth of the Israeli exports consist of armament goods. In 2000, these exports amounted to US$ 3.5 billion, and accounted for 2.2 % of global weapons sales.[7]

However, neither Israel nor the Arab states are independent in the field of defense technologies. All states in the region import their weapons for the most part. Arms imports and the continued military buildup in the region run in parallel. Since the end of the Cold War, around 25% of all arms transfers went to the Middle East. All Middle East states can be found in the upper third of import statistics. With weapons imports of US$ 4.8 billion in 2001, Saudi Arabia is the world's third largest importer of armament goods. The main import products are heavy tanks, armored vehicles, anti tank missiles, mobile air defense, attack helicopters, and fighter jets. The overall objective is general modernization of the armed forces. In 2001, imports totaled US$ 2.1 billion. This exceeds weapons imports to South Asia (US$ 2.0 billion). By comparison, Europe imported weapons for US$ 3.9 billion.[8]

[3] SIPRI, *SIPRI Yearbook, 2002*: *Armaments, Disarmament, and International Security*, 2002, Oxford: 234, 266; http://projects.sipri.se/milex/mex_wnr_table.html (11.11.02). Calculation base: constant US$ (1998); BICC (2002), *Conversion Survey 2002 Global Disarmament, Demilitarization and Demobilization*, Baden-Baden:41.

[4] Ibid. Detailed descriptions in Cordesman (2001): *The Arab-Israeli Military Balance in 2001. A Graphic Analysis;* www.csis.org (11.11.02).

[5] SIPRI 2002: 286 (own calculation). This is 2,6 % worldwide (SIPRI 2002: 231) and 2,1 % in the European NATO-Area. IISS (2002): *The Military Balance 2002-2003*: 231. BICC 2002: 41.

[6] Johannsen 2002 : 200.

[7] SIPRI 2002: 356, 407. Base of comparison: "constant" US$ (1990); Margret Johannsen 2002: 200.

[8] SIPRI 2002: 376, 407; IISS 2002: 341.

Conventional Forces of Middle East Majors States

This section will outline the heavy land and air weapons systems that would play a prominent role in major military operations.[9]

Iraq

Contrary to public opinion, the Iraqi military is seriously weakened. The sanctions and embargoes have forestalled the rebuilding of a strong army. The Republican Guards are just an instrument to guarantee and exercise power inside Iraq. Combat readiness of the other military forces is estimated at around 50 %. The military equipment is largely obsolete. According to IISS, the air force can use only 55 % of the 350 aircrafts. The artillery has 2,200 systems, and 200 rocket launchers. The number of tanks -- 2,600 -- seems impressive, but they are mostly outdated. Overall, Iraq does not pose a significant conventional threat.[10]

Syria

Like many other armies in the region, the Syrian armed forces have to cope with a serious modernization crisis. Equal in numbers to the Israeli forces, their weapon systems (3,700 cannons, 500 rocket launchers, 4,700 tanks) are outdated. A modern air defense is lacking, and air force equipment is not combat-ready (approx. 600 fighter jets).[11]

Israel

The Israeli Defence Forces (IDF), are without question the most modern army in the Middle East (160,000 personnel). This applies, primarily, to the larger part of 3,700 tanks and to the air force. Also, the 2,800 artillery systems, 400 rocket launchers, and 1,300 antitank systems are quiet up to date. Israel seeks to modernize its Navy in order to integrate it into the littoral warfare concept. It also seeks to upgrade its reconnaissance capabilities and wants to introduce a “battle management” system. Of equal importance is the Arrow anti-missile system, with a budget of US$ 1.3 billion.[12]

Saudi Arabia

Although quantitatively small (124,000 personnel), the Kingdom’s army is reported to be quite modern. 315 modern “Abrams” tanks constitute the heart of the heavy divisions, comprising 1,000 tanks in total. The artillery with its 300 cannons and 60 rocket launchers is of minor importance. The air force has 600 vehicles of differing ages.

Iran

In view of its economic growth, Teheran strives to modernize its armed forces in the longer

[9] For a systematic comparison, see Cordesman 2001.
[10] IISS 2002: 103 ff. Less than 120 flight hours per year; BICC 2002: 41.
[11] BICC 2002: 42; IISS 2002: 118.
[12] SIPRI 2002: 413; IISS 2002: 96 pp., 283; BICC 2002: 41.

term. Especially air defense systems, aircraft and tanks are to be ordered from Russia. Currently, Iran has around 1,500 middle-aged tanks, a huge number of artillery systems (2,300), and 900 rocket launcher. A few antitank systems, an obsolete air defense, and an outdated air force are of little value. Teheran holds 520,000 soldiers under arms whose combat readiness, however, is not ensured.

Egypt

Cairo is modernizing its armed forces (443,000 personnel), in particular tanks and attack helicopters, with strong support from the US.[13] Currently, the army has 3,900 tanks (T-55, Abrams), but the number of artillery systems is quit small.

Smaller Gulf States

The smaller Gulf States[14] do not carry much weight by numbers: taken together, they hardly reach the capacity of even one of the Arab Ring states[15] or of Israel. Radical changes are not to be expected in the near future. An exception are the United Arab Emirates, which have ordered 390 tanks and 140 aircrafts, some of which have already been delivered. Kuwait ordered a notable amount of antitank systems (728).[16]

To make up for their individual weaknesses, the smaller Gulf states, along with Saudi Arabia, founded the Gulf Cooperation Council (GCC). The GCC aims at defining a common defense policy. The focus is on the establishment of a "supreme defense council" and a rapid reaction force of up to 20,000 men, and on the build up of collective C3[17] capabilities.[18]

USA

Even in times of peace, the US forces represent a considerable military potential in the region. The 20,000 personnel are mainly based in Turkey and the Gulf Region. According to *Global Security*, the U.S. troops were increased to 48,000 in November 2002 and include 400 aircraft and two attack carrier units. The ground units are a mix of special operation forces and expedition troops. Those numbers were increased to approximately 230,000 before the war. Due to a lack of reliable information, accurate numbers and a meaningful assessment are hard to come by.[19]

Comparison: Israel and the Arab Ring States

The most probable intra-regional conflict would occur between Israel and its neighbors. Although there is open hostility between Israel and other Arab states, the latter do not pose a direct threat to Israel at this time. Even though an Arab alliance has a quantitative advantage,

[13] Cordesman 2001; IISS 2002: 278; SIPRI 2002: 422.
[14] Bahrain, Qatar, Kuwait, Oman, United Arab Emirates.
[15] Syria, Lebanon, Jordan, Egypt.
[16] IISS: 2002: 283.
[17] command, control, communication.
[18] IISS 2002: 98.
[19] Ibid.: 23, 97; see also GlobalSecurity.org: *US-Forces Order of Battle – 11. November* at www.globalsecurity.org/military/ops/iraq_orbat_021111.htm (13.11.02); troops deployed close by have not been included, e.g. the 6. US Fleet and European troops.

Israel can rely on its technological and military dominance. Summing up the military personnel of the Arab Ring States, the ratio is 1:5 to Israel's disadvantage. The figures are similar for the major weapon categories (tanks 1:2.6; artillery 1:2.8; aircraft 1:2.7; helicopters 1: 1.6).[20]

The Israeli Defence Forces are held in high qualitative esteem. They are very well trained, have first-class equipment at their disposal, and are permanently involved in combat missions. Additionally, Israel has made much better use of the developments from the "revolution in military affairs" than its neighbors. Only the IDF have an integrated command, control, and communication system (C3) that connects all vital elements of warfare – from data gathering to target acquisition and the use of precision munitions. Furthermore, new high tech weapons are on the ordering list. [21]

For these capabilities, the country is not fully dependent on imports. Israel is the only state in the region that invests a significant amount of its defense budget in military research and development: approx. 10 % of its budget in 2000 (USA: 13%, Germany: 4.3%).[22] A further advantage is its high number of reservists in Israel, who can provide high-quality reinforcement in comparison with the Arab reservist troops. In times of war, the size of Israeli troops would be almost equal to the opposing forces (1: 1.3).[23] The IDF have proven on many occasions that its quality makes up for quantitative disadvantages.

Additional positive effects derive from the permanent professionalization of the IDF by constant involvement in combat missions and by the integration of its functional units. No other state in the region can compete with that. It seems possible, however, that Arab troops initiate smaller military operations. In this case, the victims in this populous region will always be the civilians.

Weapons of Mass Destruction

According to many statements and analyses, various Middle East states run programs for the production of weapons of mass destruction (WMD), or they already have operational stockpiles. Chemical weapons (CW) have already been used by Iran (1984-1988) and Iraq (1983, 1978-1988). As in Syria, Egypt, and Libya, these two countries have probably chemical weapons arsenals in the form of artillery shells and missile warheads as well as on board aircraft. Moreover, Egypt (1963-1967) and Libya (1987) have been accused of using chemical weapons. Israel certainly has the capability to take up production of biological and chemical weapons at short notice. Tel Aviv has neither confirmed the existence of a nuclear weapons program nor the potential of its missile arsenals, but an operational Israeli nuclear arsenal is deemed certain.

Other states, like Iran, are allegedly developing nuclear weapons. In 1991, Iraq run a crash program for the development of nuclear weapons, which has been largely destroyed or eliminated by the United Nations Special Commission (UNSCOM) mission.

[20] Calculations see Johannsen 2002: 194, on the basis of Cordesman 2000: *The Arab-Israeli Military Balance in 2000*; www.csis.org (15.11.02); BICC 2002: 40 ff.

[21] For an extensive analysis see Cordesman 2001. SIPRI 2002: 432; IISS 2002: 284.

[22] BICC 2002: 46 – the actual number might be notably higher because the nuclear program does not seem to be included.

[23] Johannsen 2002: 192.

Table: Estimates of WMD in the Middle East and their state of development[24]

	Nuclear	**Biological**	**Chemical**
Algeria	Research	Research	Development?
Egypt	Research	Development?	Stockpiled Used in 1963-67
Iran	Development	Development	Deployed Used in 1984-88
Iraq	Weaponization	Stockpiled?	Stockpiled? Used in 1983,1987-88
Israel	Deployed	Production capability	Production capability
Libya	Research	Development?	Deployed Used in 1987
Saudi Arabia	None?	None	None?
Sudan	None	None	None?
Syria	Research	Development?	Deployed
Turkey	Research	None	None
United States	Deployed	Terminated	Dismantling
Yemen	None	None	None?

Finally, some Middle East states posses imported, modified, or self-produced short or intermediate range missiles which can carry biological and chemical weapons. Most of these missiles are Scuds acquired from the Former Soviet Union. In the past, Iran and Iraq have used missiles extensively against each other. Iran, which is envisaged as a potential military antagonist of Israel, as well as some of its neighboring states such as Syria, Egypt, Saudi Arabia, and Libya own short range ballistic missiles.

Israel

Israel is the leading Middle East nation in terms of missile arsenals. It holds an independent technological capacity to manufacture medium-range ballistic missiles as well as deployed systems that can be equipped with nuclear warheads. The Israeli defense industry has far-reaching knowledge of the production of cruise missiles and drones, and can produce such systems with a range of 200-400 km. The Jericho missile makes it possible to attack targets in all neighboring countries and in Iran as well as in parts of Turkey, Greece, and Libya. On the other side, Israel is surrounded by countries that own short-range ballistic missiles and that allegedly develop intermediate range missiles. The Arrow and the American Patriot missile defense system shall provide additional protection against SCUD missile attacks.

Iran

Iran also becomes the focus of political discussion. US and Israeli experts and politicians warns of an “aggressive program” to develop WMDs and ballistic missiles with a range up to 2000 km. Civilian nuclear projects done in cooperation with China and Russia fuelled speculations that Iran might use its economic power to provide for a nuclear option. In 1992, Moscow and Teheran concluded a treaty on the construction of two nuclear power stations.

[24] Data from Monterey Institute of International Studies, Center for Nonproliferation Studies; http://cns.miss.edu/research/wmdme/capable.htm.

While Russia hopes for exports of its nuclear technology, the US protests such cooperation because it fears the boosting of Iran's nuclear ambitions.

Further concern was caused by the native development of an Iranian ballistic missile (Shihab-3) with a range of 1,300 km to which Russia and North Korea contributed. Moreover, Iran has two versions of SCUD missiles, with ranges of 300 and 500 km, respectively. It is also assumed that Iran is capable of producing chemical weapons agents and has constructed at least two production facilities. Allegedly, nerve gas production was taken up in 1994. As to biological weapons, it is believed that Iran can start production of Anthrax and Botulinum toxin if necessary.

The threat analysis by the US intelligence services (NIE 2001) points out North Korea assisted Iran in building long-range missiles. The similarities between the Shihab-3 and the Nodong missile seem to support this claim. The partly civilian launch platforms Shihab–4, -5, and -6 show remarkable similarities to North Korean missile projects.

Egypt

Besides Israel, Egypt owns the furthest developed industrial potential in the region and manufactures some conventional weapons on its own. In the 1950s (with German support), as well as in the 1980s, Cairo had a native development program for ballistic missiles with a range of up to 1,000 km. Currently, the armed forces have imported ballistic missiles (Frog-7, SCUD-B) and anti-ship missiles from China (HY-2 Silkworm). It is suspected that Egypt operates production facilities for a limited amount of mustard and other nerve gases. Small research activities supposedly take place in respect to biological and nuclear weapons.

Syria

For a long time, the Syrian missile capabilities depended on Soviet imports. Syria invested large amounts of money in its missile program, but neglected modernization of its air force. Moscow delivered Frog-7, SCUD-B, and SS-21 missiles. Reports have it that Syria also obtained a limited number of longer range SCUD missiles from North Korea. Possibly, Syria is able to produce nerve gas agents. This would pose a serious threat to Israel. Some sources assume that Syria also conducts research on biological weapons agents. Syria denies all such activities.

Saudi Arabia

Saudi Arabia exposed its missile ambitions by the import of Chinese intermediate range missiles. In 1988, Riad obtained an unknown number of modified CSS-2 missiles from Beijing. This missile can be used to deliver nuclear warheads and has a range of 3,500 km. The CSS-2 could possibly attack cities with conventional warheads. With this missile, Saudi Arabia could threaten its direct neighbors as well as parts of Turkey and Iran. Saudi Arabia is member to the Nuclear Non-Proliferation Treaty (NPT), and has announced several times that it will not mount nuclear or chemical warheads on its missiles. King Fahid explained that his country would use these weapons strictly for self-defense only. Israel repeatedly expressed its concern that these missiles could be equipped with chemical warheads.

Conclusion

In sharp contrast to the military potentials that exist in the Middle East, no attempts at arms control and cooperative security have so far been undertaken in order to contain conflicts or prevent escalation. Several existing treaties could be used as a starting point for regional arms control: the Treaty of Pelindaba (1996), which establishes a nuclear-weapon-free zone in Africa:, the Nuclear Non-Proliferation Treaty, and the Chemical Weapons Convention. First confidence-building measures should urgently be taken to deal with the missile arsenals amassed in this region.

UN Resolution 687of 1992, which deals with the disarmament of Iraq, states that the actions taken for the monitoring and destruction of Iraqi weapons "represent steps towards the goal of establishing in the Middle East a zone free from weapons of mass destruction and all missiles for their delivery and the objective of a global ban on chemical weapons." However, no apparent efforts are made to reach any of these objectives. On the contrary, the US, as the *de facto* ordering power, has withdrawn from all arms control negotiations. Washington favors arms exports to this region, stimulating demand by new wars, and prefers classical alliance strategies to fulfilling its responsibility in the region by instigating stability-oriented policies that rely on civil instruments of change. On the global level, one arms control treaty has been cancelled, and several other cannot enter into force. No reasonable initiatives are undertaken to regulate the existing military capabilities, let alone to begin disarmament.

For the time being, solutions seem to rely on the use of force, not on diplomacy.

APPENDIX I

Missiles and Missile Programs in the Near and Middle East

Country	system	status	range (km)	payload (kg)	origin
Egypt	Scud-B	O/U	300	1.000	USSR/DPRK
	Project T	O	450	1.000	Improved Scud
	Scud-C	O	500	600	DPRK
	Vector	D	685	?	Argentina, Iraq
Libya	Scud-B*	O/U	300	1.000	USSR/DPRK
	Al Fatah	D?	950	500	
Iran	M-7 (CSS-8)	O	150	190	China
	Scud-B	O/U	300	1000	DPRK/ own production
	Scud-C	O	500	600-700	DPRK
	Shahab-3	T/D?	1300	1000?	Iran/DPRK/Russia
	Shahab-4	D	2000	?	Iran/Russia
	Shahab-5	D?	3000-5500?	?	Iran/Russia
Israel	Lance	O/S	130	450	USA
	Jericho-1	O	500	1000	France
	Jericho-2	O	1500	1000	France/Israel
	Jericho-3	D	2500	1000?	Israel
North Korea(DPRK)	Scud-B	O/P	300	1000	USSR
	Scud-C Variant	O/P	500	600-700	DPRK
	Nodong-1	D/T	1300	700-1000	DPRK
	Taepodong-1	T	1500-2000	1000	DPRK
	Taepodong-2	D	3500-5500	1000	DPRK
Saudi Arabia	Dong Feng-3	O	2600	2150	from 1987 VR China
Syria	SS-21*	O	120	480	USSR 1983
	Scud-B	O	300	1.000	USSR
	Scud-C	O	500	600	DPRK
	Scud-D	T (2000)	600-700	?	DPRK
Yemen	SS-21*	O	100-120	480	USSR 1988
	Scud-B	O/U	300	1.000	USSR 1979

Legend:
= operational (O)/ in production (P)/ used (U)/ in storage (S)
= development (D)/ test (T)
?: uncertain

source: Carnegie Non-Proliferation Project,
http://www.ceip.org/files/projects/npp/resources/ballisticmissilechart.html, 05.11.02

WORKING PAPER VON IFAR:

WORKING PAPER #1:
Präventive Rüstungskontrolle

WORKING PAPER #2:
Die Raketenprogramme Chinas, Indiens und Pakistans sowie Nordkoreas – Das Erbe der V-2 in Asien

WORKING PAPER #3:
Weapons of Mass Destruction in the Near and Middle East – After the Iraq War 2003

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